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**Understanding Public Sector Risk:
A Study into the Nature and Assessment of
Strategic Risk in English Local Authorities**

by

Ian Birchmore

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

Warwick Business School
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Finally, I thank my supervisor Frances O'Brien for her help and support.

Declaration

This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. I declare that this thesis has been composed by myself and that all work within it is my own unless otherwise stated. This thesis has not been submitted in any previous application for any degree at this or any other institution.

Signed

Ian Birchmore

Abstract

The research establishes a context-specific sense of strategic risk in English local authorities. Uncertainty is found to be central to understanding risk but current practice is found not to reflect this, presenting risks with a false and misleading precision. Risks are identified to have varying, multiple characteristics. Risk assessment models which embrace these characteristics are developed and tested using a consistently applied bespoke risk data set developed for the research. Issues of control confidence and the betrayal of stakeholder trust are explored within these risk assessment models. The research proposes an accessible, fuzzy risk assessment model with an ability to inform decision-making beyond the mere ranking of risks provided by current practice approaches.

Key Words: Risk, Risk Assessment, Public Sector, Fuzzy

Chapter 1

Introduction

1.1 Brief Synopsis of the Research

Strategic risks can be thought of as future events, or non-events, that may happen, or fail to happen, and that have the potential to affect an organisation's ability achieve its goals and/or perform its functions. In recent years the study of risk and risk management has become an important discipline within management science. The research presented in this thesis concerns strategic risk and its assessment in English local authorities: an important part the UK public sector.

The research recognises risk as a social construction subject to contextual and temporal change: a social construction that can be defined for a specific local authority at a point in time. Risk assessment is taken to be a process of estimating risk against the parameters of its social construction and not an objective process of measurement against a fixed, absolute scale.

The research addresses two research questions.

Research Question One

What is the nature of strategic risk in English local authorities?

Research Question Two

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

The aim of risk assessments is usually presented as being to inform management decision making about the risks assessed. The emergent thinking from the research is that there is considerable scope to be more ambitious than this; setting the aims of risk assessment as being not only to prioritise risks for management attention but also to maximise understanding of the risks assessed and so better inform decision making.

The research follows Cepiku's¹ view that the core objective of public management research is to "[carry] out academic research to produce conceptual systems for public managers to use to guide their actions". It is intended and has been designed to be a piece of technical research that works from a strong theoretical base and maintains a clear focus on the needs of practitioners.

The starting point for the researcher, based on the researcher's previous professional experience, and hence a starting assumption of the research, has been a strong sense that the current practice² of strategic risk assessment in local authorities could be significantly improved and that the identification of these improvements would require a fundamental review. It could not be just a matter of minor adjustments.

¹ 2011, p131-132

² The term "current practice" in this thesis refers to the process of defining and assessing strategic risk in an individual local authority as set out in the local authority's own documents, typically referred to as a risk management "policy" or "strategy", and as supplemented by associated reports and risk registers and the evidence of compliance, or otherwise, that they provide.

This use of multiple sources and perspectives has provided a rich pool of data and ideas. For example, the published risk assessment approach of a local authority in South Africa has provided specific, transferrable insights into the potential unintended consequences of making judgemental adjustments to a commonly used form of risk assessment model. The use of credible third party sources, for example external auditors' annual audit letters, has added further robustness to the multi-source approach and the breadth and depth of the emerging research findings.

It was recognised from a very early stage that the research would need to embrace the qualitative aspects of risk and risk assessment, and not be a piece of quantitative research. Silverman's cautions against relying solely on interviews have been heeded as regards the potential for the qualitative researcher to be "*blinkered ... to the possible gains of other kinds of data*"³, further reinforcing the case for using multiple sources. Interviews have primarily been used: to validate and test emerging findings; to seek additional detail; and to probe more deeply. Access to interviewees has proved to be more difficult than expected and interviewees have been keen to emphasise issues of confidentiality and anonymity as regards themselves and the local authority. As a result, references to the all interviewees and their organisations have been anonymised.

The research develops, explores and evaluates a series of risk assessment models designed to fit the nature of strategic risk in local authorities, as established by the research to address Research Question One. The most promising risk assessment model to emerge from the research is one which applies fuzzy approaches and draws on ideas from complexity theory and scenario planning to do so. This model embraces the inherent uncertainty and wider nature of strategic risk in a simple and accessible way not previously seen in the literature.

Initial practitioner evaluation of the model has been positive and it offers a solution to the dilemma that emerged at the heart of the research that practitioners want a simple model to assess strategic risk. That is risk that the research has established to always have complicated characteristics; to often have complex characteristics; and to have a compelling need for reliable assessment. All of these factors militate against simple models⁴.

1.2 The Research Context

Local authorities are an important part of the UK public sector. These are multi-purpose bodies set up by statute serving a defined geographical area. They operate within single and two tier structures. In the single tier structure in which unitary authorities, metropolitan authorities and London Boroughs operate, all local government functions are performed by the one major local authority. In a two tier structure, these functions are split between a county council and a number of district councils, each of the latter serving a discrete part of the geographical area served by the county council. Table 1.1 summarises the number of local authorities in England on the basis of their structure.

³ 2007, p41

⁴ The modelling was guided by the principle set out in Pidd (2003) – "*model simple, think complicated*".

Table 1.1: Structural Summary of English Local Authorities

Type of Local Authority	Number	% of Total
District Councils	201	57%
County Councils	27	8%
Unitary Authorities	56	16%
Metropolitan Authorities	36	10%
London Boroughs	33	9%
	353	

(Source: DCLG (2011))

The most senior level of management of local authorities is provided by locally elected councillors; often referred to as *members*. The work of each local authority is undertaken by paid staff (*officers*), usually with a paid chief executive who is the head of the paid service, with additional provision being made by other organisations under contract to local authorities. These contractors are often in the private or voluntary sectors. The services that local authorities provide include:

- The provision of services to the homeless, with some local authorities providing housing;
- Social care;
- Child protection services;
- Public libraries;
- Consumer protection services, e.g. trading standards and the inspection of food premises;
- Planning and development control functions;
- Most roads;
- Secular cemeteries and crematoria;
- The provision of most state schools for pupils between the ages of 5 and 16 and a substantial proportion of educational provision for those aged between 16 and 18; and
- Household waste collection and disposal.

In addition, section 2 of the Local Government Act 2000 gives local authorities a general power to "*promote economic, social and environmental well-being*" in their areas.

Local authorities are funded from a combination of local taxation, central government grants funded from national taxation and charges for local services.

There are 80 bodies, mainly fire and police authorities, that have narrower purposes but which are deemed by law to be local authorities. These are outside the scope of the research. Also outside

the scope of the research are parish councils, which are small elected bodies serving a small area, typically a single village, with a very limited range of functions, powers and resources.

The period of the research from October 2010 to August 2013 has seen local authorities' funding substantially reduced in times of austerity. This is the large part of the period of the current UK coalition government which came into office in May 2010. In October 2013 the Local Government Association, which represents local authorities in England and Wales, summarised the position as follows.

“In the period of the current Parliament, local government core funding will fall by 43 per cent. No other part of the public sector has made such a significant contribution to deficit reduction There will be cuts to the frontline services people rely on and some services will have to stop altogether.

Our estimate is that by the end of 2013/14 councils will collectively have made only half of the cuts they need to make by March 2016

New statutory obligations introduced by the Coalition, as well as existing ones, place limits on where councils can find savings”⁵.

It could be strongly argued that the need for the research and for its practitioner supporting focus increased substantially whilst it was being undertaken. Resource issues emerged from the research as an important current constraint on risk management in local authorities.

1.3 Thesis Structure

The thesis starts with a literature review in Chapter 2. This establishes the extent of current relevant knowledge and the associated gaps in knowledge, drawing on the extant literature for ideas on how those gaps might be addressed. The two research questions are then defined at the end of the chapter.

The core of the research, and hence the thesis, is predicated on the meta-message from the literature that risk must be profoundly understood in its context before an approach to its assessment and wider management can be designed. Chapter 3 sets out the methodology for addressing Research Question One as to the nature of strategic risk in local authorities and Chapter 4 then presents, analyses and reflects on the results of that research. Those results ultimately form two parts – an answer to Research Question One and insights that form an essential foundation for the research to address Research Question Two as to the more detailed construction and assessment of strategic risk in English local authorities. Drawing on this, Chapter 5 presents the methodology for addressing Research Question Two and Chapter 6 its results and their analysis and associated reflections. This is split into two stages, the first to address the detailed construction of risk and approaches to its assessment; the second to draw on that research to develop, explore and evaluate risk assessment models. The thesis finishes with the final conclusions in Chapter 7.

⁵ <http://www.local.gov.uk/documents/10180/11531/LGA+Autumn+Statement+submission/bf576500-baca-49c3-af41-ae2263241857> (Last accessed 21/01/14)

Chapter 2

Review of the Risk Literature

2.1. Introduction

This chapter explores the current risk literature, setting out the extent of current knowledge in the field of public sector strategic risk and its assessment. The gaps in that knowledge are drawn out, along with the key debates in the literature. The research questions are then formulated and the ideas in the literature as to possible approaches which might help to answer those research questions are summarised. These are then taken forward to form a key element of the methodology chapters: Chapter 3 - Methodology for Research Question One, and Chapter 5 - Methodology for Research Question Two.

The methodological literature and literature specific to analytical tools and concepts explored and used during the research is considered in the chapters that set out the methodology and apply those analytical tools and concepts.

The chapter starts by exploring the sense and definition of risk and the scope of strategic risk. It identifies risk management as an emerging discipline that is worthy of serious study and recognises that risk needs to be effectively managed. It then establishes that there is limited public sector risk literature and describes the risk management and assessment process. The precautionary principle and dimensional constructions are then explored. This is followed by an exposition of the literature of the issues of risk perception; stakeholders and stakeholder participation in risk assessments; trust and voluntariness. The importance of uncertainty is then drawn out and the quantitative versus qualitative debate explained and taken forward into issues of likelihood, expected values and the basis of assessment. The issues in the literature around risk matrices and alternative approaches are then summarised. The potential relevance of complexity is established and the purpose and relevance of controls set out. The review then considers the relevance of risk benefit analyses; risk assessment models that take into account the combined effects of multiple impacts; the categorisation of risk; the international risk management standard ISO 31000; and mathematically intense approaches to risk and their accessibility. It ends by summarising the key issues arising from the literature review and setting out the research questions that emerge from them, with a further summary of the potential contributions to their solution that have been identified in the risk literature.

An over-arching summary of the relevant risk literature is provided by Hansson (2007):

“We need more sophisticated approaches to social decision-making about risk It is a challenging area for new theoretical developments” (ibid, p662).

2.2. What is Risk?

This section starts the literature review by considering the sense and definition of risk and clarifying the relevant terminology. It then establishes risk as an emerging discipline worthy of study and limited scope of the extant public sector risk literature.

2.2.1. Sense and Definition of Risk

“Strategic risks are fuzzy and/or nonspecific ambiguous” (Emblemsvåg and Kjølstad, 2002, p846).

There are many definitions of risk in the literature and the overall conclusion is that this is necessarily so. The concept of risk *“is multi-dimensional and nuanced”* (Haines, 2009, p1647) and the sense of risk must fit the context in which it arises.

Macgill and Siu (2004) provide twenty-six definitions of risk drawn from their research, for example:

- a) *“An expression of possible loss over a specific period of time or number of operational cycles*
- b) *[A] measure of the occurrence and severity of an adverse effect to health, property or the environment*
- c) *A threat to sustainability / current lifestyles*
- d) *Uncertainty”* (2004, p317).

Macgill and Siu acknowledge that their list is incomplete as a statement of potential risk definitions, with one of the twenty-six being a definition of risk as *“[w]hat people define it to be – something different to different people”* (2004, p1109), implying a potential for an almost infinite number of risk definitions and indicating that we all adopt varying different personal definitions of risk. This has echoes of Giddens' (1987) work on the double hermeneutic and the way *“in which lay concepts obstinately intrude into the technical discourse of social science”* (ibid, p20). The key tension around the relevance of perception is explored and developed later in the literature review (See Section 2.5).

Others, for example Hansson (2005a), provide alternative summaries of possible risk definitions which cover some but not all of Macgill and Siu's. Althaus (2005) indicates disciplinary differences in the sense of risk, as shown in the table overleaf. Slovic's (1999a) proposition that the definition of risk is an exercise of power is highly pertinent here.

The definition of risk is fundamental to determining whether a risk is serious: *“there is no universal set of characteristics for describing risk”* (Slovic, 1999a, pp691–2) and the indications in the literature, for example Emblemsvåg and Kjølstad (2002) and Slovic (1999a), that different people see risk differently due to issues of *“gender, race, political worldviews, affiliation, emotional affect, and trust”* (Slovic, 1999a, p692) are also indicative of both the variability in the definition of risk and of the potential place for perception in such definitions.

Althaus (2005) develops this sense of difference by demonstrating inter-disciplinary differences in the sense of risk.

Table 2.1: Althaus' (2005) Disciplinary Perspectives on Risk

<i>Discipline</i>	<i>How It Views Risk</i>	<i>Knowledge Applied to the Unknown</i>
<i>Logic and Mathematics</i>	<i>Risk as a calculable phenomenon</i>	<i>Calculations</i>
<i>Science and Medicine</i>	<i>Risk as an objective reality</i>	<i>Principles, postulates,</i>
<i>Social Sciences</i>		
<i>Anthropology</i>	<i>Risk as a cultural phenomenon</i>	<i>Culture</i>
<i>Sociology</i>	<i>Risk as a societal phenomenon</i>	<i>Social constructs or</i>
<i>Economics</i>	<i>Risk as a decisional phenomenon, a</i> <i>means of securing wealth or avoiding</i> <i>loss</i>	<i>frameworks</i> <i>Decision-making principles</i> <i>and postulates</i>
<i>Law</i>	<i>Risk as a fault of conduct and a judicable</i> <i>phenomenon</i>	<i>Rules</i>
<i>Psychology</i>	<i>Risk as a behavioral and cognitive</i> <i>phenomenon</i>	<i>Cognition</i>
<i>Linguistics</i>	<i>Risk as a concept</i>	<i>Terminology and meaning</i>
<i>History and the</i> <i>Humanities</i>		
<i>History</i>	<i>Risk as a story</i>	<i>Narrative</i>
<i>The Arts (literature,</i> <i>music, poetry,</i> <i>theatre, art, etc.)</i>	<i>Risk as an emotional phenomenon</i>	<i>Emotion</i>
<i>Religion</i>	<i>Risk as an act of faith</i>	<i>Revelation</i>
<i>Philosophy</i>	<i>Risk as a problematic phenomenon</i>	<i>Wisdom</i>

(Althaus, 2005, p569)

For the purposes of the current research, the senses of risk for sociology, economics and law are perhaps most relevant for local authorities as public bodies providing services to people and society as a whole locally and as large enterprises and bodies established and substantially regulated by law. These disciplinary perspectives suggest three senses of risk:

- a) *"Risk as a societal phenomenon";*
- b) *"Risk as a decisional phenomenon, a means of securing wealth or avoiding loss";*
and
- c) *"Risk as a fault of conduct and a judicable phenomenon". (Althaus, 2005, p569)*

More widely, Althaus sees risk as *"being a mirror that reflects the preoccupations, strengths, and weaknesses of each discipline as they grapple with uncertainty"* (2005, pp567 – 8), providing a more useful route to a potential definition of risk in local authorities than assuming the relevance of the three disciplinary senses of risk and seeking a point of reconciliation between them. As an idea for research use, the concept of risk as a mirror of its context appears to be a potentially useful and powerful one and it is one that the research will draw on.

Having developed the disciplinary analysis of risk, Althaus is clear that *"precision in the definition of risk is necessary ... if analysis is to be rigorous and logical"* (2005, p568). Logically, this must be correct. The analysis (assessment) of risk must be preceded by the development of a clear and

precise sense of what that risk is in the specific context in which it arises. Abt et al's (2010) conclusion that there is a *"need for risk assessments to be relevant to the problems and decisions at hand"* (ibid, p1033) emerges as a natural corollary of this. Context is fundamental to the sense and definition of risk and so to its assessment and management.

Spira and Page (2003) indicate that there is a mismatch between this position and practice:

"risk is a vaguely defined and mutable concept ... [and so it] has become part of the corporate governance arenadespite this, corporate governance risk management rhetoric assumes risks can be objectively identified, quantified and thus strategically managed" (2003, p646).

If correct, in the local authority context, this suggests the potential for fruitful research into formal and informal definitions of risk as applied by local authorities and their managers in current practice.

Aven and Renn (2009) provide a definition of risk that seems to be a reasonable fit to strategic risk in the public sector and one that could perhaps be developed to fit a local authority context. Risk is

"uncertainty about and severity of the consequences (or outcomes) of an activity with respect to something that humans value" (ibid, p588).

The fact that this is, at best, only a starting point reinforces both the context-dependence of the definition of risk and the existence of a gap in the literature around risk in the public sector generally and local authorities specifically. This position follows Johnson and Petrie's (2004) view that risk definitions are organisation-specific and is broader than their own definition of risk as *"the likelihood that a decision or course of action will result in a negative or adverse outcome"* (ibid, p184). Johnson and Petrie appear to link the definition of risk more closely to the decisions and plans of the organisation than do Aven and Renn. The appropriateness of this needs to be established in the research context and this will form part of Research Question One.

Corvellec (2010) draws out a sense of risk being about the loss of something valued, and *"value is never self-evident, unproblematic and indisputable"* (ibid, p145). Illustrating the context-dependence of the definition of risk, Corvellec sees public sector risk as being primarily about reputation as this is what her research identifies as being most valued by public sector managers. Hence, risk becomes primarily about avoiding reputation damage. This seems to be a narrow sense of risk and one which suggests that problems which are hidden and can be kept hidden do not have serious risk implications. The sense of risk as the loss of something that is valued follows Hansson's (2005a) wider view of risk as a negatively value-laden concept.

In the public sector, the sense of risk as the loss of something that is valued resonates with the concept of public value (Benington and Moore, 2011) and issues of stakeholder engagement and consultation.

The many different senses of risk have an important effect on risk communication and consequently on the management of risk. The existence of these differences creates barriers to taking the discipline forward: *"the actual practices of risk assessment and management may be tending towards a Tower of Babel"* (Rothstein et al, 2006, p106). This is a message that needs to be

headed in communicating the research: be clear to explain the sense of risk that fits the research context at the start of discussing the research, so as to avoid Rothstein et al's *Tower of Babel*. Hansson hints at this need for clarity in discussions about risk (Hansson, 2005a). Cox et al (2003) warn about the need for care in the use of language in risk assessments.

Kallman (2007), by suggesting that the core problem is that the definition of risk is an intuitive process, hints at the source of this communication problem. Individuals must surely have different intuition, sometimes subtly different and sometimes widely divergent, and so struggle to have a common language to discuss risk. This leads to issues of trust, or more accurately issues of mistrust. The literature relating to trust in risk assessments and those undertaking them is discussed later in the literature review (Sections 2.5.4 and 2.7.3).

2.2.2. Issues of Terminology

The terms *strategic risk management* and *enterprise risk management* are both used in the literature, though there seems to be a progression over time towards the term *strategic risk management*. Corbett (2004) pointed to this tendency. Whilst the two terms seem to be largely synonymous, *enterprise risk management* perhaps has greater connotations of the private sector whilst *strategic risk management* more effectively conveys the sense of a process that deals with the risks that are important within an organisation in the longer-term. The literature gives a sense of these differences. There is a sense that *enterprise risk management* is about the threats to the value of the entity and concentrates on human, physical and financial resources (Corbett, 2004) and that strategic risk management is about those risks that are "*important for the enterprise's long-term strategy and plans*" (Aven, 2008, p6). The use of the term *enterprise* in Aven's explanation of *strategic risk* serves to underline the potential for confusion (a *Tower of Babel*). For clarity, the research will use the terms *strategic risk* and *strategic risk management* and will see these as embracing *enterprise risk* and *enterprise risk management*. It will not seek to differentiate between the two sets of terms.

Some writers on risk, for example Aven (2008), differentiate between strategic, or enterprise, risks and operational risks:

- Strategic risks being seen as those that are "*important for the enterprise's long-term strategy and plans*" (ibid, p6); and
- Operational risks being seen as those "*affecting the normal operating situation, such as: accidental events ... loss of competence, key personnel ... legal circumstances*" (ibid, p6).

This seems to be an artificial distinction and one that cannot be drawn until a risk has been understood and assessed. The two definitions do not create discrete categories. How, for example, would an accidental event with consequences affecting the organisation's long-term strategy be classified? This question reinforces the sense of the artificiality of the definition and leads to the conclusion that the distinction is a meaningless and potentially distracting one for the purposes of

the current research. It is noticeable that it is not used in much of the literature, suggesting that others may have reached the same conclusion.

The literature provides some guidance on the scope of strategic risk. It is not to be confused with threats to human safety (Johnson and Petrie, 2004), though health and safety matters may be within its scope, and it is not just about financial risk (Emblemsvåg and Kjølstad, 2002). Strategic risks are sometimes described as “*risks that arise in pursuit of business objectives*” (Emblemsvåg and Kjølstad, 2002, p846). This sense is wholly consistent with strategic risk embracing issues of finance and health and safety but, ultimately, being broader, implying issues about the non-achievement of business objectives and non-delivery of services to required or expected standards.

Knight (1921) distinguished between risks and uncertainties. Risks were those future events for which probabilities could be defined and an insurance market created. Uncertainties were those for which this could not be done.

This construction of risk equates risk with negative future events which are insurable. This is clearly an incomplete view of risk, many risks being uninsurable. Corbett highlighted this and the problems it creates: “*many risk managers spend a disproportionate amount of their time on insurance issues, rather than on more modern risk management topics*” (2004, p52). Whilst Knight’s distinction is still seen occasionally, for example Whiteside in Benington and Moore (2011, p77), Pidd’s description of it as a “*purely artificial*” (2003, p38) distinction is far more persuasive.

As this distinction is a long established one and one that is still occasionally seen in the literature, it needs to be acknowledged, notwithstanding that “*this ... definition of risk is seldom used in practice*” (Aven, 2006, p196). The research will take a more modern view and not follow it, recognising that risk has moved beyond just being a matter of insurance.

2.2.3. An Emerging Discipline Worthy of Study and Management

In 2000, Chelst and Bodily (2000) wrote that risk management is not part of the standard decision-analysis paradigm. The large part of the risk literature dates back only to the 1980s, although there is a little older literature, most notably Knight (1921). The older risk literature tends to concentrate on two narrow fields; insurance and financial risk.

By 2004, Kallman and Maric were able to say that “*Risk management is a specialized discipline*” (ibid, p57). However, three years later Hansson was still of the view that there was “*very little contact between risk studies and more general studies of social decision processes*” (2007, p649).

A key driver in this emergence of risk as a specialised discipline was Beck’s 1992 work “*Risk Society: Towards a New Modernity*” in which he argues that risk is becoming increasingly important in modern societies and the emergence discussed by others, for example Vincent (1996) and Spira and Page (2003), of risk as a “*central cultural construct*” (Vincent, 1996, p57). Goldoff (2000) and Spira and Page (2003) suggest that the recognition of risk, as opposed to acts of god, characterise and help to define modern times.

There is a clear message in the literature that risk is an inherent part of all human activity, for example Vincent (1996), and that it is a challenging topic and, by implication, one worthy of serious academic study.

“Individually and collectively, we do not fully know or understand many of the risks that we currently face, let alone can we attempt to calculate them accurately” (Elliot, 2002, p296).

There is a clear sense in the literature that risk needs to be studied and managed, a sense persuasively articulated by Althaus.

“Risk is a thing to be confronted It cannot be ignored” (2005, p578).

Corbett (2004) explains this a little more.

“Murphy’s Law will continue to prevail as the fundamental law of risk management - the increasing complexity of the world will ensure that more things go wrong” (ibid, p56).

As the world is getting more complex, organisations face more risk, and to be successful they must manage this risk increasingly effectively.

A central theme of Beck’s (1992) highly cited work on risk (Google Scholar records 24,209 citations as at 09/11/14) is that the better risks are understood, the more reliably they can be effectively managed. It is perhaps an indication of how far the discipline of risk management has emerged that this now seems to be almost axiomatic. John (2010) sees this as being a need to address the *“epistemically murky”* (ibid, p14) nature of our world.

Johnson and Petrie’s (2004) view that very serious risks, such as a that of a child’s death from abuse, need to be given a high profile so that they can be addressed seems similarly axiomatic, though worth restating nonetheless.

Corbett (2004) indicates that the ultimate achievement of risk management is to ensure the survival of the organisation. This is primarily a private sector perspective as the potential threat of being closed down as a consequence of failure is, at most, remote in the public sector.

2.2.4. Risk in the Public Sector

Osborne and Brown (2011) conclude that there is very little literature on risk in the public sector and that most of that which does exist is unsatisfactory. This seems to be essentially correct, though the conclusion is perhaps overstated.

Vincent (1996) introduces the limited public sector-specific risk literature by suggesting a key source of difference between risk in the public and private sectors:

“private sector firms are accountable to their shareholders, who have voluntarily entrusted the firm with their capital on the expectation of a reasonable profit return, public sector bodies are entrusted with funds appropriated from the general public on a non-voluntary basis. This situation leads managers of public sector bodies to face far closer scrutiny than their private counterparts”. (Vincent, 1996, p57)

He explores the sense of personal jeopardy for public managers around making mistakes, reintroducing issues of blame and its avoidance as central to public sector risk management. This resonates with Slovic's (1999a) view of the process of defining risk as an exercise of power.

"Public perceptions of risk have been found to determine the priorities and legislative agendas of [public] regulatory bodies". (1999a, p689)

Even the brief consideration of the implications of this in the context of, for example, a risk of abusive child death being seen as serious because the key manager(s) would be punished if it were to happen and not because it matters per se goes to highlight the extreme discomfort that could arise from such a sense of risk in local authorities (Munro, 2009). This is the implication of the power and avoidance of blame perspectives and of allowing them to define risk in the public sector.

"It looks a far safer option to follow rules and procedures at all times, even if one's experience suggests it is not in a particular child's best interests". (Munro, 2009, p1022)

Whilst not diminishing the potential significance of blame avoidance in the public sector, Spira and Page (2003) suggest that the public and private sectors are not so different when it comes to risk management being about senior managers seeking to use it as a tool to protect themselves from blame. Osborne and Brown (2011) argue that blame avoidance should be less of a factor in determining the scope and basis of risk assessments. For them, public sector risk assessments should take more account of social values and seek to protect those responsible for public services less.

Crawford and Stein (2004) - *Risk management in UK local authorities: The effectiveness of current guidance* – has very little to say about risk assessment and Woods (2009) researched risk management at Birmingham City Council but paid little attention to risk assessment. Her research did, however, emphasise the importance of risk management as an important part of the wider governance arrangements in a local authority, and hints that risk in local authorities is complex.

Of particular interest is Woods' finding that local authorities have a limited ability to avoid the risks that they face. They cannot just stop doing something, however much risk it might present, due to *"statutory obligations and duties and responsibilities that ... [must be fulfilled]"* (2009, p77). This is potentially a critical difference between local authorities and private sector organisations in their ability to respond to the risks that they face. Nilsen and Olsen add to this an understanding that local authorities have to deal with *"multiple sets of goals and policies"* (2005, p37). These combine to indicate that local authorities are faced with a very large number of obligations, many of which they cannot avoid, and have to manage the risks that they face in this challenging context. As a result, Goldoff's (2000) conclusion that risks in the public sector are particularly uncertain comes as no surprise. Leung and Isaacs (2008) give some indications of the greater complexity of risk in the public sector arising from a greater range of interests, obligations and other factors, for example *"political interests", "funding structures" and "public perceptions"* (ibid, p510).

The risk literature as a whole concentrates on simpler contexts than large, multiple-purpose public sector bodies, for example looking at individual risk problems, project risk, narrower but complex contexts such as investment risk (Hertz, 1979), risk in agricultural decisions (Romero, 2000), and

environmental protection (Abt et al, 2010). More generally, *“risk assessment techniques are often risk specific and risk assessment text books tend to be specialized”* (Corvellec, 2010, p146).

A clear sense that the research will need to address issues of complexity and uncertainty emerges from the literature. Given the paucity of public sector specific risk literature, the literature review has concentrated on the general risk literature, paying particular attention to indications of possible contextual specificity or difference.

Whilst there is little literature on risk in the public sector, there is a clearly established view that risk, and our attitudes to it, are different in the public and private sectors. Reactions to risk in the public sector are, in part, driven by our desire to be protected from bad things that might happen to us and our suspicion of decisions being taken on our behalf, particularly by the state:

“when risks go wrong in the public sector, we tend to behave irrationally” (Haskins, 1999, p96).

Whilst the core message here is clear, there is an important caution for public sector risk research that care needs to be taken applying private sector specific risk literature in a public sector context. The research will seek to ensure that all such literature either fits the public sector context or is not context-specific, as may be the case for more general theoretical papers, and to heed the underlying core message that risk in the public sector is fundamentally about people. How it is about people needs to be established and this forms part of Research Question One.

Leung and Isaacs (2008) suggest that growing interest in accountability, value for money and the quality of public sector services has increased the interest in public sector risk management. This is especially interesting when read in conjunction with Munro’s subsequent conclusion that some public sector service areas, for example child protection, have the problems of a *“complex set of risks and ... an unusually poor knowledge base”* (2009, p1015). In the child protection context, this is reinforced by Houston’s (2001) research into the complexities of child protection risks and the absence of knowable right answers. In the same context, Munro (1999) had previously concluded that the lack of knowledge was a serious barrier to risk assessment in such complex contexts.

It would seem to be a mistake to assume that the issues surrounding the risks of abusive child deaths in the literature are restricted to such risks. Whilst accepting the conclusion that it is *“possible, and indeed incumbent on social workers, to identify and predict child abuse before it happens”* (Johnson and Petrie, 2004, p180), it must surely be the case that this risk, however abhorrent such an event might be, is not the only serious risk facing a local authority and it must surely be equally appropriate to put in place processes to anticipate other serious risks and to gauge their seriousness. This is the core argument for a risk management process in local authorities that incorporates a reliable risk assessment methodology and the rationale for the research as a whole.

In *“Seven Myths of Risk”*, Hansson (2005a) adds to the risk literature on differences between the public and private sectors by stating that differences in *“risk-reducing measures”* (ibid, p12) are to be expected in different sectors of society.

“The idea of basing risk decisions on a unified calculation for all social sectors is insensitive to the different concerns and decision procedures of the various social sectors. It is in fact not compatible with democratic decision-making as we know it.” (ibid, p12)

The alternative, he argues, is *“the fifth myth of risk: risk-reducing measures in all sectors of society should be decided according to the same standards”* (ibid, p12). For Hansson, decisions on risk are not isolated from other decisions in society. Again, context is critically important for understanding and assessing risk.

Wolters (2008) draws attention to the public accountability value of *“formal risk assessment”* in that it *“ensures that institutions are at least partially accountable for mitigating risks to the public”* (ibid, p24).

As an overall conclusion, it is Vincent’s (1996) view that risk management is harder in the public sector.

2.2.5. Summary – What is Risk?

Current Knowledge

- a) There is no universal definition of risk. Consequently, effective communication about risk needs clarity about the terms being used in that communication. Not to do so has the potential for significant misunderstandings and a breakdown of, or failure to establish, the trust that is so important in the risk field: Rothstein et al’s (2006) *“Tower of Babel”* (Section 2.2.1).
- b) Context is fundamental to the sense and definition of risk and so to its assessment and management (Section 2.2.1).
- c) Althaus’ (2005) concept of risk as a mirror of its context and Slovic’s (1999) sense of the definition of risk as an exercise of power are useful and interesting perspectives on the definition of risk (Section 2.2.1).
- d) As part of this contextual understanding, it is important to understand whether the risks under consideration are significantly complex as this has a critical bearing on the assessment process and issues of uncertainty (Section 2.2.1).
- e) The terms *strategic risk management* and *enterprise risk management* are both used in the literature. To avoid possible confusion, the research will use the terms *strategic risk* and *strategic risk management* and will see these as embracing *enterprise risk* and *enterprise risk management* and will not seek to differentiate between the two sets of terms. Similarly, distinctions between strategic and operational risks and between risk and uncertainties seen in the literature will not be followed (Section 2.2.2).
- f) Risk is a challenging topic that needs to be studied and effectively managed. This is likely to become even more so into the future. The better risks are understood, the more effectively they can be managed (Section 2.2.3).

g) Risk and the way we react to it are different in the public sector. The limited literature suggests that it is more difficult to manage risk in the public sector and such risk may be primarily about people (Section 2.2.4).

h) Public sector bodies appear to have less scope to avoid risks than private sector organisations (Section 2.2.4).

i) Risk management is, in part, a mechanism for making public bodies more accountable (Section 2.2.4).

Gaps in Knowledge

a) A local authority specific definition of strategic risk needs to be researched and developed. Aven and Renn's (2009) definition of risk may provide a useful starting point for doing this but the definition ultimately appears to need to be organisation-specific. Being sector-specific may not be enough (Section 2.2.1), though there are some hints as to elements of it, namely: the achievement of corporate objectives; the loss of something that is valued by key stakeholders; the avoidance of blame and reputation damage; and the issues about people and their concerns (Sections 2.2.1 and 2.2.4).

b) There is little literature on the nature or management of strategic risk in local authorities (Section 2.2.4).

2.3. The Risk Management Process

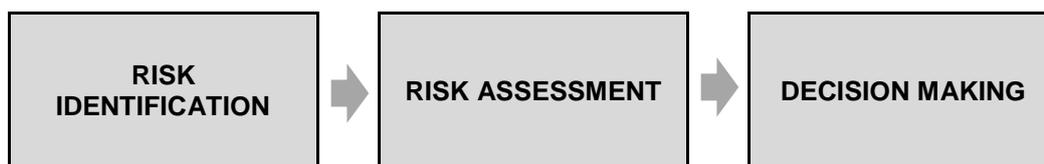
This section summarises the risk management process as a whole and positioning risk assessment within it and established the purposes of risk assessments.

2.3.1. The Core Components of Risk Management

Risk management is not about seeking to eliminate all risk, an objective which could not be achieved (Hertz, 1979). It is about taking the right and/or necessary risks, not trying in vain to eliminate all risk (Munro, 2009). Even in the public sector, some negative events may seem to call for elimination but a reality check shows that this is not possible. Munro (2009), writing about child protection risk, recognises that there will always be some failures, for example.

Risk management comprises identification, estimation and evaluation / decision making and the purpose of the first two parts is to enable effective decision-making about the identified and assessed risks (White, 1995; Stahl et al, 2003; Leung and Isaacs, 2008), as presented in Figure 2.1.

Figure 2.1: Summary Three-Stage View of the Risk Management Process



Some risk management models add later stages around implementation, monitoring and review (Kallman and Maric, 2004). The three stage model is clearer and the additional stages can be seen to be essentially subsidiary elements of the decision-making stage.

All three stages are essential to effective risk management. Ward (1999) emphasises the importance of the risk identification stage: the *“real risks ... are the ones that you fail to identify”* (ibid, p333). Of course, risks that have not been identified cannot be assessed and decisions as to how to address them cannot be made. Completeness of risk capture appears to be the critical objective at this stage, or at least the absence of significant omissions: risk elicitation must be effective or, as Corbett (2004) expresses it, *“[i]t is a risk management truth that you cannot treat an exposure that you have not identified”*. This must be a matter of identifying both the risk itself and the information about, and understanding of, the risk necessary for its assessment. The risk management process should take a *“wider, more comprehensive view”* (Ackermann et al, 2014, p290): a view that must start to be formed and informed by the initial risk identification.

Writers on risk are very clear that risk assessment and risk management as a whole are not easy: *“there is no magic risk management solution that will give the ‘right’ answer”* (Leung and Isaacs, 2008, p518); *“identifying and assessing risks is no simple matter”* (Baldwin et al, 2012, p86); *“there is no simple recipe for evaluating and managing risks”* (Klinke and Renn, 2002, p1071).

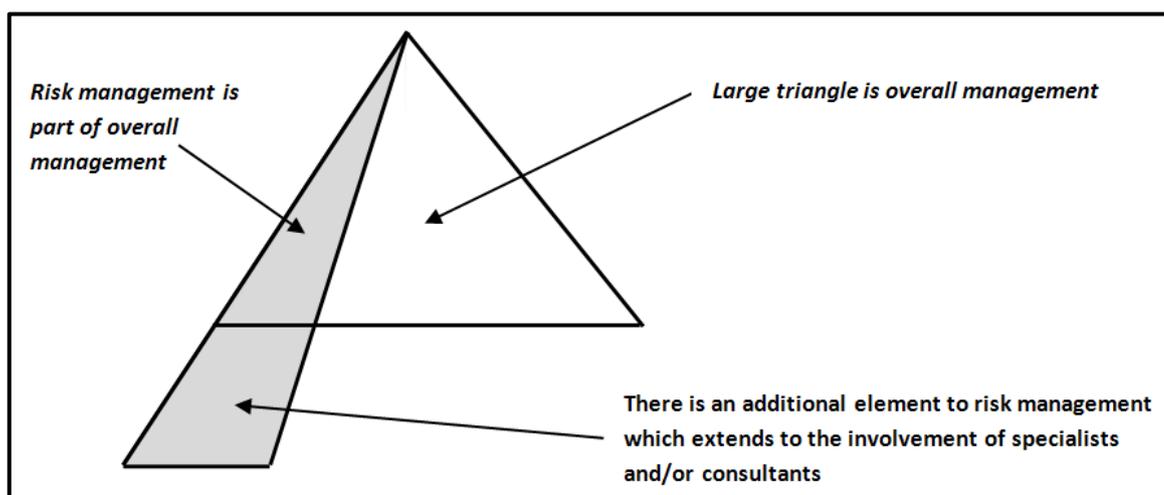
Greenberg and Lowrie (2010) offer a wonderful perspective on this: *“one just needs to apply common sense ... but common sense is very uncommon”* (ibid, p6).

Hansson (2001) explains that assessing risks and deciding what to do about them require different competencies. Peters et al (2007) add to this by suggesting that understanding risk information *“can be quite difficult”* (ibid, p744). The detail of the difficulties raised by the authors appears to be specific to the work’s health risk context. However, the more general point that risk information needs to be accessible and understandable to those who receive it is an important one.

Ward (1999) identifies an intermediate stage between risk identification and risk assessment that pragmatic, busy managers may choose to use, at least on an occasional interim basis: *“denying the existence of some risks may be occasionally expedient, particularly if the consequences are likely to be borne by other people”* (ibid, p331). The final qualification could be questioned on ethical grounds.

Grey (1995) provides an interesting positioning of risk management within the overall management of an organisation as shown in Figure 2.2.

Figure 2.2: Grey's Positioning of Risk Management With Respect to Overall Management



This is an adaptation of Grey's diagram which illustrates that *"risk management permeates all of ... management"* (ibid, page xi). Risk management should be an intrinsic part of what managers do, but by no means is it all that they do, and there is a potential role for risk specialists to provide support and advice to those managers.

It is imperative that risk management is implemented at a strategic level, and not just at lower levels of management, to ensure the effective management of serious risks, for example child protection (Johnson and Petrie, 2004), and to ensure that it is seen as an essential strategic activity to be championed by senior management. It is similarly important that a risk management process is comprehensive (Haimes et al, 2002).

A number of different risk management and risk assessment processes are described in the literature. There is very considerable variation in the scale of these processes. Hertz (1979), in an early piece of risk literature, and Klein and Cork (1998) described intensive, data-rich processes that are substantially resourced. These are very different to the risk problem which forms the context of this thesis and they provide a powerful indication of the extent to which the risk management and assessment processes need to be designed to fit their context. In turn, this clearly requires clarity as to both the context and the specific risk problem to be addressed. Whilst, as Klein and Cork (1998) say, there is a trade-off between detail and confidence on the one hand and the effort expended on the other, there also needs to be a reality check about what is available and what is possible.

A significant aspect of risk assessments in large organisations and in the public sector is the ability *"to explain why and how each decision was made"* as part of the wider public accountability (Wolters, 2008, p24). Hence, there is an element of risk management that is about following a proper and credible process and being able to show that this has been the case. It is partly about good governance.

The risk literature contains a key reminder for those designing risk assessment systems.

"To perform effective risk assessment and management, the analyst must understand the system and its interactions with its environment" (Haimes, 2009, p1649).

In essence, this is the message that runs through the risk literature. Risk and its assessments are context-dependent. Hence, if the context and its implications are not understood and fully reflected in the emerging risk assessment approach, it will be fundamentally flawed. Developing this understanding is a core element of Research Question One.

Risk Registers

A usual element of the risk management process is the creation of a risk register to record the risks that have been identified, summarise the information for the risk assessment and the results of that assessment and then to inform the decision-makers and record their decisions (Ward, 1999). Risk registers need to be comprehensive records of the risks recorded (Ackermann, 2014).

Clearly, local authorities' risk registers could be a valuable source of risk data for the research, both as regards the risks being managed by local authorities and the process by which they are being managed. Access may however be problematic.

2.3.2. The Purpose of Risk Assessments

It is well established in the literature that risk analysis / risk assessment is essentially a decision-support tool (Buchan, 1994; Sidor and Lewus, 2007; and Aven, 2008). Organisations carry out risk assessments to make better decisions (Garrick, 2010). They are an *“organizing idea for decision-making in modernity”* (Rothstein et al, 2010, p91).

Techniques which help to prioritise risks are to be welcomed, especially: simple ones; those which establish the risks that need to be explored in detail; and those which inform decisions about the effort and resources to expend in responding to those risks (Ward, 1999). There is an important additional idea here. Risk assessments should aim not just to provide a reliable basis for prioritising risks for management attention. They should also provide additional information to support the decision-makers:

“faced with a large number of sources of risk, and the impracticality of attempting to manage them all, the natural tendency is to seek to put identified risks in some kind of order of priority” (Ward, 1999, p331).

This prioritisation nevertheless remains a key priority of risk assessments (Kallman and Maric, 2004). As one would expect, providing such additional information is particularly important in *“high risk situations”* (Aven, 2008, p11). Sidor and Lewus (2007) suggest that risk assessments should outline the uncertainties associated with each assessment, providing a starting point for identifying the additional information that could, or perhaps should, be produced by a risk assessment and provided to decision-makers to inform their decisions.

The increasing pace of change makes effective risk management ever more important, in part because decision-makers are increasingly having to *“act without relevant experiences”* (Emblemsvåg and Kjølstad, 2002, p842). It helps decision-makers understand their options better. Organisations also need to be able to respond to newly created and discovered risks (Rothstein et al, 2006).

It is clear that risk management should be treated as a management priority and given the attention and resources required to carry it out well. Slovic (1999a) is explicitly clear that effective management of public services will benefit from the time and effort that is invested in developing good risk management systems.

Francis and Armstrong (2003) provide an ethical justification for risk management in terms of *“identifying potential problems, preventing fraud, the preservation of corporate reputation, and the mitigation of court penalties should any transgression arise”* (ibid, p375). Whilst they declare these to be *“essentially Australian”* (ibid, p375) values, they are persuasive beyond their context. A wider reading of Francis and Armstrong (2003) suggests the potential for risk management to be, at least in part, about stopping or minimising the likelihood of events considered morally wrong happening, hinting at the issues of risk assessment and trust explored later in the literature review (Sections 2.5.4 and 2.7.3).

2.3.3. Summary – The Risk Management Process

Current Knowledge

- a) Risk management is not about seeking to eliminate all risks: this is neither possible nor realistic (Section 2.3.1).
- b) A risk assessment approach needs to be a coherent whole and not a set of discrete parts. It is not easy and must be credible (Section 2.3.1).
- c) Strategic risk assessments are normally seen as being about prioritising risk for management attention but they should also be designed to inform the decision-makers about the risks assessed (Sections 2.3.1 and 2.3.2).
- d) Simple risk assessment models are to be welcomed (Section 2.3.2).

Gaps in Knowledge

- a) Risk assessment processes are highly dependent upon the available resources. The level of resources available in local authorities needs to be established to inform the research into appropriate assessment approaches (Section 2.3.1). The case may also need to be made for increased resources so that risk assessment processes are treated as a management priority and given the attention and resources to fulfil their potential (Section 2.3.2).
- b) The potential for risk assessment approaches to go beyond just ranking risks for management attention by providing information to inform their decision-making is currently just an unfulfilled aspiration in the literature (Sections 2.3.1. and 2.3.2)

2.4. Risk Models

This section reviews the risk literature to describe: the precautionary principle as a one-dimensional model of risk; the well-established two-dimensional model of risk; and additions and alternatives to that two-dimensional model of risk.

2.4.1. The Precautionary Principle: A One-Dimensional Model of Risk

The precautionary principle is defined by Aven (2006) as being:

“the ethical principle that if the consequences of an action, especially the use of technology, are unknown but are judged ... to have a high risk of being negative from an ethical point of view, then it is better not to carry out the action rather than risk the uncertain, but possibly very negative, consequences” (ibid, p193).

This is a very simple, and as the name suggests, precautionary approach to risk. It is presented by Aven (2006) as a way of dealing with uncertainty.

It is an unsophisticated and indiscriminating approach to risk and one that Paté-Cornell (2002) emphasises is unrealistic when resources are limited as the situation is likely to quickly develop in which the resources required to follow this approach to risk would be in excess of those available. This assumes that all such risks can be either avoided or mitigated. This assumption is not a valid one in the public sector. Paté-Cornell adds an important qualification to this: *“[i]f it is decided that for legal and/or political reasons money is no object, then risk analysis is irrelevant and political forces alone will drive the decisions”* (2002, p644). In essence and following Haskins (1999) and others on reactions to risks of serious harm in the public sector, the precautionary principle appears to have a residual place in public sector risk management, albeit limited to a very narrow range of high profile, politically catastrophic risks which would create an imperative to transcend resource constraints. The corollary of this is of course that it is not suited to the mainstream risk assessment task in the public sector. There is also an implicit reminder here that the outputs of a risk assessment process need to be sufficiently differentiated to enable risks that might invoke a precautionary reaction on the part of decision-makers to be clearly identified as such.

An interesting additional perspective on the precautionary principle, or more precisely on the risks that might cause it to be invoked, is provided by Hansson (2005a) when he talks about risks that are perceived to be so serious that they should not be taken:

“Members of the public often question the very act of risking improbable but potentially calamitous accidents” (ibid, p10).

This, persuasively, suggests that there may be some risks that an organisation, particularly a public sector organisation, may deem to be so serious that not only would the senior decision-makers want to seek to avoid the risk at almost any cost, they would also want to avoid the public being aware that the risk has existed. Risks of abusive child deaths might be in this category.

Jablonowski's (2002) work on very low probabilities suggests a further limitation to the application of the precautionary principle: *"we need to establish a threshold for 'practical impossibility' which may not necessarily be based on hard numbers"* (ibid, p27). Logically there is a level of likelihood that is so low that the risk does not warrant the expenditure of resources, even on a precautionary basis. The same thread of logic would suggest that this very low level may vary with the potential level of harm – the greater the harm, the lower the level of likelihood which would be accepted as a *'practical impossibility'* – and that it would be an emotional judgement rather than a scientific one.

Hansson (2006) also sees a residual role for the precautionary principle in cases of serious potential for harm *"even if the likelihood of harm is remote"* and for which there is such uncertainty due to a lack of reliable risk information that an evaluation of the risk cannot be undertaken with *"sufficient confidence"* (ibid, p 203).

2.4.2. The Two-Dimensional Model of Risk

Many writers on risk (for example Goldoff, 2000; Emblemståg and Kjølstad, 2002; and Hansson, 2006 and 2007) describe the traditional or standard model of risk that presents risk as a function of likelihood and impact.

"The calculative framework of modern risk analysis is largely based on the methodology used in the influential Reactor Safety Study ... from 1975. The definition of risk introduced in this study, namely as frequency x magnitude, is the origin of the common notion among risk analysts that risk equals probability times consequence" (Hansson, 2006, p237).

Hansson had previously described this as the *"standard view of what risk assessment should be based on"* (2005a, p9), expressing it in terms of probabilities and *"values of outcomes"*.

Cox, considering the use of analytical risk matrices, describes the two dimensional probability / consequence model of risk as being *"advocated in many risk methodology documents"* (2008, p499) and summarises some of the alternative terms used. For consequence, he identifies *"severity"* and *"magnitude"*, and for probability, he identifies *"frequency"* and *"likelihood"*. He is clear that *"changing the name does not affect the logic"* (2008, p499). Hansson (2007, p654) and others have referred to *"disutility"* rather than impact.

On the same basis, Williams (1996, p185), in an article entitled *"The two-dimensionality of project risk"*, refers to *"probability"* and *"impact"* and states that *"[t]he idea of multiplying likelihood and impact pervades the literature"*. He too offers alternative terminology, concentrating on *"impact"* when others, for example Cox (2008), would later refer to *"consequence"*, *"severity"* or *"magnitude"*.

Burnaby and Hass (2009) provide a simple application of this two dimensional model, defining the dimensions as being the *"potential impact on financial or resource loss"* (ibid, p544) and the likelihood of this. This is a narrow construction for its private sector context.

Emblemståg and Kjølstad (2002) specifically see the impact dimension as being about the impact on the achievement of business objectives.

From the above, the concept of risk being a function of two dimensions, one about the probability or likelihood of the risk event occurring and the other about the size of the effects of it doing so, can be seen to be firmly embedded in the literature. However, as Williams identifies, “*some authors think it should be extended*” (1996, p185) and there is a clear need to be more specific about the nature of the two dimensions.

2.4.3. Other Dimensions of Risk

There is a clear thread running through the risk literature that is concerned with the issue of what aspects of risk should form the basis of its assessment.

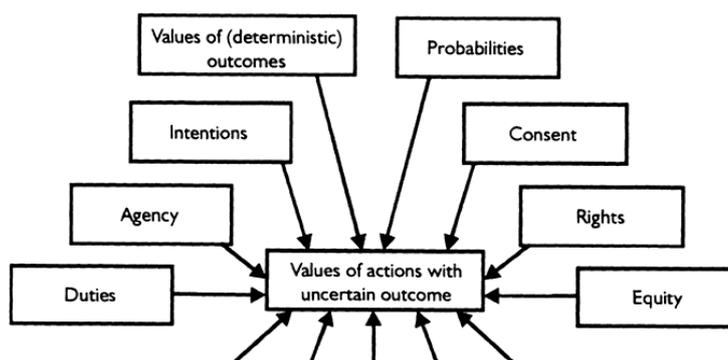
Given the ubiquity of the two-dimensional impact / likelihood model of risk, the debate tends to be in one of three terms:

- a) How is the two-dimensional model incomplete and what needs to be added to remedy that incompleteness?
- b) How can we see the two-dimensions in a different, typically fuller, way to create a better picture of risk?
- c) How should we replace the two-dimensional model with a different one to create a better picture of risk?

The suggested additions and alternatives to, and expansions of, the two-dimensional risk model suggested in the literature are discussed in the following paragraphs.

Hansson (2005a) contrasts the impact / probability view of risk with a “less incomplete view on what risk assessment should be on” (ibid, pp9–10), illustrating it as shown in Figure 2.3. This comprises the two core dimensions of impact and probability and suggests six additional ones.

Figure 2.3: Hansson’s Less Incomplete View of Risk Assessment



(Source: Hansson, 2005a, p9)

In explaining his “*less incomplete view*” (ibid, p10), Hansson emphasises the links between the definition of risk and the subsequent dimensions of that risk and the links between lay and expert definitions of risk and the differing dimensions of risk. He summarises his critique of the “*standard model*” by saying that:

“Risk analysts’ one-sided focus on probabilities and outcomes, to the exclusion of important factors that could legitimately influence decisions, is a major reason why analysis has had such great difficulties in communicating with the public” (ibid, p10).

This *“less incomplete view”* of risk (ibid, p9) brings together the technical dimensions of probability / likelihood and impact / severity of consequence with elements of a stakeholder dimension.

This analysis of Hansson follows Munro’s (2009, pp1015-6) distinction between *“institutional”* and *“societal”* risks but the categorisation of Hansson should not be seen to result in mutually exclusive sets. Stakeholders, for example, have a profound interest in the severity of outcomes and a local authority could reasonably be assumed to be interested in fulfilling its duties, particularly its legal duties.

Klinke and Renn (2002, p1078) identify nine *“criteria for evaluating risks”*. The first two of these are *“extent of damage”* and *“probability of occurrence”*, the commonly assumed core dimensions. To these, seven others are added:

- | | |
|---------------------------------------|---|
| 1. <i>“Incertitude”</i> | <i>“Overall indicator for different uncertainty components”</i> |
| 2. <i>“Ubiquity”</i> | <i>“Defines the geographical dispersion of potential damages”</i> |
| 3. <i>“Persistency”</i> | <i>“Defines the temporal extension of potential damages”</i> |
| 4. <i>“Reversibility”</i> | <i>“Describes the possibility to restore the situation”</i> |
| 5. <i>“Delay effect”</i> | <i>“Characterizes a long time of latency between the initial event and actual impact of damage”</i> |
| 6. <i>“Violation of equity”</i> | <i>“Describes the discrepancy between those who enjoy the benefits and those who bear the risks”</i> |
| 7. <i>“Potential of mobilization”</i> | <i>“Understood as violation of individual, social or cultural interests and values generating social conflicts and psychological reactions”</i> |

The first of these is about the overall uncertainty of risk. Criteria 2 to 5 can reasonably be assumed to be indicators of impact, or *“extent of damage”* to use Klinke and Renn’s own terminology (2002, p1078) with underlying issues about timing and completeness. Risk assessments need to look at the full, longer-term impacts rather than just the more immediate effects that could be more easily anticipated to arise in the shorter-term. Criteria 6 and 7 primarily concern stakeholder issues of voluntariness, trust and consent and touch on issues of impact.

Haines (2009, p1651) develops the two-dimensional model into one of five dimensions:

1. *“time”*
2. *“the probability of the threat”*
3. *“the probability of the consequences”*
4. *“the vector of the states of the system (including its performance capability, vulnerability, and resilience)”*; and
5. *“the resulting consequences”*.

The first of these is essentially a critical element of defining the “*probability of the threat*”, rather than a discrete dimension. The third is a similarly critical element of defining the consequences (impact). It is, however, a reminder that the uncertainty of a risk assessment also encompasses the extent of the consequences / impact and does not stop at the probability / likelihood of them arising. Haimes’ fourth dimension could be seen as combining elements of the impact / consequences assessment and issues about controls and context, rather than a discrete dimension. Haimes’ dimensions of risk are quite narrow ones which imply an apparently greater ability to quantify each dimension than is implicit in, for example, Hansson’s work (2005). It is, therefore, worth noting that for Haimes risk is about safety and his context is an engineering one.

Sidor and Lewus (2007, p52) propose a three-dimensional model of risk, comprising the core dimensions of “*severity*” and “*occurrence*” (likelihood) and a third dimension of “*detection*”. This third dimension “*is the ability to measure or recognize the potential failure before the consequence is observed*”. This could alternatively be expressed in terms of speed of onset. This explicitly introduces the elements of controls hinted at by Haimes (2009) and reinforces the sense that temporal issues are important. Again, it is important to contextualise Sidor and Lewus’s paper as being an application of Failure Modes and Effects Analysis (FMEA), a specialist, more technical and narrower area of risk than strategic risk in the public sector. Hence, there is again a reminder that context seems to be an important factor in determining the dimensions of risk.

Grassi et al (2009), writing about health and safety risk in the workplace, propose a model of risk which includes dimensions to reflect the level of confidence that key controls and mitigations will actually be in place and operating reliably – the lower the confidence, the greater the risk – and the undetectability of the risk event at a sufficiently early stage for countermeasures to be put into operation to reduce those consequences. The focus of Grassi et al’s (2009) research is the application of fuzzy approaches to the assessment of risk to explore their potential to provide an assessment of risk that reflects the inherent uncertainties. Clearly, for Grassi et al uncertainty is an important characteristic of risk.

Dardis et al (1983), considering consumer product safety, conclude that risk includes “*injury severity, number of products used per year, costs of avoidable injury, costs of safety improvements and importance of product use*” (ibid, pp40-42) and the probability of an accident. In so doing, they conflate the assessment of risk and the subsequent management decision as to whether the risk should be accepted. This need to clearly differentiate between the two elements of risk management and to design each to achieve its own objectives is significant.

Slovic (1992) explicitly perceives risk in two-dimensional space: the vertical dimension as “*the degree to which a risk is perceived to be known or understood*” (1992, p55) and the horizontal dimension as “*the degree to which it evokes perceptions of dread, instability and catastrophe*” (ibid, p55). This is a clear indication of Slovic’s sense of the critical importance of perception to risk assessment, his position being that societal perceptions of risk must be taken seriously and should be recognised as real: “*Perception of risk is a reality itself*” (ibid, p57). This is considered more fully Section 2.5.

Kallman (2007) illustrates the extent to which the dimensions of risk are derived from the contextual definition of risk. His “*objective risk*” is defined as “*the variation from the expected outcome over time*” (ibid, p48) and as comprising “*three risk variables: the consequence, the difference from the expected outcome, and the timing of that consequence*”. This is applied by him in the context of commercial organisations seeking to identify out-lying, and hence higher risk, transactions in an on-going transaction flow, for example insurance claims. These are contexts in which there is a large volume of historical data to model and define expected outcomes. This model of risk appears not to be transferable to a local authority context.

Klinke and Renn (2002) and Aven and Renn (2009) categorise risk in terms of three challenges: complexity, uncertainty and ambiguity. Others, for example Emblemståg and Kjølstad (2002), see risk in similar terms. The clearest explanation and differentiation between these terms is provided by Klinke and Renn (2002) and presented in Table 2.2.

Table 2.2: Klinke and Renn’s Three Challenges of Risk

Challenge	Explanation Provided by Klinke and Renn (2002, p1085)
Complexity	<i>“the difficulty of identifying and quantifying causal links between a multitude of potential candidates and specific adverse effects Interactive effects among these candidates positive and negative feedback loops, long delay periods between cause and effect, interindividual variation, intervening variables and other effects”</i>
Uncertainty	<i>“Uncertainty is different from complexity ... it comprises different and distinct components such as statistical variation, measurement errors, ignorance and indeterminacy uncertainty reduces the strength of confidence in the estimated cause and effect chain”</i> <i>“If complexity cannot be resolved ... uncertainty increases”</i> <i>“even simple relationships may be associated with high uncertainty if either the knowledge base is missing or the effect is stochastic by its own nature”</i>
Ambiguity	<i>“This term denotes the variability of (legitimate) interpretation based on identical observations or data assessments”</i>

Complexity is the challenge arising from the many elements that come together to form a risk and the difficulties of foreseeing all of the ways in which they will interact and the subsequent effects of those interactions. For practical purposes, cause and effect may not be able to be identified in advance and/or the appropriate level of confidence may be low. Uncertainty can be seen to be about doubt about the reliability and completeness of what is known, and ambiguity to be about potential and actual disagreements about the meaning of what is known. These are conceptually different but very closely related issues or, to use Klinke and Renn’s term, *challenges* in risk assessment. The explanation of uncertainty relies on complexity, for example. Particularly taken together, the writers presenting complexity, uncertainty and ambiguity as key factors in risk, and so in risk assessment, do so very persuasively. They are consequently explored in more detail in Sections 2.6.1 and 2.6.2.

Aven (2008) introduces a further element of complexity as a possible dimension of risk, namely background information. In complexity theory this might be referred to as the starting condition but the intended scope is clearly the same. Aven (2008) suggests that predictability should be considered as an element of risk. This is also raised by Williams (1996). Consideration of their work indicates that they are actually implying issues of uncertainty and seeking to understand that uncertainty.

In addition to those discussed above, complexity is seen as fundamental to risk by a number of others, for example Buchan (1994), De Marchi (2003) and Leung and Isaacs (2008). It is seen as being essential to understanding risks. Taken as a whole, there is a critical research question here: to what extent are strategic risks in local authorities complex? If we accept the seemingly compelling line of argument in the literature, the answer to this question must have a fundamental bearing on research into the assessment of such risks, and not to consider the relevance of complexity would be to introduce a potentially critical flaw into the later research.

Redmill (2002), writing on "*Some Dimensions of Risk not Often Considered by Engineers*", brings together the institutional and societal (stakeholder) risk themes of the wider literature and revisits work by Rayner in 1992. This suggests that risk is a function of probability (P) and magnitude (M), the core two dimensional model, and "*trust, liability and consent*" (TLC), defining risk (R) as " $R = PM + TLC$ " (ibid, p270). Putting aside the algebraic precision, this neatly summarises the combination of internal, expert-led factors and external, lay or stakeholder-led factors. However, a "*unit of risk that could be applied consistently along the entire scale*" (ibid) is not proposed by Rayner or Redmill. Issues of stakeholders, trust and perception are considered in more detail later in the literature review.

Savadori et al (1998) see the number of people exposed as a dimension of risk. This would seem to be able to be treated as an element of impact: all other things being equal, a thousand people being affected by a risk event is a greater impact than just one person suffering the same effect(s).

Sunstein in Lewens (2007) emphasises the betrayal of trust aspect of those risks that generate a particularly strong reaction as "*people do not like to be betrayed*" (ibid, p163). This appears to have the potential to form a unifying concept to bring together the issues of voluntariness, dread and many other aspects of impact that are ultimately about people and emotional, but nonetheless real, reactions to risk events. Such issues are discussed, for example, by Slovic (1992 and 1999) as part of his argument that lay people have a broader and more complex conception of risk than experts and that this includes issues of:

- *Uncertainty,*
- *Dread,*
- *Catastrophic potential,*
- *Controllability,*
- *Equity,*

- *Risk to future generations, and*
- *Voluntariness (this is not in Slovic's list but is discussed later in his paper).*

These issues, for Slovic, can undermine lay trust in experts' risk judgements.

The models described in this section of the literature are summarised in Table 2.3. The analysis draws on the authors' papers as a whole and not just the elements drawn out above.

Table 2.3: Summary of Risk Models in the Literature

Aspect of Risk Taken into Account in Risk Assessment	Risk Model / Literature Source												
	Precautionary Principle	Standard Two-Dimensional Model	Hansson (2005a)	Klinke & Renn (2002)	Haines (2009)	Sidor & Lewus (2007)	Grassi et al (2009)	Slovic (1992 & 1999a)	Kallman (2007)	Emblemsvåg & Kjølstad (2002)	Aven & Renn (2009)	Redmill (2002)	Others
What is the chance of it happening?		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
If it happens, how serious will the effects be?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Dardis et al (1984) and Savadori et al (1998) specifically consider the number of people affected
An explicit stakeholder / societal dimension embracing issues of trust, fairness, consent and dread			✓	✓				✓			✓	✓	Betrayal of trust is also emphasized by Sunstein in Lewens (2007)
Uncertainty beyond the chance of it happening			✓	✓	✓		✓	✓		✓	✓		
The controls put in place to avoid or reduce the effects of the risk					✓	✓	✓	✓	✓		✓		
Undetectability / Detectability				✓		✓	✓						
The extent to which the risk is known or understood								✓					
Variation from expected outcome									✓				
Complexity				✓				✓		✓	✓		Complexity also emphasized by Aven (2008), Buchan (1994), De Marchi (2003), Leung & Isaacs (2008)
Ambiguity			✓	✓						✓	✓		
Fuzziness - "occurs whenever definite, sharp, clear or crisp distinctions are not made" (Emblemsvåg & Kjølstad, 2002, p845)								✓		✓			
Other factors				Consider the full longer-term effects and not just the immediate effects				Also talks about effects in the longer-term (Effects on future generations)	This approach requires large volumes of historical data				

Whilst the above review does not set out every potential dimension of risk ever suggested in the risk literature, it summarises the important messages from that literature.

Progressing beyond the simple one dimensional construction of risk under the precautionary principle, the core dimensions of risk are about how likely a risk event is to happen and the effects if it does happen. The latter could embrace issues of betrayal of trust and other issues affecting people. More widely, fundamental to risk are its inherent uncertainty and ambiguity and its potential complexity. Similarly, the effects of the controls put in place to manage risks may also have a significant bearing on the ultimate extent of those risks and be able to embrace the issues of detectability. The extent to which the risk is known or understood can be assumed to be primarily a matter of uncertainty, with associated issues of complexity and ambiguity. The variation from expected outcomes raised by Kallman (2007) seems to be primarily about anticipated effects and to hint at a sense of risk as being about the achievement, or otherwise, of corporate objectives as discussed in Section 2.2. Whilst fuzziness is essentially a matter of uncertainty, ambiguity and complexity, it may be an indication of a potential research path, namely using fuzzy logic to inform the design of a risk assessment methodology.

Beyond the potential for a stakeholder element, there is limited discussion in the literature on the detailed construction of the effects or impacts dimension of risk. Some ideas on this are drawn from the literature in Section 2.2, as set out as the first gap in knowledge in the section summary.

The elements of risk set out in the literature can be summarised as falling into two core groups: the dimensions of risk comprising likelihood, anticipated effects and possible stakeholder / societal effects; and over-arching aspects of uncertainty, ambiguity and potentially complexity. Control issues are also important and a case could be made for placing them in either group. Given their over-arching nature, the research will place them in the second category. Section 2.5 considers the literature on stakeholder issues and perceptions and 2.6 considers the identified over-arching aspects.

2.4.4. Summary – Models of Risk

Current Knowledge

- a) Following the precautionary principle, there may be some risks that an organisation, particularly a public sector organisation, may deem to be so serious that not only would the senior decision-makers want to seek to avoid the risk at almost any cost, they may also want to avoid the public being aware that the risk has existed. However, there is a level of likelihood that is so low that the risk does not warrant the expenditure of resources, even on a precautionary basis (Section 2.4.1).
- b) Generally, there are insufficient resources to address all risks however unlikely they might be and so a more sophisticated risk model than the precautionary principle is needed (Section 2.4.1).

- c) There is a well-established two-dimensional (likelihood and impact / consequences) model of risk. In essence, how likely a risk is to occur and the anticipated effects of it doing so (Section 2.4.2).
- d) There are cogent arguments for extending this to include stakeholder issues, many of which may be able to be summarised as issues of trust and the potential for its betrayal (Section 2.4.3).
- e) Risk assessment methodologies need to embrace the over-arching aspects of uncertainty, ambiguity and complexity (Section 2.4.3).
- f) The controls implemented by organisations to avoid or mitigate risks should be taken into account in risk assessments (Section 2.4.3).

Gaps in Knowledge

- a) The literature suggests but does not establish a residual role for the precautionary principle in local authority risk assessments (Section 2.4.1).
- b) It is not clear how the over-arching aspects of uncertainty, ambiguity, potential complexity and controls should be treated in the assessment of strategic risk in local authorities as the literature does not address these issues (Section 2.4.3).
- c) Further gaps in public sector-specific risk knowledge relate to the treatment of stakeholder issues in public sector risk assessments and the construction of the impact dimension of strategic risk in local authorities (Section 2.4.3).

2.5. Stakeholders and Perceptions

This section takes forward the key issues of stakeholders and perceptions identified in the previous section and explores the literature to seek to establish their place in risk assessments and the significant associated issues.

2.5.1. The Relevance of Perceptions

The relevance of perceptions of risk is a key theme in the risk literature.

Leung and Isaacs (2008) suggest that risk is a matter of perception "*because these events have not yet taken place, and are only 'best guesses'*" (ibid, p517). Their context is the public sector. Others, for example Aven (2006) and Slovic and Weber (2002), see risk as a culturally relative concept. For them *objective risk*, risk that can be measured in a positivist sense, is meaningless: "*there is no such thing as 'real risk' or 'objective risk'*" (Slovic and Weber, 2002, p4).

Corvellec (2010) talks about risk having moved on from a positivist sense of risk to a recognition that perception is a key element of risk. If matters of perception form a significant part of risk, it must follow that it is a social construction (see for example Corvellec, 2010 and Elliott, 2002). To reinforce the challenge of the current research and the importance of context, Stahl et al's (2003) conclusion that "*social constructions within the public sector simply work differently from those in other types of organisation*" (ibid, p20) needs to be borne in mind.

Societal perceptions of risk must be taken seriously and should be recognised as real as *“perception of risk is a reality itself”* (Slovic, 1992, p57). However, they must also be assessed reliably as *“inaccurate societal risk assessments may do little to manage institutional risks”* (Rothstein et al, 2006, p101). Hence, risk assessments are generally seen to need to include scientific and social perspectives on risk (Slovic and Weber, 2002; Aven, 2006; and Corvellec, 2010). This is usually referred to as the duality of risk.

This is likely to be more difficult than might be expected as the *“academic and para-academic disciplines specializing in risk are dominated by an over-simplified approach to social decision-making”* (Hansson, 2007, p662). The alternative *“assumption that risk is objective gives managers a false sense of security”* (Stahl et al, 2003, p15) and *“dull[s] managers’ attention and can thereby create even bigger risks”* (Stahl et al, 2003, p18).

Failing to manage societal risks creates particularly serious institutional risks in the public sector (Munro, 2009). Child protection risks present an example of a risk in the public sector which requires the public sector bodies responsible to take public concerns seriously in managing the risk. Such perceptions of risk change over time: *“what was acceptable and tolerated 30 years ago is unacceptable today”* (Bell, 2006, p341). This creates problems assessing risks over time and indicates a need for risks to be regularly reassessed as these changes in perception may have resulted in changes in the level of risk. Assessments of perceptions need to be reliable, just as assessments of other aspects of risk need to be reliable as *“if that perception is wrong, the results [of the risk assessment] are wrong”* (Jablonowski, 2002, p27).

Slovic (1992) provides a cogent summary of the perception issues and sense of balance.

“We must learn to treat societal perceptions as legitimate. We must attempt to understand them and incorporate public concerns and wisdom into decision-making, along with the knowledge attained by scientific risk assessments” (ibid, p57).

Hansson (2005a) is clear that the failure of risk assessment methodologies to take account of perceptions *“is a major reason why risk analysis has had such great difficulties in communicating with the public. Instead of blaming the public for not understanding probabilistic reasoning, risk analysts should learn to deal with the moral and social issues that the public – rightly - put on the agenda”* (ibid, p10).

It is important to recognise that societal and institutional perspectives on risks can be very different. Rothstein et al (2006) identify a *“spiralling tendency where mismatches between the management of societal and institutional risk drive regulators to ever further activity”* (ibid, p 93). This is a persuasive indicator that embracing societal perspectives is per se an element of effective risk management in the public sector, a heavily regulated sector.

2.5.2. Stakeholders

Having established from the literature that there is an apparently compelling set of arguments for meaningfully taking account of perceptions in risk assessments, the question arises as to whose perceptions should be taken into account. This must be individuals and/or groups and/or

organisations associated with the body undertaking the risk assessment. In short, they must be some or all of its stakeholders.

Aven (2008) and Macgill and Siu (2004) provide two analyses of stakeholders for risk management purposes. Aven’s “*Important partners*”, for example, appear to equate to Macgill and Siu’s “*Experts*”.

Table 2.4: Stakeholder Summaries in Aven (2008) and Macgill and Siu (2004)

Aven	Macgill and Siu
<i>The enterprise</i>	<i>Experts</i>
<i>Important partners</i>	
<i>Others, e.g. regulators and public opinion</i>	<i>Regulators</i>
	<i>Interest groups</i>
	<i>The media</i>
	<i>The general public</i>

As this attempt to match the elements of the two suggested groupings of stakeholders indicates, the senses of who the important stakeholders may be for risk assessment purposes are similar but have significant differences. It is perhaps surprising to see Aven suggesting that the organisation itself is a stakeholder and it is noticeable, particularly in a public sector context, that he does not present regulators as being *important partners*. Macgill and Siu’s analysis seems to be fuller but ultimately incomplete, certainly in a public sector context, and in need of further research to fit it to the local authority context. There may, for example, be appropriate changes to the list to bring service users and staff explicitly into consideration.

Wolters (2008) draws attention to stakeholders’ views on risk, particularly in the public sector:

“individuals still maintain a critical role in the social management of risk. The collective opinions and decisions of all people can powerfully shape the way risks are prioritized and managed in business, governments, and regulatory bodies. Because of this, public opinion can become a battleground for many institutional stakeholders involved – policy makers competing advocacy groups, and the media we may be exposed to numerous, and sometimes conflicting messages about risk” (ibid, p25).

There are two key messages here. Firstly, that stakeholders’ opinions on risk can have a direct bearing on the estimation of risk in the public sector and, secondly, that those opinions may not be neatly complementary. Taken together, these messages indicate that stakeholders’ views potentially constitute a dimension of risk and that obtaining, reconciling and scaling those views is unlikely to be an easy task.

2.5.3. Stakeholder Engagement in Risk Assessments

The stakeholder and perception issues create a dilemma. There is a strong case for recognising the validity of stakeholder perceptions and making them part of the risk definition and factors in the risk assessment. However, does this mean that stakeholders should be directly engaged in the assessment of risk or that their perspectives should be captured in a less direct way and then

factored into the risk assessment model? In either case, the perceptions would need to be regularly revisited to capture temporal changes.

It is argued that lay people tend to be poor at assessing risk levels and probabilities (Pennings and Smidts, 2000) and that people in general are inherently over-optimistic about the chances of bad things happening (Sharot et al, 2011), particularly about low-probability / high consequence events (Li et al, 2010). These amount to a significant source of caution about relying on lay assessments of likelihood and perhaps risk in general.

Issues of trust and reliability point towards direct engagement but there are powerful arguments in the literature that support the indirect approach. As a starting point, Beck (1992) suggests that the growth of a risk society has brought with it a sense that the management of risk equates to the elimination of risk. If the act of consulting stakeholders were to create this false expectation it could be very damaging to the local authority. Account also needs to be taken of Hansson's (2005a) position that "*members of the public often question the very act of risking improbable but potentially calamitous accidents*" (ibid, p10), which suggests that the act of admitting to a risk may bring substantial additional risk to the local authority.

The irrational behaviour when faced with risk in the public sector (Haskins, 1999) and the "*obsession with risk aversion*" and the "*increasing inclination of citizens to seek compensation*" (Haskins, 1999, p97) also militates against consultation. Nevertheless, "*people respect openness; they resent secrecy*" (Haskins, ibid). It is not surprising that Haskins concludes that "*it is a delicate balance*" (ibid, p99). It would seem wholly reasonable to assume that both the sensitivities that point away from consultation and the arguments in favour of consultation are greatest for the most potentially serious risks. It truly is a delicate balance.

An additional argument for consulting is put forward by Nilsen and Olsen (2005) that stakeholders can be closer to the activities within which risks arise than the organisation's own managers.

Aven and Renn (2009) suggest that stakeholder consultation is most appropriate in the context of complex, uncertain and ambiguous risks, further reinforcing the need to understand the type of risks to be assessed before determining the assessment approach to be used.

Macgill and Siu (2004) illustrate the practical difficulties of combining different social perspectives and dealing with competing stakeholder views. In this light, Beierle's (2002) conclusion that stakeholder consultations tend to improve decision quality but that they need to be intensive consultation processes, is reasonable and persuasive. Research Question Two will explore where the balance lies on this issue, bearing in mind that if consultation is to be undertaken, there needs to be the time and resources to do it well.

2.5.4. Trust

Trust emerges from the risk literature as an important element of risk. Poortinga and Pidgeon (2003) - "*Exploring the Dimensionality of Trust and Risk Regulation*" – write that:

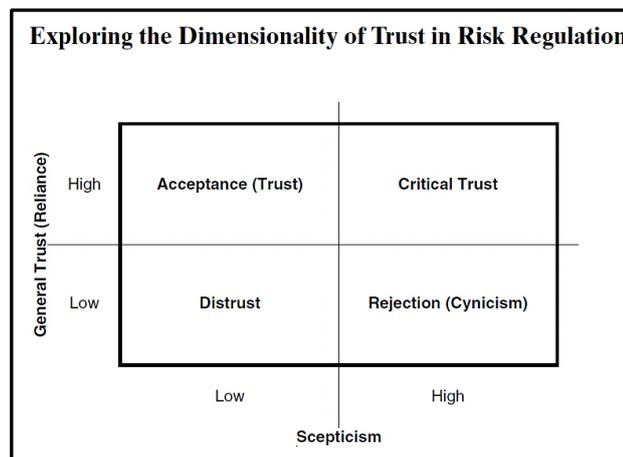
“in the field of risk research there is now general agreement that trust in risk management institutions may be an important factor in perception and acceptance of risks” (ibid, p961).

They conclude from their work that trust in a risk context has two dimensions:

“a general trust dimension, which was concerned with a wide range of trust-relevant aspects, such as competence, care, fairness, and openness, and a scepticism component that reflects a sceptical view regarding how risk policies are brought about and enacted” (ibid, p961).

From this, the authors create a simple *“typology of trust in government”* (ibid, p971), as shown in Figure 2.4.

Figure 2.4: Poortinga and Pidgeon’s (2003) “typology of trust in government”



(Source: Poortinga and Pidgeon, 2003, p971)

Their analysis indicates that trust is about both the organisation and the stakeholders. In essence, the two questions are:

- How trustworthy is the organisation?
- How much do stakeholders trust it?

This is a clearer and fuller statement of the position than Chicken and Posner (1998) who see trust as being about the information source.

The language of Poortinga and Pidgeon’s definition is very similar to that of other writers who have suggested similar issues as dimensions of risk (Sections 2.4.2 and 2.4.3). Taken together this overall body of literature indicates that the concept of trust in the context of public sector risk research needs to go further and include issues of dread, voluntariness and failure to meet human expectations, e.g. to protect the vulnerable, so as to form the elements that could indicate a betrayal of trust. Research Question Two will address this, although the initial sense is that there seems to be no reason to prescriptively define the elements of trust, and very good reason not to seek to do so.

In the public sector context, trust and the need for it would seem to be a corollary of dependency on public bodies to provide essential services and to behave fairly, for example. From Beck (1992) we

can see that social dependency on institutions is a key factor in risk. Whilst this appears to be a differentiator between the public and private sectors, the distinction is an imperfect one as people may, for example be dependent on private providers of health and social care or use some public sector services out of choice and not need.

A clear and concise, though perhaps understated, potential argument for betrayal of trust as an important element of risk in public sector organisations is provided by Bell (2006). People who are not protected have a *“belief that they have been let down”* (ibid, p347).

2.5.5. Voluntary and Involuntary Risk

Issues of voluntariness are important. A risk that is imposed is perceived to be substantially more serious than one which we make an informed choice to accept: *“the public [are] willing to accept a relatively high level of ‘voluntary’ risk in contrast to ‘involuntary’ risk”* (Dardis et al, 1983, pp39-40).

Others, for example Hansson (2005a), have referred to this as consent and have characterised this in terms of the difference between *“taking and being exposed to a risk”* (ibid, p237).

Wolters (2008) considers that:

“[i]f a person is familiar with a risk, or chooses it voluntarily ... the risk will typically be considered to be smaller than it actually is. Psychologically factors such as these can often dominate perception to the point where the actual probability of the negative outcome becomes irrelevant” (ibid, pp24–25).

He appears to be indicating that the involuntariness of a risk could become the second dimension of a stakeholder’s two dimensional risk model. This two dimensional model could be characterised by two questions for the stakeholder.

- How worried about this am I?
- Was I given any say / do I have any control over my exposure to this risk?

A number of writers, for example Slovic (1999, p691), use the term *“dread”* to emphasise the emotional nature of this response.

The literature provides a strong indication that the issue of whether a risk is accepted or imposed on stakeholders is an important element of the perceived size of the risk. How this can be meaningfully brought into a system of risk estimation is consequently an area for further research.

As already discussed in the context of the dimension of risk, Redmill (2002) suggests that key elements of risk are *“trust, liability and consent”*. Issues of voluntariness come into both the trust and consent elements of this and could also give rise to issues of liability.

Ultimately, it would seem that voluntariness and trust are concomitant issues. Together, they provide a strong case for an element of the impact assessment to be based on the potential for the risk event to be perceived as a betrayal of trust by stakeholders. Research Question Two will address this.

2.5.6. Summary - Stakeholders and Perceptions

Current Knowledge

- a) There are strong arguments for including stakeholder issues, many of which may be able to be summarised as issues of trust and the potential for its betrayal, in a risk assessment. There are, however, difficult and delicate issues to be addressed around the possible engagement of stakeholders in a risk assessment process. If they are to be directly engaged, this should be sufficiently resourced and done well (Section 2.5).
- b) There are persuasive arguments that issues of perception should be central to the assessment of risks which have the potential to affect people and that strategic risk in the public sector is a social construction (Section 2.5.1).
- c) Issues of stakeholder trust are important to risk assessments and their credibility (Section 2.5.4).
- d) Imposed (involuntary risks) are perceived to be more serious than risks to which we consent and the issue of voluntariness is primarily one of trust (Section 2.5.5).

Gaps in Knowledge

- a) There are gaps in public sector-specific risk knowledge that relate to the incorporation and treatment of stakeholder issues in public sector risk assessments (Section 2.5).
- b) It is unclear where the balance lays as between consulting stakeholders and seeking alternatives ways of taking into account their views and priorities in local authority risk assessments (Section 2.5.3).
- c) An appropriate basis for taking issues of trust into account in local authority strategic risk assessments needs to be established, although the initial sense is that there seems to be no reason to prescriptively define the elements of trust, and very good reason not to seek to do so (Sections 2.5.4 and 2.5.5).

2.6. Over-Arching Aspects of Risk

This section takes forward the key over-arching aspects of risk identified in Section 2.4 with respect to models of risk the previous section and explores the literature to seek to establish their relevance to the research and the significant associated issues.

2.6.1. Uncertainty, Surprise and False Precision

Uncertainty has already been established in the review of the literature on the dimensions of risk as a key aspect of risk. Risk calculations cannot be *“based on only well-established scientific facts”* (Hansson, 2005a, p13).

For a risk to exist there must be some uncertainty, *“there must be something that is unknown or has an unknown outcome ... [but, in addition,] ... something must be known about it”* (2002, p3). There

will always be unforeseen and unintended aspects. These are the potential surprises (Elliot, 2002). Aven (2008) sees uncertainty as being the scope for surprise.

There is no generally accepted method for modelling uncertainty in risk (Samson et al, 2009), however central to risk and its assessment it might be. The literature, however, provides guidance and ideas on this topic.

The level of uncertainty varies substantially between risks (Campbell, 2005). Grassi et al's (2009) approach of assuming a standard level of uncertainty is contrary to this and illogical. When assessing risk, it is important to be explicit about the uncertainties associated with each risk (Aven, 2008).

Uncertainties can be characterised as aleatoric or epistemic, being about randomness and incomplete knowledge respectively (Hora, 1996; Der Kiureghian and Ditlevesen, 2009). This distinction can be a difficult one to apply (Der Kiureghian and Ditlevesen, 2009) but is useful when seeking to understand the aspects that are uncertain about a risk (Hansson, 2006; Der Kiureghian and Ditlevesen, 2009). These types of uncertainty are also referred to as *variability* and *knowledge*, for example Haines (1998). There are various taxonomies of uncertainty in the literature, for example Haines (1998, p245). These are aimed at helping the development of understanding of that which is uncertain.

Central to uncertainty is the scope for surprise (Hammit and Shlyakhter, 1999; Aven, 2008; Aven and Renn, 2009). Without anticipating the research findings as to the nature of strategic risk in local authorities, it is wholly reasonable to assume that it embraces the potential for negative events to happen in the future. Given this, the surprises must at least include unpleasant ones. In turn, this suggests that risk assessment methodologies should seek to minimise the scope for surprise.

Risk assessments must avoid assuming or presenting risks as being more precise than they are and can be (Emblemsvåg and Kjølstad 2002; Jablonowski, 2000 and 2002). To do otherwise is to fool ourselves:

"by disguising ... uncertainty using false precision, we are only fooling ourselves"
(Jablonowski, 2000)

It may not be necessary, even if it were possible, to pin down the uncertainties particularly closely.

"If the goal [of the risk assessment] is to answer the question, what is the risk of particular threats, the uncertainty fine points are often in the noise of the analysis and such resolution is not needed to support effective decision making" (Garrick, 2010, p369).

Jablonowski (2000 and 2002) argues that by recognising the full extent of the uncertainty in a risk assessment, the actual level of risk is reduced. This reflects the reduced scope for surprises. A key judgement to be made is how to strike an appropriate balance between meaningfulness and precision. Risk assessments should lean towards the former and resist the temptation to overdo the latter.

Ultimately, falsely precise risk assessments can lead to risks being accepted when they would not be accepted if the uncertainties were fully appreciated (Jablonowski, 2000 and 2002). Jablonowski draws a distinction between the higher level of precision desired by academics and researchers and that needed by practitioners, taking a similar position to Garrick about the *“uncertainty fine points ... often [being] in the noise of the analysis”* (ibid). There is perhaps also a reality check to be made here about the time and resources available to the practitioner, an issue that rarely seems to be touched on in the academic literature.

“We may need to be satisfied with approximations” (Jablonowski, 2002, p26).

Hansson (2006) draws a distinction between endodoxastic uncertainty and metadoxastic uncertainty. Endodoxastic is *“the uncertainty ... expressed in a risk assessment”* (ibid, p231) and metadoxastic uncertainty is *“about which of several competing assessments is correct”* (ibid, p231). Hansson indicates that *“a common approach to metadoxastic uncertainty is to only take the most plausible assessment into account”* (ibid, p231). The fundamental conclusion would appear to be that a risk assessment based on a single view of the risk carries two levels of uncertainty: the uncertainty in the view taken and the uncertainty inherent in there being competing views. This indicates potential merit in Grassi et al’s (2009) fuzzy risk assessment approach which enabled three views to be taken of each risk, transcending the need to take a single view with the metadoxastic uncertainty of doing so. The basis of assessment and risk scenarios, views inherent in issues of metadoxastic risk, are considered in more detail in Section 2.7.4.

Aven (2008) argues that confidence limits do not work in situations of data scarcity. Jablonowski (2002) supports this with the view that they *“assess uncertainty due to randomness [but] do not address the idea of knowledge imperfection directly”* (ibid, p27). They can work for aleatoric uncertainty, but not for epistemic uncertainty. As the research is clearly in a context that includes epistemic uncertainty, there appears to be little point exploring confidence limit based approaches to risk assessment.

The fuzzy approach taken by Grassi et al (2009), however, appears to have considerable potential and there are no indications that the problems with applying confidence limits to cases of epistemic uncertainty apply. First impressions are that the authors’ approach will need significant adjustment and development before it can be applied outside the health and safety context and that it may need further significant adjustment to make it a good fit in the local authority strategic risk context. This forms a key element of the research to address Research Question Two.

2.6.2. Complexity

As has already been seen, complexity and risk are discussed widely in the literature. Complex risks are *“likely to result from a complex chain of events and circumstances”* (De Marchi, 2003, p644).

The issue of the complexity of strategic risk in local authorities is not considered in the literature, although Munro’s (1999 and 2009), Houston’s (2001) and Johnson and Petrie’s (2004) work on risk in child protection, a local authority service, would seem to suggest complexity in this area of risk. Aven and Renn’s (2009) work on terrorism risk concludes that it is complex and the basis of their analysis suggests that some further strategic risks in local authorities may also be complex.

Two key consequences of complexity are that uncertainty tends to increase with complexity (Aven 2008; Haimes et al 2009), and complexity leads to difficulties identifying and quantifying causal links because of the many interactions (Aven and Renn, 2009).

Hatfield and Hipel (2002) provide a compelling argument for specifically carrying out research to determine whether strategic risks in local authority are complex and for incorporating the implications of the answer to that question into the subsequent research into the assessment of such risks.

“Traditional risk assessment and management have not fared well in handling [complex, very uncertain, high stakes] multidisciplinary, multidomain situations” (ibid, p1043)

Hence, the research needs to address the issue of whether strategic risk in local authorities is significantly complex before addressing its assessment, as this will have a critical bearing on the possible approaches to assessment to be researched. If this initial research indicates that there is a significant degree of complexity in local authority strategic risk, a review of the relevant literature will also need to be carried out.

2.6.3. Controls

Controls exist to help organisations manage risk (Spira and Page, 2003). They are those measures taken by management to reduce one or more dimensions of risk, for example to make a risk less likely to happen or to reduce its impact if it does happen.

Such measures are important in complex public sector contexts. In a child protection context, they are seen by Munro (2009) as being *“strategies for controlling [errant human beings] ... [which] ... minimis[e] the scope for individual judgment”* by standardising processes and management oversight *“to ensure workers are complying with the ...set of rules”* (p1021). The specific risk context of seeking to avoid very serious negative events happening is very important here and the specific measures described need to be considered in the light of Munro’s explanation that these controls specifically address identified key sources of failure in child protection.

Corvellec (2009) provides more general examples of controls, for example having the right managers and appropriate contracts. Chelst and Bodily (2000) provide a substantial list of possible controls - *“management activities that add value and reduce risk”* (ibid, p1422). These include: *“incentive systems”*; *“tried and true fallback systems”*; *“agile workforce”*; *“supplier cooperation”*; and *“insurance against contingencies”* and effectively demonstrate that controls are not just a matter of financial management but potentially embrace all aspects of an organisation’s activities and the risks that it faces.

Nilsen and Olsen (2005) provide an interesting perspective on controls in the context of lay and societal perceptions of risk, concluding that communities tend to undervalue the contribution of controls. In essence, they are suggesting that community assessments of risk do not take sufficient account of the risk reducing effects of the controls put in place and operated by the organisation in which the risk potentially arises. This is perhaps not surprising as those communities may perceive the risk and not see, or perhaps see but not fully understand or trust, the controls and so understate

the positive effects of those controls in comparison to an assessment of their effect undertaken by the management of the organisation which draws on greater knowledge. It would of course also be possible for the managers in this situation to make false and/or incomplete assumptions which would reduce the reliability of their risk assessment.

If controls are a key aspect of risk to be taken account of in a risk assessment, the question must arise as to how their effectiveness can be assessed. There is little in the risk literature on this. Books on auditing provide some generalised ideas, particularly about the external auditor's risk exposure arising from the risk of giving the wrong opinion on an organisation's final accounts (see for example Shearer and Turley, 1997). Leitch (2008) tells us that the "*better quantification*" of control judgements is a key challenge for the future.

"It's ironic that internal controls thinking, despite being a movement led by the big audit firms (of accountants), has paid almost no attention to quantifying risks or the benefit of controls in a credible, mathematically competent, and data-supported way. Most assessments don't get past 'high – medium – low.'" (ibid, p244)

The research consequently needs to address issues of control confidence and its quantification within a risk assessment model.

2.6.4. Ambiguity

Klinke and Renn's (2009) sense of ambiguity as denoting "*the variability of (legitimate) interpretation based on identical observations or data assessments*" (ibid, p1085) suggests that it is a matter to be taken into account in the design of the assessment tools and not an assessment variable. Klinke and Renn's alternative term of "*ambivalence*" (ibid, p1085) usefully clarifies that ambiguity is about interpretation. They go on to say that these differences in interpretation are the most common source of dispute about risk assessments. In turn, this suggests that there are two potential places within the risk management process as a whole to address ambiguity:

- Firstly, in the design of the assessment criteria: if, for example, an avoidable death is perceived to be an extremely serious event, the risk assessment model needs to reflect this; and
- Secondly, the decision-making needs to take into account such value issues.

The second point reinforces the need for providing information about the risks assessed to decision-makers that goes beyond a mere prioritisation of those risks as discussed in Section 2.3.2.

2.6.5. Categorisation of Risk

The categorisation of risk, for example as being an *IT Risk* or a *Financial Risk*, could be interpreted or presented as an over-arching aspect of risk. However, this is not a key topic in the literature and is recognised as a tool to help the identification of risk and not one for risk assessment (Roth and Espersen, 2002). The purpose of this categorisation is to help those seeking to identify the risk facing an organisation to focus on specific issues. The sample risk categories identified by Roth and Espersen derive from a combination of activities and convenient summary headings, for example "*investment / credit risk*", "*information / data quality*" and "*customers / stakeholders*" (ibid, p58). It is

perhaps not surprising that this appears in the practitioner literature. Serving as a reminder of the importance of context in all aspects of risk, Roth and Espersen are clear that *“it isn’t possible to develop a set of risk categories that would fit all organizations”* (ibid, p57).

As the research concerns risk assessment, issues of categorisation will not be considered.

2.6.6. Summary – Over-Arching Aspects of Risk

Current Knowledge

- a) Risk is first and foremost about uncertainty and the assessment of risk must reflect that uncertainty and not suppress it by pretending to be able to provide falsely precise risk assessments. A useful perspective is to see the uncertainty that is not presented in a risk assessment as the scope for surprise, and nasty surprises are to be avoided. Allied to this are important issues of ambiguity (Section 2.6.1).
- b) The research is in a context that includes epistemic uncertainty and so there is little point exploring confidence limit based approaches to risk assessment (Section 2.6.1).
- c) Risk assessment should be informed by an understanding of the extent to which the risks to be assessed are complex as this has a critical bearing on the assessment process, issues of uncertainty and the effectiveness of the risk assessment (Section 2.6.2).
- d) The controls implemented by organisations to avoid or mitigate risks should be taken into account in risk assessments as they are a significant factor in determining the level of risk at the time of the assessment (Section 2.6.3).
- e) Ambiguity is a key element of risk and source of dispute about risk assessments (Section 2.6.4).
- f) Categorisation of risk is primarily a risk identification tool and not an aid to risk assessment and so is outside the scope of the research (Section 2.6.5).

Gaps in Knowledge

- a) Whilst it is clear that uncertainty is central to risk, there is no generally accepted method for modelling uncertainty in risk. Consequently, it is not clear from the literature how to reflect it in the assessment of strategic risk in a local authority (Section 2.6.1.).
- b) Fuzzy approaches appear to have much to offer in the assessment of risk, particularly as regards a more meaningful reflection of uncertainty in risk assessments but the form and extent of this contribution need to be established (Section 2.6.1).
- c) The extent to which strategic risk in local authorities is significantly complex has not been established in the literature (Section 2.6.2).
- d) The research needs to address issues of control confidence and its quantification within a risk assessment model (Section 2.6.3).
- e) The literature review suggests that ambiguity should be taken into account in the value judgements in the risk assessment model and an additional need for providing decision-makers with information about the risks assessed that goes beyond prioritisation for decision-making (Section 2.6.4).

2.7. Measuring Strategic Risk

This section reviews the literature associated with the measurement, or estimation, of risk. It considers: whether strategic risk is quantitative or qualitative; the relevance of probabilities and expected values and their limitations; the arguments for and against lay and expert risk assessments; the basis of risk assessments; and the form, value and limitations of risk matrices and alternative assessment tools. It established issues of cost to be outside of the scope of the research and highlights the potential contribution of risk assessment models that take into account the combined effects of multiple impacts.

2.7.1. Is Strategic Risk Quantitative or Qualitative?

Just as *“risk cannot be reduced to quantifiable uncertainty”* (Corvellec, 2010, p147), there is a seemingly dominant thread of literature supporting the position that risk that is not essentially technical and for which plenty of data is not available is qualitative. As a simple summary of the position, it would seem that where people and matters of emotion come into risk and risk assessment, qualitative issues arise. It must, however, be recognised that there is a continuing debate on this in the literature with some writers, for example Cox (see for example Cox et al (2003), seeking to argue that risk is, or should be, primarily quantitative.

Accepting that risk is fundamentally context-dependent, the position accepted for the research into the assessment of strategic risk in local authorities is that such risk necessarily has qualitative aspects. The potential implication of this, that risk assessment could become a discursive process (see for example Aven, 2008), is not persuasive, leading to inherent problems achieving reliability and consistency in a process intended to inform resource allocation decisions and which must be seen to be credible and fair. The literature on the relevance of perceptions is sufficient here, notwithstanding that a wider case may also be able to be made.

However, neither quantitative nor qualitative approaches alone can tell the whole story for complex risks and these are best served by a semi quantitative approach:

“a broad risk assessment approach characterising uncertainties beyond probabilities and expected values would be more appropriate [for situations involving complexity and ambiguity]” (Aven and Renn, 2009, p594).

Campbell’s (2005) argument that quantification helps make the risk assessment process less subjective adds a useful caveat to this. Risk assessment should accept qualitative assessments where the aspects of the risk are qualitative, but should also seek quantitative assessment for the quantitative aspects. Means of formalising qualitative assessments should, by implication, also be sought. Such a mixed approach needs a means to equate qualitative and quantitative factors, for example a financial loss and a failure to deliver key social care services to older people.

Roth and Espersen (2002) provide both a reminder and a warning about vulnerability to qualitative risks and the importance of engaging with them in a risk assessment:

“impact in many risk categories is qualitative, and it is usually the qualitative risks that don’t occur to anyone until it is too late” (ibid, p58).

Cox et al (2003) highlight the scope for misunderstanding and inconsistency that arises from qualitative risk language, for example “High”.

Ultimately, risk is neither wholly quantitative nor wholly qualitative (MacGill and Siu, 2004; Campbell, 2005). Key to the issue of whether risk is quantitative or qualitative are the questions of complexity and uncertainty, again reinforcing the need to understand risk in the context in which it arises before an assessment methodology is defined, a methodology which must be driven by the nature of the risks being assessed.

More subjective risk assessment methodologies have the potential to allow bias to affect the assessments (Cox, 2007; Wolters, 2008). This needs to be guarded against. If risk assessment processes are to recognise qualitative issues whilst remaining consistent, reliable, credible and trusted, attention clearly needs to be paid to the mechanisms which will maximise the achievement of these objectives. These cautions will inform the research to address Research Question Two.

2.7.2. Probabilities and Expected Values

In a qualitative assessment, the dimension of risk concerning the chance of a risk happening is usually described as the likelihood: a qualitative description of probability (Emblemsvåg and Kjølstad, 2002). Likelihood can also be about degrees of belief and possibility, as discussed in Emblemsvåg and Kjølstad (2002).

Possibility-based approaches tend, in comparison to probability-based approaches, to add weight to risks towards the bottom end of the probability range (Emblemsvåg and Kjølstad, 2002). Low probability risks are not dismissed because they are seen to be possible when a purely probability-based assessment might dismiss them. This has echoes of the precautionary principle. Jablonowski (2002) appears to reinforce the potential value of such approaches, arguing that *“the results of statistical risk assessments can be highly inaccurate for losses where predicted probability falls below ten percent”* (ibid, p26). The decision-weight adjustment set out by Hansson (2005b) whereby very low and/or very high probabilities can be adjusted to reflect their significance is an interesting one in this context and one to be borne in mind for research purposes. The adjustment recognises that the 0 – 10% range has a greater significance than, say, the 35 – 45% range, even though both cover a range of ten percentage points.

Emblemsvåg and Kjølstad (2002) specifically argue that probability theory is a poor fit in the strategic risk assessment context. Probabilities can only capture some of the uncertainty of risk (Aven, 2006) and probabilistic approaches present other problems. Reliance on probabilities can lead to nasty surprises, particularly when there is little or no historical data: the less data, the greater the uncertainty (Aven, 2008; Aven and Renn 2009; Jablonowski, 2002), assuming that reliable probabilities can even be calculated.

Sarewitz et al (2003) provide an additional note of caution about basing risk assessments on historical data, even if it does exist:

“Extrapolating from ... past events to the immediate future does little more than guarantee that risk estimates for [events] of particular magnitudes will be wrong” (ibid, p806).

Data scarcity is a particular problem with probabilistic approaches. The absence of data presents “*profound difficulties*” (Macgill and Siu, 2004, p324) for risk assessment.

As part of the on-going, but ultimately less persuasive, argument for probabilistic approaches, Haimes et al (2002) use and advocate an approach based on the elicitation of probabilities using a Bayesian approach. The context of this, critically, is a time-intensive risk assessment process. It is clear that even if other arguments against a non-probabilistic approach are not relevant, such an approach demands substantial levels of skill, time and, consequently, resources. Hora (1996) provides an example of such a resource intensive approach, one that deals with just a single risk problem of hazardous waste management.

Aven and Renn (2009) argue that:

“the Bayesian approach provides only an incomplete picture of risk” (ibid, p598) as “the main component of risk is uncertainty, not probability” (ibid, p594).

The “*probability of a chain of events can be very difficult to determine even if we know the probability of each individual event*” (Hansson, 2005a, p74) due to issues of independence, dependency and the practical impossibility of identifying all those dependencies. This is most clearly problematic in a complex context, though it may also be problematic in contexts that could be described as merely complicated but which do not fall within the scope of complex systems.

There is a strong and cogent argument that exact probabilities do not actually matter. The line of argument is that risk assessments do not need to be that fine, even if they can be: “*the precise probability of harm associated with some course-of-action is irrelevant to the claim that we should, in general, regulate that course of action*” (John, 2010, p14). This is wholly consistent with the position that overall uncertainty and the need to avoid distracting “*noise*” (Garrick, 2010) in risk assessments are of primary importance and precise probabilities much less so and that they may be a source of dangerous delusion (Jablonowski, 2002).

In support of the intermediate approach advocated by Aven and Renn (2009), Wolters’ position that “*improved statistical thinking will ... help to avoid the irrationality that can sometimes derail the social management of risk*” (2008, p25) suggests that there is a place for reference probabilities, at least in terms of probability ranges, within an intermediate approach, though the argument above would suggest that those ranges need not and should not be narrow ones.

The relevance and appropriateness of probabilities appears from the literature to turn on a number of issues:

- a) The level of uncertainty;
- b) The extent of any complexity;
- c) The availability of historical data; and
- d) The availability of time, skill and resources to support a risk elicitation process⁶.

⁶ The results of the subsidiary review of the scenario planning literature presented In Section 6.4.3 indicate that these are also key factors in scenario planning: techniques found to be a source of valuable insights for the later stages of the research.

The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. These issues will be addressed to make this determination. The arguments for avoiding false precision and noise in risk assessments will be carefully heeded in addressing Research Question One, as will the further cautions about the potential adverse consequences of reliance on probabilities.

As a contrast to the position that complexity tends to require a qualitative approach to risk assessment, Cox et al (2003) specifically argue that “*qualitative risk analysis systems ... can perform poorly in situations where quantitative risks are well described by simple models*” (ibid, p658). This reinforces the case for research into the nature of strategic risk in local authorities. Just as complexity will imply a need for a qualitative approach, simplicity may imply a need for a quantitative approach. It will, of course, be important to bear in mind that complexity is only one of the emerging key criteria for a qualitative approach to risk assessment. A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made.

Given the basis of their calculation, it is hardly surprising that similar arguments arise around expected values not telling the whole story about risk.

Whilst risks are a function of the likelihood that they might happen, this is not the whole story and risks cannot simply be reduced to expected values as they do not scale, they are only an assumed typical case (Aven, 2006), and there are fundamental issues of uncertainty that go beyond probabilities and expected values (Hansson, 2005a; Aven, 2006 and 2008; Aven and Renn, 2009). They are, however, part of the story even if they are not the complete story. An example of the scaling problem in the public sector would be that of an expected value calculated from a large financial loss in a public service failing to reflect the additional problems, for example service interruption due to the budgetary shortfall caused by the large loss, that would not be indicated by scaling up from a risk with the same probability and a much smaller financial loss. In essence, a loss of £100,000 could be more than 100 times as serious as one of £1,000. Hansson (2007) summarises the position as being that “*we need a decision framework that has room for cautious decision-making*” (ibid, p654).

The key message from the literature about expected values is that they tell part of the story about risk, but not the whole story. We need to look for ways to tell the rest of the story, a story about the wider uncertainties. Haimes (2009) emphasises the particular importance of this for “*low probabilities with extreme consequences*” (ibid, p1652): the risks that Taleb (2007) calls *Black Swans*. Expected values should not be used “*as the sole measurement of risk*” (ibid, p1652). Research Question Two, in part, seeks to identify appropriate ways to take account of expected values within risk assessments whilst heeding their limitations.

2.7.3. Lay and Expert Risk Assessments

As already discussed, the relevance of perceptions of risk and stakeholder interests to risk assessments is a key topic that emerges from the risk literature. A closely related topic is that of who should actually carry out risk assessments: lay people or experts.

It is clearly established, and perhaps axiomatic, that risk assessments have to be based on a sound understanding of the risks and their context. This requires expertise and therefore experts, who are especially important for dealing with the uncertainties of risk. There is “*no escape from expert judgement in risk assessment*” (Claycamp, 2006, p151) and methods which appear to avoid the need for experts actually use them behind the scenes. These expert judgements are primarily needed to address the uncertainties and complexities in the risk assessment.

However, experts cannot however know everything. In the public management context, De Marchi (2003) is clear that they need to talk to others to add to their knowledge. Given the critical issues of epistemic uncertainty, they will not of course be able to gain complete knowledge however many people they talk to.

“There is also another aspect that is often neglected: The experts may be wrong”
(Hansson, 2001, p13).

Hansson later argues not only that experts are not infallible but that “*the possibility of the experts being wrong may very well be a dominant part of the risk*” (2004b, p4). This is a compelling reminder of the centrality of uncertainty to risk assessments. In many ways, the failure to reflect this uncertainty transcends the idea of lay people or experts being wrong. This, in turn, suggests that whilst there are of course some inputs to risk assessments about which it is possible to simply be wrong, an activity which does not come within the scope of a set of legal obligations defined by statute cannot be at risk of being in breach of those obligations: for example, there are many others for which the answer has a qualifying *maybe* or *perhaps*. The uncertainties mean that the answer cannot be simply right or wrong. A better question is that of who can add to the understanding of the risk, whatever their technical standing.

Lay people and experts tend to come to different magnitude judgements (Savadori et al, 1998).

Lay people are unlikely to be a consistently reliable source of risk assessment. A reading of Johnson (2003) creates a sense that the level of lay interest may well vary between risks depending upon the level of resonance that each risk has with each lay person. For example, it would seem reasonable to suggest that issues of personal safety may be of significantly greater interest than technical legal or engineering issues which most lay people will not understand or recognise.

The absence, however necessary, of a universal definition and sense of risk impacts the issues of lay and expert roles in risk assessment. Johnson (2003) concludes from research that as a result of these differences, lay people see the experts’ risk statistics and do not believe them. Peters et al (2007) add an extra facet to this with their conclusion that “*the less numerate tend to trust numerical information less than their more numerate peers*” (ibid, 743). One is reminded of the quote often

attributed to Mark Twain about *Lies, Damned Lies and Statistics*. Johnson (2003) also argues that the misalignment of senses of risk leads to distrust of risk managers.

Based on further empirical research, Johnson (2004) concludes that a multidimensional model of risk is more credible as there is more likely to be an element of the risk assessment that resonates with a lay audience. Whilst fitting the issues of lay distrust set out above, this is not persuasive. A risk model must be trusted but it must also provide a reliable assessment of risk. There seems little point in developing a resonant risk assessment model unless it actually provides a reliable assessment of risk.

There is a difficult issue here. Hansson (2005a) argues that lay people's exclusion from the assessment of risks in which they have an interest, whether that is explicit exclusion or exclusion by the adoption of inaccessible technical methodologies, is a key element of lay distrust of risk assessments.

Following the seemingly inherent human tendency to be unrealistically optimistic (Sharot et al, 2011), lay people tend to display over-confidence about low probability / high consequence risks and assess them to be less serious than they actually are (Li et al, 2010). This over-confidence is accompanied by a "*neglect of potential surprise*" (Hammit and Shlyakhter, 1999, p135). These risks are the *Black Swans* that Taleb (2007) so clearly warns us tend to be understated in risk assessments. Implicit in Taleb's work is the indication that *Black Swans* are an example of serious risk assessment errors by experts in the assessment design.

It would seem reasonable to partly subsume this issue into the larger one of stakeholder engagement in risk assessments as a whole. This, along with the need to ensure that *Black Swans* are reliably identified, is taken into account in the research to address Research Question Two.

2.7.4. The Basis of Assessment and Risk Scenarios

The literature review has established that uncertainty is an essential characteristic of risk. As a consequence of this uncertainty, it is to be expected that those assessing risk will be faced with a dilemma. Which of a number of possible views of the risk do they take as the basis of the assessment? They may, for example, be able to construct a pessimistic case and an optimistic case; they may have a sense of a worst case; or there may be competing views. This is the question of metadoxastic uncertainty discussed earlier in the literature review.

Fertis et al (2012) argue that a robust assessment requires risks to be assessed at worst case. This supports Cox et al's (2003) early finding that "*to deal with uncertainties, risk analysts have long used conservative (upper-bound) estimates*" (ibid, p658). The justification for this approach is interesting and consistent with the cautious nature of risk management as a whole. Those risk analysts who have adopted "*conservative (upper-bound) estimates*" do so "*.... recognising that doing so leads to an estimate ... that may be too high but that is unlikely to be too low*" (ibid, p658). They take this approach considering significant understatement of a risk to be a more serious error than significant overstatement.

Hansson identifies an alternative practice. “A common approach ... is to only take the most plausible assessment into account” (2006, p231). As Hansson recognises, this leads to the question of which of the possible assessments is the most plausible. There are, of course, further questions, not least about the robustness of the decision as to which is the most plausible and the appropriateness of the implicit dismissal of the judgements summarised by Cox et al supporting the use of “conservative (upper-bound) estimates” (ibid).

Paté-Cornell (2002) has found that there are “at least six levels of sophistication in the treatment of uncertainties, each adapted to particular situation ...:

- Simple identification of a hazard ...
- Worst-case ...
- Quasi-worst case and plausible upper bounds ...
- Best estimates The ‘most credible estimate’
- First-order probabilistic risk analysis based on mean probabilities or future frequencies ...
- Second-order probabilistic risk analysis ” (ibid, pp638 – 639).

The first of these seems to be of little value in the research context. A risk assessment that does no more than ask if there is a risk or not, ignoring questions of significance, is very unlikely to be of much value. The second and third are in line with Fertis et al (2012) and Cox et al (2003) but add a useful point of clarity, differentiating between the absolute worst case and the plausible worst case: the worst case that can be genuinely foreseen, rather than the most fanciful worst case that can be imagined. The fourth follows the practice identified by Hansson (2006) and the fifth and sixth require a probabilistic approach to be appropriate to the risks being assessed.

Grassi et al’s (2009) research adopting a fuzzy approach to assessing health and safety risk seeks to offer a solution to this assessment case problem. It assesses risk on the basis of three assessment points, albeit ones which are not explicitly defined. Implicitly, they are the best case, the most likely case and the worst case. It is not clear whether the best and worst cases are the absolute or plausible ones, although the short assessment scales used may mean that in most cases they were the same.

The consideration of assessment points or levels suggests a relevance for scenario-based approaches to decision-support methodologies. Aven and Renn (2009) support this view, advocating a broad risk assessment beyond probabilities and expected values with “qualitative uncertainty assessment and scenario building instruments” (ibid, p 587). Aven (2008) previously advocated this when writing alone, as had Haimes et al (2002) a few years earlier.

Grassi et al’s (2009) fuzzy approach points to a possible solution to the dilemma of assessment points or levels. Substantially greater thought is needed to address the underlying issues, for example the adoption of plausible or absolute best and worst cases positions. A subsidiary review of the scenario-planning literature and consideration of its potential contribution needs to be undertaken at an early stage of the research and used to inform the exploration of fuzzy

approaches⁷. These tasks form an important element of the research to address Research Question Two.

2.7.5. Risk Matrices and Alternative Tools

Risk matrices are a common tool for assessing risk but there are cogent arguments that they are flawed and have significant limitations (Cox et al, 2003; Cox, 2007; Cox, 2008; and Ward, 1999). It is to be noted that the literature criticising risk matrices is dominated by Cox who consistently argues that risk is a quantitative concept driven by probabilities. This is a position that the literature review has established that a number of other writers on risk do not hold and which, like all issues of risk definition and construction, is subject to contextual variation.

A risk matrix is a simple, accessible tool for assessing and presenting risk. The relevant literature indicates that it is associated with the standard or traditional two-dimensional impact / likelihood model of risk. There are a number of examples in the literature, for example Burnaby and Hass (2009) and Ward (1999) present three different 3x3 risk matrices and Haimes et al (2002) present a larger 5x5 risk matrix.

Figure 2.5: Risk Matrices from the Literature

Likelihood of Occurrence	Probable			
	Possible			
	Unlikely			
		Minor	Damaging	Catastrophic
Impact on the Organization				

(Source: Burnaby and Hass, 2009, p545)

		Probability		
		Low	Medium	High
Impact	Low	1	1	2
	Medium	1	2	3
	High	2	3	3

(Source: Ward, 1999, p332)

		Probability		
		Low - score 1	Medium - score 5	High - score 10
Impact	Low - score 1	1	5	10
	Medium - score 5	5	25	50
	High - score 10	10	50	100

(Source: Ward, 1999, p332)

⁷ The results of this are presented in Section 6.4.3

Likelihood \ Effect	Unlikely	Seldom	Occasional	Likely	Frequent
A. Loss of Life/Asset (Catastrophic event)					
B. Loss of Mission					
C. Loss of capability with compromise of some mission					
D. Loss of some capability, with no effect on mission					
E. Minor or No Effect					

Low Risk	Moderate Risk	High Risk	Extremely High Risk

(Source: Haimes et al, 2002, p389)

There is no standard form for such matrices and they use a mixture of quantitative and qualitative approaches. Ward (1999) refers to them as *probability-impact grids*. The basic logic is that “*highly rated risks can expect to receive more attention from risk managers than lowly rated risks*” (Ward, 1999, p332).

Cox (2008) concludes that they have the following key limitations:

- The values assigned to individual cells can lead to false equalities and rankings, leading to flawed resource allocation decisions; and
- Brief qualitative descriptions of impact categories can be interpreted differently by different risk assessors.

His summary is that “*risk matrices should be used with caution and with careful explanations of embedded judgments*” (ibid, p497). He also indicates that expected values have a potential contribution to more reliable cell scoring, though he appears to make an unnoticed error himself in this respect by using a non-ratio scale for the expected-value calculations he carries out to critique a third party risk matrix. A more detailed point in his analysis that Cox notes but does not emphasise is that risk matrices tend to understate high impact /low probability risks, particularly in comparison to low impact / high probability risks. The overriding message from Cox (2008) is that risk matrices should be designed carefully, paying particular attention to how they are to be used and by whom.

The simple 3x3 matrices may be more credible than they might at first appear given the uncertain and imprecise nature of risk. This possibility of a simple risk matrix being a good enough solution to the risk assessment problem will be borne in mind throughout the research as a possible foil to any tendencies to drift towards unnecessarily complex solutions.

Ward (1999) talks about the possibility of using multiple impact / probability grids (risk matrices) to assess different types of impact for the same risk but does not present an example of such an approach and does not say how the overall seriousness of the risk as a whole would be determined. No such approach has been seen elsewhere in the risk literature.

Ward (1999) also argues that impact / probability grids (risk matrices) are attractive because they are not very precise and that they are *“particularly convenient in the early stages of a risk analysis when the analyst may have limited information about individual risks”* (ibid, p333). He cautions against simplistically focusing just on the high impact, very likely risks.

Aven (2008) starts to develop ideas about the representation of greater uncertainty within the risk matrix form by suggesting that risks could be shown covering more than one cell in the risk matrix but does not develop this idea.

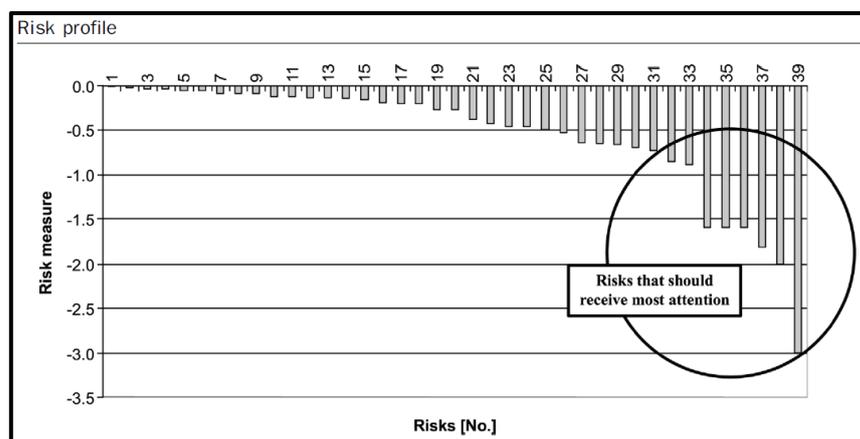
A common approach is to assign ordinal values, perhaps 1 to 5 in a 5x5 matrix, to impact and likelihood and then to multiply these to arrive at a risk score. Ward (1999) warns that such multiplication of ordinal, or other assigned scores, means that the calculated risk scores do not represent relative seriousness or importance. For Ward, such scoring is an appealing approach which looks like expected value calculations and so appears to have the credibility of expected values, notwithstanding that expected values have their own significant limitations.

An alternative to calculating cell values is to judgementally allocate scores: *“it is not necessarily described by a convenient formula or decision rule”* (Ward, 1999, p332). Such judgemental rankings are a policy decision (Ward, 1999).

Cells do not necessarily have to have numbers assigned to them, it could be letters of the alphabet, to avoid the problems with numeric scores giving a *“misleading impression of precision and objectivity”* (Ward, 1999, p333).

There are few alternatives to risk matrices in the literature. Emblemsvåg and Kjølstad (2002) present a simple ordered bar chart in which each risk is scored and those with the highest (most negative) score are highlighted as *“risks that should receive most attention”* (ibid, p850). This is a simple and accessible presentation, as shown in Figure 2.6.

Figure 2.6: Emblemsvåg and Kjølstad’s (2002) Risk Profile



(Source: Emblemsvåg and Kjølstad, 2002, p850)

Sidor and Lewus (2007) present a three dimension risk model with four levels scored 1, 4, 7 and 10 respectively in each and the total risk score derived by multiplying the three individual scores to give a *“Risk Priority Number”* (ibid, p55). The risks are then presented in a table sorted into descending *Risk Priority Number* order. Again, this is a simple and accessible presentation. The authors argue

that scales with more than the four levels used would be likely to lead to disputes and a lack of clarity about which to apply as such scales would require distinctions that are too fine to be made. This is an interesting point that resonates with the issues of the inherent uncertainty of risk and the need to avoid false precision that permeate the literature. The authors also state that they used an even number of levels to force decisions away from the centre of the scale. This is far less persuasive, though not to the extent that might be the case had one of the dimensions of risk been likelihood with the attendant attractiveness of an assessment point of *about even chance of happening*. The overall methodology is also problematic on the following grounds:

- The paper does not indicate why the scores are 1, 4, 7 and 10;
- It does not indicate why the model is a multiplicative one rather than, say, an additive one; and
- It does not say why the three dimensions are given equal weight.

This model is interesting for its advocacy for a simple four-point scale to assess each dimension, for the reasons stated for avoiding a finer scale and for its presentation of a risk assessment comprising more than the two dimensions presented in a risk matrix. It is also interesting for the questions that it raises concerning the development of a risk assessment model.

Usually wrapped up in the operation of risk matrices is the formulation of indicators as to what should be done about risks (Cox, 2008). The matrix from Haimes et al (2002) above is shaded to identify four zones, as shown in the key to the matrix. An alternative approach is to traffic-light the matrix into three zones: a zones of risks deemed to be minor (usually shown in green); a zone of risks deemed to require some management attention but which the organisation can tolerate (usually shown in yellow); and a zone of the risks deemed to be the most serious and which the organisation cannot tolerate (usually shown in red). A slightly different interpretation that can be placed on the middle zone is that these are the risks that should be reduced to a level that is As Low As Reasonably Possible (ALARP) (Aven, 2008).

In a rather narrow explanation, Archer (2002) indicates that *“the amount of risk an organization is prepared to take depends on its mission, values, and business objectives”* (ibid, p17). One would expect, for example, that an organisation’s tolerance for financial risk would in part be dependent on its financial strength.

In summary, the literature is clear that risk matrices are a useful and accessible tool that fits qualitative and quantitative constructions of risk. They do, however, need to be carefully designed and the underlying judgements carefully articulated and explained. Their simplicity sets a number of traps for the unwary, and temptations to complicate risk matrices by increasing the number of cells are perhaps to be resisted as they may lead to problems of false precision and to force users to make overly fine distinctions between impact and likelihood levels.

2.7.6. The Relevance of Cost and Benefit

The analytical position of the benefit associated with a risk and the cost of avoiding or mitigating a risk is not immediately clear in the literature.

These are presented as either a dimension of risk (Dardis et al 1983, p40) or as a factor in the management decision-making that follows the identification and assessment of risk (Haimes et al, 2002). However, a closer look indicates that this position has developed over time and that the more recent literature presents these factors as inputs to the decision-making and not as dimensions of risk. Cost and benefit are seen to be an input to the decision-making about how to address a risk and not as a part of the assessment of how serious the risk is.

It is also *“not quite as simple as weighing risks against benefits”* (Hansson, 2005a, p10), not least because *“cost-benefit analysis does not take persons seriously”* (ibid, p10), one of the reasons being that the costs and benefits accrue to different people. Ethically, interpersonal compensability – exposing one person or group to a risk for others’ benefit – is problematic (Hansson, 2007). Hence Hansson’s argument that such an approach would fail to respect the person. As a further argument against this approach, there are problems in weighing short and long term risks and benefits (Peters et al, 2007).

The conclusion of the review of the limited public sector risk literature that local authorities are faced with multiple obligations, many of which they cannot avoid and have to manage, further strengthens the argument against a risk / benefit approach for strategic risks in the public sector. If a risk arises as a result of an unavoidable legal obligation, for example, the risk may have to be tolerated irrespective of the results of any risk benefit calculation that may be performed.

The research will accept and follow the current position in the literature that cost or risk benefit analysis is part of the decision-making phase of risk management and not within the scope of risk assessment. Hence, it is outside the scope of the research.

2.7.7. Risk Assessment Models that Take into Account the Combined Effects of Multiple Impacts

Common sense would suggest that a risk with two or three potential, significant impacts would be more serious than a risk with just one of those potential impacts, assuming of course that both risks have the same likelihood. This is an issue that has received little attention in the literature.

Campbell (2005) advocates a model of risk that adds all the potential harms: *“overall risk ... is determined by summing the risks of each possible harm”* (ibid, p569). He demonstrates in a simple way how impacts treated on an expected value basis can be added to provide an estimate of total risk. In doing this he neglects the limitations of expected value based approaches to risk, though he does note that the total effect of two harms may be greater than the sum of the two individually. Ackermann et al (2014) also argue that the potential impact of multiple risks may be greater than the sum of the impacts of the individual risks.

The potential value of a risk assessment approach that takes into account the combined effects of multiple impacts approach needs to be explored as part of the research.

2.7.8. Summary – Measuring Strategic Risk

Current Knowledge

- a) Strategic risk is neither wholly qualitative nor wholly quantitative and assessment methodologies need to reflect this mix within a unifying methodology (Section 2.7.1).
- b) Probabilities and expected values have a contribution to make to risk assessments but do not tell the whole story as they fail to reflect the wider uncertainties (Section 2.7.2).
- c) Probabilities are particularly problematic in the absence of historical data: data which may not be indicative of the future and probabilities are especially difficult in complex contexts (Section 2.7.2).
- d) There is a strong and cogent argument that exact probabilities do not actually matter as risk assessments do not need to be that fine (Section 2.7.2).
- e) Particular attention should be paid to “*Black Swans*” (Taleb, 2007); those very unlikely risks that would have very serious consequences were they to happen. The seriousness of these risks tends to be understated (Sections 2.7.2 and 2.7.3).
- f) There is support in the literature for assessing risk on a worst case basis, though others suggest other bases of assessment (Section 2.7.4).
- g) Risk matrices are a useful and accessible risk assessment tool that fit qualitative and quantitative constructions of risk. They need to be carefully designed and the underlying judgements carefully articulated and explained. There are few alternatives to risk matrices in the literature (Section 2.7.5).
- h) The research will accept and follow the current position in the literature that cost or risk benefit analysis is part of the decision-making phase of risk management and not within the scope of risk assessment (Section 2.7.6).

Gaps in Knowledge

- a) The literature does not address the qualitative / quantitative dichotomy of public sector strategic risk (Section 2.7.1).
- b) If risk assessment processes are to recognise qualitative issues whilst remaining consistent, reliable, credible and trusted, attention clearly needs to be paid to the mechanisms which will maximise the achievement of these objectives (Section 2.7.1).
- c) The literature indicates that there is a role for probabilities and expected values in risk assessments but that they do not tell the whole story. There is significant gap in knowledge as regards how to incorporate them whilst reflecting the rest of that whole story in a risk assessment (Section 2.7.2). Closely allied to this is the need to address *Black Swans* (rare / catastrophic risks) in the same context (Sections 2.7.2 and 2.7.3).

d) The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).

e) The literature suggests a number of bases for risk assessment, e.g. worst and most likely cases. The research needs to address the most appropriate case for assessing strategic risk in local authorities. Fuzzy approaches and the scenario literature may provide a useful contribution to this, for example by enabling multiple bases of assessment (Section 2.7.4.).

f) The literature says little about alternatives to risk matrices, which may be particularly relevant if the research leads to more complex models of the risk than the two-dimensional impact / likelihood model of risk (Section 2.7.5).

g) The potential value of a risk assessment approach that takes into account the combined effects of multiple impacts approach needs to be explored as part of the research (Section 2.7.7).

2.8. Discussion and Conclusions

This chapter has reviewed the risk literature with the objectives of:

- a) Setting out the extent of current knowledge in the field of public sector strategic risk and its assessment;
- b) Identifying the gaps and key debates in that knowledge; and
- c) Enabling the formulation of appropriate research questions and generating ideas which might help to answer those questions.

2.8.1. Current Knowledge

The literature review has revealed a complex web of tightly inter-related aspects of risk which need to be understood individually and as a whole. Full summaries of current knowledge are provided at the end of each section. However, the most important points are as follows:

- a) The better risks are understood, the more effectively they can be managed.
- b) The necessary absence of a universal definition of risk;
- c) The need to derive the definition of risk and the approach to its assessment from its context and to ensure their credibility;
- d) Risk and our reactions to it are different in the public and private sectors;
- e) Risk management, and within it risk assessment are important management processes but they are difficult ones;

- f) Strategic risk assessments are normally seen as being about prioritising risk for management attention but they should also be designed to inform the decision-makers about the risks assessed;
- g) There is a well-established two-dimensional model of risk. In essence, how likely a risk is to occur and what the effects of it doing so will be;
- h) Risk is essentially a matter of
 - The dimensions of risk comprising likelihood, anticipated effects or impacts and possible stakeholder / societal element; and
 - The over-arching aspects of uncertainty, ambiguity, complexity and controls;
- i) If stakeholder issues are to be brought into a risk assessment this should be sufficiently resourced and done well;
- j) Strategic risk is neither wholly qualitative nor wholly quantitative and assessment methodologies need to reflect this mix within a unifying methodology that also embraces issues of perception;
- k) Probabilities and expected values have a contribution to make to risk assessments but do not tell the whole story and particular attention should be paid to “*Black Swans*” (Taleb, 2007);
- l) There is support in the literature for assessing risk on a worst case basis, though others suggest other bases of assessment; and
- m) Risk matrices are a useful and accessible risk assessment tool that fit qualitative and quantitative constructions of risk. They need to be carefully designed and the underlying judgements carefully articulated and explained and there are few alternatives to risk matrices in the literature.

2.8.2. Gaps in Knowledge

Osborne and Brown (2011) concluded that there is little literature on risk in the public sector and that what there is is unsatisfactory (Section 2.2.4). The research directly addresses this gap in the public management and risk literature and seeks to make a theoretical and methodological contribution to both bodies of literature concerning the nature of risk in the public sector and its assessment. The research will provide a summary and analysis of current practice, both in the UK and more widely. This is currently missing from the risk literature and presents a potentially substantial contribution in itself. Further gaps in public sector-specific risk knowledge relate to the treatment of stakeholder issues in public sector risk assessments and the construction of the impact dimension of strategic risk in local authorities.

2.8.3. Research Questions

The overriding messages from the literature are that there is a substantial gap in knowledge as regards the assessment of strategic risk in the public sector and in local authorities as part of the public sector. The research will address this gap. However, the literature review has clearly

established that before this can be done research needs to be undertaken to establish the nature of that risk. If this is not done, the research into risk assessment will be fundamentally flawed. The research questions are, therefore, as follows.

Research Question One (RQ1)

What is the nature of strategic risk in English local authorities?

Research Question Two (RQ2)

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

The following table cross-references the identified gaps in knowledge to the two research questions.

Table 2.5: Identified Gaps in Knowledge

	Research Question One	Research Question Two
<p><u>What is Risk?</u></p> <p>a) A local authority specific definition of strategic risk needs to be researched and developed. Aven and Renn's (2009) definition of risk may provide a useful starting point for doing this but the definition ultimately appears to need to be organisation-specific. Being sector-specific may not be enough (Section 2.2.1), though there are some hints as to elements of it, namely: the achievement of corporate objectives; the loss of something that is valued by key stakeholders; the avoidance of blame and reputation damage; and the issues about people and their concerns (Sections 2.2.1 and 2.2.4).</p> <p>b) There is little literature on the nature or management of strategic risk in local authorities (Section 2.2.4).</p>	<p>✓</p> <p>✓</p>	<p>✓</p>
<p><u>The Risk Management Process</u></p> <p>a) Risk assessment processes are highly dependent upon the available resources. The level of resources available in local authorities needs to be established to inform the research into appropriate assessment approaches (Section 2.3.1). The case may also need to be made for increased resources so that risk assessment processes are treated as a management priority and given the attention and resources to fulfil their potential (Section 2.3.2).</p> <p>b) The potential for risk assessment approaches to go beyond just ranking risks for management attention by providing information to inform their decision-making is currently just an unfulfilled aspiration in the literature (Sections 2.3.1. and 2.3.2).</p>		<p>✓</p> <p>✓</p>
<p><u>Models of Risk</u></p> <p>a) The literature suggests but does not establish a residual role for the precautionary principle in local authority risk assessments (Section 2.4.1).</p> <p>b) It is not clear how the over-arching aspects of uncertainty, ambiguity, potential complexity and controls should be treated in the assessment of strategic risk in local authorities as the literature does not address these issues (Section 2.4.3).</p> <p>c) Further gaps in public sector-specific risk knowledge relate to the treatment of stakeholder issues in public sector risk assessments and the construction of the impact dimension of strategic risk in local authorities (Section 2.4.3).</p>		<p>✓</p> <p>✓</p> <p>✓</p>

	Research Question One	Research Question Two
<p><u>Stakeholders and Perceptions</u></p> <p>a) There are gaps in public sector-specific risk knowledge that relate to the incorporation and treatment of stakeholder issues in public sector risk assessments (Section 2.5).</p> <p>b) It is unclear where the balance lays as between consulting stakeholders and seeking alternatives ways of taking into account their views and priorities in local authority risk assessments (Section 2.5.3).</p> <p>c) An appropriate basis for taking issues of trust into account in local authority strategic risk assessments needs to be established, although the initial sense is that there seems to be no reason to prescriptively define the elements of trust, and very good reason not to seek to do so (Sections 2.5.4 and 2.5.5).</p>		<p>✓</p> <p>✓</p> <p>✓</p>
<p><u>Over-Arching Aspects of Risk</u></p> <p>a) Whilst it is clear that uncertainty is central to risk, there is no generally accepted method for modelling uncertainty in risk. Consequently, it is not clear from the literature how to reflect it in the assessment of strategic risk in a local authority (Section 2.6.1.).</p> <p>b) Fuzzy approaches appear to have much to offer in the assessment of risk, particularly as regards a more meaningful reflection of uncertainty in risk assessments but the form and extent of this contribution need to be established (Section 2.6.1).</p> <p>c) The extent to which strategic risk in local authorities is significantly complex has not been established in the literature (Section 2.6.2).</p> <p>d) The research needs to address issues of control confidence and its quantification within a risk assessment model (Section 2.6.3).</p> <p>e) The literature review suggests that ambiguity should be taken into account in the value judgements in the risk assessment model and an additional need for providing decision-makers with information about the risks assessed that goes beyond prioritisation for decision-making (Section 2.6.4).</p>	<p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
<p><u>Measuring Strategic Risk</u></p> <p>a) The literature does not address the qualitative / quantitative dichotomy of public sector strategic risk (Section 2.7.1).</p> <p>b) If risk assessment processes are to recognise qualitative issues whilst remaining consistent, reliable, credible and trusted, attention clearly needs to be paid to the mechanisms which will maximise the achievement of these objectives (Section 2.7.1).</p> <p>c) The literature indicates that there is a role for probabilities and expected values in risk assessments but that they do not tell the whole story. There is significant gap in knowledge as regards how to incorporate them whilst reflecting the rest of that whole story in a risk assessment (Section 2.7.2). Closely allied to this is the need to address <i>Black Swans</i> (rare / catastrophic risks) in the same context (Sections 2.7.2 and 2.7.3).</p> <p>d) The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).</p>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>

	Research Question One	Research Question Two
e) The literature suggests a number of bases for risk assessment, e.g. worst and most likely cases. The research needs to address the most appropriate case for assessing strategic risk in local authorities. Fuzzy approaches and the scenario literature may provide a useful contribution to this, for example by enabling multiple bases of assessment (Section 2.7.4).		✓
f) The literature says little about alternatives to risk matrices, which may be particularly relevant if the research leads to more complex models of the risk than the two-dimensional impact / likelihood model of risk (Section 2.7.5).		✓
g) The potential value of a risk assessment approach that takes into account the combined effects of multiple impacts approach needs to be explored as part of the research (Section 2.7.7).		✓

The research processes to address the research questions and the specific gaps in the literature are described in the methodology chapters.

The specialist literature with respect to the following will be reviewed and drawn upon to help to address these questions.

- The analysis of knowledge and the identification and differentiation between the simple, the complex and any appropriate intermediate positions
- Complexity theory
- Fuzzy logic, mathematics and sets
- Scenario planning
- Modelling

As stated in Chapter 1, the research as a whole follows Cepiku's (2011) call for public management research *"to produce conceptual systems for public managers to use to guide their actions"*. Consequently, the research to address the identified gaps in knowledge will pay particular attention to the practical solutions to supporting the improvement of the *"actions"* of public managers.

Chapter 3

Methodology for Research Question One

3.1. Introduction

This chapter sets out the deductive methodology to address Research Question One, setting an essential foundation for Research Question Two. Without a sound understanding of the nature of strategic risk in local authorities it would not be possible to meaningfully explore its assessment.

The chapter starts by setting out a number of preliminary matters and provides a conceptual summary of the research as a whole. It then maps out how the gaps in knowledge with respect to Research Question One that were identified in Chapter 2 have been addressed. This is divided into two elements: a review of current practice in the UK and beyond, and of relevant standards and guidelines; and further analysis. Key to the latter is the use of Snowden (2002) and Snowden and Boone's (2007) Cynefin model to develop a fuller understanding of strategic risk in local authorities.

3.2. Overall Research Design

This section provides a brief conceptual summary of the research as a whole, places Research Question One within the overall research and sets out a number of preliminary matters that have been key to the research design. It finishes by explaining how the gaps in knowledge with respect to Research Question One identified in Chapter 2 have been addressed.

3.2.1. Preliminary Matters

The starting point, based on the researcher's previous professional experience, and hence a starting assumption of the research, has been a strong sense that the current practice of strategic risk assessment in local authorities could be significantly improved and that the identification of these improvements would require a fundamental review. It would not be just a matter of minor adjustments.

This assumption led to a research design based on the use of multiple sources, as set out in this Chapter and in Chapter 5 for Research Question Two. The findings from these sources are compared and, where appropriate, triangulated in Chapter 4 (Results and Analysis for Research Question One) and Chapter 7 (Conclusions).

It was also recognised from a very early stage that the research would need to embrace the qualitative aspects of risk and risk assessment, and not be purely quantitative. Silverman's cautions against relying solely on interviews have been heeded as regards the potential for the qualitative researcher to be "*blinkered ... to the possible gains of other kinds of data*" (2007, p41), further reinforcing the case for using multiple sources. Interviews have primarily been used: to validate, for example, to seek to confirm compliance with documented procedures; to provide additional detail, for example, how practitioners deal with any lack of clarity in the documented procedures; and to probe more deeply, for example, whether the documented approach is followed for sensitive and potentially embarrassing risks. Access to interviewees has proved to be more difficult than expected and interviewees have been keen to emphasise issues of confidentiality and anonymity as regards themselves and the local authority for which they work. As a result, references to the all interviewees and their organisations have been anonymised.

The term “*current practice*” in this report refers to the process of defining and assessing strategic risk in an individual local authority as set out in the local authority’s own documents, typically referred to as a risk management “*policy*” or “*strategy*”, and as supplemented by associated reports and risk registers and the evidence of compliance, or otherwise, that they provide. These have been augmented by interviews, as described above.

Pervading the research is a sense that current practice may be a bureaucratic process of “*procedural compliance*”⁸ as defined by Bryman et al (1994, p178) and an aspiration that a better, more credible, model could help to motivate and support more effective risk management in local authorities and, hence, in the public sector as a whole. These assumptions are tested throughout the research.

The research was underpinned by the clear sense developed in Chapter 2 that risk in the public sector is different to risk in the private sector. In defining the research methodology an assumption has consequently been made that risk management approaches in the private sector will only be considered when, and if, they are clearly relevant to the public sector. To do otherwise would have been to ignore the clear messages from the literature that risk is context-dependent and can only be properly understood in the light of that context.

3.2.2. Research Questions

The two research questions, as established by the literature review in Chapter 2, are as follows.

Research Question One

What is the nature of strategic risk in English local authorities?

Research Question Two

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

This chapter focuses on the methodology for Research Question One.

3.2.3. How the Gaps in Knowledge will be Addressed for Research Question One

Table 3.1 restates the gaps in knowledge with respect to the Research Question One identified in Chapter 2 and summarises the methodologies to address them. The following sections of this chapter then explain those methodologies in turn.

⁸ “a response to an organizational innovation in which the technical requirements of the innovation ... are broadly adhered to, but where there are substantial reservations about its efficacy and only partial commitment to it, so that there is a tendency for the procedures associated with the innovation to be adhered to with less than a total commitment to its aims” (1994, p178)

3.2.4. Reliability, Validity and Credibility

It is crucial that all aspects of the research are reliable, valid and credible. These needs have been carefully considered and designed into the research methodology.

As regards the sampling for Research Question One, these matters are summarised in Section 3.5. More widely, as these matters have an even greater bearing on the research to address Research Question Two, the provisions in the research design for ensuring reliability, validity and credibility are set out in Chapter 5 with the methodology for Research Question Two.

Specific measures with respect to the methodology for Research Question One are explained in this Chapter.

Table 3.1: Gaps in the Literature with Respect to Research Question One

		Review of Current Practice in the UK and Beyond and of Relevant Standards and Guidelines			Further Analysis		
		Document Analysis and Supplementary Interviews	Document Analysis for International Comparators	Document Analysis for Published Standards and Guidelines	Analysis of Risks from Multiple Sources	Technical / Societal Risk Analysis	Cynefin Analysis
*	<u>What is Risk?</u>						
A	a) A local authority specific definition of strategic risk needs to be researched and developed. Aven and Renn's (2009) definition of risk may provide a useful starting point for doing this but the definition ultimately appears to need to be organisation-specific. Being sector-specific may not be enough (Section 2.2.1), though there are some hints as to elements of it, namely: the achievement of corporate objectives; the loss of something that is valued by key stakeholders; the avoidance of blame and reputation damage; and the issues about people and their concerns (Sections 2.2.1 and 2.2.4).	✓	✓	✓	✓		
B	b) There is little literature on the nature ... of strategic risk in local authorities (Section 2.2.4)**.	✓	✓	✓	✓	✓	✓
	<u>Over-Arching Aspects of Risk</u>						
C	c) The extent to which strategic risk in local authorities is significantly complex has not been established in the literature (Section 2.6.2).						✓
	<u>Measuring Strategic Risk</u>						
D	a) The literature does not address the qualitative / quantitative dichotomy of public sector strategic risk (Section 2.7.1).					✓	
E	d) The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. . A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).						✓

Notes: * The letters A to E are used to refer to the five gaps in knowledge in this Chapter (*Gap in Knowledge A* etc.)

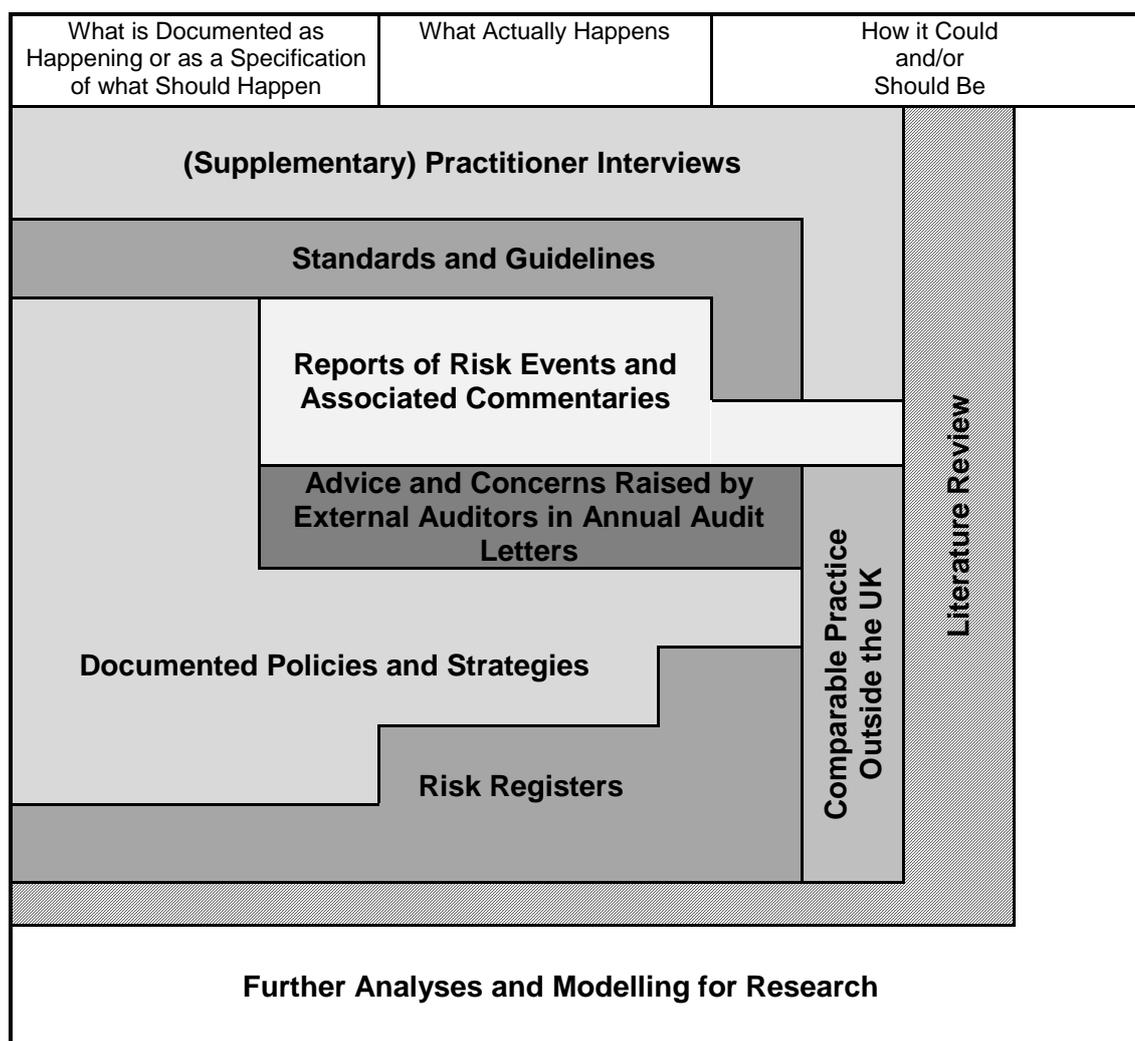
** The aspect of this gap in knowledge that relates to the management of risk is addressed by Research Question Two

Figure 3.1 illustrates schematically the inter-relationship between the elements of the research and the importance of the multiple sources approach adopted. This splits risk into three elements:

- What is documented as happening or as a specification of what should happen;
- What actually happens; and
- How it could and/or should be.

Critically, this recognises the difference between what is recorded and specified and what actually happens, and between these and the potential scope for improvement. No one approach could address these fully, hence the multiple sources approach adopted.

Figure 3.1: Schematic Illustration of the Multiple Sources Methodology



The sizing and shading are only illustrative and for clarity respectively. The diagram relates to both research questions.

3.3. Review of Current Practice in the UK and Beyond, and Relevant Standards and Guidelines

The literature review in Chapter 2 has clearly established the context dependency of risk. The first question in seeking to establish the nature of strategic risk in English local authorities is that of how local authorities currently construct and define it. This section sets out the methodology to address

this, explaining how the research has explored: how local authorities have defined risk; what it is that they are managing as risks; what other authoritative advisors to local authorities have indicated are the risks that the local authorities face; and what other comparable bodies internationally deem strategic risk to be. It also sets out how the research drew on the limited legal framework and relevant standards and guidelines to complete an overall picture of the sense of strategic risk in local authorities from current and comparative practice. The basis and validation of the samples used for analysing risk in English local authorities is considered as a whole in Section 3.5 and the overall sampling position described.

3.3.1. Document Analysis and Supplementary Interviews

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses A, as set out in Table 3.1.

Document Analysis

A ten percent sample of local authorities, stratified by type, (Monette et al, 2011: see Table 3.14) was identified and current risk management documents, principally the documents setting out the approach to risk management, were accessed online and directly from local authorities, and analysed⁹. The stratified sample is summarised in Table 3.2 with reference to the population data given in Chapter 1.

The document analysis and the supplementary interviews were also used, in part, to address Research Question Two, as explained in Chapter 5. With respect to Research Question One, the analysis sought answers to the following questions.

1. Has a definition of risk been set, and if so what is it?
2. Is it a technical definition or does it embrace a societal or stakeholder dimension?
3. How has the concept of strategic risk been constructed within the local authority?
4. What else does the current practice at this local authority tell us about the assumed nature of strategic risk in the local authority?
5. Are there any sources which are presented as being authoritative and with reference to which the local authority claims additional credence for its approach?

Questions 1 to 4 were derived from the research question and the associated gaps in knowledge and question 5 was designed to inform the analysis of relevant standards and guidelines (see Section 3.3.3).

The document analysis methodology involved a combination of these simple closed questions and a process of coding to address more open questions. The documents were read and notes made to summarise the text: a process designed to concentrate the researcher's mind on the significant elements of the text. The notes were then highlighted to identify themes and ideas, for example

⁹ Typically these were each local authority's risk management "*policy*" or "*strategy*", supplemented by associated reports and risk registers

those that related to the construction of risk in the local authority, and the matters related to each theme were then summarised. When all documents in the sample had been coded the original texts were reread and compared to the notes previously made. Any items missed in the first pass were then added to the notes and coded. The contextual-dependence of risk identified in the literature review was borne in mind at all stages of the document analysis and any potentially significant issues highlighted for further attention. The approach was developed following Bryman and Bell's (2011) ideas on the analysis of public documents and reflected the more predefined nature of elements of the current research, as evidenced by the ability of the research to pose initial, clear and in some cases closed questions. The results of the document analysis were recorded in tables in Excel to enable the associated statistics to be easily calculated and presented graphically. As explained in Chapter 5, the document analysis also formed part of the methodology for Research Question Two.

To validate the first (*“original”*) analysis, and the subsequent analysis for Research Question Two, a further sample of local authorities was defined and relevant documents accessed by a combination of online and direct approaches, the latter again being agreed to be confidential with the local authorities anonymised throughout the analysis. This validation sample was similarly stratified by local authority type and sought to correct the subsequently identified slight inadvertent distortion in the original sample towards Midlands authorities caused by a quota filling approach to the original sample. The validation sample drew on a wider range of risk documents: papers for local authorities' audit committees and internal and external audit reports, as well as the core risk strategies and policies. The documents were reviewed explicitly to seek to identify indications that the findings from the first sample were not generalisable. For example, were there indications of constructions of risk not revealed from the analysis of the original sample? The approach followed that used for knowledge elicitation in simulation modelling whereby a *“testing set which is used to validate the model produced”* (Edwards et al, 2004, p530) and was considered to be one which would lead to more robust results than a simple extension of the original sample. Table 3.2 sets out the two samples in comparison to the population as a whole.

Table 3.2: The Original and Validation Samples

Type of Local Authority	Population		Original Sample		Validation Sample		Total Sampled	
	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
District Councils	201	57%	20	10%	20	10%	40	20%
County Councils	27	8%	3	11%	4	15%	8	30%
Unitary Authorities	56	16%	6	11%	6	11%	12	21%
Metropolitan Authorities	36	10%	4	11%	4	11%	8	22%
London Boroughs	33	9%	3	9%	3	9%	6	18%
	353	100%	36	10%	37	10%	74	21%

The validation testing supported the results of the original analysis and the results of the latter were therefore concluded to be generalisable. This can be seen as strong evidence of saturation

(Eisenhardt, 1989)¹⁰. Had this not been the case, further sampling and analysis on the basis of the original sample would have been undertaken. The full results of the analysis of the validation sample are set out in Chapter 4.

Interviews

Supplementary interviews were carried out at six local authorities. Whilst these were primarily to supplement Research Question Two, they also addressed Research Question One. Questions prepared for the interviews are contained in Appendix 1. The key elements that relate to Research Question One were to:

- Confirm, or otherwise, the currency of the documents reviewed;
- Explore issues of compliance with the documented approaches;
- Explore whether a different or fuller sense(s) of risk had been adopted formally or informally; and
- Deepen the researcher's understanding as derived from the document analysis.

The interviews lasted between one and a half and two and a half hours. Shorter interviews were held with service managers at two local authorities. The interviews are summarised in Table 3.3.

Table 3.3: Interview Summaries

Local Authority Type	Long Interview	Short Interview	Total
District Council	2	1	3
County Council	1	1	2
Unitary Authority*	1	0	1
Total Number of Authorities	4	2	6

Note: * Two separate interviews were held with different people at the Unitary Authority

Role of Interviewee	Number of Interviews
Risk Manager	3
Internal Audit Manager	2
Service Manager	2
Total Number of Interviewees	7

All of those interviewed were keen to ensure that the interviews were anonymous as regards both themselves and their employing authority. Five interviewees made it clear to the researcher that the interview would either not have been agreed to or not have been continued in the absence of strong, clear assurances of anonymity. In the remaining cases, it was clear that the interviewees would

¹⁰ "the point at which incremental learning is minimal because the researchers are observing phenomena seen before" (ibid, p545)

have been extremely guarded in their comments and some of the most revealing comments would not have been made.

Due to the sensitivity of the interviews and the interviewees' insistence on confidentiality, the interviews were not recorded. However, extensive, detailed notes were taken during the interviews. In all cases these were transcribed by the researcher within forty-eight hours of the interview.

As initially raised in Section 3.2.1, access to interviewees was more difficult than had been anticipated. In addition to the interviews that took place, eight other local authorities were contacted but all declined to be involved in the research or did not respond to the approaches made by the researcher. The data from the interviews that did take place would suggest that the perceived sensitivity of the subject matter may have been a substantial factor in these decisions. The multiple sources research methodology, as illustrated in Figure 3.1, fortunately avoided over-dependence on any one source and so provided significant resilience in the face of these access problems. The interviewees were selected from the local authorities in either the original or validation sample, as were those that were approached but not interviewed. The only exception to this was one of the interviewees for a short interview who was a manager at a local authority not otherwise engaged in the research.

The interview transcripts were coded once the interviews had all been completed. As the interview data relates primarily to Research Question Two, the methodology used is described in detail in Chapter 5 as part of the methodology for Research Question Two. The overall coding methodology followed that set out in Bryman and Bell (2011, pp585 - 6) with the addition of an independent review (Hodgkinson and Wright, 2002) and a more formal two pass approach to the coding rather than the process of marginal notes and formal coding advocated by Bryman and Bell (2011). The full results of this review are set out in Chapter 5. Table 3.4 shows the final codes that relate wholly or in part to Research Question One.

Table: 3.4: Interview Data Codes as Regards Research Question One

Higher Level Code	Base Code
Culture and Context	
A	2 Potential exposure of those managing the risk assessment and associated processes
A	15 Political and senior managerial involvement and intervention
A	33 Following the sector norms
A	35 Throw away phrase
Risk and What it Means	
B	6 The real purpose of risk assessments
B	18 What is risk about?
The Detail of the Risk Assessment Method and Process	
D	22 Opportunities and upside risk
Making the Risk Assessment Process Work and Compliance Issues	
E	14 Championing risk from the top
E	23 Description of risks
E	30 Compliance with the risk management approach

3.3.2. Document Analysis for International Comparators

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses A, as set out in Table 3.1. The process of document analysis followed that in Section 3.3.1, with additional attention paid to contextual issues.

The review of comparative practice was intended primarily to input to the research with respect to Research Question Two, as set out in Chapter 5. However, a review and analysis of how strategic risk is defined and constructed in sub-national government bodies outside of the UK was recognised at the outset of the research to have the potential to provide insights into Research Question One. In essence, what have local authorities in, say, Australia documented as being their definition or sense of strategic risk?

Key to this element of the research was the identification of comparators. This was more challenging outside of the UK for reasons of language, terminology and differences in public sector structure. The original intention to make international comparisons with local authorities specifically was amended to seek comparators which were sub-national governmental bodies rather than specifically local authorities. The change allowed for federal structures, for example in the USA. Wikipedia¹¹ provides a useful summary of local authority structures across a range of countries, highlighting for example the widespread use of the term *municipality* to describe a lower tier of local government in a number of countries. These terms were then used as online search terms to seek to identify and access relevant documents made available online. The website for the Federation of European Risk Management Associations (FERMA)¹² provided a useful source of non-English language risk-related search terms, for example *évaluation des risques*. These led to a small number of French research-relevant documents being identified which were able to be used for research purposes. Language difficulties and a lack of confidence in online translation tools led to others, for example a Finnish source, not being able to be used.

International comparisons have been made with specific sub-national governmental bodies in Australia, Canada, France, Ireland, New Zealand, South Africa and the USA¹³. The document analysis of these was on the same basis as that for documents from English local authorities, and addressed the five questions set out at the start of Section 3.3.1 for the documented practice of English local authorities. Additional attention was paid to context, informed by Locke and Thelen's (1995) contextualised comparisons approach to cross-national research, bearing in mind, for example, the nature and circumstances of the sub-national governmental bodies concerned. It was, for example, anticipated that there would be a strong emphasis on risks associated with a vulnerability to earthquakes in parts of New Zealand, given the very serious events in Christchurch in February 2011.

¹¹ http://en.wikipedia.org/wiki/Local_authorities (Last Accessed 18th June 2013)

¹² <http://www.ferma.eu/> (Last Accessed 11/06/12)

¹³ A full list is provided in Appendix 2

3.3.3. Document Analysis for Published Standards and Guidelines

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses A, as set out in Table 3.1. The process of document analysis followed that in Section 3.3.1, with additional attention paid to contextual issues.

The Accounts and Audit (England) Regulations 2011 set out a requirement for local authorities to make arrangements to manage risk. There are, however, no binding standards setting out how strategic risk management should actually be performed in English local authorities. There is consequently no authoritative statement of what the nature of strategic risk in these bodies should be taken to be. There are, nevertheless, a number of statements that are a potential influence on local authorities and/or which may provide valuable insights to Research Question One.

The research has explored the requirement in the Accounts and Audit (England) Regulations 2011, establishing this as a base point for the research to address Research Question One. The relevant standards and sources of guidance have then been identified and analysed. The key sources have been found to be as set out in Table 3.5, which also sets out the basis on which each has been identified and included in the research.

Table 3.5: Standards and Guidance Reviewed

Standard / Guidance	Basis of Identification and for Inclusion in the Research
a) The Audit Commission has published guidance on risk management for local authorities	The Audit Commission currently oversees the external audit of local authorities and their stewardship of public money, making its publications and guidance highly influential in the sector
b) <i>The Orange Book</i> as published by HM Treasury	This is a mandatory risk management standard for central government and much of the wider mechanism of government in the UK, though not for local authorities, making it an influential source across the UK public sector as a whole
c) The international standard ISO 31000, commentaries and literature on it	ISO 31000 is a recently (2009) introduced international standard that has been critiqued in the literature and has been found to be referred to in risk management documents at a few English local authorities and so can be assumed to be deemed to be influential by those local authorities
d) Charities and Risk Management: Guidance for Trustees, published by the Charity Commission	This is an alternative source for UK public service organisations, albeit applicable to charities and not local authorities. It is especially relevant given the common public service roles and objectives of the two types of organisation and the increasing partnership working between them, for example in the field of adult social care.

Having identified these potentially influential sources, the research has summarised their potential contribution to Research Question One and noted any significant constraints that they might provide to the practical application of the research outputs to improve current practice. For example, the research would need to embrace and address any substantial conflict with guidance issued by the Audit Commission for local authorities. Whilst recognising any such constraints, the research has

not taken them to be binding given their non-mandatory nature. Emanating from an influential source does not of itself make guidance or standards appropriate, complete or technically sound.

The document analysis has also addressed the five questions set out at the start of Section 3.3.1 for the documented practice of English local authorities.

ISO 31000

There has been a small amount of academic comment on the international risk management standard ISO 31000. This provided a useful reminder that the research needed to consider the standard, recognising that it is not mandatory for English local authorities, subject to the caveat that there is an academic view that it is flawed (Purdy, 2010; Leitch, 2010).

Leitch summarises the standard by saying that it:

- (1) *“Is unclear;*
- (2) *Leads to illogical decisions if followed;*
- (3) *Is impossible to comply with; and*
- (4) *Is not mathematically based having little to say about probability, data and models”*
(ibid, p892).

Given these perspectives, it has been treated with some caution in the research. The research has also borne in mind Purdy’s view that it has something to offer and so the research has not dismissed ISO 31000 too lightly.

Summary

This section has set out the document analysis and interview based research to seek insights into the nature of strategic risk in local authorities by reviewing current practice in the UK and beyond, and relevant standards and guidelines. The results of this research are set out in Chapter 4.

3.4. Further Analysis

This section sets out the methodologies for the more complex research processes with respect to Research Question One. Having looked at what local authorities and others document as being the nature of strategic risk in local authorities in the methodology described in the previous section, this section sets out methodologies to look at risks and risk knowledge to provide further insights.

3.4.1. Analysis of Risks from Multiple Sources

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses A, as set out in Table 3.1.

3.4.1.1. Risk Registers

A total of twenty-nine local authorities' risk registers were obtained online and directly from the local authorities themselves for this element of the research¹⁴. For Research Question One, the content of these has been summarised to identify what it is that the local authorities are recording as risks and to provide a wider sense of how each authority interprets the concept of risk. For example, are the possible senses of risk implied from the literature review (Section 2.2.2.) about the non-achievement of business objectives and non-delivery of services to required or expected standards adopted wholly or in part?

As summarised in Table 3.14 and explained in Chapter 4, the analysis of the risk registers raised a significant concern about their reliability. Comparison of the risk registers for similar authorities and cross-referencing the risk registers to issues raised in annual audit letters and risk events reported in the media indicated that they appeared to be significantly incomplete. The reasons for this could not be discerned from the risk registers, though some explanations were subsequently obtained from the interview data. As a result, the level of confidence was assumed to be low, it being difficult to reliably draw firm and broad conclusions about the nature of strategic risk from a data source that appears to be consistently incomplete.

With the above caveat, the risk registers were used as an element of the methodology to address Research Question Two and this is described in Chapter 5. They were also used as a key source for the development of the risk sample for the Cynefin analysis as shown in Table 3.10.

3.4.1.2. Risk Event Database

From the start of the research in October 2010 until April 2013, reports of negative events in local authorities were collected to form a Risk Event Database in Excel. This ultimately comprised seventy-nine reports of forty-nine significantly different types of event. There were up to five reports for essentially the same type of event, for example losses of sensitive personal data: a very topical issue in the lead up to and during the research period. The data was first reviewed in autumn 2012, then again in May 2013 to take into account the flurry of items added in the interim period.

The database was built on the premise that strategic risk in local authorities is, at least in part, about uncertain future events that would have a negative effect on the local authority, perhaps in terms of its delivery of services or the loss of its resources. As the research progressed, the analyses to address Research Question One have come to indicate that this was a valid assumption. It is, however, expressly recognised that the database is not and could not be more than a summary of some risks facing local authorities. By adding to the risks recorded by local authorities in their risk registers and those commented upon by external auditors it makes the overall set of risks brought into the research more complete, strengthening the relevance and robustness of the emerging research results and conclusions.

¹⁴ As indicated in Table 3.11, a further 14 risk registers were obtained later in the research. The concerns raised in this section concerning the original sample of 29 were also identified for these additional risk registers.

The reports were collected from a variety of media sources including: online news sites; newspapers; and sector-specific journals, for example the Chartered Institute of Public Finance and Accountancy's monthly journal "*Public Finance*". As such, the sources were independent of local authorities, though it has to be recognised that any negative events that, for whatever reason, were not reported, would not have been identified for inclusion in the database.

For Research Question One, the items in the database were analysed on the same basis as those recorded in local authorities' risk registers. The risk event database was used as a substantial element of the methodology to address Research Question Two and this is described in Chapter 5 and the media reports were also used as a key source for the development of the risk sample for the Cynefin analysis as shown in Table 3.10.

3.4.1.3. Annual Audit Letters

The external auditor of a local authority issues an Annual Audit Letter to the authority setting out the key issues arising from that year's audit of the local authority's accounts, including a commentary on the auditor's perception of the key risks facing the authority. Such letters therefore provide an interesting and one would assume authoritative source of insight into external auditors' sense(s) of strategic risk for Research Question One, and more detailed insights for Research Question Two.

A sample of twenty such letters for the 2009/10 and 2010/11 audits was identified as set out in Table 3.6 to provide a reasonable cross section of local authority types. The sampling also sought to provide good coverage of the six audit providers at the time of the research and includes audit letters from five of those six. All of the letters related to local authorities in either the original sample or the validation sample.

Table 3.6: Annual Audit Letter Sample by Local Authority Type

Type of Local Authority	Population		Annual Audit Letter Sample	
	Number	% of Total	Number	% of Total
District Councils	201	57%	10	50%
County Councils	27	8%	3	15%
Unitary Authorities	56	16%	3	15%
Metropolitan Authorities	36	10%	2	10%
London Boroughs	33	9%	2	10%
	353		20	

As was the case for the risk event database, this source of risk data provided a valuable extra source for the research, widening the research in doing so. It was not, and was not intended to be, a complete source. External auditors do not have the sole perspective on risk. In addition, bearing in mind the context-dependency on risk, the research also recognised the potential relevance of the source. The focus of the external auditor is on the accounts and the issues that might affect those accounts. It would seem reasonable to assume that this would not lead to a complete perspective on risk, however useful the limited perspective might prove to be.

To provide further independence from the local authorities, the annual audit letters were obtained online directly from the Audit Commission¹⁵.

For Research Question One, the items in the matters raised by auditors were analysed on the same basis as those recorded in local authorities' risk registers and the risk event database. The use of the material to address Research Question Two is described in Chapter 5.

3.4.2. Technical / Societal Risk Analysis

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses D, as set out in Table 3.1.

The literature review identified a qualitative / quantitative dichotomy of risk in the public sector. This can, alternatively, be expressed as a technical / societal risk dichotomy. Namely, is strategic risk in local authorities a technical matter for assessment by experts or a matter of societal perception? The literature indicates that the answer leans towards the latter.

A simple conceptual tool was developed by the researcher for analysing the extent to which individual strategic risks in a local authority are technical, societal or a combination of both. As the primary purpose of this tool was to identify the extent to which qualitative or quantitative assessment models would be appropriate for addressing Research Question Two, a simple, exploratory analysis assuming a qualitative / quantitative continuum and using a Likert scale to position risks on that continuum was deemed to be sufficient. Had the analysis resulted in an indication that strategic risk in local authorities was clearly qualitative or clearly quantitative, contrary to the expectation derived from the literature, a second, fuller analysis would have been developed and undertaken and subjected to appropriate independent review.

The Likert scale was refined through three iterations. At each stage the descriptions of each level were refined and expanded to provide greater clarity. A seven point scale was explored but found to require finer judgements than could be justified at this stage of the overall research. A six point scale was also explored but it became clear at an early stage that it was necessary to have a neutral value, hence the second part of the description for a score of 3 in the final scale as set out in Table 3.7. The final five-point scale follows Oppenheim's advice to avoid having "*many neutral items or many extreme scoring methods at either end of the continuum*" (1992, p195) and great care was taken to ensure its consistent application.

¹⁵ <http://www.audit-commission.gov.uk/audit-regime/pages/default.aspx> (Last Accessed 18/01/12)

Table 3.7: Technical / Societal Risk Scale

Description of the Risk	Score
This appears to be purely technical risk that would not generate any significant emotional reaction, other than frustration at the fact of the event, for example an error having been made	1
This appears to be primarily a risk that has significant technical aspects but it is likely to also generate some emotional reactions	2
There appears to be a balance of technical and emotional aspects and reactions to this risk OR It is not possible to clearly differentiate between the size of the emotional and technical elements of this risk	3
Emotional reactions appear to be greater than the technical aspects but these technical aspects appear to be significant	4
This risk appears to be one which would generate overwhelmingly emotional reaction and, in comparison to which, the technical aspects would be deemed not to be significant	5

The analysis used the independently-validated sample developed for the Cynefin analysis (see Section 3.4.3.) and the underlying understanding of each risk established for that analysis from local authorities' internal documents and media reports presenting similar risks and crystallised risk events.

As was the case for the Cynefin analysis, this analysis assumed a constant level of likelihood for each risk and focused on the effects of each risk were it to happen. Issues of likelihood and probability were identified by the literature review as important for Research Question Two but were not relevant to the current analysis, hence the assumption of a constant level of likelihood: a level that did not need to be specified. To do otherwise would have added an unnecessary variable to the analysis¹⁶.

The results of the analysis are presented in Chapter 4.

3.4.3. Cynefin Analysis

This element of the research to address Research Question One contributes to Gap in Knowledge B and directly addresses C and E, as set out in Table 3.1.

Gap in Knowledge E requires that:

A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).

There was a need to place strategic risks on a continuum from simple to complex and a sense that it would be useful to be able to identify any appropriate intermediate categories.

The search for a suitable tool started with the risk literature and the suitability of Klinker and Renn's (2002) simple, complex, uncertain and ambiguous continuum was considered. However, whilst this

¹⁶ The results of the subsequent Cynefin analysis indicated that complex risks have a further qualitative elements as a result of difficulties identifying a quantitative measure of their likelihood (See Chapter 4)

had the advantage of being seated in the risk literature and being the product of two influential writers on risk, this model was not found to be persuasive as a continuum. It appeared to understate the potential overlap between the complex, the uncertain and the ambiguous. The uncertain and ambiguous elements are clearly variable elements of risk and one would expect these to increase with complexity, perhaps a simple risk would display aleatoric uncertainty but little epistemic whilst a complex risk might display a high level of both and one would expect far greater ambiguity in a complex risk.

Recognising that the tool did not need to come from the risk literature and, indeed, that it might be more useful and credible to a wider audience if it did not, a wider search was undertaken. This ultimately led to the use of Snowden (2002) and Snowden and Boone's (2007) Cynefin model. The reasons for its adoption are explained in more detail in the following paragraphs. The decision to do so is supported by the recent paper by French (2013) emphasising the value of Cynefin to analysts and researchers wanting to *"gain insights into the qualities of the issues that they face ... in exploring and categorising methodologies within statistics, decision analysis and operational research"* (ibid, p547).

3.4.3.1. Introduction to Cynefin

The concept of Cynefin was developed by Snowden and refined by Snowden and others (see Snowden, 2002; Snowden and Boone, 2007). The published work has been widely cited. As at 13th June 2013, Snowden (2002) had been cited 650 times and Snowden and Boone (2007) had been cited 370 times (per Google Scholar). The latter was published in Harvard Business Review. Before application of the Cynefin concept, it is important to understand it and its constituent parts.

Snowden and Boone explain that

"Cynefin, pronounced ku-nev-in, is a Welsh word that signifies the multiple factors in our environment and our experience that influence us in ways we can never understand" (ibid, p70).

It was developed to challenge the *"fundamental assumption of organisational theory and practice that a certain level of predictability and order exists in the world"* (ibid p70) which *"encourages simplifications that are useful in ordered circumstances. Circumstances change, however, and as they become more complex, the simplification can fail"* (ibid p70). It appears to have particular relevance to risk, for which uncertainty has been identified by the literature review as being central and the extent of any predictability must have a central place in its estimation. The more predictable a variable, the easier one would reasonably assume it would be to model reliably.

The Cynefin concept is emphasised by its developers to be an aid to understanding. Paralleling the writings of Haskin (1999) and Wolters (2008) on the irrationality of reactions to risk in the public sector, Snowden and Boone (ibid p70) state that those *"who understand that the world is often irrational and unpredictable will find the Cynefin framework particularly useful"*. This adds credibility to its application to develop a more profound understanding of risk in the local authority context.

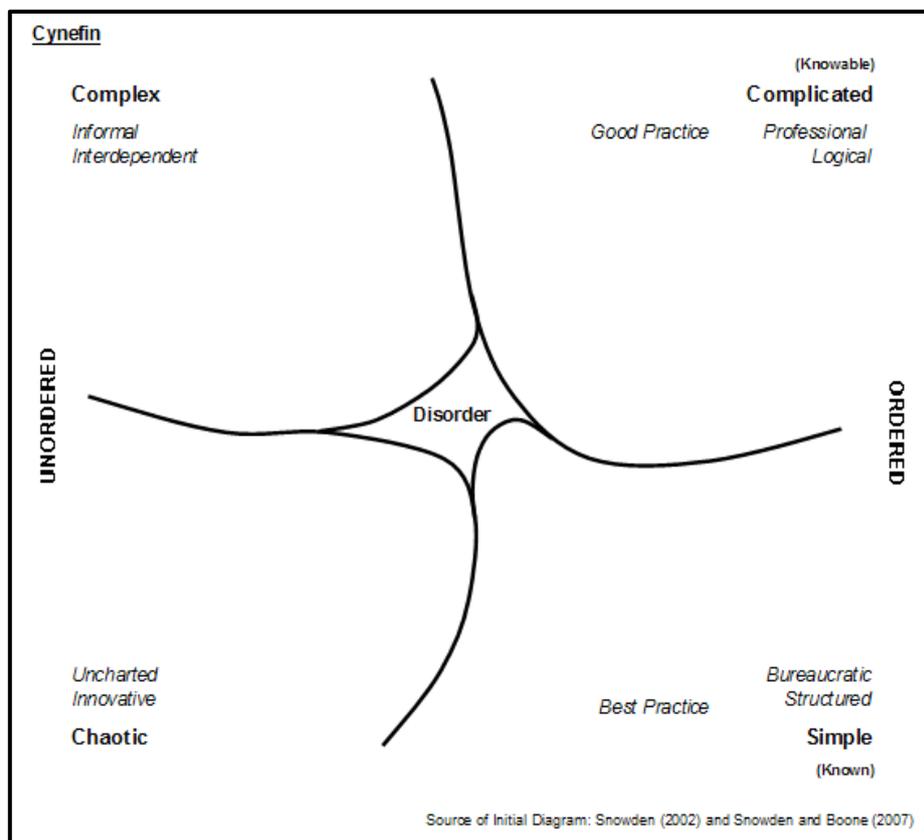
The Cynefin space is divided up into five *domains*. The central question for Research Question One becomes that of which domain, or domains, does knowledge of different risks fall into and what are the implications of this for both the nature of that risk (Research Question One) and, consequently, for its assessment and management (Research Question Two).

Four of the domains “*require leaders to diagnose situations and to act in contextually appropriate ways*” (ibid p70) with an emphasis on the key characteristic that the domains are different and problems falling into one domain have characteristics and solution approaches that are specific to that domain. Other solutions may be inappropriate and may prove to be seriously so: a critical issue for risk assessment. If different risks have fundamentally different characteristics and require significantly different management approaches, the assessment of those risks would require a means to embrace those differences in a unified risk assessment methodology to avoid being fundamentally flawed. The development of such a unified risk assessment methodology that fully embraced and reflected the nature of risk in local authorities would implicitly heed the cautions, for example in Grassi et al (2009), not to over-simplify risk models.

Snowden and Boone refer to the elements of Cynefin as both “*Domains*” and “*Contexts*”. To ensure clarity and consistency, the term *Domain* has been used other than when directly quoting a use of *Context*.

The Cynefin concept is illustrated in Figure 3.2. This is drawn from both Snowden (2002) and Snowden and Boone (2007). The key aspects of each of the domains are summarised and explained below, drawing particularly on Snowden and Boone.

Figure 3.2: Cynefin



Simple

These are matters such that “[i]f something goes awry, an employee can usually identify the problem ... and respond appropriately” (Snowden and Boone, 2007, p70). They do not present serious problems for management and when guidance is needed *best practice* is readily discernible, if it is not already available. Issues in this domain are clearly known and there are readily understood cause and effect relationships. There are, however, traps for the unwary in this domain. Complacent management can lead to wholly foreseeable, and hence avoidable, problems developing and becoming serious, leading to a descent into Chaos. Snowden and Boone (2007) warn that working in this domain can lead managers to fail to recognise when a problem is not simple and requires more detailed information and diagnosis. They also caution that it is “*important to remember that best practice is, by definition, past practice*” (ibid, p71), a warning that resonates with the tendency in risk management to manage yesterday’s risks (Sarewitz et al, 2003).

Complicated

This is the domain of the expert, in which “*though there is a clear relationship between cause and effect, not everyone can see it*” (ibid p71). In this domain there are likely to be a number of right answers and guidance in the form of *good*, rather than absolute *best practice*.

Complex

“[I]n the complex context ... right answers can’t be ferreted out” (ibid p74). There is consequently no point in looking for a right answer to complex problems, including by implication any risks that might fall into the Complex domain. A further issue is the cumulative effect, particularly in multiple risk scenarios: “*the whole is far more than the sum of its parts*” (ibid p74). This would be an important caveat to the, albeit limited, literature pointing towards additive risk models (Section 2.7.7). An element of this is the key characteristic of complex systems that a small variation in inputs can lead to a large and disproportionate change in outputs.

Snowden and Boone (2007) tell us that this is “*the domain to which much of contemporary business has shifted*” (ibid p74), providing a further indication that some contemporary strategic risks may be found in this domain. There is a further challenge in addressing problems in this domain in that attention must concentrate on understanding emergent patterns as “*we can understand why things happen only in retrospect*” (ibid p74). In essence, cause and effect risk models would not be appropriate for complex risks.

Chaotic

This is the “*domain of rapid response*”, in which “*a leader’s immediate job is not to discover patterns but to staunch the bleeding*” (ibid p74). These are a matter of crisis management, not matters of anticipation, precaution and contingency, and hence, one might assume, not for risk management at all. Any risks mapped into this domain would need to be carefully examined and the research analysis reviewed and questioned.

Disorder

This fifth domain arises when the situation has not been identified as falling into one of the four main domains. Whilst this should be a transient state, it would seem reasonable to assume that the period of Disorder is greater for problems falling into the Complex and Chaotic domains, situations which are less clear and less likely to be quickly recognised. The research analysis would need to look very carefully at any risks that could not be plotted into one of the other domains and which would, by default, have to be plotted into Disorder.

3.4.3.2. The Analysis

The analysis was undertaken by the researcher in two stages: an initial, judgemental mapping to establish the potential contribution to the research of using Cynefin; and a robust analysis using it on a carefully developed and robust basis. The second stage was only undertaken when encouraging results had been obtained from the first.

Initial Analysis

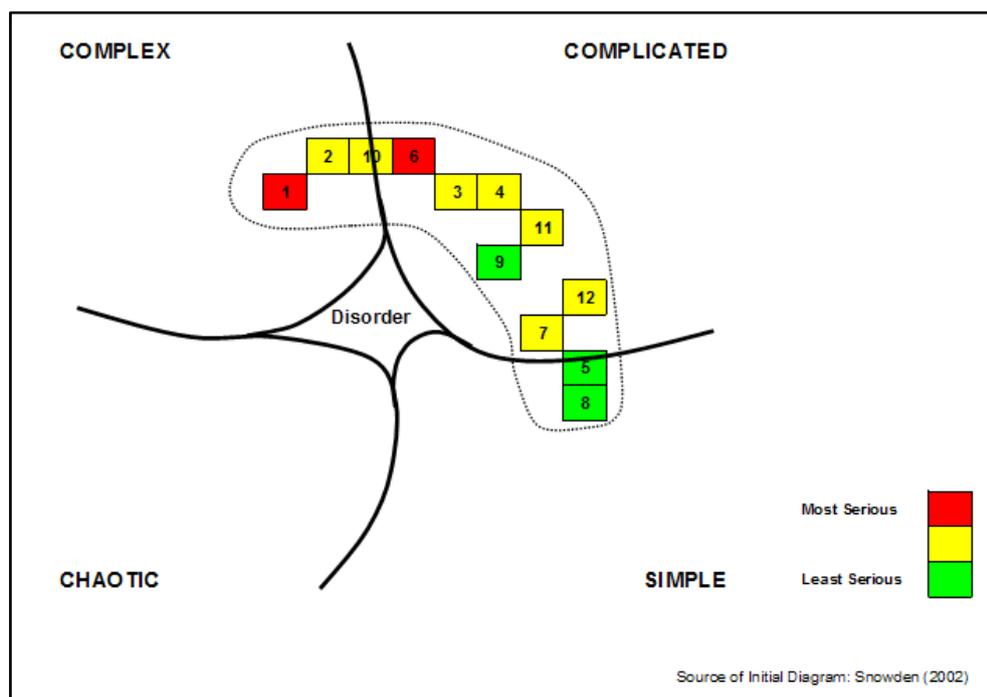
The initial, judgemental mapping was undertaken using a judgemental sample of twelve risks, plotted into the Cynefin domains on the basis of the descriptions of those domains in Snowden (2002) with a similarly simple overlay for seriousness, also on a judgemental basis. The judgemental sample and the tentative mapping are shown in Table 3.8 and Figure 3.3.

Table 3.8: Sample Risks for the Initial Judgemental Cynefin Analysis

1	Death of vulnerable child	7	Main office building burns down
2	Theft of memory stick with payroll data	8	Employers' NI rate increased by 1%
3	EU procurement law breach	9	Poor procurement of office equipment
4	Recruitment and retention of senior staff	10	Ineffective management of key projects
5	False expenses claim by employee	11	External Auditor qualifies annual accounts
6	Government reduces funding by 25%	12	Budgets substantially overspent

This sample was chosen from the range of possible risks identified from the risk registers and media reports collected for later research up until the time when this initial analysis was carried out. The key objective was to provide a meaningful cross section of local authority strategic risks to establish the potential contribution to the research of using Cynefin.

Figure 3.3: Initial, Judgemental Cynefin Mapping



This tentative analysis clearly established that the approach had potential value and that there was a need for a carefully developed, thorough and robust analysis. In addition, there appeared to be a pattern whereby risks tended to become more complicated and, in turn, complex as they become more serious. This was also worth further exploration. The mapping presentation worked well and it was decided that this would be used subsequently. It provided a clear summary of the positioning of the risks within the domains and allowed for simple colour-coding to provide a seriousness overlay.

Full Analysis

The full analysis involved the following stages.

- a) The development of a representative sample of risks for analysis
(This sample was also used for the Technical / Societal Risk Analysis set out above)
- b) The use of the “*Context Characteristics*” set out in Snowden and Boone (2007) to identify the Cynefin domain which was most characteristic of each risk in the sample and to position risks within those domains
- c) Review and refinement of the mapping model
- d) Practitioner validation and refinement
- e) Production of the Cynefin Risk Map
- f) Interpretation and identification of the research implications of the analysis

The objectives of the full analysis were to use the Cynefin concept: to develop a fuller understanding of the nature of strategic risk in local authorities than had been obtained from the initial judgemental analysis; to improve the robustness of the analysis by using a larger and more reliable sample of risks; and to seek to draw further insights from the analysis to inform both Research Questions.

Sampling

To ensure a reasonable stratification of the sample between local authority types and functional areas, a sampling framework was drawn up identifying these factors. The areas of commonality, for example education being both a county and unitary authority function, and the areas of non-relevance, for example education not being a district council or internal function, were identified so as to simplify the sampling whilst ensuring that its breadth and relevance were maximised. As the functions and areas of responsibility are essentially the same, the sampling treated unitary authorities, metropolitan authorities and London boroughs as being the same. The sampling frame is presented in Table 3.9.

Use of the sampling frame indicated a need for a sample size of twenty. Whilst it may have been reasonable to work with a sample size of perhaps eighteen, having two less risks in the “Other” column, this seemed an unnecessary economy of effort in an already reasonable sample size. The key stakeholders were tentatively identified for each risk to provide a further check on the breadth of the sample, it being assumed that a broad overall spread across the sample would be an indication of a more representative and relevant overall sample. Whilst the stakeholder analysis was not otherwise used in the Cynefin analysis, it was revisited and developed when the sample was used as the basis of a larger sample in the research to address Research Question Two.

A risk to meet each requirement specified in the frame was then identified from local authorities’ risk registers and other local authority risk documents and media reports of risk events in local authorities. One risk, number 16, was developed from the sample frame as a suitable example was not found on which to base it.

The sample, with notes on the source for each risk, is shown in Table 3.10.

Table 3.9: Sampling Frame for the Full Cynefin Analysis

	Back Office Activities	Corporate Strategy	Legal Compliance	Buildings and Property	Health & Safety Functions	Education	Children's Social Services	Adult Social Services	Highways	Housing	Fraud	Data Protection	Procurement	Staffing	Funding	Risk Management	Other
District Council		2								10	11	12	13	14	15	16	17
Unitary Authority inc. London Borough and Metropolitan						6	7	8	9								
County Council																	19
Internal Functions and Generic Activities	1		3	4	5												20

The numbers relate to sample risks and are subsequently used as risk identifiers.

Table 3.10: Sample for Full Cynefin Analysis

Risk	Source	Seriousness			Assumed Key Stakeholder(s)
		Low	Medium	High	
1 Over-reliance on a single IT provider for all key information systems	Large County Council risk register		1		Staff, service users, strategic partners
2 Failure to implement corporate strategy	Paper to the Audit Committee of a large metropolitan council			1	Community, service users, staff, strategic partners
3 Non-compliance with Disability Discrimination Act	Report to the Audit Committee of a rural Unitary Authority summarising its risk register		1		Service users, staff, strategic partners
4 Office buildings flooded	Extrapolation from wider news items, e.g. July 2007	1			Staff, service users
5 Member of staff trips on cables on office floor and breaks ankle	General media, not specifically local authority context - minor injury to fit defined seriousness stratification	1			Staff & unions, service users, regulators
6 There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	Press reports of crystallised risk events	1			Service users, staff, regulators
7 Death or serious injury to vulnerable child / children in the local authority area	Report to the Audit Committee of a rural Unitary Authority summarising its risk register			1	Community, service users, staff, strategic partners, regulators
8 Lack of private sector capacity for required level of residential and nursing home placements	Press reports of recent crystallised risk event	1			Community, service users, staff
9 Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	Risk register of a remote, rural unitary authority			1	Service users, contractors, community, staff, strategic partners
10 Housing rent arrears exceed specified performance requirements	Review of regulatory expectations of social landlords	1			Service users, staff, regulators, external auditor
11 Senior manager abuses his position to obtain fraudulent payments of £50,000+ from suppliers	Press reports of recent crystallised risk event		1		Community, staff, strategic partners
12 Laptop containing payroll data for 16,000 members of staff stolen from a member of staff's car	Press reports of crystallised risk events			1	Staff, regulator
13 Breach of EU procurement directives on major procurement	Press reports of crystallised risk events		1		Contractors and tenderers, staff, EU
14 Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	County Council risk register		1		Potentially all stakeholder groups
15 Failure to effectively plan and prioritise for future capital investment requirements	Risk register of a remote, rural unitary authority		1		Staff, strategic partners, service users, regulators
16 The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	Potentially critical risk identified by the researcher for inclusion in the Cynefin mapping process			1	Potentially all stakeholder groups
17 Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	District Council risk register		1		Service users, staff, strategic partners
18 Joint local and national elections run poorly	Report to the Audit Committee of a London Borough updating its risk register	1			Staff, local electors
19 Failure to respond to need for organisational change and performance improvement	County Council risk register			1	Potentially all stakeholder groups
20 Changes to the economic environment make the Council economically unstable	District Council risk register			1	Potentially all stakeholder groups
		6	7	7	

A judgemental High / Medium / Low seriousness assessment was made for each risk based on the information provided in the source document(s). As with the initial mapping, this assessment was on the basis of an assumed equal likelihood for each risk in the sample. The sample was adjusted to provide as equal as possible a spread between the three seriousness levels. As noted in Table 3.10, an adjustment was made to the definition of risk number 5 to achieve this balance. As the sample size was twenty, the most even split possible was 6, 7, 7, with the Low seriousness category being deemed to be the most appropriate one for the arithmetically required smaller sample.

The use of the media sources enabled gaps in the local authority risk registers to be largely remedied for the purposes of the sampling. As a result, possible bias in the sampling caused by local authorities' risk recording decisions was avoided.

The Mapping Methodology

Snowden and Boone define the characteristics of each of the four main Cynefin domains (2007, p73). These characteristics were used to determine which domain was most characteristic of each risk. Each risk was scored for each characteristic of each domain.

A score of 0 was assigned if the risk did not show a characteristic, 1 if it did so to a significant extent and 2 if it was a strong and fundamental characteristic of the risk. The extent to which each risk met the characteristics of each domain was then calculated on the basis of the total domain score divided by the potential domain score and expressed as a percentage. Risks were then allocated to the domain for which the score was highest, that being the domain which most closely represented its characteristics. The descriptive information in the risk registers and media reports used to define the sample risks was used as the basis for the scoring decisions.

Having identified the domain for which each risk was most characteristic, an algorithm was developed to position each risk within a domain. This identified the relative "pull" of the characteristics in the other domains. Scores for domains in an anti-clockwise direction were taken as positive, clockwise negative and no pull was deemed to be exerted across the Simple / Chaotic boundary. A linear co-efficient was applied consistently to the net pull value to calculate a Cynefin score and this used to map the risk into the Cynefin space. The accuracy of the final location was slightly limited by the limitations of Excel but as the mapping was only intended to be an illustrative tool and not a precise measurement this was considered not to be significant. The co-efficient applied was adjusted on a trial and error basis to keep each risk within the identified primary domain. Significance was only attached to rotational position. Displacement from the centre was purely a matter of convenience to place the risks within the confined space of each domain.

Review and Refinement of the Mapping Model

The determination of a seriousness value was straightforward for seventeen of the twenty risks but was more difficult for the remaining three (Risks 9, 11 and 12). In each of these cases it was not clear whether they should be deemed to be Medium or High. The original sample was defined on the basis of the balance of the available evidence and comparators. Following further consideration of these risks, in isolation and with reference to the other sample risks, it was decided to create an

intermediate seriousness category and to allocate these risks to this category, creating a four point seriousness scale. Given the intermediate character of the level of seriousness between Medium (Score =2) and High (Score = 3), a score of 2.5 was allocated to it. This scoring was not intended to be a ratio or interval scale. In advance of the results for Research Question Two there was no basis for determining such a scale, assuming of course that the research to address Research Question Two would identify such a scoring model.

Practitioner Validation and Refinement

To increase the rigour of the Cynefin analysis, practitioner validation of the sampling and mapping was sought with the following objectives:

1. To test the validity of applying the Cynefin model to risk knowledge in a local authority;
2. To test the validity of the risk sample used for the Cynefin mapping; and
3. To test the validity of the researcher's judgemental assessment of seriousness for each of the sample risks.

The most appropriate and useful interviewee was determined to be the Head of Internal Audit of a local authority. The Chartered Institute of Public Finance and Accountancy defines the role of the Head of Internal Audit as follows.

“The Head of Internal Audit in a public service organisation plays a critical role in delivering the organisation's strategic objectives by:

- 1 championing best practice in governance, objectively assessing the adequacy of governance and management of existing risks, commenting on responses to emerging risks and proposed developments; and*
- 2 giving an objective and evidence based opinion on all aspects of governance, risk management and internal control.” (CIPFA 2010)*

This is typically a senior role within a local authority and is one that has significant, explicit responsibilities with respect to the review of, and provision of assurance on, the risk management arrangements of the local authority.

An interviewee who was the Head of Internal Audit of a large local authority and who then had direct management or oversight responsibilities for eight other local authorities and similar public bodies was identified and asked to become involved in the research. He agreed on the same basis of anonymity as the other interviewees engaged during the various stages of the research.

The interview lasted for just under four hours and detailed, contemporaneous notes were taken. These were transcribed the next day. At the end of the interview, the researcher's understanding of what had been said was summarised to the interviewee and confirmed by the interviewee to be a reliable and materially complete summary.

The Cynefin model, as set out by Snowden (2002) and Snowden and Boone (2007), was described by the interviewer and discussed in detail with reference to a range of application scenarios. The interviewee considered that the model was clearly relevant and appropriate, to the extent of seeking a copying of the Harvard Business Review (2007) paper to consider its application to his professional work.

The basis of the sampling and the resultant sample were explained and the opinions of the interviewee sought. The sampling basis was considered to be appropriate and to have generated an appropriate and valid sample. The interviewee identified one additional risk whose inclusion would, in his opinion, strengthen the sample. This is set out below and was added to the sample as Risk 21. The interviewee's advice that this should be treated as High seriousness was followed.

Critical loss of legitimacy for the local authority in a changing and challenging political environment which leads to an inability to function effectively

Demonstrating an acquired understanding of the Cynefin concept, the interviewee predicted that this risk would fall into the Complex domain, with a net pull towards the Chaotic. This proved to be the case and, in so doing, provides an element of further validation of the Cynefin mapping and its ability to characterise risk in a way that matches the judgement of a senior professional currently working in a risk-related discipline in a large local authority.

The seriousness categorisation of the sample on the amended four point scale was considered by the interviewee to be reasonable and no changes were suggested.

The interviewee recommended that the wording of Risk 17 be changed to add clarity. This advice was followed and the amended wording is that used in Table 3.10.

Interpretation and Research Implications

Once complete and validated, the results of the analysis were finalised and are presented and interpreted in Chapter 4 to develop the understanding of the nature of strategic risk in local authorities and so to contribute substantially to Research Question One and to inform Research Question Two. Further analysis was undertaken to address emergent issues, for example to test apparent correlations, and the results of the earlier technical / societal risk analysis cross-referenced to the results of the Cynefin analysis and further analysis carried out as appropriate.

Summary

This section has set out the methodology and rationale for collecting and analysing risk data from three separate, complementary sources: local authorities' own records, media sources and local authority external auditors. The methodology for using this data to help to understand the nature of strategic risk facing local authorities is then described and this is followed by a fuller description of the methodology for more deeply researching the nature of risk and risk knowledge, with a justification for the use of the Cynefin model and an explanation of it. The results of the research are presented in Chapter 4.

3.5. Sampling and Sample Reliability

This section brings together the samples and data sets used to address Research Question One, setting out the overall scale of the sampling, and the justification and validation of those samples.

3.5.1. Total Sampling of Local Authorities

The elements of the research that have involved risk documents of English local authorities and media reports that relate to individual local authorities have, in total, covered ninety-seven local authorities. That is 27% of the population of 353. The anonymised details are provided in Table 3.11.

Table 3.11: Total Sampling of Local Authorities

Local Authority Type	North / Midlands / South	Risk Documents, e.g. Policy or Strategy	Risk Register	Other Internal Documents*	Annual Audit Letter	Media Report(s)
District		45				
1	S	✓	✓			
2	N		✓		✓	
3	S	✓		✓	✓	
4	M	✓			✓	
5	S	✓			✓	
6	M	✓			✓	
7	M		✓			✓
8	M	✓	✓			
9	S	✓	✓	✓		
10	N	✓	✓	✓		
11	M	✓				✓
12	S	✓				
13	M					✓
14	M	✓				
15	S	✓			✓	
16	M	✓				
17	S	✓	✓			
18	S	✓		✓	✓	
19	N	✓				
20	S	✓		✓		
21	M	✓	✓			
22	M	✓	✓			
23	S					✓
24	S		✓	✓		
25	M	✓	✓			
26	M	✓	✓	✓		
27	M	✓				
28	M	✓				
29	M	✓	✓			
30	M	✓				
31	N	✓				
32	N		✓			
33	M	✓	✓			
34	S	✓	✓	✓	✓	
35	M	✓		✓		
36	M	✓	✓			
37	M	✓				
38	M	✓		✓		
39	M	✓		✓		
40	S					✓
41	M	✓	✓			
42	S	✓	✓		✓	
43	S	✓	✓		✓	
44	M	✓	✓			
45	S	✓				

Local Authority Type	North / Midlands / South	Risk Documents, e.g. Policy or Strategy	Risk Register	Other Internal Documents*	Annual Audit Letter	Media Report(s)
County 12						
1	S	✓	✓	✓	✓	
2	S			✓		✓
3	S		✓	✓		✓
4	S	✓	✓	✓		✓
5	N	✓	✓			✓
6	M		✓			
7	M	✓			✓	✓
8	N			✓		
9	S					✓
10	M		✓	✓		
11	S					✓
12	M	✓	✓	✓	✓	✓
Unitary 18						
1	N	✓	✓			
2	S					✓
3	N		✓	✓		✓
4	M	✓	✓	✓		✓
5	S	✓		✓		✓
6	S	✓	✓			
7	N	✓			✓	
8	S	✓	✓			
9	S					✓
10	S	✓				
11	S					✓
12	M	✓	✓	✓	✓	
13	S					✓
14	M		✓			
15	S	✓				
16	S		✓			✓
17	S	✓	✓		✓	
18	N	✓				✓
Metropolitan 12						
1	M					✓
2	N	✓		✓	✓	
3	N	✓				
4	M		✓			✓
5	N	✓	✓	✓		
6	N					✓
7	N		✓	✓		
8	M	✓	✓	✓		
9	N					✓
10	N	✓		✓		
11	N					✓
12	M	✓			✓	
London Borough 10						
1	S	✓				
2	S					✓
3	S	✓			✓	
4	S					✓
5	S					✓
6	S	✓		✓		
7	S		✓			
8	S	✓	✓	✓	✓	
9	S	✓				
10	S					✓

(Note: * e.g. Internal Audit Reports, Reports to the Audit Committee and subsidiary guidance to managers)

The overall geographical spread of the ninety-seven local authorities closely follows the spread of the population, as shown in Table 3.12.

Table 3.12: Geographical Spread of Total Sampling

	South	Midlands	North
Population	43%	38%	19%
Total Sampling	44%	36%	20%

There is also a good coverage of the five local authority types and whilst the original and validation samples were stratified by local authority type, the total sampling reflects the comparative lack of media reports relating to district councils. District councils are however well represented in the total sampling at forty-six percent of the total, as shown in Table 3.13.

Table 3.13: Local Authority Types within Total Sampling

Type of Local Authority	Total Sampling		Population	
District Councils	45	46%	201	57%
County Councils	12	12%	27	8%
Unitary Authorities	18	19%	56	16%
Metropolitan Authorities	12	12%	36	10%
London Boroughs	10	10%	33	9%
	97		353	

Whilst all of the long interviews and one of the two short interviews (see Section 3.3.1. and Table 3.3) were with staff at local authorities in Table 3.11, the anonymity agreements with the interviewees preclude identifying these in the table as some of the information provided could lead to the local authorities and interviewees concerned being able to be identified.

The summary statistics do not include media reports that related to the sector in general or a substantial part of the sector. This was the case for most of the articles in *Public Finance*, for example. Similarly, the few media reports applicable to local authorities but that concern other types of public body, e.g. local authorities in Wales, or which name a local authority that is only peripherally involved are not included in the above tables. In a few cases, there are a number of media reports that relate to the same local authority.

Table 3.11 indicates the extent to which each element of the research has been related to others and to which the understanding of risk and its assessment at each local authority has drawn on a number of documents, for example drawing the annual audit letters sample from those local authorities already included in the research in the original or validation samples.

3.5.2. Basis and Validation of Samples

Whilst Section 3.5.1 brings together the samples to set out the sector-wide sampling position, Table 3.14 sets out each sample as previously discussed in this chapter and summarises the basis and validation of each.

Table 3.14: Sample Summary – Basis and Validation

Section of Chapter 3	Sample	Sample Size	Basis of Sample	Was this a Reasonable Sample Size?	Source(s) of Validation of Findings
3.3.1	Original Sample of Policies and Strategies	36 (10% sample)	Stratified sample by local authority type Internet searches using search terms such as "Council risk policy" and documents obtained directly from four local authorities to complete quota for each local authority type	Yes, the stratification of the sample reduced the probability of sampling error (Monette et al, 2011, p141). The 10% judgemental sample size provided sufficient scope to explore current practice in detail (ibid, p153). An initial review had found no local authorities that assessed risk other than on a two-dimensional impact/likelihood basis. This homogeneity supported a smaller sample size than might otherwise be the case (ibid, p148).	Validation sample provides strong evidence of saturation in the original sample (Eisenhardt, 1989) Supplementary Interviews (see below)
3.3.1	Validation Sample of Policies and Strategies	37 (10% sample)	Stratified sample by local authority type and regionally, correcting a slight bias in the original sample towards Midlands authorities - one too few in North of England, one too many in the Midlands Internet searches using search terms such as "Council risk management" to complete quota for each local authority type and region	Yes, the above justification also applies to this sample and is reinforced by the additional stratification and correction of the slight regional imbalance in the original sample	The purpose of this sample was to validate the original sample Sample drew on wider range of documents than original sample, including more than one for the same authority in some cases. Multiple documents compared to test, e.g. reports to audit committees compared to risk registers and policies
3.3.1	Supplementary Interviews	6 (+further 6 in discussion group at practitioner conference)	All long interviews and one of the two short interviews were from authorities in either the original or validation sample	Yes, given access problems Eight other local authorities were approached but either declined or did not respond	Group discussion with managers from six local authorities led by the researcher at practitioner conference (" <i>All Change – New Horizons for Local Government</i> ": an Improvement and Efficiency West Midlands Conference at the University of Warwick on 9th Dec 2011) - discussed emerging findings from the analysis of the original sample and provided indications of wider applicability. Only limited assurance was drawn from this as it was unplanned and only about 10 minutes was available but it was useful in the context of the wider access problems.

Section of Chapter 3	Sample	Sample Size	Basis of Sample	Was this a Reasonable Sample Size?	Source(s) of Validation of Findings
3.4.1.1	Risk Registers	29 (+14 obtained later in the research)	This was a convenience sample covering all local authority types, accessed online and directly from two local authorities	This was an 8% sample which seems reasonable but London boroughs and metropolitan authorities were under represented in the sample due to particular difficulties accessing their risk registers. Whilst issues of risk identification were outside the scope of the research, a comparison of the risk registers of similar authorities indicated that they appeared to be significantly incomplete in all cases. As a result, the level of confidence in this data source was reduced, it being difficult to reliably draw firm and broad conclusions about the nature of strategic risk from a data source that appears to be consistently incomplete.	The original document was undertaken prior to the analysis of this sample and had indicated an essentially shared approach with little fundamental variation. The additional 14 risk registers obtained later in the research were used as an informal validation sample: no grounds for doubting the conclusions drawn from the sample of 29 were found.
3.4.1.2	Media Reports to Populate Risk Event Database	80 reports representing 49 different risks, specifically arising at 31 local authorities	This was a data set created from the available data	The data set proved to be sufficiently broad to provide a rich source of research data	The data was obtained wholly independently of local authorities – a priority given the completeness issues identified for local authorities' risk registers that were obtained for the research.
3.4.1.3	Annual Audit Letters	20	Sample drawn from those local authorities already included in the research in the original or validation samples Split by local authority type and spread across five of the then six local authority external auditor providers Letters obtained independently of the local authorities	Yes, saturation achieved With hindsight a smaller sample would have sufficed given the formulaic nature of the letters and their apparently standardised content, though a smaller sample might have lacked credibility given the population size	For the nine local authorities for which a risk register had also been obtained, this was compared to the annual audit letter and risks identified by the external auditor were found which had not been included in the risk register, reinforcing the provisional conclusions drawn about the risk registers' lack of completeness. Given their source and formal nature, the annual audit letters were considered to be a more reliable source, though no assumptions about their completeness were drawn.
3.4.3.2	Initial Cynefin Sample	12	Simple judgemental sample to test whether the Cynefin concept appeared to be worth further analysis	Yes, given that purpose of the sample was only to indicate whether more detailed and robust analysis appeared to be worthwhile. Beyond this, no further conclusions were drawn on the basis of this sample	Given the purpose of the sample, validation was not required, though the findings of the subsequent research bore out the results from this initial application
3.4.3.2	Cynefin Sample (Also used for technical / societal risk analysis and as basis for larger sample re RQ2)	Originally 20, Extended to 21	Sampling frame taking account of local authority type and functions	Size driven by sample frame and extended by one on advice of independent validator	Independently validated by local authority head of internal audit

Summary

This section has shown that the research has, to varying degrees, embraced risk management and risk data for more than a quarter of all local authorities in England, reflecting the structural and geographical variations in those authorities. It has also shown the care that has been taken to ensure that the different data samples are soundly defined, selected and validated, emphasising the extent to which the samples are inter-linked and provide cross-validation. In reading this section, reference should be made to the Schematic Illustration of the Multiple Sources Methodology in Figure 3.1.

3.6. Summary of the Methodology for Research Question One

This chapter takes forward the results of the literature review and integrates them with the motivation and practitioner-focussed research approach set out in the Introduction to establish the methodology by which the research has sought to address the identified gaps in the literature.

Research Question One has two objectives: to address the five gaps in knowledge identified in the literature review and to inform key elements of the research to address Research Question Two. The two objectives are addressed in parallel by the multiple methods, sources and perspectives approach to Research Question One that has been described and explained in this chapter as summarised in Table 3.15.

The various elements of the research are interconnected, as illustrated in Table 3.1, and draw on carefully defined and validated samples which, in total, draw on aspects of risk and its management at 97 of the 353 (27%) of English local authorities.

Table 3.15: Summary of Methodology to Address the Gaps in Literature with Respect to Research Question One and to Inform Research Question Two

Identified Gap in Knowledge		Summary of Methodology	Does this Inform RQ2?
A	<p><u>What is Risk?</u> A local authority specific definition of strategic risk needs to be researched and developed. Aven and Renn's (2009) definition of risk may provide a useful starting point for doing this but the definition ultimately appears to need to be organisation-specific. Being sector-specific may not be enough (Section 2.2.1), though there are some hints as to elements of it, namely: the achievement of corporate objectives; the loss of something that is valued by key stakeholders; the avoidance of blame and reputation damage; and the issues about people and their concerns (Sections 2.2.1 and 2.2.4).</p>	An approach combining document analysis and supplementary interviews is defined which looks at current practice in local authorities, comparative practice in local authorities and similar bodies outside the UK and relevant standards and guidelines and draws on internal sources and external sources that are independent of the local authorities (Sections 3.3 and 3.4.1).	Yes
B	There is little literature on the nature ... of strategic risk in local authorities (Section 2.2.4).	A multiple-source methodology as illustrated in Table 3.1 is defined and adds to knowledge on the nature of strategic risks in local authorities (Chapter 3 as a whole).	Not directly
C	<p><u>Over-Arching Aspects of Risk</u> The extent to which strategic risk in local authorities is significantly complex has not been established in the literature (Section 2.6.2).</p>	Snowden (2002) and Snowden and Boone's (2007) Cynefin concept is used to explore the extent to which strategic risks in local authorities are complex (Section 3.4.3).	Yes
D	<p><u>Measuring Strategic Risk</u> The literature does not address the qualitative / quantitative dichotomy of public sector strategic risk (Section 2.7.1).</p>	A technical / societal continuum is defined and a simple Likert scale defined to place sample local authority strategic risks on that continuum (Section 3.4.2).	Yes
E	The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).	The Cynefin analysis to address C is taken further on the basis of Snowden (2002) and Snowden and Boone's (2007) highly cited concept and the understandings that can be derived from it (Section 3.4.3).	Yes

The results of this analysis and consideration of their meaning and implications are set out in Chapter 4.

Chapter 4

Results and Analysis for Research

Question One

4.1. Introduction

This chapter sets out the results and analysis of the research to address Research Question One. As Research Question One informs the research to address Research Question Two, this chapter also includes a discussion of the results for Research Question One. The methodology for this research is explained in Chapter 3.

Research Question One

What is the nature of strategic risk in English local authorities?

Research Question One has two objectives: to address the five gaps in knowledge identified in the literature review and to inform key elements of the research to address Research Question Two. This chapter is presented on the basis of the five gaps in knowledge and the implications for Research Question Two are then brought together at the end of the chapter.

Table 4.1: Gaps in Knowledge with Respect to Research Question One, as Identified from the Literature Review

Identified Gap in Knowledge		Relevant Sections of this Chapter
A	<u>What is Risk?</u> A local authority specific definition of strategic risk needs to be researched and developed. Aven and Renn's (2009) definition of risk may provide a useful starting point for doing this but the definition ultimately appears to need to be organisation-specific. Being sector-specific may not be enough (Section 2.2.1), though there are some hints as to elements of it, namely: the achievement of corporate objectives; the loss of something that is valued by key stakeholders; the avoidance of blame and reputation damage; and the issues about people and their concerns (Sections 2.2.1 and 2.2.4).	4.2
	B There is little literature on the nature ... of strategic risk in local authorities (Section 2.2.4).	4.2, 4.3 & 4.4
C	<u>Over-Arching Aspects of Risk</u> The extent to which strategic risk in local authorities is significantly complex has not been established in the literature (Section 2.6.2).	4.3
D	<u>Measuring Strategic Risk</u> The literature does not address the qualitative / quantitative dichotomy of public sector strategic risk (Section 2.7.1).	4.4.1
E	The research must explore the extent to which probabilistic approaches are appropriate for strategic risk assessment. A suitably robust and credible tool is needed to enable this important determination of simplicity, complexity and any appropriate intermediate states to be made (Section 2.7.2).	4.4.2

Gap in Knowledge B is in essence a summary of the other four and so is addressed by the Chapter as a whole. The contributions to knowledge and implications for Research Question Two are presented at the end of the chapter.

4.2. What is Risk?

This section presents the results and analyses of the research to address Gap in Knowledge A¹⁷ and to significantly contribute towards addressing B, and informs the approach to Research Question Two.

At the end of the section the sense of strategic risk in local authorities that emerges from the research is presented as a context-specific risk definition.

4.2.1. Review of Current Practice in the UK and Beyond

4.2.1.1. Document Analysis

The review of English local authorities' risk management policies and strategies for the original sample, as defined in Table 3.2, has found that 39% do not define risk in the key document(s) setting out the approach to its management. One of these defines strategic risk as a specific type of risk but provides no definition of risk per se; the others do not define risk at all. Intuitively, one would perhaps expect the definition of risk to be an essential element of the introductory sections of these documents.

As shown in Table 4.2, those that explicitly define risk or provide a definition of risk management that includes an implicit definition of risk predominantly (86%) define it as being about the impairment of the achievement of objectives and/or strategies. A few examples of these are set out below, for example, a risk is:

"the threat that an event or action will adversely affect an organisation's ability to achieve its objectives and to successfully execute its strategies" (London Borough);

"the chance of something happening that will have an impact on the achievement of the Council's ambitions and/or priorities" (Metropolitan Authority);

"an event or action which will adversely affect an organisation's ability to achieve its objectives" (District Council); and

"the effect of uncertainty on our objectives"¹⁸ (County Council).

The few (14%) that do not define it as such, instead define it as being about causing harm, negative outcomes or *"obstacles and weaknesses within the organisation"* (District Council). The second and third of these alternative definitions could be interpreted as being in part or even wholly about the achievement of objectives. The few documented definitions of risk that are not based on the achievement of objectives all arise at district councils. The identified, predominant sense of strategic risk as being about the achievement of objectives is one of those suggested in the literature (See Section 2.2).

¹⁷ See Table 4.1

¹⁸ This is a direct, explicit reference to ISO 31000 (See Section 4.2.2.4)

Table 4.2: Analysis of Risk Definition in Risk Management Documents

	District	County	Unitary	Metropolitan	London Borough	Total	
"Risk" is not defined	9	1	3	0	1	14	39%
"Risk" is defined	11	2	3	4	2	22	61%
Definition of Risk where one is provided							
Objective driven – we are trying to achieve X and we	8	2	3	4	2	19	86%
Other	3	0	0	0	0	3	14%
	11	2	3	4	2	22	100%

Two local authorities in the sample extend their definition from one based on the achievement of objectives to also embrace the satisfaction of stakeholders' expectations. These two also extend the definition to embrace issues around performance and duties.

There is no data from the document analysis to support an insurance-based construction of strategic risk in local authorities. Strategic risk in English local authorities is not seen to be a matter of insurable risk.

A significant proportion of the local authorities in the sample (28%) refer to "*opportunities*" as an aspect of risk. Two threads of meaning emerge from further analysis of these documents. Firstly, a desire to avoid missing out on positive gains, for example: "*A risk can also be the failure to take advantage of opportunities to optimise an organisation achieving its planned objectives*" (Metropolitan Authority). As this shows, opportunities are in some cases explicitly linked to the achievement of objectives. Secondly, the consideration of opportunities is typically positioned within the decision-making phase of the overall risk management process and not considered to be an aspect of the risk: essentially, when considering a risk, after it has been assessed, managers are guided to consider the opportunities that might accrue from accepting a risk, or from continuing with the underlying activity that gives rise to it, either in its current or a mitigated form. Notwithstanding the above, the documents alone were found to lack clarity and the relevance and positioning of opportunities was raised in the supplementary interviews and the desired clarification sought from the interviewees.

The literature identifies uncertainty as being central to the concept of risk. This is not consistently replicated in the strategies and policies for the authorities in the original sample. Of those that define risk, 64% indicate that uncertainty in some form is an element of risk, 36% do not. The sense communicated is that this uncertainty, where it is referred to at all, is about whether the risk event will happen.

The validation sample provided no contra-indications to the above findings from the original sample.

The sources identified from the document analysis as being referred to by local authorities as authoritative are:

1. The Audit Commission publication "*Worth the Risk*" (2001); and
2. ISO 31000.

These are the documents already identified in the Methodology for Research Question One (Chapter 3) and are considered in Sections 4.2.2.2 and 4.2.2.4.

Comparison of individual local authorities' risk management documents indicates that there has been a significant level of sharing between local authorities and that a number of them have drawn on those used in other local authorities. These vary from one case of a local authority's document having the acronym for another local authority (e.g. *XDC*) when the intention is to refer to itself. By a coincidence, that other local was also in the original sample and the two documents clearly have a common source, essentially being different only in the contextual references. There are also a number of unusual, and at times rather clumsy, phrases that occur identically in a number of local authorities' documents, for example four different local authorities' documents using "*Remembered for years*" as an indicator of a "*catastrophic*" risk impact. In these cases the structure and much of the content of the documents is also the same. This practice appears to be particularly common in district councils: the smallest local authorities, where one would assume there are the least resources to develop original risk management approaches.

4.2.1.2. Supplementary Interviews

As explained in Section 3.3.1, supplementary interviews were carried out at local authorities. Whilst these were primarily to address Research Question Two, they also addressed Research Question One. Questions were prepared for the interviews and are contained in Appendix 1. The key objectives that relate to Research Question One were to:

- Confirm, or otherwise, the currency of the documents reviewed
- Explore issues of compliance with the documented approaches;
- Explore whether different or fuller sense(s) of risk had been adopted formally or informally; and
- Deepen the researcher's understanding as derived from the document analysis.

The emergent codes are shown in Table 4.3 and the associated data and the full analysis of their research relevance to Research Question One is in Appendix 3. The key results and reflections on the results are summarised in the following paragraphs.

Table: 4.3: Emergent Codes from Supplementary Interview Data for Research Question One

Code	
Culture and Context	
2	Potential exposure of those managing the risk assessment and associated processes
15	Political and senior managerial involvement and intervention
33	Following the sector norms
35	Throw away phrase
Risk and What it Means	
6	The real purpose of risk assessments
18	What is risk about?
The Detail of the Risk Assessment Method and Process	
22	Opportunities and upside risk
Making the Risk Assessment Process Work and Compliance Issues	
14	Championing risk from the top
23	Description of risks
30	Compliance with the risk management approach

Key Results and Reflections on the Supplementary Interview Data

The overall picture emerging from the interview data is that there is substantial, but not full, compliance with documented risk assessment approaches in local authorities. Although it is outside of the scope of the research, the data provide a useful reminder of the importance of reliable and complete risk identification. The identification of processes of further filtering and reinterpretation by senior managers of the risks assessed supports the call in the literature for risk assessments to provide information for decision-makers that goes beyond just a ranking of risks to prioritise them for management attention (Section 2.3.2).

The data strongly reinforce the conclusions of contextual-dependence that emerge from the literature review (Section 2.2.1). As also indicated by the document analysis in Section 4.2.1.1, different local authorities construct and manage risk differently.

There is variation in the core sense of risk. The three senses of risk that emerge from the document analysis also emerge from the supplementary interviews (Code 18); namely,

1. Failure to achieve corporate objectives;
2. Negative events “*things that we do not want to go wrong*”; and
3. Failures in service delivery.

The data lean towards a negative events construction of risk. However, they also introduce a wider sense of risk as a concern for the future, embracing all three. The case of the local authority at which this was raised is an interesting one. The documented approach and risk register are very clear that risk is about the achievement of objectives but the explanation received at interview is that risk is a concern, with a potential failure to achieve objectives being the primary source of concern.

There is no interview data to support an insurance-based construction of strategic risk in local authorities, supporting the finding from the document analysis.

Whilst the literature places uncertainty at the heart of risk, the interview data do not. One local authority specifically sees certain future concerns as risks. That is problems that it believes it is definitely going to face. Perhaps it is enough for there to be uncertainty of outcome¹⁹ and uncertainty of occurrence is not a necessary element of risk. For example, a pending funding shortfall that has already been identified for next year but which may be as low as £3m or as high as £8m. In elucidating this example there emerges the sense of an answer to the uncertainty question. This future concern could be expressed as the possibility that the local authority will not be able to resolve the coming budget shortfall. In this construction of the same problem, there is uncertainty of occurrence and outcome and it is clearly a risk within the sense of the literature. Risk is a practical discipline and the research is explicitly positioned as practitioner orientated. Hence, the sense of risk must be a matter of substance and not merely one of form, in which case it would seem fundamentally inappropriate not to recognise either construction of the example future concern as a risk. The crux of the uncertainty question consequently appears to be the existence of significant uncertainty, not the details of that uncertainty.

The data have helped to clarify the place of “*opportunities*”, or other upside views on risk, in the definition and subsequent assessment of local authority strategic risk. On a combination of pragmatic grounds based on experience and the emerging sense of risk as being fundamentally about concerns, the conclusion from the data is that they should only be brought into consideration if they are considered to be sufficiently important to be defined as an objective, or perhaps service standard, by the local authority. This addresses the question raised by the document analysis.

Issues of culture and the powerful effects of senior management support, or otherwise, for the risk management process run through the data. It is clear that, whilst ultimately outside the scope of the research, they have a critical bearing on the effectiveness of all aspects of risk management in a local authority. There is evidence of very different behaviours by senior staff, for example insisting that some risks be left off the risk register or insisting that they are given less “*prominence*” (i.e. that they be stated to be less serious than they have been assessed to be). Overall, the data suggest that some local authorities have an unreliable or incomplete risk management process. As some of these problems are not attributed to process weaknesses but to issues of culture and senior management influence, they would appear not to be soluble by process improvements alone. The interviewees’ insistence on confidentiality and anonymity seems to provide further evidence of the perceived seriousness of the personal and organisational exposure concerns (Code 2).

The data with respect to following the sector norms (Code 33) provide an interesting additional facet to the context dependence of risk and resonates with the evidence of document sharing identified by the document analysis. It also hints at a possible resistance to research findings and conclusions that point towards a need to depart from the current practice that constitutes those sector norms.

¹⁹ This possible construction of risk as uncertainty of outcome is presented in “*The Orange Book*” (HM Treasury, 2004) as discussed in Section 4.2.2

The interview data support the conclusion on risk categorisation²⁰ from the literature review, namely that it is not a helpful tool in risk assessment.

4.2.1.3. Document Analysis for International Comparators

International comparisons have been made with specific sub-national governmental bodies in Australia, Canada, France, Ireland, New Zealand, South Africa and the USA²¹. This has been based on the analysis of the bodies' risk management documents that have been located online.

The approaches to risk management generally, and to issues of relevance to Research Question One specifically, at local authorities in Australia, Canada, Ireland, New Zealand and South Africa are very similar to those at English local authorities. With only minor contextual and name changes, some of the documents accessed for local authorities in a number of the local authorities and comparable bodies in Australia, Ireland, New Zealand and, to a lesser extent, South Africa could have been for local authorities in England. The level of similarity was such as to suggest that the issue of following the sector norms that emerged from the supplementary interview data for local authorities in England may be one for English-speaking local authorities. Indeed, reference to using international practice as a source of guidance was noted in the *Risk Management Framework*²² of a small South African local authority (Nongoma Municipality). The sense of international sector norms also emerged from some of the non-risk documents accessed for the research, for example annual budget papers for local authorities in England and, again, South Africa.

As was found to be the case with a significant proportion of documented approaches at English local authorities, examples of risk management documents setting out the approach to risk management without defining risk were identified internationally. The majority, however, either defined risk or provided a clear indication of its intended sense. The definition and senses of risk emerging from the analysis data fall into two groups.

1. The three-way split seen in English local authorities of risk being concerned with:
 - Failure to achieve objectives;
 - Negative events; and
 - Failures in service delivery
2. Risk being about insurable perils and minimising legal liability

The second of these was found to be common in the USA and was also identified at one small local authority in Australia (Derwent Valley Council).

The wording of the definitions or explanations conveying a sense of risk in Australia and Canada suggest a wider sense of *objectives*, with indications that the term is intended to extend to goals at a level that is perhaps subsidiary to formally defined corporate objectives.

²⁰ See Section 2.6.5

²¹ See Appendix 2 for a list of the bodies whose documents were accessed for the research

²² http://devplan.kzntl.gov.za/idp_reviewed_2010_11/IDPS/KZ265/Adopted/Nongoma%20Municipality%20Risk%20Management%20DOC%202010-2011.pdf (Last accessed 23/07/13)

As was found to be the case at English local authorities, the international comparators did not consistently put uncertainty at the centre of the construction of risk. Where risk was defined, consistent emphasis was placed on the effects but not on uncertainty. The exceptions to this tended to be those bodies that had accepted ISO 31000 and its national variants (for example, AS/NZ ISO 31000:2009).

uMtshezi Local Municipality in South Africa provides an interesting approach and summary to these wider issues by making repeated references in its risk management policy²³ to the key things that matter to the organisation. This is reminiscent of Aven and Renn's (2009) risk definition that talks about risks having consequences for "*something that humans value*" (ibid, p588). The subsequent statement of what matters to uMtshezi Local Municipality is, however, a narrow one, being limited to matters such as a financial loss and the imposition of fines and not including matters of values and harm to people.

ISO 31000 and its national variants were found to have been embraced by local authorities and comparable bodies in Australia, Canada and New Zealand. This usually included acceptance of the definition of risk as *the effect of uncertainty on objectives*, presented in ISO 31000. There was found to be a clear sense, particularly in Australia and New Zealand, that ISO 31000 is a credible and authoritative source of guidance for risk management in local authorities. The standard is, for example, the "*minimum risk management standard for the ... public sector*" in the Australian state of Victoria (Government of the State of Victoria, 2011, p4)²⁴.

Few international examples of risk management approaches that embrace upside risk, or *opportunities*, were found. Those that were found were either unclear about its place or positioned it as part of the decision-making phase and not as part of the risk assessment. This indicates a similar position to that at English local authorities.

As a further indicator of the continuing links between risk management and insurance, the research identified a risk management guidance document produced by Irish Public Bodies Mutual Insurance Ltd²⁵. This is stated to be a "*best practice*" guide. The report was commissioned by the Irish Department of the Environment, Heritage and Local Government and the Irish Local Government Audit Service subsequently reviewed local authorities' progress in implementing the recommendations in the report²⁶. This is a clear indication that it is considered to be authoritative across the Irish local authority sector. In June 2012, the document was still being quoted by Irish local authorities (e.g. Dublin City Council²⁷) as an authoritative source of guidance. Despite the source of the document, it does not take an insurance-based approach to risk. Instead, it takes a wider perspective on risk in local authorities, defining it on the following basis.

²³ <http://www.umtshezi.co.za/wp-content/uploads/2011/03/Umtshezi-Risk-Management-Policy.pdf> (Last accessed 11/06/12)

²⁴ [http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/VicGovRiskManagementFrameworkApril2011/\\$File/Vic-Gov-Risk-Management-Framework-April2011.pdf](http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/VicGovRiskManagementFrameworkApril2011/$File/Vic-Gov-Risk-Management-Framework-April2011.pdf) (Last accessed 08/06/12)

²⁵ Irish Public Bodies Mutual Insurance Ltd (2005), "*Local Authority Risk – Excellence in governance through best practice risk management*", IPB, Dublin.

²⁶ <http://www.envron.ie/en/Publications/LocalGovernment/AuditService/FileDownload,1902,en.pdf>, p11 (Last accessed 12/06/12)

²⁷ http://www.dublincity.ie/YourCouncil/InformationRights/Documents/S16_Fourth%20Edition_2010.pdf (Last accessed 11/06/12)

“Risk can be thought of as a possible loss or other adverse consequence that has the potential to impact on a local authority’s ability to achieve its objectives and fulfil its mission” (ibid, p10).

This is a construction of risk that embraces the achievement of objectives but does not do so restrictively. The sense of *mission* is potentially a broad one that could encompass issues of service delivery, legal duties and responsibilities, political mandate and stakeholder expectations. This is potentially a concern-based construction. The guidance is clear that risk *“is not simply the management of insurable risk”* (ibid, p11).

The overall conclusion from the document analysis for international comparators is that no evidence has been found of significant alternative senses of strategic risk in local authorities, other than to adopt an insurance-based sense of risk. This is clearly a minority view that is primarily restricted to the USA and rejected more widely. The Irish risk definition is a particularly clear and persuasive one that appears to be directly portable to an English context. Of considerable value, however, is the wider sense of *objectives*; namely that for risk management purposes the term can be interpreted as going beyond defined corporate objectives to embrace issues of mission, wider goals and external expectations, for example.

It is recognised that the research has essentially drawn on just English language sources and that this is a potential source of limitation. The small number of non-English language sources have added little. The French sources suggest a greater focus on analysis of risk by category rather than a broad local authority-wide perspective on risk. A poorly-translated, non-sector-specific Finnish source²⁸ indicates that the recent emergence of a risk management discipline that goes beyond matters of insurance is international, as is the acceptance of ISO 31000. The latter is of course consistent with its status as an international standard.

4.2.2. Document Analysis for Published Standards and Guidelines

4.2.2.1. Accounts and Audit (England) Regulations 2011

Regulation 4(1) of the Accounts and Audit (England) Regulations 2011 requires that:

“The relevant body is responsible for ensuring that the financial management of the body is adequate and effective and that the body has a sound system of internal control which facilitates the effective exercise of that body’s functions and which includes arrangements for the management of risk.”

Under Regulation 2(1), English local authorities are *“relevant bodies”* and so Regulation 4(1) applies to them. The Regulations require local authorities to have in place *arrangements for the management of risk* as part of a *sound system of internal control*.

Contextually, it is noted that this requirement is contained in *Accounts and Audit* Regulations. That is regulations about financial matters in local authorities. To reinforce this, the preamble to the Regulations states that, in making the Regulations:

²⁸ <http://srhy.fi/index.php?page=eng1> (Last accessed 23/07/13)

“the Secretary of State consulted ... such bodies of accountants as appeared to him to be appropriate.”

No consultation with risk management bodies is stated to have taken place.

The risk management provision of the 2011 Regulations was established in the 2003 Regulations, which were replaced by the 2011 Regulations. Earlier Regulations, for example 1983 and 1996, did not provide for risk management. This shows that the creation of legal requirements on local authorities to manage risk follows the position identified in the literature review (Section 2.2.3) of risk management as an emerging discipline²⁹.

The Regulations do not define risk, though there is a sense that it is about *the effective exercise of the local authority’s functions* and a question about whether risk is financially-led. The Regulations provide no guidance on how risk is to be managed.

4.2.2.2. *Worth the Risk* (The Audit Commission, 2001)

This is guidance on risk management published in 2001 by the body responsible for overseeing the external audit of local authorities in England. It was “*written at a time when more formal systems of risk management [were] being established across all parts of the private and public sectors*” (ibid, p5). The analysis of local authorities’ risk management documents (Section 4.2.1.1) has found that it is still referred to by local authorities as an authoritative source.

It defines risk as

“the threat that an event or action will adversely affect an organisation’s ability to achieve its objectives and to successfully execute its strategies” (ibid, p7).

This is a sense of risk that sees the non-achievement of objectives as a consequence of a risk. The later stages of the document state what The Audit Commission considered to be the key risks facing local authorities at the time it was written.

- *“The emergence of new political structures*
- *Best value*
- *e-Government*
- *Partnership working*
- *The need to innovate”* (ibid, pp16 - 18)

These, and the more detailed explanations of each provided in the text, indicate that The Audit Commission’s intention was not to construct risk on the basis of a failure to achieve an objective but as a serious problem or challenge that could have the effect of causing the local authority to do so. The extension of the definition from achieving “*its objectives*” to “*successfully execut[ing] its strategies*” indicates that the intention is not to restrict risk management to defined objectives but to

²⁹ In 2000, for example, Chelst and Bodily (2000) wrote that risk management is not part of the standard decision-analysis paradigm

also embrace the other important things that the local authority is seeking to do. It would seem reasonable to assume that this should include issues of service delivery and quality. This is consistent with the researcher's interpretation of the relevant provision in the Account and Audit Regulations. The definition says nothing about uncertainty and does not include upside risk.

4.2.2.3. *The Orange Book: Management of Risk - Principles and Concepts* (HM Treasury, 2004)

The Orange Book sets out the approach to risk management that is expected to be adopted across central government and much of the public sector in the UK. It is not binding on local authorities. The document analysis identified just one occasion of *The Orange Book* being referred to in a local authority risk management document and this was an internal audit report for an audit of the local authority's risk management arrangements. This is in contrast to the position as regards *Worth the Risk* (ibid).

The Orange Book states that:

"Whatever the purpose of the organisation may be, the delivery of its objectives is surrounded by uncertainty which both poses threats to success and offers opportunity for increasing success

Risk is defined as this uncertainty of outcome, whether positive opportunity or negative threat, of actions and events" (ibid, p9).

This is an interesting explanation and definition of risk. It puts uncertainty at the centre of the definition, and suggests an answer to the question raised in Section 4.2.1.2 about whether uncertainty, as a defining characteristic of risk in the literature, requires uncertainty of occurrence and of outcome or whether uncertainty of outcome is sufficient. *The Orange Book* indicates that the latter is sufficient. It also indicates that risk is about the achievement of objectives but ultimately defines risk in terms of outcomes, positive and negative. Like *Worth the Risk*, *The Orange Book* presents the non-achievement of objectives as a significant element of risk but not as the whole picture.

4.2.2.4. ISO 31000

As discussed in Section 3.3.3, there has been a small amount of academic comment on the international risk management standard ISO 31000. This suggests that academic views on the standard differ, giving rise to a need to treat it with caution, but not to dismiss it too lightly.

The extent of the credibility assigned to the standard by some local authorities in England and comparable bodies internationally adds to the need to consider the standard (See Sections 4.2.1.1 and 4.2.1.3 respectively). The standard defines risk as *the effect of uncertainty on objectives*, a definition adopted by a number of these bodies. The subsequent notes in the standard aid understanding of this definition.

“Note 1 An effect is a deviation from the expected — positive and/or negative.

Note 2 Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).

Note 5 Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.”

It is clear from Note 2 that the intention is for objectives to be a broad term embracing the things that an organisation is seeking to achieve rather than a narrow focus on formally defined, high level corporate objectives. Note 5 contributes to the question already posed in this chapter about whether uncertainty needs to be of outcome and occurrence, or can be just of outcome. For ISO 31000, it is clearly stated that it need not be both. Note 1 appears to provide for upside risk and seems to suggest a context of risk where expected outcomes have a significant degree of certainty. This may not be a realistic assumption for all risks at a local authority.

4.2.2.5. Charity Commission Guidance for Charities

The Charity Commission regulates charities in England and Wales. Risk management guidance produced by the Charity Commission³⁰ has been reviewed on the basis that there can be assumed to be much in common between local authorities and charities in terms of their provision of services to those in need and the existence of a shared public service ethic. There are also a number of differences, for example size, that have been carefully taken into account in considering the Commission's guidance.

“Risk is used ... to describe the uncertainty surrounding events and their outcomes that may have a significant impact, either enhancing or inhibiting any area of a charity's operations.” (Charity Commission, 2010, p3)

In contrast to ISO 31000, this definition does not explicitly refer to organisations' objectives. However, this is a clear and broad sense of risk. It embraces uncertainty and can be interpreted to include the three issues of achieving objectives, negative events and service delivery / activities. It can also be seen as a concern-based sense of risk. The guidance goes on to support this concern-based interpretation by stating that:

“An essential question for charities when considering risk is whether or not they can continue to meet the needs of beneficiaries now and in the future. For example, in a period of economic uncertainty, the major financial risks for a charity are likely to be:

- *termination of funding from other bodies;*
- *the future of contracts;*
- *fundraising from the general public;*
- *fluctuations in investments;*
- *an unforeseen rise in demand for their services”.* (ibid, pp4 – 5)

³⁰ <http://www.charitycommission.gov.uk/media/94007/cc26text.pdf> (Last accessed 22/07/13)

This is an explicit indicator that concerns for charities to address in managing risk include those of their beneficiaries. These are a key stakeholder group and are directly comparable to a local authority's service users. The bullet points provide indications of expected concerns. The sample risks arising from the analysis of local authorities' annual audit letters and the Risk Event Database (See Section 4.2.3) indicate that these general risks also arise at local authorities. The one exception is that of fundraising, where fundamental contextual differences apply. Even then, when raised to the general level of funding availability in times of austerity, there is clear evidence of a common, substantial concern.

4.2.2.6. Other Sources

The research has also reviewed the Alarm publications "*National Performance Model for Risk Management in the Public Services*"³¹ and "*Core Competencies in Public Service Risk Management*"³². These have provided useful background reading but do not make a useful contribution to Research Question One.

4.2.2.7. Summary

The Accounts and Audit (England) Regulations 2011 require local authorities to make "*arrangements for the management of risk*" (Reg 4(1)), but do not define risk and say very little to indicate its nature. The identified sources of guidance and standards present risk in public and voluntary sector bodies as being about the same three key headings identified in current practice: failure to achieve objectives, negative events and failures in service delivery. The most frequent reference is to the first of these. All bar *Worth the Risk* (2001) include uncertainty in their risk definitions. This exception is the local authority sector-specific source.

4.2.3. Analysis of Risks from Multiple Sources

This section draws together risk data from local authorities and from independent sources. The data are then used to gain insights into Research Question One from the different perspectives offered by their sources.

4.2.3.1. Local Authorities' Risk Registers

The analysis of risks recorded in local risk registers following the methodology described in Section 3.4.1.1, has identified three approaches to risk. The results of the analysis are summarised in Table 4.4 and presented in frequency order.

³¹ <http://www.alarm-uk.org/PDF/Alarm%20National%20Performance%20Model.pdf> (Last accessed 26/10/11)

The origins of Alarm are as the Association of Local Authority Risk Managers, hence the origin of the name as an acronym (ALARM). It has now become a membership body for risk managers in the wider public sector

³² www.alarm-uk.org/news/2011/core_competencies.aspx (Last accessed 26/10/11)

Table 4.4: Analysis of Risks in Local Authority Risk Registers

	District	County	Unitary	Metropolitan	London Borough	Total	
Negative events – <i>such and such a potential nasty event, a consequence of which may be that we fail to achieve our objectives</i>	8	5	2	0	1	16	55%
Activity driven – <i>the level of risk associated with doing X is....</i>	6	0	2	0	0	8	28%
Objective driven – <i>we are trying to achieve X and we fail</i>	1	0	3	1	0	5	17%
	15	5	7	1	1	29	100%

These findings are in contrast to the documented definitions of risk in local authorities' risk management documents (see Section 4.2.1.1), which predominantly indicate that risk is about the achievement of objectives. This leads to the conclusion that what local authorities define as risk and what are actually recorded as being risks are different. However, the potential for an unrecorded connecting narrative means that this apparent difference could be misleading. For example, consideration of the risks associated with a service delivery objective might lead to the identification of a risk of the destruction by fire, flood or other peril of the building in which those services are delivered. This could be recorded as being the risk that the objective would not be achieved due to the destruction of the building or just as the risk that the building will be destroyed. The risk is inherently the same but the sense of risk is different. The findings of the research based on risk registers must be interpreted in the light of the concerns about completeness highlighted in Section 3.4.1.1.

4.2.3.2. Risk Event Database

As stated in associated methodology (Section 3.4.1.2), the database was built on the premise that strategic risk in local authorities is, at least in part, about uncertain future events that would have a negative effect on the local authority, perhaps in terms of its delivery of services or the loss of its resources. As the research progressed, the analyses to address Research Question One have come to indicate that this was a valid assumption. It is, however, expressly recognised that the database is not and could not be more than a summary of some risks facing local authorities. Nevertheless, by adding to the risks recorded by local authorities in their risk registers and those commented upon by external auditors in annual audit letters, it makes the overall set of risks brought into the research more complete, strengthening the relevance and robustness of the emerging research results and conclusions. The risks in the database are presented in Table 4.5.

Table 4.5: Risks in the Risk Event Database

	Risk
1	Failed legal action v former Managing Director (CEO)
2	Abuse and death of a vulnerable child and subsequent legal issues, including employment law, compensation and regulatory intervention
3	Local authority poorly run (a " <i>shambles</i> ")
4	Errors in issuing car parking fines
5	Financial management errors during project to develop new housing
6	Council high earners use " <i>tax avoidance scheme</i> "
7	Wrongful attempt to put children into care
8	Breach of procurement law resulting in need to pay damages or other sanction(s)
9	Inability to achieve required cost savings (" <i>cuts</i> ")
10	Failure to secure and protect sensitive personal data
11	Sexual misconduct by very senior person
12	Errors in law by social worker leading to collapse of child protection case in court
13	Large payroll error - payment of monies to which the payee is not entitled
14	Procurement fraud
15	Loss of control of major project
16	Future demand for new service greatly over-estimated / Failure to publicise new service
17	Death as a result of new traffic scheme introduced by the local authority
18	Conduct by member of staff that could be interpreted as an abuse of position for small scale personal financial gain
19	Heavy-handed council tax arrears action against person with known, serious mental health problems
20	Contractor paints road bridge the wrong colour or makes other error which is potentially embarrassing for the local authority but no more
21	Whistle-blowing case mis-handled
22	Embarrassing error that is easily rectified, but could have been easily avoided
23	Large volume of pot hole repairs required as a result of bad winter
24	Serious failure to support schools resulting in regulatory intervention
25	Large theft by a senior member of staff
26	Local authority deems it necessary to take legal action to protect the reputation of elected councillors
27	Conduct of member of staff in private life attracts adverse media attention
28	Failure to run the local authority as a whole satisfactorily
29	Failure to treat highly vulnerable older people and their families with care and respect for their needs and dignity
30	Sports facilities do not have expected durability and have to be closed, repaired or replaced earlier than planned
31	Misconduct by high profile member of staff and the way with which it is dealt
32	Breakdown in relationship between council and chief executive
33	New legislation fundamentally changes the ways in which the local authority operates and/or its functions & responsibilities
34	Failure to meet regulatory standards in social care
35	Managers inadequately trained and developed
36	Wrong staff identified for redundancy
37	High cost schemes to address social problems do not work
38	Over-payments to suppliers
39	Staff lack soft skills to enable them to do their jobs well, e.g. influencing and negotiating skills
40	Shared services arrangements between local authorities fail to deliver
41	Failure of provider of contracted-out care services
42	Pension fund risks ineffectively managed
43	IT systems insecure / " <i>Cybercrime</i> "
44	Administrative error causes inconvenience and small financial loss to large number of local people
45	Large errors made in budget setting and longer-term financial planning
46	A series of errors and problems create a sense that the local authority lacks competence and cannot be trusted
47	Allegations are made that a service provided to another local authority has been delivered negligently or incompetently
48	A member of staff behaves improperly whilst delivering services to the public
49	Changes to council tax benefit / support arrangements cause a substantial increase in non-payment rates and losses

A fuller, referenced summary is provided in Table 6.11 where the data is analysed in detail for Research Question Two. For clarity, risks in the Risk Events Database are referred to as REDx, e.g. RED9.

For Research Question One, the key research findings from the risk event database are the diversity and number of risks. As the database was populated from risk events reported during the data collection period of approximately two and a half years, no claim about completeness can be made. Indeed, it must be recognised that the data is necessarily and substantially incomplete. It could not, for example, include risk events that:

- Were reported before or after the data collection period;
- Have not happened;
- Have happened without the knowledge of the media; or
- The media chose not to report.

These only serve to add to the sense that the total set of risks facing a local authority can be reasonably assumed to be a large and diverse one.

The risks do not appear to be exceptional or to be inconceivable at most local authorities and yet the number identified, and acknowledged to be far from a complete set of risks for a local authority, is greater than that found in almost all of the local authority risk registers accessed for the research. This adds to the concerns about the completeness of local authorities' risk registers raised in Section 3.4.1.1 and referred to above.

A number of the reports from which the data is drawn show that the risk events are uncertain and that in some cases that uncertainty is such that the details are disputed. As the reports are of the risk events after they have happened and not of the pre-event risk, these uncertainties are, however, limited to the extent of the outcomes and their significance. In some cases the claimed uncertainties seem to be positioning and, perhaps, motivated by a desire to avoid blame rather than being wholly and convincingly genuine. The general media reports have not touched on the achievement of local authorities' objectives, clearly reporting the news stories in terms that will be meaningful to a lay audience.

The risk event database includes a number of risks with a stakeholder element, for example RED24 (Serious failure to support schools resulting in regulatory intervention) and RED44 (Administrative error causes inconvenience and small financial loss to large number of local people). Respectively, they indicate that failing to meet powerful stakeholders' needs and expectations can have serious consequences for local authorities and that failing to meet weaker stakeholders' needs and expectations can have implications for a local authority's reputation and issues of blame and may and trigger action by powerful stakeholders.

4.2.3.3. Annual Audit Letters

The annual audit letters were all found to have a very similar structure. The issues of risk presented were a combination of topical issues raised with a number of local authorities, and in one case all local authorities, and issues that were specific to individual authorities. In the latter case, these tended to also be raised at at least a few other local authorities. Table 4.6 shows the risk issues identified and their frequency with which they were raised.

Table 4.6: Risk Issues from Annual Audit Letters

Risk	Frequency	
	Number	%
1 Balancing the budget / necessary savings not achieved	20	100
2 Inefficient use of resources and value for money	15	75%
3 Insufficient unallocated reserves to provide a cushion to absorb risk	12	60%
4 Errors and/or delays in the annual accounts occur	12	60%
5 Benefits and/or other frauds are perpetrated	8	40%
6 Joint working arrangements with other councils inappropriate / ineffective	8	40%
7 Serious weaknesses in financial systems cause losses or other problems	7	35%
8 Pension fund deficit not effectively addressed	6	30%
9 Procurement and/or commissioning arrangements fail, e.g. legal non-compliance	6	30%
10 Partnership arrangements are inappropriate / ineffective / fail	5	25%
11 Treasury management systems fail, including losses in Icelandic banks	5	25%
12 Non-compliance with legal and/or regulatory requirements	5	25%
13 Workforce planning and staff development procedures are ineffective / fail	4	20%
14 Project management and decision-making procedures are ineffective / fail	3	15%
15 Capital programme and major capital projects are inappropriate / fail	3	15%
16 Stakeholder involvement in planning and change management is insufficient / ineffective	3	15%
17 Management arrangements, structures and culture are inappropriate / ineffective	3	15%
18 The implementation of an important new system fails / is inefficient	2	10%
19 Risk management processes are ineffective / fail	2	10%
20 Change management programmes are inappropriate / ineffective / fail	2	10%
21 External changes impact negatively on the council	2	10%
22 Controls and assurance arrangements are ineffective / inefficient	2	10%
23 IT systems are insecurity or lack resilience	2	10%
24 Necessary legal and/or regulatory permissions are not obtained	2	10%
25 Demand for services increases beyond current capacity / resource levels	1	5%
26 Ineffective / inefficient arrangements are made for new unitary status	1	5%
27 Management of new functions and responsibilities is ineffective / fails	1	5%
28 Safeguarding arrangements for children fail	1	5%
29 VAT efficiency not maximised / VAT errors occur	1	5%
30 The council's activities are not environmentally sustainable	1	5%

(n = 20)

Initially, fifty-three risks were identified but inspection indicated a number of inherently similar risks and the list was refined into one of thirty substantially different risks. For clarity, the risks derived from annual audit letters are referred to as AALx, e.g. AAL9.

The risks do not easily fit into the three-way analysis of risk that has emerged from current practice within local authorities. The risks can all be presented as being negative event driven, an indicator of this being the language used in Table 4.6, (..... *ineffective / inefficient / inappropriate / fails / errors*...). Some could be presented as being activity driven and some may be linked to the achievement of objectives, though these links are not made in the annual audit letter. The context of the letter as the summary of the important matters arising from the annual audit and associated issues that the auditors consider need to be raised formally comes through clearly in the data, most clearly in the case of AAL4 (*Errors and/or delays in the annual accounts occur*). It could be argued persuasively that the public disclosure of such a concern in a publicly available annual audit letter by the external auditor and The Audit Commission, both influential stakeholders in the local authority, makes the risk more serious, it being reasonable to anticipate further consequences if the local authority fails to heed the warnings issued and the problem(s) reoccur.

A more complete and simpler sense of strategic risks is that they are concerns about problems that the local authority may face in the future, either because they have already happened at least once and there is a concern that they might reoccur or as a matter of horizon scanning. This construction parallels data from the supplementary interviews (Code 18) of risk as a concern: a construction that can encompass the construction of risk as being objective, negative event or activity driven.

The number and diversity of the risks identified (fifty-three, summarised into thirty substantially different risks) serve to indicate the size and diversity of the total set of risks facing a local authority. This should also be seen in the context of the fifty diverse risks in the risk event database. Whilst there is some overlap between the two sets of risks, there are also many that are unique to one of the two groups of risks.

The emerging sense of risk from the annual audit letters is close to that in the Charity Commission's risk management guidance to charities (See Section 4.2.2.). This may, in part at least, be due to the partial similarities in the role and, one might assume perspective, of The Audit Commission and the Charity Commission as public, overseeing regulatory bodies established by statute with a responsibility to seek to protect the public interest.

The risk data derived from annual audit letters have a much less clear stakeholder aspect than is the case for the risks in the risk events database, the annual audit letters having a particular focus on financial and management issues. The clear exception to this is AAL16 (Stakeholder involvement in planning and change management is insufficient / ineffective).

4.2.4. Summary and Definition of Strategic Risk in Local Authorities

This is no clearly established and accepted single definition of strategic risk in local authorities. The closest are the definition of risk set by The Audit Commission in *Worth the Risk* and the definition in ISO 31000. There is clear evidence that local authorities have also shared risk management documents and adopted the approaches of others within the sector.

The key findings from the research set out in this section are summarised in Table 4.7.

Table 4.7: Summary of Findings for Gap in Knowledge A

Research Conclusion	Implications for Research Question
<p>1. The uncertainty that the literature establishes as being central to risk can be uncertainty of occurrence, outcome or both.</p> <p>Limited, and in some cases no, attention is drawn to the uncertainties of risk in local authorities' definitions of risk.</p>	<p>Risk assessments need to be able to embrace and reflect this uncertainty.</p>
<p>2. It is clearly established in English local authorities and in the guidance and standards that strategic risk in local authorities is about more than insurable perils.</p> <p>The only significant contrary indications are in the USA, which should be seen as a different risk context.</p>	<p>No account needs to be taken of insurability as a sense of risk, though insurance has a place in risk assessments as a means of reducing / transferring financial loss for insured risks.</p>
<p>3. Strategic risk in local authorities is about future concerns</p> <p>The nature of those concerns is however a matter of inter-authority difference:</p> <ul style="list-style-type: none"> a. Failure to achieve corporate objectives; b. Negative events "<i>things that we do not want to go wrong</i>"; and c. Failures in service delivery. <p>These can be unified as sources of concern and quoted as examples to aid risk identification.</p> <p>The intention of the term objectives should be a broad one, indicating all that the local authority is seeking to achieve and not just its formally defined, highly corporate objectives.</p> <p>An alternative construction drawn from a South African local authority is that it is about <i>threats to things that matter</i>, with the stakeholder issue below being key to the question of <i>to whom do those things matter?</i></p> <p>The apparent disconnect between the concentration of documented policies on risk being about the achievement of objectives and the interview data, annual audit letters and the entries in the risk event database being about problems and things that could go wrong, suggests that people find it easier to engage with risk on the latter, less abstract, basis.</p> <p>The details of the specific potential consequences of a concern, for example financial loss and harm to people, are subsidiary to the risk definition.</p>	<p>These need to be considered as elements of risk and matters that it may be appropriate to take into account in risk assessments.</p> <p>Issues of what types of harm constitute relevant concerns, e.g. harm to people, financial loss or reputation damage, need to be addressed for Research Question Two.</p>
<p>4. Stakeholders' views and concerns are rarely treated as an element of strategic risk in local authorities.</p> <p>The risk data in the risk event database indicate that failing to meet powerful stakeholders' needs and expectations can have serious consequences for local authorities and that failing to meet weaker stakeholders' needs and expectations can have implications for a local authority's reputation and issues of blames and may trigger action by powerful stakeholders.</p>	<p>These findings reinforce the issues from the literature about the potential for a stakeholder dimension of risk, and raise wider risk assessment issues.</p>

Research Conclusion	Implications for Research Question
<p>5. Upside risk (“<i>opportunities</i>”) are most effectively taken into account as part of the decision-making stage of risk management.</p> <p>The majority of local authorities and international comparators construct risk as a matter of negative events and do not include upside risk.</p> <p>The interview data clearly indicate that attempts to position consideration of opportunities within the assessment of risk have been unsuccessful and have not been pursued.</p> <p>(The decision-making stage of risk management is outside the scope of the research.)</p>	<p>Research Question Two does not need to consider issues of upside risk.</p> <p>The use of “<i>opportunities</i>” as a pseudonym for objectives by some local authorities needs to be remembered and borne in mind for the later stages of the research.</p>

The literature review anticipated that Aven and Renn’s (2009) definition of risk could form the basis of a context-specific definition of strategic risk in local authorities. Their definition is that risk is:

“uncertainty about and severity of the consequences (or outcomes) of an activity with respect to something that humans value” (ibid, p588).

The literature review has established that context is critical in risk definitions. The research indicates that this definition needs to be amended to fit local authority strategic risk.

1. The reference to uncertainty is essential, but needs to be clarified;
2. The absence of any reference to insurance is wholly appropriate;
3. It would be more appropriate to focus on future concerns and give the three key examples, though Aven and Renn’s definition could be interpreted to imply these it would be better to give a clearer indication of the intended scope of the definition;
4. The reference to *something that humans value* needs to be broadened to reinforce both what the local authority values and what key stakeholders value and to do so in such a way as to allow for inter-authority variations in interpretation of the stakeholder element; and
5. The absence of an explicit upside (“*opportunities*”) element is also appropriate.

The two definitions found by the research that are closest to this sense of risk are the Irish and Charity Commission ones.

“Risk can be thought of as a possible loss or other adverse consequence that has the potential to impact on a local authority’s ability to achieve its objectives and fulfil its mission” (Irish Public Bodies Mutual Insurance Ltd (2005), p10).

“Risk is used ... to describe the uncertainty surrounding events and their outcomes that may have a significant impact, either enhancing or inhibiting any area of a charity’s operations.” (Charity Commission, 2010, p3)

For practitioners, the definition needs to be consistent with the requirements of the Accounts and Audit Regulations. The regulations are, however, so imprecise as regards risk as to make this a

very easily satisfied requirement, there being little more than an implied requirement for risk to relate to “*the effective exercise of [the local authority’s] functions*”. Whilst it is not binding, take up of ISO 31000 would suggest that a local authority risk definition would do well to be consistent with the standard’s definition of the *effect of uncertainty on objectives*.

Risk definitions tend to imply a level of materiality. Aven and Renn (2009), for example, talk about *something that humans value*, excluding minor matters which people do not value and the Charity Commission restrict their definition to the *significant*. Aven and Renn’s approach is the more persuasive, having a greater immediate resonance.

The definition of strategic risk in local authorities that emerges from the research is as follows.

A risk is a concern for the future about something that is uncertain and that matters to the local authority and its stakeholders.

The uncertainty may be about whether the subject of the concern will happen and/or about the extent and nature of the consequences of it doing so.

Potential sources of concern include: whether the local authority will achieve its objectives and plans for the future; things that may go wrong; and the delivery and quality of services.

The proposed definition follows the ISO 31000 model of a short definition with brief explanatory notes as needed. The stakeholder reference is deliberately silent about issues of stakeholder engagement and elicitation of an understanding of what matters to them. It can be interpreted from the local authority’s perspective as being about sanctions that stakeholders may impose and it can be interpreted from the perspective of stakeholders and reflect the things that matter to them in their own right.

The proposed definition provides the starting point for Research Question Two, addressing Gap in Knowledge A and provides a significant contribution to B. The latter is complemented by Sections 4.3 and 4.4.

4.3. Over-Arching Aspects of Risk

This section sets out the analysis undertaken to establish the extent to which strategic risk in local authorities is significantly complex and, in so doing, to address Gap in Knowledge C, contribute to B³³ and inform the approach to Research Question Two. The analysis followed the methodology set out in section 3.4.3.

4.3.1. Findings and Analysis

The final Cynefin analysis has confirmed the tentative results of the initial analysis described in Section 3.4.3.2. The mapping³⁴ of the results of the analysis is presented in Figure 4.1 and the detailed full analysis in Table 4.8. In Figure 4.1, the individual risks in the Cynefin sample (Tables 3.10 and 4.8) are showed as numbered cells. The sources of the sample risks are explained in Table 3.10 and the subsequent paragraphs.

³³ See Table 4.1

³⁴ The Cynefin mapping methodology is set out in Section 3.4.3.2

Figure 4.1: Cynefin Mapping

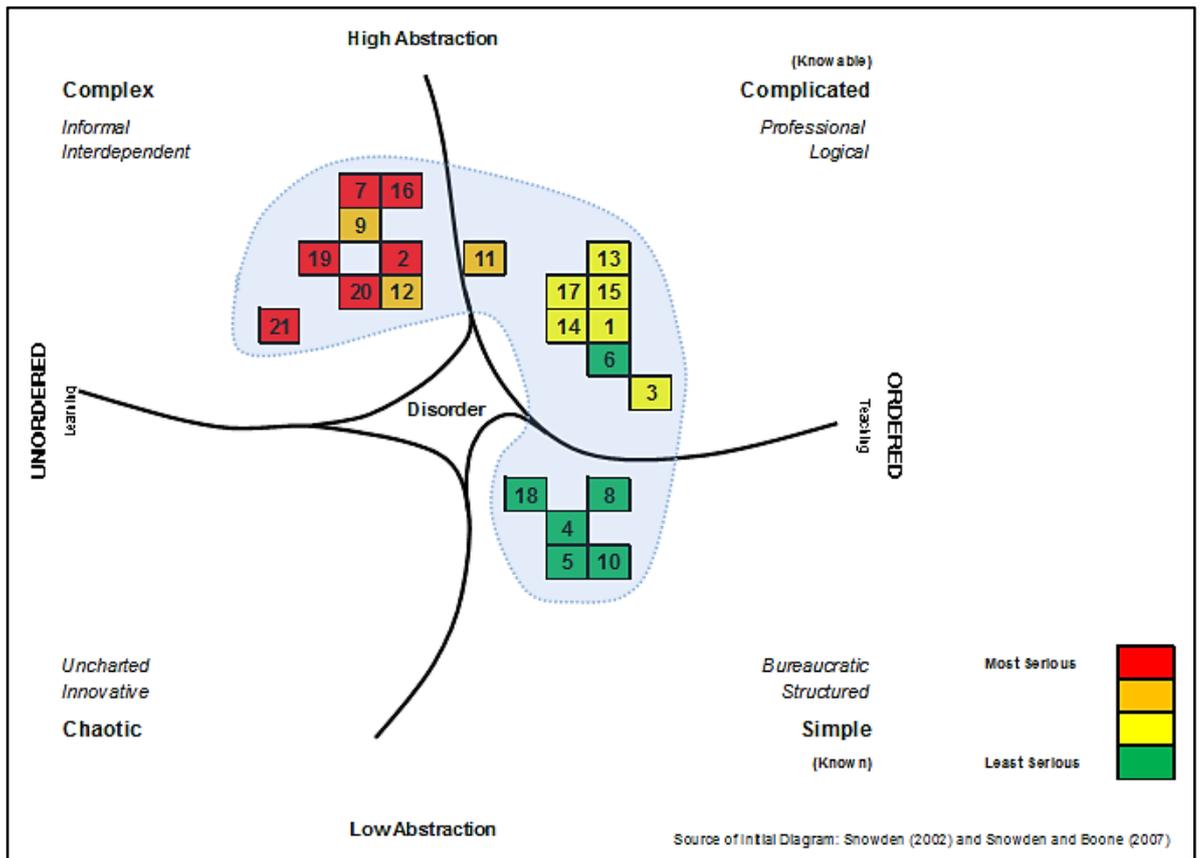


Table 4.8: Results of the Cynefin Analysis

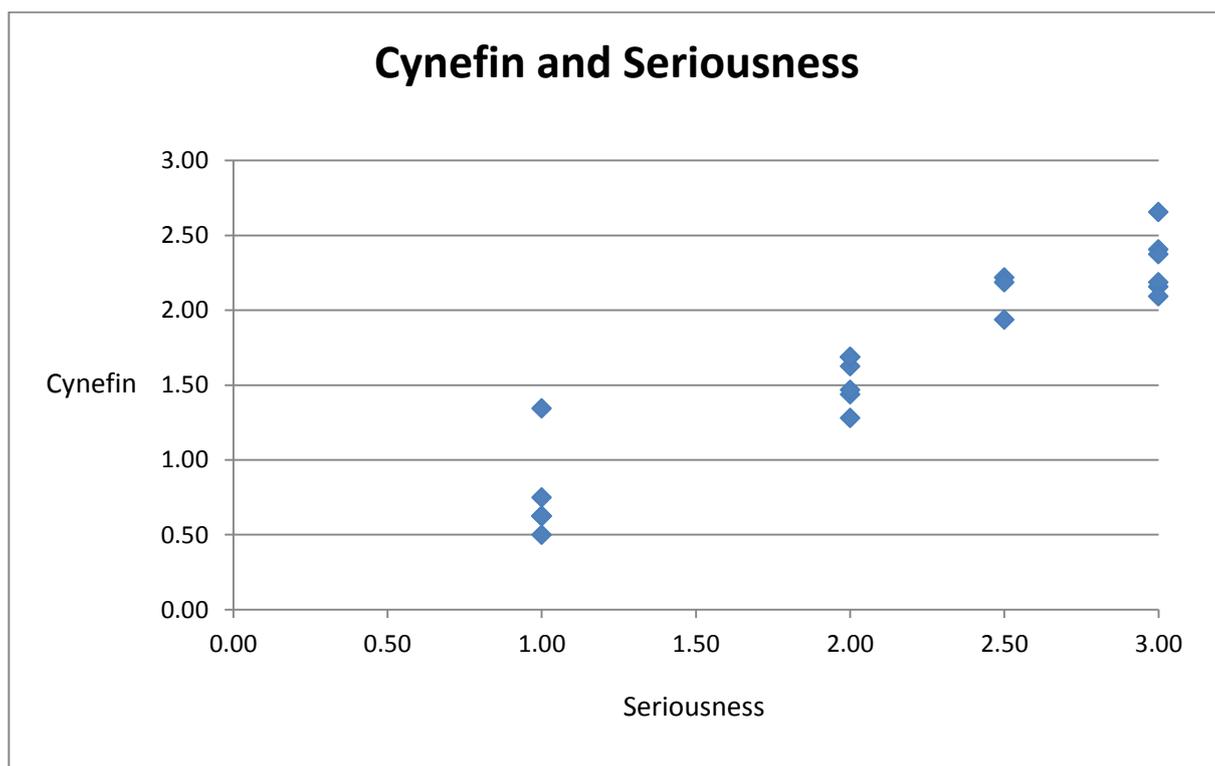
Risk	Domain Characteristics																				Scores			
	Simple				Complicated				Complex						Chaotic						Simple	Complicated	Complex	Chaotic
	Repeating patterns and consistent events	Clear cause-&-effect relationships evident to everyone, right answer exists	Known knowns	Fact-based management	Expert diagnosis required	Cause-&-effect relationships discoverable but not immediately apparent to everyone; more than one right answer possible	Known unknowns	Fact-based management	Flux and unpredictability	No right answers; emergent instructive patterns	Unknown unknowns	Many competing ideas	A need for creative and innovative approaches	Pattern-based leadership	High turbulence	No clear cause-&-effect relationships, so no point in looking for right answers	Un-knowables	Many decisions to make and no time to think	High tension	Pattern-based leadership				
1 Over-reliance on a single IT provider for all key information systems			1	1	1	1	1	1	1	1											25%	50%	17%	0%
2 Failure to implement corporate strategy				1	1	1	1	1	1	1	1	1	2	1	1					1	13%	50%	58%	17%
3 Non-compliance with Disability Discrimination Act	1		1	1	1	1	1	1	1												38%	50%	8%	0%
4 Office buildings flooded	1	2	1	1	1		1	1													63%	38%	0%	0%
5 Member of staff trips on cables on office floor and breaks ankle	2	1	1	1		1		1													63%	25%	0%	0%
6 There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	1	1		1	1	1	1	1	1	1											38%	50%	17%	0%
7 Death or serious injury to vulnerable child / children in the local authority area			1		2	2	1		2	2	1	1	1	1	1		1		1	1	13%	63%	67%	33%
8 Lack of private sector capacity for required level of residential and nursing home placements		1	1	1		1		1	1				1								38%	25%	25%	0%
9 Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure			1		2	1	1		1	1	1	2	1	1		1			1	1	13%	50%	58%	25%
10 Housing rent arrears exceed specified performance requirements	2	1	1	1		1	1	1													63%	38%	0%	0%
11 Senior manager abuses his position to obtain fraudulent payments of £50,000+ from suppliers			1	1	1	1	2	1	2	1	2			1	1				1	1	25%	63%	50%	33%
12 Laptop containing payroll data for 16,000 members of staff stolen from a member of staff's car			1	1	1	1	1	1	2	1	1	1	1	1	1				1	1	25%	50%	58%	33%

Risk	Domain Characteristics																		Scores					
	Simple				Complicated				Complex						Chaotic				Simple	Complicated	Complex	Chaotic		
	Repeating patterns and consistent events	Clear cause-&effect relationships evident to everyone, right answer exists	Known knowns	Fact-based management	Expert diagnosis required	Cause-&effect relationships discoverable but not immediately apparent to everyone; more than one right answer possible	Known unknowns	Fact-based management	Flux and unpredictability	No right answers; emergent instructive patterns	Unknown unknowns	Many competing ideas	A need for creative and innovative approaches	Pattern-based leadership	High turbulence	No clear cause-&effect relationships, so no point in looking for right answers	Un-knowables	Many decisions to make and no time to think					High tension	Pattern-based leadership
13	Breach of EU procurement directives on major procurement			1	1	2	1	2	1		1		1	1	1					1	25%	75%	33%	17%
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	1		1	1	1	1	1	1	1		1		1							38%	50%	25%	8%
15	Failure to effectively plan and prioritise for future capital investment requirements	1	1			1	1	1				1	1	1						1	25%	38%	33%	8%
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority			1		2	1	2		1	1	1	2	1	1		1		1	1	13%	63%	58%	33%
17	Delivery of inappropriate services due to a failure to effectively & appropriately consult with stakeholders on service priorities and modes of delivery			1	1	1	1	1	1	1	1	1	1		1						25%	50%	42%	8%
18	Joint local and national elections run poorly	1	1	1	1	1		1	1												50%	38%	0%	0%
19	Failure to respond to need for organisational change and performance improvement					1	1	1		1	1	1	1	1	1		1			1	0%	38%	50%	25%
20	Changes to the economic environment make the Council economically unstable					1	1	2		2	1	1	1	1	1	1	1			1	0%	50%	58%	33%
21	Critical loss of legitimacy for the local authority in a changing and challenging political environment which leads to an inability to function effectively					1				2	1	2	2	1	1		1		1	1	0%	13%	83%	33%

No risks have been mapped into the domain of chaos and none have been unable to be mapped, hence there are no risks in the domain of disorder.

Figure 4.1 shows that the risk in the independently validated sample have been mapped in three domains – simple, complicated and complex – and that the least serious have tended to be mapped into the simple domain and the most serious into the complex domain. There is a strong correlation between the Cynefin score and the seriousness of the risks, as shown more clearly in Figure 4.2. The Spearman’s rank correlation coefficient is 0.927.

Figure 4.2: Correlation of Cynefin Scores and Seriousness



Eight out of the twenty-one risks (38%) map into the complex domain and seventeen of the twenty-one risks (81%) have a complex characteristic³⁵, even though the dominant domain is simple or complicated.

Risk assessment requires an understanding of the risks assessed. The Cynefin analysis indicates that a local authority risk assessment model must take account of issues of complexity. A risk assessment model needs to be able to reliably assess the most serious risks and the most serious risks have been found to be complex. This need to take account of issues of complexity is reinforced by 81% of the sample risks having been found to have complex characteristics. This is an essential input to Research Question Two.

³⁵ This is shown later in Figure 4.5 as part of the wider analysis of the later, broader exploration of the results of the Cynefin analysis

4.3.2. Summary

This section has addressed Gap in Knowledge C, contributed to B and informed Research Question Two. The research has found that serious strategic risks in local authorities are complex and that most strategic risks in this context have some complex characteristics. As a result the preliminary stages of the research to address Research Question Two will need to consider complexity theory and the research will need to take full account of the identified complexity.

4.4. Measuring Strategic Risk

This section addresses Gaps in Knowledge D and E³⁶, contributes to B and informs the approach to Research Question Two. It is in two sections, a Technical / Societal Analysis of Strategic Risk in Local Authorities and Further Cynefin analysis to explore the nature of risk beyond the issues of complexity addressed in Section 4.3.

4.4.1. Technical / Societal Analysis of Strategic Risk in Local Authorities

The purpose of this analysis was to answer the question of whether strategic risk in local authorities is a technical matter for assessment by experts or a matter of societal perception. This represents a gap in knowledge, though the literature indicates that the answer leans towards the latter.

4.4.1.1. Findings and Analysis

The methodology set out in Section 3.4.2. has been followed and the simple scale defined for the research applied to the independently-validated data set developed for the Cynefin analysis (see Section 3.4.3). The results of this analysis are presented in Table 4.9 and, as an aid to interpretation of these results, the Technical / Societal (TS) Risk Scale is presented again in Table 4.10.

³⁶ See Table 4.1

Table 4.9: Results of the Technical / Societal Risk Analysis

	Risk	Seriousness	TS Score
1	Over-reliance on a single IT provider for all key information systems	2.0	2
2	Failure to implement corporate strategy	3.0	4
3	Non-compliance with Disability Discrimination Act	2.0	4
4	Office buildings flooded	1.0	2
5	Member of staff trips on cables on office floor and breaks ankle	1.0	3
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	1.0	4
7	Death or serious injury to vulnerable child / children in the local authority area	3.0	5
8	Lack of private sector capacity for required level of residential and nursing home placements	1.0	4
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	2.5	3
10	Housing rent arrears exceed specified performance requirements	1.0	1
11	Senior manager abuses his position to obtain fraudulent payments of £50,000 + from suppliers	2.5	4
12	Laptop containing payroll data for 16,000 members of staff stolen from a member of staff's car	2.5	5
13	Breach of EU procurement directives on major procurement	2.0	2
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	2.0	3
15	Failure to effectively plan and prioritise for future capital investment requirements	2.0	2
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	3.0	3
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	2.0	3
18	Joint local and national elections run poorly	1.0	3
19	Failure to respond to need for organisational change and performance improvement	3.0	4
20	Changes to the economic environment make the Council economically unstable	3.0	3
21	Critical loss of legitimacy for the local authority in a changing and challenging political environment which leads to an inability to function effectively	3.0	4

For clarity, the risks in the Cynefin sample are subsequently referred to as Cx, e.g. C9.

Table 4.10: Technical / Societal Risk Scale

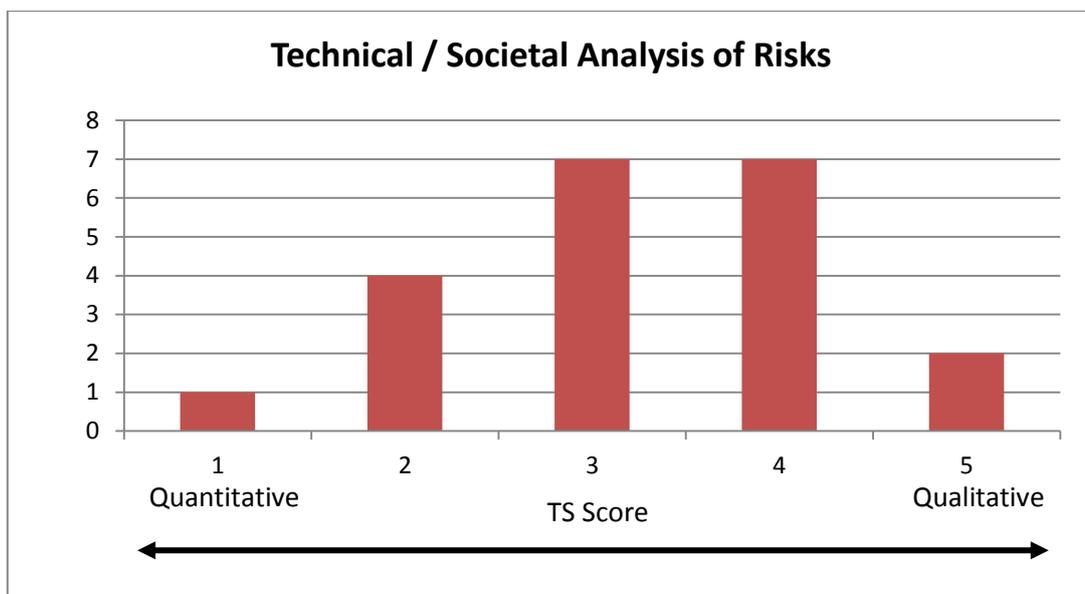
Description of the Risk	Score
This appears to be purely technical risk that would not generate any significant emotional reaction, other than frustration at the fact of the event, for example an error having been made	1
This appears to be primarily a risk that has significant technical aspects but it is likely to also generate some emotional reactions	2
There appears to be a balance of technical and emotional aspects and reactions to this risk OR It is not possible to clearly differentiate between the size of the emotional and technical elements of this risk	3
Emotional reactions appear to be greater than the technical aspects but these technical aspects appear to be significant	4
This risk appears to be one which would generate overwhelmingly emotional reaction and, in comparison to which, the technical aspects would be deemed not to be significant	5

As explained in Section 3.4.2, this analysis assumed a constant level of likelihood for each risk and focused on the effects of each risk were it to happen.

Risk C11 was particularly difficult to place on the continuum. A score of 4 was finally settled on due to the messages in the media reports of such an event being a betrayal of trust combined with the strong technical elements. The latter could perhaps have justified a score of 3, though on balance this would have understated the societal trust issues.

The bar chart in Figure 4.3 shows the frequency of the five TS scores.

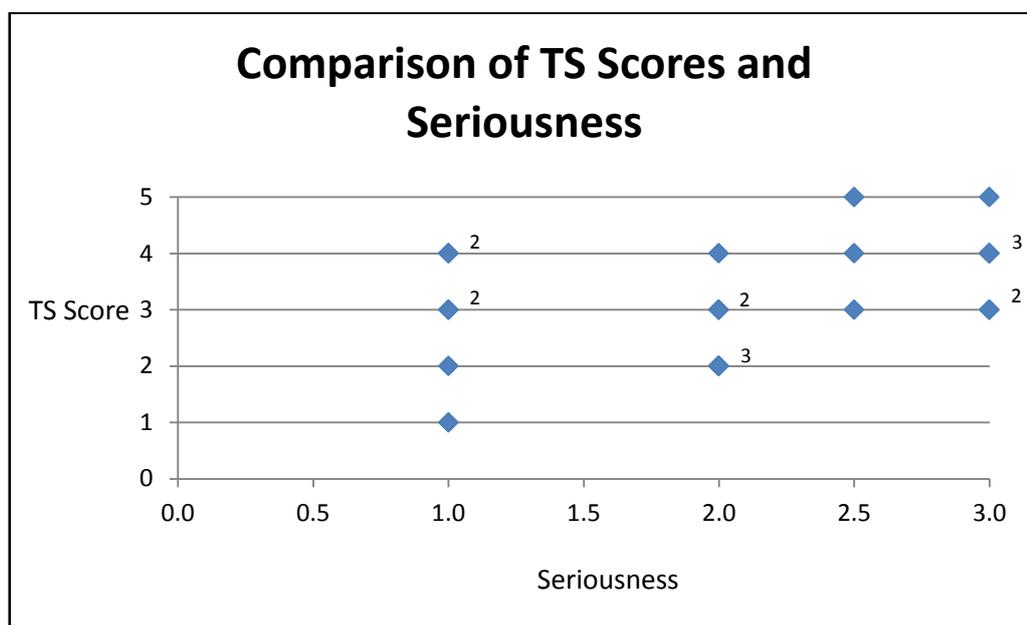
Figure 4.3: Frequency of Technical / Societal Risk Scores



The independently-validated sample of risks clearly combines quantitative and qualitative aspects, with only three out of the twenty-one having predominantly one or the other. The balance of the two aspects leans towards the qualitative. This is as anticipated from the literature review (See Section 2.7.1).

Further consideration of the results of the analysis is informative. Figure 4.4 shows a comparison of the Technical / Societal Risk scores against the seriousness scores for the sample risks.

Figure 4.4: Technical / Societal Risk Scores and Seriousness



The superscript numbers indicate that the data point relates to either two or three risks.

Spearman's rank correlation coefficient, used due to the ordinal nature of the data, is 0.478. This indicates, as does Figure 4.4, that there is a clear positive relationship, i.e. more serious risks tend to have a greater qualitative element. It also indicates that it is not the key determining factor for the seriousness of a risk. This would clearly have been a flawed result and would have indicated errors in the data and/or analysis.

4.4.1.2. Summary

This section has addressed Gap in Knowledge D, contributed to B and informs the approach to Research Question Two.

Strategic risks in local authorities have been found typically to have both qualitative and quantitative aspects. The balance between these two aspects varies between risks. The more serious risks tend to be more qualitative and the overall balance for strategic risks in local authorities leans towards the qualitative. The cautions regarding qualitative risk assessments identified in the literature review (see Section 2.7.1) therefore apply and need to be carefully heeded for Research Question Two. It is indeed a *"false opposition"* (Houston, 2001, p219).

The approach to Research Question Two must embrace and provide a means to unify the assessment of the qualitative and quantitative aspects of strategic risks in local authorities and pay particular attention to the qualitative aspects of the risks assessed.

4.4.2. Further Cynefin Analysis

This section addresses Gap in Knowledge E, contributes to B and informs the approach to Research Question Two. The section uses and builds upon the findings from the earlier stages of the Cynefin analysis presented in Section 4.3.

4.4.2.1. Findings and Analysis

As shown in Figure 4.1, the sample risks map into the simple, complicated and complex domains. Complementing this, Figure 4.5 shows that all of the sample risks have some characteristics of at least two domains: 33% have characteristics of three and 48% have characteristics of four.

Figure 4.5: Characteristics of the Sample Risks Across the Cynefin Domains

Risk	Simple	Complicated	Complex	Chaotic	Disorder
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
Total	18	21	17	13	0
	86%	100%	81%	62%	0%

Consideration of two risks in the sample helps understand this analysis. The analysis indicates that risk C5 (*Member of staff trips on cables on office floor and breaks ankle*) has simple and complicated elements and, overall, is a simple risk. A tentative narrative of the risk would suggest that this is indeed the case. The causes of such an event are clear and easily understood: a cable on the floor, probably without a warning sign or other protection measures. The immediate consequences are similarly clear and simple: a broken ankle and time off work for the injured member of staff to recuperate. One could also anticipate further consequences which would no longer be simple and which, in general parlance, one could describe as complicated: a compensation claim by the individual; an investigation and possible minor legal action by the Health and Safety Executive; and perhaps a slight worsening of employee relations. The indication from the analysis that there would not be complex or chaotic elements seems to be a reasonable one for this risk. In contrast risk C19 (*Failure to respond to need for organisational change and performance improvement*) is indicated to be a complex one with complicated, complex and chaotic elements. Using the Cynefin domain characteristics as set out in Table 4.8, one can see plenty of scope for

expert diagnosis and analysis, for example by the local authority's accountants: a complicated aspect of the risk. It also seems reasonable to assume that there are not only *unknown unknowns* (complex domain) but also *unknowables* (chaotic domain), as indicated by the analysis in Table 4.8. An example of the latter might be the extent of the need for change and the extent and weight of the regulatory and other stakeholder responses if the local authority fails to change and comes to deliver out of date and irrelevant services.

From the analysis as a whole, the emergent picture is that as risks become more serious they progress from being in the simple domain with some complicated characteristics, into the complicated, acquiring complex characteristics and losing simple characteristics, and thence into the complex, acquiring some chaotic characteristics, which, however, do not become dominant. The most serious and complex tend to have no simple characteristics at all, (Risks C19, C20 and C21 in Table 4.8).

It has already been established that the development of risk assessment models for Research Question Two will require account to be taken of the identified complexity of the more serious risks (Section 4.3). It will also need account to be taken of the simple, complicated and chaotic characteristics of the strategic risks in local authorities. The key issues for each of these domains are summarised in Table 4.11 from the introduction to Cynefin in Section 3.4.3.1.

Table 4.11: Key Issues for the Cynefin Domains

Domain	Simple	Complicated	Complex	Chaotic
Have risks been mapped into this domain?	Yes	Yes	Yes	No
Characteristics from Snowden and Boone (2007, pp70 - 74)	<ul style="list-style-type: none"> • <i>“An employee can usually identify the problem ... and respond appropriately”</i> • Issues do not present serious problems for management • When guidance is needed <i>best practice</i> is readily discernible, if it is not already available, but it is <i>“important to remember that best practice is, by definition, past practice”</i> • Issues are clearly known • There are readily understood cause and effect relationships • There are traps for the unwary - complacent management can lead to wholly foreseeable, and hence avoidable, problems developing and becoming serious, leading to a descent into chaos • Managers can fail to recognise when a problem is not simple and requires more detailed information and diagnosis 	<ul style="list-style-type: none"> • This is the domain of the expert • <i>“There is a clear relationship between cause and effect [but] not everyone can see it”</i> • There are likely to be a number of right answers and guidance in the form of good, rather than absolute best practice. 	<ul style="list-style-type: none"> • <i>“Right answers can’t be ferreted out”</i> (p74) and there is consequently no point in looking for a right answer to complex problems, including by implication any risks that might fall into the Complex domain. • There is a cumulative effect, particularly in multiple risk scenarios: <i>“the whole is far more than the sum of its parts”</i> • The key characteristic of complex systems is that a small variation in inputs can lead to a large and disproportionate change in outputs. • Attention must concentrate on understanding emergent patterns as <i>“we can understand why things happen only in retrospect”</i> • Cause and effect risk models would not be appropriate for complex risks 	<ul style="list-style-type: none"> • These are a matter of crisis management, not matters of anticipation, precaution and contingency, and hence, one might assume, not for risk management at all.
Perspective on predictability and cause and effect from Shepherd et al (2006, p315)	<i>“Cause and effect are understood and predictable”</i>	<i>“Cause and effect can be determined with sufficient data”</i>	<i>“Cause and effect may be explained after the event”</i>	<i>“Cause and effect not discernible”</i>

From the independently-validated sample of risks, all risks have complicated elements for which cause and effect can be determined “*with sufficient data*” (ibid); 81% also have elements for which it cannot be explained before the event and 62% have elements for which it is “*not discernible*” (ibid). Hence, we must conclude that approaches to risk assessment that are based on identifying cause and effect are not appropriate for strategic risk in local authorities. The prudence of this conclusion and the resulting research approach is reinforced by Klinke and Renn’s (2002) messages about complexity and uncertainty and reduced levels of confidence in the “*estimated cause and effect chain*”³⁷.

The context-specificity of this conclusion is important. The literature review clearly established that the sense and definition of risk is context specific and this was central to the formulation of Research Question One. The conclusion on the ability to identify cause and effect relationships may be different in different contexts. Ackermann et al (2014), for example explore project risk. This is a context in which there is a coherent “*flow of work*”³⁸ and in which there appear to be greater resources to explore a much narrower and far more coherent risk set³⁹. From the project management context, Godlewski, Lee and Cooper (2014) strongly support the proposition from the Cynefin analysis above that being able to identify cause and effect relationships only in hindsight is of no value in risk management: “*retrospective analysis is useless when the objective is the proactive identification and avoidance of ... impacts*”⁴⁰.

This removes from consideration for Research Question Two probabilistic approaches, for example Bayesian methods. The case for not exploring such approaches is all the more compelling when we remember that the most serious risks tend to fall into the complex domain and to be the risks with some chaotic characteristics. Even at the merely complicated level, the analysis indicates that cause and effect analysis will only be applicable if there is sufficient data (Shepherd et al, 2006) and experts are available (Snowden and Boone, 2007). Both requirements present potentially substantial barriers in a diverse local authority context for even the merely complicated risks given the range of risks facing local authorities (See for example Tables 4.4 and 4.5). Hence, an assessment model based on seeking to identify cause and effect would not provide a reliable understanding of these risks and so we must conclude that it would not provide a reliable assessment of them either.

In some cases the multiple characteristics of strategic risks in local authorities may appear contradictory. For example, some aspects of a risk may be simple, easily understood and with a clear cause and effect mechanism: others may be complex and cause and effect only understandable in retrospect. It would be all too easy to assume the simple and complicated elements of a risk were all there was, or at least enough, and so assess on the basis of these. The analysis very clearly indicates that to do so would be seriously flawed, especially as the complex characteristics have been concluded to relate to the more serious aspects of a risk. The analysis

³⁷ See Table 2.2 and the subsequent discussion in Section 2.4.3

³⁸ Godlewski, Lee and Cooper, 2012, p21

³⁹ The project risk context would appear to have much in common with scenario planning and its typical resourcing (see Section 6.4.3)

⁴⁰ Godlewski, Lee and Cooper, 2012, p19

strongly supports Baldwin et al's view that "*assessing risks is no simple matter*" (2012, p86). This is a critical input to Research Question Two.

A further message from the Cynefin model and the mapping of risks and characteristics of risks in the complex domain is the need for a narrative to understand those risks. Snowden and Boone (2007, p72) identify probing and sensing as key actions to address complexity. The approach to Research Question Two needs to include developing an understanding of the information about a risk that needs to be collected to inform a reliable risk assessment.

The presence of some characteristics of some risks in the domain of chaos appears superficially to be inappropriate, this being the domain of the crisis. However, on reflection it is both appropriate and informative. For the most serious and emotive risks, for example the risk of the abusive death of a child, it would seem that the existence of the risk is in itself a serious problem for the local authority. This is consistent with the indications in the literature that some public sector risks may be deemed to be so serious that not only would the senior decision-makers want to seek to avoid the risk at almost any cost, they may also want to avoid the public being aware that the risk has existed (Section 2.4.1).

The elements of a risk that fall into the domain of chaos also serve as a reminder that not all aspects of all risks are capable of anticipation. In turn this points to the need to make general preparations to cope if a crisis arises, disaster recovery plans, maintaining a risk reserve to fund the crisis-management measures that will be needed and having skilled, experienced staff available so that there is a degree of confidence that suitable people will manage the crisis.

In Section 2.7.2 it was concluded that the relevance and appropriateness of probabilities appears from the literature to turn on a number of issues:

- a) The level of uncertainty;
- b) The extent of any complexity;
- c) The availability of historical data; and
- d) The availability of time, skill and resources to support a risk elicitation process.

Snowden and Boone (2007) and Shepherd et al (2006) reflect these issues in the Cynefin model and their interpretations of it (Table 4.11).

The key elements of current knowledge as identified in the literature were summarised to be:

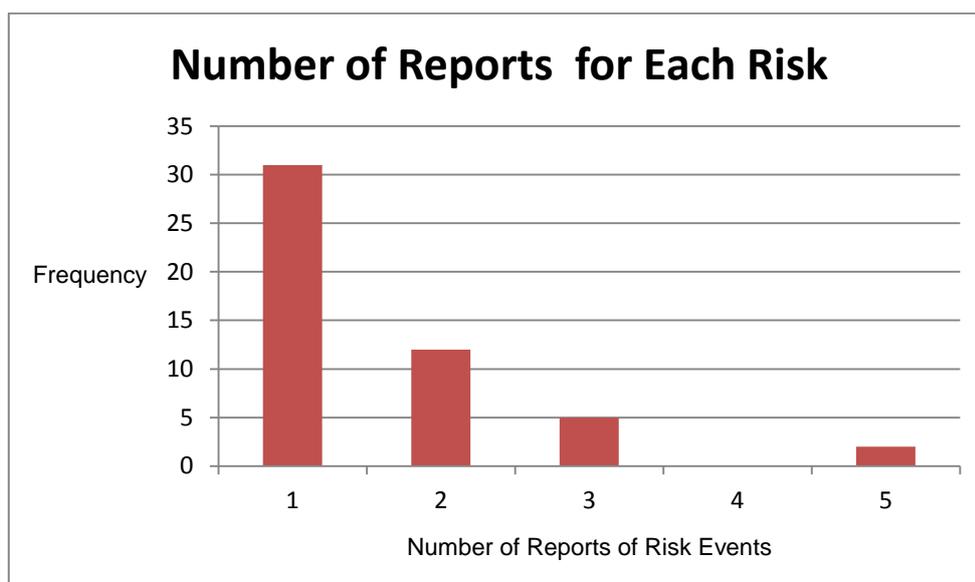
- a) Probabilities and expected values have a contribution to make to risk assessments but do not tell the whole story as they fail to reflect the wider uncertainties (Section 2.7.2);
- b) Probabilities are particularly problematic in the absence of historical data: data which may not be indicative of the future; and probabilities are especially difficult in complex contexts (Section 2.7.2); and
- c) There is a strong and cogent argument that exact probabilities do not actually matter as risk assessments do not need to be that fine (Section 2.7.2).

Putting aside the compelling messages in the literature that risk is inherently and fundamentally uncertain (Section 2.4.3), the research indicates that there are clearly high levels of uncertainty in strategic risks in local authorities. This is particularly so for more serious risks as indicated by the Cynefin analysis.

As the research has established that serious risks are complex and that most risks have some complex characteristics, it must be concluded that there are substantial levels of complexity in strategic risk in local authorities. This is as predicted from the literature (Section 2.6).

Whilst the annual audit letters analysis in section 4.2.3.3 indicates that local authorities face a number of similar risks, the underlying data is such that in many cases they may only be similar in general terms. For example, risk AAL4 in Table 4.6 (*Errors and/or delays in the annual accounts occur*) was recorded for 60% of the local authorities in the sample but underlying this could have been a range of very different potential causes and the risk combines two issues: errors and delays. The data in the risk event database provide further indications about the lack of historical data, as shown in Figure 4.6.

Figure 4.6: Number of Media Reports of Similar Risk Events in the Risk Event Database



This appears to indicate that there is little publically available historical data on similar risk events. Whilst it is of course the case that there is likely to be more data within local authorities that is not available through the media, there is little evidence to suggest that this could be sufficient to support the calculation of probabilities. The supplementary interviews, for example, consistently indicated that local authorities are currently implementing new ways of working as a response to the funding reductions arising from austerity. There can be no historical data indicating their probability of failure as they have not existed previously.

The data from the supplementary interviews also indicate that managers in local authorities typically have, at best, a weak understanding of probabilities. Staffing reductions in local authorities arising from recent and expected funding reductions must also have a bearing on the number of staff available.

Hence, there are high levels of uncertainty, substantial complexity, little historical data and problems with staff, and particularly expert, availability. On this basis none of the criteria in the literature for probabilistic approaches is satisfied and the research has found no evidence to question the appropriateness to strategic risk in local authorities of the conclusions from the wider risk literature concerning the appropriateness and relevance of probabilistic approaches. The literature on the relevance of perception in risk assessment (Section 2.5) also supports this position.

4.4.2.2. Summary

This section has addressed Gap in Knowledge E, contributed to B and informs the approach to Research Question Two.

The section has built upon section 4.3 and, using Snowden's (2002) and Snowden and Boone's (2007) Cynefin model, the research has found that different strategic risks in local authorities have different characteristics and that such risks each have different characteristics. Overall, risks can be simple, complicated or complex and they can have characteristics that are simple, complicated, complex and chaotic. As risks become more serious the position becomes a more challenging one.

None of the criteria in the literature for probabilistic approaches is satisfied for strategic risk in local authorities.

Critical for Research Question Two is the need to fully reflect these challenges in the approach to the assessment of strategic risks in local authorities.

4.5. **Summary of the Results and Analysis for Research Question One**

This chapter has presented and analysed the findings of the research to address Research Question One.

What is the nature of strategic risk in English local authorities?

The gaps in knowledge with respect to this question have been addressed. A, C, D and E in Table 4.1 have been addressed in order and B (*There is little literature on the nature ... of strategic risk in local authorities*) is addressed by the Chapter as a whole. The results of the research provide the essential foundations for Research Question Two.

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

A number of wider issues have also been identified that are beyond the scope of the research but which are nevertheless to be noted.

1. Comparison of individual local authorities' risk management documents indicates that there has been a significant level of sharing between local authorities and that a number of them have drawn on those used in other local authorities (Section 4.2.1.1)
2. The personal exposure of those managing the risk assessment and associated processes is a significant factor in ultimate form and output of those activities at some local authorities (Section 4.2.1.2).
3. Practices vary considerably as regards the accurate and complete recording of risks and their assessments, with some evidence of the suppression or manipulation of this information having been identified by the supplementary interviews (Section 4.2.1.2).
4. The attitude of senior managers and members is of paramount importance in determining the effectiveness of risk management in local authorities (Section 4.2.1.2).
5. The concerns about the completeness of local authority risk registers that were first raised in the methodology chapter for Research Question One (Section 3.4.1.1) would appear to be justified and local authority risk registers consequently need to continue to be treated with caution as a source of research material (Section 4.2.3.2).

The issues arising from the research and the insights that they provide for Research Question Two are summarised in Table 4.12.

Table 4.12: Summary of Research Findings for Research Question One

Issue Arising from the Research for Research Question One	Insight for Research Question Two
<p><u>What is Risk?</u> (Gap in Knowledge A)</p> <ol style="list-style-type: none"> 1. There are three senses of strategic risk in local authority current practice. These are that such risk is about: <ol style="list-style-type: none"> a. Failure to achieve corporate objectives; b. Negative events “<i>things that we do not want to go wrong</i>”; and c. Failures in service delivery. <p>These can be brought together by seeing risk as a concern for the future about something that matters, of which these are the three key examples.</p> <p>Objectives should be interpreted to include wider plans and goals for the future, rather than just given the narrow meaning of defined corporate objectives.</p> <p>There are indications in the research data that those involved in risk management may find it easier to perceive risks as problems / concerns rather than grapple with issues around the failure to achieve objectives.</p> <p>(Sections 4.2.1.2, 4.2.1.3, 4.2.2.2, 4.2.2.3, 4.2.2.4, 4.2.2.5, 4.2.3.1, 4.2.3.3)</p> 2. It is rare for local authorities to construct risk as including an explicit stakeholder element. However, the media reports of risk events in local authorities, as captured in the risk event database, suggest that the reactions of powerful stakeholders play a significant part in determining the ultimate seriousness of a risk (Sections 4.2.1.1, 4.2.3.2, 4.2.3.3). 3. Strategic risk in local authorities is not seen as a matter of insurance (Section 4.2.1.1) 4. Upside risk (“<i>opportunities</i>”) appears to be an element of the construction of risk in slightly over a quarter of local authorities. However practitioners' experience indicates that its incorporation in risk assessments does not work. <p>Such matters are generally seen as part of the decision-making stage of risk management and not an element of the risk assessment.</p> <p><i>Opportunities</i> can also be a pseudonym for objectives and not a matter of upside risk.</p> <p>(Sections 4.2.1.1, 4.2.1.2, 4.2.1.3)</p> 	<p>The research will adopt this concern-based sense of risk (and the definition that flows from it in point 12 below).</p> <p>Account will be taken of the identified key examples of concerns and a wide sense of <i>objectives</i> assumed.</p> <p>The subsidiary concern issues, such as financial loss and harm to people, will be explored in detail for the research, being central to Research Question Two.</p> <p>The question of <i>to whom</i> the things matter is linked to point 2 and stakeholder issues. The research will allow for constructions of risk that embrace and exclude a stakeholder dimension and the issues that arise from these constructions.</p> <p>The research will allow for constructions of risk that embrace and exclude a stakeholder dimension and the issues that arise from these constructions.</p> <p>The research will not explore assessing risk on this basis</p> <p>Consideration of the benefits associated with a risk will be assumed to be part of the decision-making stage of risk management and not an element of the risk assessment.</p>

Issue Arising from the Research for Research Question One	Insight for Research Question Two
<p>5. Whilst uncertainty has been identified by the literature review to be central to risk, not all current practice models recognise this.</p> <p>Uncertainty should be seen to be a matter of outcome, occurrence or both: uncertainty of occurrence is not essential if the outcomes are uncertain.</p> <p>(Sections 4.2.1.1, 4.2.1.2)</p> <p>6. A clear tendency in the local authority sector to follow the sector norms rather than to innovate and depart from those norms has been identified (Section 4.2.1.2).</p> <p>7. As suggested by the literature, categorisation of risk has been found to be unhelpful by practitioners (Section 4.2.1.2).</p> <p>8. There are significant indications that ISO 31000 is seen as an authoritative source of guidance on risk management in local authorities in England and internationally. The standard's definition of risk as the <i>effect of uncertainty on objectives</i> consequently needs to be accorded a degree of respect (Sections 4.2.1.1, 4.2.1.3, 4.2.2.4).</p> <p>9. The total range of strategic risks facing a local authority is a large and diverse one (Section 4.2.3.2).</p> <p>10. Significant evidence has been found to support the concerns about the completeness of local authority risk registers that were first raised in the methodology chapter for Research Question One (Sections 3.4.1.1 and 4.2.3.2).</p> <p>11. The risk data indicate that the avoidance of reputation damage and blame are significant issues in the management of local authority risks, as suggested by the literature (Section 4.2.3.2).</p> <p>12. The definition of strategic risk in local authorities that emerges from the research is as follows.</p> <p><i>A risk is a concern for the future about something that is uncertain and that matters to the local authority and its stakeholders.</i></p> <p><i>The uncertainty may be about whether the subject of the concern will happen and/or about the extent and nature of the consequences of it doing so.</i></p> <p><i>Potential sources of concern include: whether the local authority will achieve its objectives and plans for the future; things that may go wrong; and the delivery and quality of services (Section 4.2.4).</i></p>	<p>The research will adopt this sense of uncertainty.</p> <p>The research will include a practitioner validation stage which will, in part, address these issues.</p> <p>Risk categorisation will not be adopted for the research.</p> <p>Careful consideration will be given to ISO 31000, and the subsidiary standard ISO 31010 in the research on the basis of the credibility that has attached to it.</p> <p>Care will be taken to reflect this range and diversity in selecting risks to form the basis of any samples for further research</p> <p>A cautious approach will continue to be taken towards data from this source.</p> <p>Consideration of these elements of risk will be an important element of the research.</p> <p>The research will adopt this definition and seek to further understand and develop assessment models that flow from it.</p>

Issue Arising from the Research for Research Question One	Insight for Research Question Two
<p><u>Over-Arching Aspects of Risk</u> (Gap in Knowledge C)</p> <p>13. Complexity is of fundamental importance to understanding strategic risk in local authorities: the most serious risks have been found to be complex and the majority of risks have some complex characteristics (Section 4.3.1).</p>	<p>Complexity theory will be explored and used to inform all aspects of the research to address Research Question Two.</p>
<p><u>Measuring Strategic Risk</u> (Gaps in Knowledge D and E)</p> <p>14. Strategic risks in local authorities have been found to have both qualitative and quantitative aspects. The balance between these two aspects varies between risks. The more serious risks tend to be more qualitative and the overall balance for strategic risks in local authorities leans towards the qualitative (Section 4.4.1).</p> <p>15. As strategic risks in local authorities become more serious they progress from being in the simple domain with some complicated characteristics, into the complicated, acquiring complex characteristics and losing simple characteristics, and thence into the complex, acquiring some chaotic characteristics. All risks have the characteristics of at least two domains (Section 4.4.2).</p> <p>16. None of the criteria in the literature for probabilistic approaches is satisfied for strategic risk in local authorities (Section 4.4.2.1).</p>	<p>The cautions regarding qualitative risk assessments identified in the literature review (see Section 2.7.1) will be carefully heeded for Research Question Two. The approach to Research Question Two will seek to provide a means to unify the assessment of the qualitative and quantitative aspects of strategic risks in local authorities and pay particular attention to the qualitative aspects of those risks.</p> <p>The challenges created by these multiple characteristics will be recognised and embraced.</p> <p>The research will adopt a default position that risks are complex on the basis that this is better and safer than over-simplification.</p> <p>Cause and effect based risk assessment models will not be considered, for example Bayesian methods.</p> <p>Complicated risks and risk characteristics require the availability of experts and historical data for their assessment</p> <p>A probabilistic approach is not appropriate for strategic risk in local authorities and will not be taken.</p>

Issue Arising from the Research for Research Question One	Insight for Research Question Two
<p>17. The chaotic characteristics of some risks, although not dominant, indicate the need to make general preparations to cope if such risks happen. These could include disaster recovery plans, maintaining a risk reserve to fund the crisis-management measures that might be needed and having skilled, experienced staff available so that there is a degree of confidence that appropriate people will manage the crisis (Section 4.4.2).</p> <p>18. The risk assessment methodology should be designed to capture information about risks and maximise the understanding of the risks to be assessed, albeit that this understanding cannot be total for all but the simplest and least serious risks (Section 4.4.2).</p>	<p>This will be taken into account in the considerations of controls and their place and operation in risk assessment models.</p> <p>Determination of the information to be captured and the process for doing so will be a significant element of the research.</p>

Taken as a whole, the above summaries and the background to each element of them constitute a significant contribution to knowledge with regards to the nature of strategic risk in local authorities, and so address Gap in Knowledge B.

As the research to address Research Question Two has the potential to add to, or modify, the understanding of the answer to Research Question One and the underlying gaps in knowledge, final conclusions are not presented at this stage. Instead, they are presented in Chapter 7.

Overall, the research has addressed Research Question One and the five associated gaps in knowledge and has made a significant contribution to Research Question Two, which is addressed in the chapters that follow. The subsequent research will be based on the definition of strategic risk in local authorities that has emerged from the research to address Research question One, namely:

A risk is a concern for the future about something that is uncertain and that matters to the local authority and its stakeholders.

The uncertainty may be about whether the subject of the concern will happen and/or about the extent and nature of the consequences of it doing so.

Potential sources of concern include: whether the local authority will achieve its objectives and plans for the future; things that may go wrong; and the delivery and quality of services.

Chapter 5

Methodology for Research Question Two

5.1 **Introduction**

This chapter sets out the methodology to address Research Question Two.

Research Question Two

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

The methodology starts with a restatement of the Gaps in Knowledge with respect to Research Question Two, as established in the literature review⁴¹. As the research to address this question is informed by the results of the research to address Research Question One, this Chapter then sets out how the preceding research has informed the methodology for Research Question Two. The ways in which the research then uses the same multiple sources used for Research Question Two is explained. This is followed by an explanation of the additional, subsidiary literature reviews and analyses undertaken for Research Question Two. The modelling process used to explore alternative risk assessment models and including the development of a conceptual risk model is then described, along with the associated methodology for creating the risk data set for consistent use in the risk assessment models. The model evaluation and validation methodology is then described to complete the methodology for Research Question Two.

5.2 **The Overall Approach to Research Question Two**

5.2.1. How the Gaps in Knowledge will be Addressed for Research Question Two

Table 5.1 restates the gaps in knowledge with respect to Research Question Two identified in Chapter 2 and summarises the methodologies to address them. The following sections of this chapter then explain those methodologies. Table 5.1 illustrates the completeness of the research and the importance of the multiple-sources approach adopted for the research.

⁴¹ See Chapter 2

Table 5.1: Gaps in the Literature with Respect to Research Question Two

		Review of Current Practice in the UK & Beyond, and of Relevant Standards and Guidelines			Further Analysis			Notes
		Document Analysis and Supplementary Interviews (Section 5.3.1)	Document Analysis for International Comparators (Section 5.3.2)	Document Analysis for Published Standards and Guidelines (Section 5.3.3)	Analysis of Risks from Multiple Sources (Section 5.4.1)	Modelling Alternative Risk Assessment Approaches (Section 5.5)	Validation Interviews (Sections 5.4 & 5.5)	
*	<u>What is Risk?</u>							
1	b) There is little literature on the ... management of strategic risk in local authorities (Section 2.2.4)**.	✓	✓	✓	✓	✓	✓	This is addressed by the research as whole, on the same basis as Research Question One
	<u>The Risk Management Process</u>							
2	a) The potential for risk assessment approaches to go beyond just ranking risks for management attention by providing information to inform their decision-making is currently just an unfulfilled aspiration in the literature (Sections 2.3.1. and 2.3.2)	✓	✓	✓	✓	✓	✓	Insights have been sought from current practice, standards and guidelines and explored in the modelling and validation interviews
3	b) Risk assessment processes are highly dependent upon the available resources. The level of resources available in local authorities needs to be established to inform the research into appropriate assessment approaches (Section 2.3.1). The case may also need to be made for increased resources so that risk assessment processes are treated as a management priority and given the attention and resources to fulfil their potential (Section 2.3.2).	✓			✓	✓	✓	Data has been sought from the two sets of interviews, the multiple sources, and has been considered as part of the risk assessment modelling
	<u>Models of Risk</u>							
4	a) The literature suggests but does not establish a residual role for the precautionary principle in local authority risk assessments (Section 2.4.1).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and it has been explored in the modelling and validation interviews
5	b) It is not clear how the underlying uncertainty, ambiguity and potential complexity should be treated in the assessment of strategic risk in local authorities as the literature does not address these issues (Section 2.4.3).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews; complexity theory and fuzzy approaches have been explored for insights and possible solutions
6	c) Further gaps in public sector-specific risk knowledge relate to the treatment of stakeholder issues in public sector risk assessments and the construction of the impact dimension of strategic risk in local authorities (Section 2.4.3).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews

		Review of Current Practice in the UK & Beyond, and of Relevant Standards and Guidelines			Further Analysis			Notes
		Document Analysis and Supplementary Interviews (Section 5.3.1)	Document Analysis for International Comparators (Section 5.3.2)	Document Analysis for Published Standards and Guidelines (Section 5.3.3)	Analysis of Risks from Multiple Sources (Section 5.4.1)	Modelling Alternative Risk Assessment Approaches (Section 5.5)	Validation Interviews (Sections 5.4 & 5.5)	
	<u>Stakeholders and Perceptions</u>							
7	a) There are gaps in public sector-specific risk knowledge that relate to the incorporation and treatment of stakeholder issues in public sector risk assessments (Section 2.5).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews
8	b) It is unclear where the balance lies between consulting stakeholders and seeking alternatives ways of taking into account their views and priorities in local authority risk assessments (Section 2.5.3).	✓	✓	✓			✓	Relevant indications have been looked for in all sources, though this has primarily drawn on the validation interviews
9	c) An appropriate basis for taking issues of trust into account in local authority strategic risk assessments needs to be established, although the initial sense is that there seems to be no reason to prescriptively define the elements of trust, and very good reason not to seek to do so (Sections 2.5.4 and 2.5.5).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews
	<u>Over-Arching Aspects of Risk</u>							
10	a) Whilst it is clear that uncertainty is central to risk, there is no generally accepted method for modelling uncertainty in risk. Consequently, it is not clear from the literature how to reflect it in the assessment of strategic risk in a local authority (Section 2.6.1.).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews; complexity theory and fuzzy approaches have been explored for insights and possible solutions
11	b) Fuzzy approaches appear to have much to offer in the assessment of risk, particularly as regards a more meaningful reflection of uncertainty in risk assessments but the form and extent of this contribution need to be established (Section 2.6.1).					✓	✓	Fuzzy approaches have been explored and a fuzzy risk assessment model developed, becoming a key focus of the validation interviews
12	d) The research needs to address issues of control confidence and its quantification within a risk assessment model (Section 2.6.3).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling; a control confidence model has been developed for the research

		Review of Current Practice in the UK & Beyond, and of Relevant Standards and Guidelines			Further Analysis			Notes
		Document Analysis and Supplementary Interviews (Section 5.3.1)	Document Analysis for International Comparators (Section 5.3.2)	Document Analysis for Published Standards and Guidelines (Section 5.3.3)	Analysis of Risks from Multiple Sources (Section 5.4.1)	Modelling Alternative Risk Assessment Approaches (Section 5.5)	Validation Interviews (Sections 5.4 & 5.5)	
13	e) The literature review suggests that ambiguity should be taken into account in the value judgements in the risk assessment model and as an additional need for providing decision-makers with information about the risks assessed that goes beyond prioritisation for decision-making (Section 2.6.4).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and this has been explored in the modelling and validation interviews
<u>Measuring Strategic Risk</u>								
14	b) If risk assessment processes are to recognise qualitative issues whilst remaining consistent, reliable, credible and trusted, attention clearly needs to be paid to the mechanisms which will maximise the achievement of these objectives (Section 2.7.1).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews
15	c) The literature indicates that there is a role for probabilities and expected values in risk assessments but that they do not tell the whole story. There is significant gap in knowledge as regards how to incorporate them whilst reflecting the rest of that whole story in a risk assessment (Section 2.7.2). Closely allied to this is the need to address <i>Black Swans</i> (rare / catastrophic risks) in the same context (Sections 2.7.2 and 2.7.3).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews; fuzzy approaches have been explored for insights and possible solutions
16	e) The literature suggests a number of bases for risk assessment, e.g. worst and most likely cases. The research needs to address the most appropriate case for assessing strategic risk in local authorities. Fuzzy approaches and the scenario literature may provide a useful contribution to this, for example by enabling multiple bases of assessment (Section 2.7.4).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and these issues have been explored in the modelling and validation interviews; fuzzy approaches have been specifically explored
17	f) The literature says little about alternatives to risk matrices, which may be particularly relevant if the research leads to more complex models of risk than the two-dimensional impact / likelihood model of risk (Section 2.7.5).	✓	✓	✓		✓	✓	Alternatives have been looked for in current practice and standards and guidelines, and alternatives to risk matrices both for risk assessment and for the presentation of the results of risk assessments have been modelled
18	g) The potential value of an additive approach needs to be explored as part of the research (Section 2.7.7).	✓	✓	✓	✓	✓	✓	Relevant indications have been looked for in all sources and an additive approach has been explored in the modelling

Notes: * The numbers 1 to 18 are used to refer to the gaps in knowledge in this Chapter (*Gap in Knowledge 1* etc.)

** The aspect of this gap in knowledge that relates to the nature of risk is addressed by Research Question One

5.2.2. Reliability, Validity and Credibility

5.2.2.1. Overall Approach

As emphasised in Chapter 3, it is crucial that all aspects of the research are reliable, valid and credible. These needs have been carefully considered and designed into the research methodology. This section emphasises key elements of the attention that has been paid to ensuring the quality of the research.

The research has come to recognise strategic risk in local authorities as socially constructed but seeks to study it objectively. In so doing, it reflects the “*ironic*” commitment to social constructionism described by Hacking (1999), treating local authority strategic risk as “*something we cannot ... avoid treating as part of the ... material world*”⁴². The Technical / Societal Analysis for Research Question One⁴³ is consistent with this ironic approach and supports the conclusion that whilst society’s, or stakeholders’, views of risks are fundamental to determining the size of those risks, those views may be incomplete and the reliability of those views may benefit from specialist input, for example about legal compliance issues and the potential sanctions. The technical aspects are also important, albeit to a degree that varies between individual risks. If strategic risk assessment is to be a useful process, it must work and be reliable. A rational assessment process with methodological rules is needed for individual risks and the approach to risk assessment should consequently, in Burrell and Morgan’s terms, be a functionalist one.

A key risk of risk management is failing to reliably estimate the seriousness of risks, resulting in the potential for inefficient over-management of minor risks and the under-management of serious risks which have not been recognised as such. The research carries the potential to exacerbate this. A flawed risk assessment methodology must, by definition, result in flawed risk assessments and the under and over-statement of risks, with the obvious consequences for management attention and the subsequent allocation of resources. Such a research output would be a failure to achieve Cepiku’s ambition of “*carrying out academic research to produce conceptual systems for public managers to use to guide their actions*” (2011, pp 131 - 132). This ambition for public sector research clearly implies issues of reliability, validity and credibility.

At each stage of the research into current practice, the methodology sought to compare different data relating to the same local authority, for example reviewing the risk register to seek evidence of compliance with the risk assessment approach defined in a risk management policy or strategy, and also to compare data to documents produced and held externally to the local authority, for example the local authority’s annual audit letter. Table 5.2 indicates the extent of this comparison of sources.

⁴² 1999, p20

⁴³ See Section 4.4.1

Table 5.2: Comparison of Sources⁴⁴

Total Number of Local Authorities	97	
Number involved through media reports alone	<u>17</u>	
	80	
Number for which more than one source used	60	75%
Number for which one source used	<u>20</u>	25%
	<u>80</u>	

Also central to the overall approach to ensuring the reliability, validity and credibility of the research to address Research Question Two has been the multiple sources approach, as illustrated in Figure 3.1.

The results emerging from each element have been considered in the context of those from other elements of the research, and critically questioned. Detailed process notes have been made at each stage of the research and reflections recorded. These reflections have resulted in both improvements to the on-going research and insights to the research questions.

5.2.2.2. The Researcher’s Prior Experience, its Value, Legitimacy and Ensuring Objectivity

The researcher has over twenty years’ prior experience in risk, internal audit, financial and senior management roles in the public and voluntary sectors. The majority of that experience is in local authorities. This provided a useful knowledge base for elements of the initial research design and an initial source of soft validation.

The risks to objectivity and research quality inherent in this were recognised at an early stage and the research design and methodology have not included any significant decision points which relied solely or to any significant extent on the expert judgement of the researcher in matters of risk, local authority practice or other determinative matters with respect to the methodology, findings or conclusions. The prior experience was helpful in identifying additional data sources and in establishing credibility as a precursor to negotiating access, an issue which nevertheless remained problematic as regards interviews.

5.2.2.3. Credibility

Credibility concerns whether the research results will be believable. If they are not, the ambition to “*produce conceptual systems for public managers to use to guide their actions*” (Cepiku, 2010) would be very unlikely to succeed. Validation by practitioners has been built into the research methodology at all key stages, and subsequent practitioner interviews to explore the results will seek to ensure the credibility of the research conclusions.

5.2.2.4. Sampling

As the research uses the samples defined in Chapter 3 for Research Question One, the steps taken to ensure the reliability of this sampling are as set out in Section 3.5.

⁴⁴ Full details are provided in Table 3.11

A second set of practitioner interviews (validation interviews) has been included in the methodology for Research Question Two to provide an important opportunity to test initial research findings and question data from the earlier supplementary interviews in the light of the subsequent research, for example further issues of stakeholder engagement in local authorities' risk assessment processes.

5.2.3. Inputs from Research Question One

The research for Research Question Two has adopted the definition of strategic risk in local authorities established from the research for Research Question One, namely:

A risk is a concern for the future about something that is uncertain and that matters to the local authority and its stakeholders.

The uncertainty may be about whether the subject of the concern will happen and/or about the extent and nature of the consequences of it doing so.

Potential sources of concern include: whether the local authority will achieve its objectives and plans for the future; things that may go wrong; and the delivery and quality of services.

Further, the research has drawn on and addressed the insights set out in Table 4.14 that emerged from the research to address Research Question One, as summarised below to demonstrate how these insights have been addressed in exploring Research Question Two.

What is Risk?

- i. The research has adopted a concern-based sense of risk and has taken account of the key concerns that local authorities have been found to adopt:
 - a. Failure to achieve corporate objectives;
 - b. Negative events - "*things that we do not want to go wrong*"; and
 - c. Failures in service delivery.

A wide sense of *objectives* has been assumed and the subsidiary concern issues, such as financial loss and harm to people, have been explored in detail for the research, being central to Research Question Two.

The research has included constructions of risk that embrace and exclude a stakeholder dimension and the issues that arise from these constructions.

- ii. The research has not explored assessing risk on the basis that it is merely a matter of insurance.
- iii. Consideration of the benefits associated with a risk has been assumed to be part of the decision-making stage of risk management and not an element of the risk assessment. It has, therefore, not been considered to be within the scope of the research.
- iv. Uncertainty has been taken to be a matter of outcome, occurrence or both: uncertainty of occurrence alone has been assumed not to be a necessary condition for strategic risk.

- v. The research has included a practitioner validation stage which, in part, addressed the identified tendency in the local authority sector to follow sector norms rather than to innovate and depart from those norms.
- vi. The research has not considered risk categorisation as practitioners have found it to be unhelpful for risk assessment purposes.
- vii. Careful consideration has been given to ISO 31000, and the subsidiary standard ISO 31010 in the research on the basis of the credibility that has been identified to be attached to it.
- viii. Care has been taken to reflect the identified range and diversity of strategic risks facing a local authority in creating the risk data set which has been central to the modelling phase of the research to address Research Question Two.
- ix. A cautious approach has continued to be taken towards data from local authority risk registers due to the significant evidence that has been found to support concerns about their completeness.
- x. Consideration of the avoidance of reputation damage and blame has been an important element of the research for Research Question Two.
- xi. The research has adopted the definition of strategic risk in local authorities that has emerged from the research to address Research Question One, as restated above, and has sought to understand and develop assessment models that flow from it.

Over-Arching Aspects of Risk

- xii. Complexity theory has been explored and used to inform the research to address Research Question Two.

Measuring Strategic Risk

- xiii. The cautions regarding qualitative risk assessments identified in the literature review have been carefully heeded for Research Question Two.

The approach to Research Question Two has sought to provide a means to unify the assessment of the qualitative and quantitative aspects of strategic risks in local authorities and to pay particular attention to the qualitative aspects of those risks, as indicated as necessary by the Technical / Societal Analysis.

- xiv. The challenges created by the multiple characteristics of strategic risks in local authorities (varyingly simple, complicated, complex and chaotic) as identified by the Cynefin analysis has been recognised and embraced.

The research has adopted a default position that risks are complex on the basis of the identified correlation between complexity and seriousness. As a result, cause and effect based risk assessment models, for example Bayesian methods, have not been considered.

The issue of the availability of experts and historical data for the assessment of complicated risks has been carefully considered.

- xv. A probabilistic approach to risk assessment has not been considered as it has been concluded not to be appropriate for strategic risk in local authorities.

- xvi. The need to make general preparations to cope if risks with chaotic characteristics happen has been taken into account in the consideration of controls, and their place and operation in the risk assessment models developed for the research to address Research Question Two.
- xvii. Determination of the information to be captured for local authority risk assessments and the process for doing has been a significant element of the research.

5.3 Review of Current Practice in the UK and Beyond, and Relevant Standards and Guidelines

These elements of the research to address Research Question Two are an extension of the research that used these sources for Research Question One. Their rationale is rooted in the context dependency of risk, as established by the literature review in Chapter 2. Table 5.1 shows how these elements of the overall research contribute to the gaps in knowledge identified by the literature as regards Research Question Two.

5.3.1. Document Analysis and Supplementary Interviews

Document Analysis

The analysis used the same original and validation samples and documents as used for Research Question One⁴⁵.

The scope of the document analysis for Research Question Two was broader than for Research Question One and sought, in part, answers to the following questions.

1. What dimensions of risk have been adopted by local authorities?
2. How have those dimensions been defined and constructed, for example are issues of reputation damage included and is the chance of a risk event happening expressed or defined in terms of probabilities?
3. How are the various levels of risk in each dimension and overall described or defined?
4. Are risks scored and, if so, how?
5. Is a risk value calculated and, if so, what is the basis of the calculation and the form of the resultant risk values?
6. Is there provision for judgemental amendments or overrides to the risk assessment?
7. Are risk matrices used?
 - a. If so, what are the form and details of those matrices?
 - b. Do the matrices have any noteworthy features, e.g. diagonal symmetry?
 - c. If not, what alternatives are being used?
8. Does the methodology implicitly or explicitly recognise *Black Swans*⁴⁶?
9. How is uncertainty reflected in the risk assessments?

⁴⁵ These samples are set out in Table 3.2

⁴⁶ See Taleb (2007), as discussed in the Literature Review, Section 2.7.2

10. How is ambiguity reflected in the risk assessments?
11. How serious would different local authorities assess similar risks to be, for example a member of the public being permanently disabled, or breaking the law?
12. Do the documents indicate any particularly interesting or problematic practices, for example risk assessment approaches that appear particularly prone to error or inconsistency?

These questions were formulated from the literature review; were the inputs to Research Question Two from the research to address Research Question One; or flowed directly from Research Question Two.

In addition, the research sought to establish and describe the risk assessment methodologies used. Code 33 (*Following the sector norms*) from the supplementary interview data⁴⁷ suggested that this may have proved to be a matter of establishing and describing a single core methodology and then exploring the extent of any variations to that core methodology. This was found to be the case.

The document analysis methodology was the same as that followed for Research Question One, although the more detailed nature of the questions led to a need for more extensive data collection and the creation of a range of data summaries. The results of the document analysis were again recorded in tables in Excel to enable the associated statistics to be easily calculated and presented graphically.

Beyond the documentation and summarising of current practice, the research drew out the treatment of impact within current practice and developed a set of impact / consequence categories for testing, refinement and use in the later stages of the research.

To explore the ambiguity within documented current practice, the research defined two primarily qualitative potential risk impacts – a permanent disability and breaking the law – and recorded impacts deemed by local authorities in the original sample to be equivalent.

As was found to be the case for the research to address Research Question One, the validation testing using the validation sample⁴⁸ supported the results of the original analysis and the results of the latter were therefore concluded to be generalisable. This, again, was taken to be strong evidence of saturation (Eisenhardt, 1989)⁴⁹. Had this not been the case, further sampling and analysis on the basis of the original sample would have been undertaken.

Interviews

The supplementary interviews carried out at six local authorities were primarily to supplement the above document analysis for Research Question Two, although they also addressed Research Question One⁵⁰. Questions were prepared for the interviews to address the following issues and are contained in Appendix 1.

⁴⁷ See Table 4.3

⁴⁸ See Section 3.3.1

⁴⁹ *“the point at which incremental learning is minimal because the researchers are observing phenomena seen before”* (ibid, p 545)

⁵⁰ See Section 3.3.1

- To confirm, or otherwise, the currency of the documents reviewed
- To explore issues of compliance with the documented approaches
- To deepen the researcher's understanding as derived from the document analysis
- To explore whether alternative or additional risk assessment methodologies were used to supplement or replace those recorded in the risk management documents reviewed prior to the interview
- To explore the construction of risk and the reasons for that construction being adopted, for example the inclusion or otherwise of reputation issues or harm to people
- To explore the perceived reliability of the risk assessment methodology
- To provide an opportunity for the interviewees to express and develop their sense of the strengths and weaknesses of the current approach and ways in which it could be improved, and so for the researcher to benefit from their professional experience and reflections
- To explore the level of precision considered appropriate for local authority risk assessments and the place in those assessments for consideration of controls
- To raise specific questions that arise from the analysis prior to interview of the risk management documents obtained online and any relevant media reports

The important issues of confidentiality, sensitivity and access that arose with these interviews are explained in detail in Section 3.2.1.

As described in the methodology for Research Question One⁵¹, extensive, detailed notes were taken during the interviews and, in all cases, these were transcribed by the researcher within forty-eight hours of the interview. The interview transcripts were then coded.

An open coding approach⁵² was taken, that is the codes were derived from what was seen in the data, rather than the researcher having previously decided the issues and then having only looked for those. It was, however, recognised that the semi-structured nature of the interviews inevitably introduced an element of this pre-determination, despite the interviews having become free-ranging discussions rather than simple rigid question and answer sessions. There were two passes of the data: the first to identify initial codes and coding; the second to ensure completeness, particularly as regards the possible application of later codes to earlier data. The second pass resulted in some recoding, and coding of data to a second, additional code. Once the thirty-eight base codes had been established, nine higher-level codes were identified and the base codes grouped within them.

⁵¹ See Section 3.3.1

⁵² As explained in section 3.3.1, the overall coding methodology followed that set out in Bryman and Bell (2011, pp585 - 6) subject to the identified changes and additions.

The coding was independently reviewed by a doctoral researcher at Warwick Business School⁵³ to:

- Consider the reasonableness of the coding;
- Consider the fit of the data to the base codes;
- Consider the fit of the base codes to the higher level codes;
- Suggest further and/or alternative codes at either level; and
- Otherwise comment on the coding as he thought appropriate.

The review was found to be extremely useful and a number of changes were made as a result of it.

The reviewer:

- Challenged the wording of a number of base and higher level codes – six base codes were reworded as a result and the higher level codes were reviewed and revised as a whole to clarify their sense and scope;
- Challenged the coding of a number of items of data – one was recoded as a result and two further items were coded to an additional code;
- Challenged linkages of base to higher level codes – one error in this coding was found and remedied; and
- Raised a number of queries about individual items of data and their implications – this helped to further clarify and focus the researcher's thinking on a number of emerging issues.

The independent review was found to be extremely useful, not least the general challenge and queries that arose from the reviewer not being a public sector or risk specialist and seeking clarification and explanations of terminology and underlying ideas and issues. These perspectives have also come to be useful, albeit informal, benchmarks for the overall form and content of this thesis.

The full results of this review are set out in Chapter 6. Table 5.3 shows the final codes that relate wholly or in part to Research Question Two.

⁵³This was approach was based on Hodgkinson & Wright's (2002) study in which they used "two post-graduate research assistants" (p965) to review the coding of their interview notes

Table 5.3: Supplementary Interview Data Codes as Regards Research Question Two

Higher Level Code	Base Code	
Culture and Context		
A	3	Service standards and the consequences of risk
A	33	Following the sector norms
Why Risk Management Matters		
C	34	The importance of risk management
The Detail of the Risk Assessment Method and Process		
D	4	Scrutiny and reputation
D	5	Multiple risks
D	8	The relevance of likelihood
D	9	Risk matrices and overall risk scoring
D	10	Controls to reduce the level of risk
D	16	Emotional problems with risk assessment processes
D	21	The relevance of uncertainty
D	24	Risk registers
D	25	Determining impact
D	27	Risk appetite and tolerance
D	28	Road safety risk
D	29	Calculating risk seriousness
D	37	The final say
D	38	Time horizon
Making the Risk Assessment Process Work and Compliance Issues		
E	1	Barriers to effective risk assessment
E	11	Quality control and the need for consistency in the risk assessment process
E	13	Need for in-house risk expert(s)
E	20	Resource constraints on the risk management process
E	23	Description of risks
E	30	Compliance with the risk management approach
E	36	Need to improve the risk assessment process
Process Comparisons		
F	26	Inter-authority comparisons of risk management
F	31	The internal audit needs assessment
Process Credibility, Accessibility and User Appeal		
G	12	Added-on and alternative risk assessment processes that are in operation
G	17	Ease of use versus reliability
G	19	Don't make it too academic
Management Decisions Following the Risk Assessment		
H	7	Risk treatment
Public Disclosure of the Risk Data		
I	32	External disclosure

5.3.2. Document Analysis for International Comparators

The process of document analysis followed that in Sections 3.3.1, as amended in Section 5.3.1 for Research Question Two, with additional attention paid to contextual issues as was also the case for the use of this source for the research to address Research Question One. The same comparators were used for both research questions.

International comparisons have been made with specific sub-national governmental bodies in Australia, Canada, France, Ireland, New Zealand, South Africa and the USA. The document analysis of these was on the same basis as that for documents from English local authorities, and addressed the questions set out at the start of Section 5.3.1 for the documented practice of English local authorities.

The risk assessment methodology for a South African local authority⁵⁴ was found to present a significant variation on emerging typical local authority risk assessment practice involving the averaging of risk assessment scores derived from ordinal scales. The classification of risks with specific risk scores calculated following the local authority's documented methodology were tabulated and compared to establish the effects of the averaging approach and to identify any other consequences of the overall methodology. The results of this are presented in Chapter 6. Whilst the results indicate that the approach is a flawed one, the international comparison was found to provide an example of an approach not seen at an English local authority, adding to the breadth of the research as a whole and demonstrating the inappropriateness of an approach that, in the absence of further analysis, might appear sound.

5.3.3. Document Analysis for Published Standards and Guidelines

The research for Research Question One has found that there is a legal requirement for local authorities in England to make arrangements to manage risk under Reg 4(1) of the Accounts and Audit (England) Regulations 2011. As the Regulations make no further provision their review did not form a significant part of the methodology to address Research Question Two.

Document analysis for published standards and guidelines built on the research for Research Question One using the same four sources. The one additional source was ISO 31010, which is the subsidiary standard to ISO 31000 and relates specifically to risk assessment. The cautions in the literature concerning ISO 31000⁵⁵ continued to be heeded⁵⁶.

The research was in two parts. The first part was based on the questions set out in Section 5.3.1 and involved the previously used standards and guidelines⁵⁷ and ISO 31010. The second part involved consideration of the risk assessment approaches described in ISO 31010.

ISO 31010 describes thirty-one different risk assessment approaches and analyses them in terms of their applicability to various elements of the overall risk assessment process.

- *Risk Identification*
- *Risk Analysis*
 - *Consequence*
 - *Probability*
 - *Level of Risk*
- *Risk Evaluation*⁵⁸.

⁵⁴ Nongoma Municipality

⁵⁵ These are explained in Section 3.3.3

⁵⁶ See Section 3.3.3

⁵⁷ Full details, including an explanation of the basis on which each standard or guideline has been included in the research, are provided in Table 3.5

⁵⁸ The results of this analysis are presented in Table 6.11

As these provided only an initial rather crude filter, further analyses were undertaken by the research applying the following additional criteria to the descriptions of each approach as stated in the standard:

- Apparent applicability to the research context, following the emphasis on the contextually-specific nature of risk already highlighted by the research;
- Whether the approach requires cause and effect to be identifiable In advance, following the finding from the Cynefin analysis for Research Question One that this is not possible for risk in the research context;
- Whether the approach requires historical data, again following the finding from the Cynefin analysis for Research Question One that this is not possible for risk in the research context;
- Whether the approach appeared to be applicable to the assessment of a large number of diverse risks as would be required to undertake the risk assessment for a local authority.

The analysis sought to identify risk assessment approaches that were presented as credible within the respected standard and which fitted the specific problem of assessment of local authorities' strategic risks.

5.4 Further Analysis

Having looked at what local authorities and others document as being the nature of strategic risk in local authorities in the methodology described in the previous section, this section sets out methodologies to look at directly recorded risks and risk knowledge to provide further insights.

5.4.1. Analysis of Risks from Multiple Sources

5.4.1.1. Risk Registers

A total of twenty-nine local authorities' risk registers have been obtained online and directly from the local authorities themselves. For Research Question Two, the content of these has been summarised to identify how the recorded risks have been assessed and the nature and extent of the information that has been recorded about those risks. This was done in the light of the identified concerns about the reliability of local authority risk registers discussed and summarised in Section 3.4.1.1 and Table 3.14 and supported by the data presented and discussed in Chapter 4. The results of this analysis are presented in Section 6.3.1.

5.4.1.2. Risk Event Database

The methodology for the development of the risk event database is explained in Section 3.4.1.2. For Research Question Two, the risk event database had two key purposes: to provide further insights and to provide a source of data to test the categories of impact derived from documented current

practice⁵⁹. The sources for the risks were reviewed and the stated impacts / consequences of the risk summarised. These included any indicated possible impacts that did not arise in the reported event(s). The impacts / consequences were then compared to the seven categories and those categories that applied identified. If there were any impacts / consequences that did not match one of the categories, these were noted under an “Other” heading and details recorded. The results of this analysis are recorded in Table 6.12, which also records the source(s) for each database entry. The significant judgements made in performing the analysis were recorded and are presented in Section 6.3.2 as part of the results of the analysis.

The risk event database provided a source for the risk data set. The limitations on the data set and, hence on the results of its analysis, are recorded in Section 3.4.1.2.

5.4.1.3. Annual Audit Letters

For Research Question Two, the risk data derived from the sample of annual audit letters was used for the same purposes as the risk event database: to provide further insights and to provide a source of data to test the categories of impact derived from documented current practice⁶⁰. The source of the data enabled this analysis to be undertaken from a different, complementary and independent perspective on risk in local authorities. The results of this analysis are presented in Section 6.3.3.

The limitations on the data set and, hence on the results of its analysis, are recorded in Section 3.4.1.3.

5.4.2. Subsidiary Literature Reviews and Analyses

The literature review⁶¹ identified the potential for fuzzy approaches and complexity theory to contribute to the research. The latter was subsequently confirmed by the Cynefin analysis undertaken for Research Question One. Each has therefore been the focus of a subsidiary literature review to develop an understanding of these areas of knowledge and their potential implications and application to the research.

5.4.2.1. Complexity

Having established in the research to address Research Question One that complexity is a key characteristic of strategic risks in local authorities, the simple question of what this actually means for their construction and assessment needed to be addressed. The focus was on the development of a practical understanding applicable to the research context and an overall understanding of the characteristics of complex systems and their implications. Once established, the research findings to date were reflected on in the light of these characteristics. This led to the specification of a key element of the risk data set to be used later in the research for the risk modelling. The results of this analysis are presented in Section 6.4.1.

⁵⁹ See Section 5.3.1

⁶⁰ See Section 5.3.1

⁶¹ See Chapter 2 and the summary of the Gaps in Knowledge with respect to Research Question Two in Table 5.1

5.4.2.2. Fuzzy Approaches

The subsidiary literature review considered both the general fuzzy literature and the limited literature applying fuzzy approaches to the assessment of risk. A paper by Grassi et al (2009) presenting the results of research into the application of fuzzy approaches to health and safety risk assessment in an Italian food processing plant, was identified as a source of insights into fuzzy risk assessment models and critiqued, providing a number of ideas taken forward in the research. The general fuzzy literature was reviewed to identify and understand alternative forms of fuzzy numbers and associated fuzzy set theory and so to inform consideration of their appropriateness and potential application in the research context. The results of this analysis are presented in Section 6.4.2.

5.4.2.3. Scenario Planning

Whilst undertaking the research it became clear that there was a shared language and significant potential overlap between risk, fuzzy approaches and scenario planning; for example the construction of different scenarios for each risk to help understand and subsequently manage these uncertain future events: scenario planning concentrating on the analysis of such scenarios and fuzzy approaches turning on the identification of possible alternative states (values) of the same uncertain (fuzzy) thing. The review of the scenario planning literature quickly established the anticipated potential to contribute significantly to the research and expanded into a more general quest for insights for the research. Most important was the identified ability of this literature to suggest possible approaches and solutions not found in the fuzzy literature, the scenario planning literature being found to be better developed than the literature on the practical application of fuzzy approaches in social and management science. The results of this analysis are presented in Section 6.4.3.

5.4.2.4. Controls

The earlier stages of the research to address Research Question Two identified controls as a key aspect of risk, allied to significant shortcomings in their treatment in current and comparative practice. This created a need for further research to establish a foundation of understanding to enable controls to be appropriately taken into account in the risk assessment models which would form the final stage of the research. This was achieved by: a brief review of the limited literature; consideration of control treatment in Grassi et al (2009); documentary research into current practice in internal audit reporting on issues of control system reliability in local authorities; reference back to the published standards and theoretical exploration of the impact of controls and the timing and progression of those impacts. These were brought together in the form of a tentative control confidence quantification model for subsequent use in the research. The results of this analysis are presented in Section 6.4.4.

5.4.2.5. Stakeholders

Stakeholder concerns emerged from the literature review as a potentially important element of the construction of strategic risk in local authorities. The preceding stages of the research to address Research Question Two clearly supported this position and indicated that these could be taken into

account within the impact / consequence assessment, avoiding the need for a separate stakeholder dimension in risk assessment models. This conclusion reduced the need for the research to further address stakeholder issues. One important outstanding issue remained. That was the question of who are the key stakeholders of a local authority from a risk perspective.

Freeman's (1984) widely cast definition of stakeholders as "*any group or individual who can affect or is affected by the achievement of the organization's objectives*"⁶² was adopted for the research and a tentative list of distinct stakeholder groups developed from the risk event database, local authority risk registers and those identified from the sample of annual audit letters. This was then compared to the generalised lists of stakeholder groups suggested in the risk literature⁶³. It had been expected that this would then provide the basis for refining the tentative list. However, that list proved to be a good match to the literature and was taken forward for use as part of the specification of the risk data set for use in the risk modelling.

The results of this analysis are presented in Section 6.4.5.

5.4.2.6. News Values

The earlier stages of the research to address Research Question Two identified issues of reputation damage as being of great importance to most local authorities' constructions of strategic risk. For some, the mere publication of a critical story or published letter to an editor was deemed to be equivalent to a substantial financial loss or serious harm to one or more people. Risk RED20⁶⁴, for example, illustrated that such negative stories could be of an apparently rather trivial nature. Whilst accepting as part of the research positioning that the construction of strategic risk in local authorities is a subjective matter for each local authority, the researcher sought to try and understand the motivation for publishing news stories about local authorities and to see whether such an understanding could contribute to the research. Harcup and O'Neill (2001) was identified as a strong source for this additional research, being a key paper in the journalism literature.

The *News Values*⁶⁵ in Harcup and O'Neill (2001) were summarised and indications of them sought in the reports that provided the sources for the risk event database. The values that were then found to be relevant to the publication of stories about local authorities were then identified from the analysis and insights drawn from these to inform the research. The results of this analysis are presented in Section 6.4.6.

5.4.3. Conceptual Modelling

At this point in the research the results had established a clear picture of current and comparative practice and relevant published guidelines and standards and the multiple sources approaches had enabled a context-specific understanding of risk to be developed. Before embarking on the risk modelling to seek to pull these findings into coherent risk assessment models, a need to stand back

⁶² *ibid* p46, cited 13,931 times (All editions) as at 02/02/14 per Google Scholar

⁶³ Aven (2008) and Macgill and Siu (2004)

⁶⁴ See Table 4.5

⁶⁵ In essence, the types of story that are deemed to be news in the general media

and look conceptually and holistically at local authority risk was perceived by the researcher, primarily to answer two simple questions:

- Does the understanding of risk that has so far emerged from the research seem to be reasonable and appropriate?

and

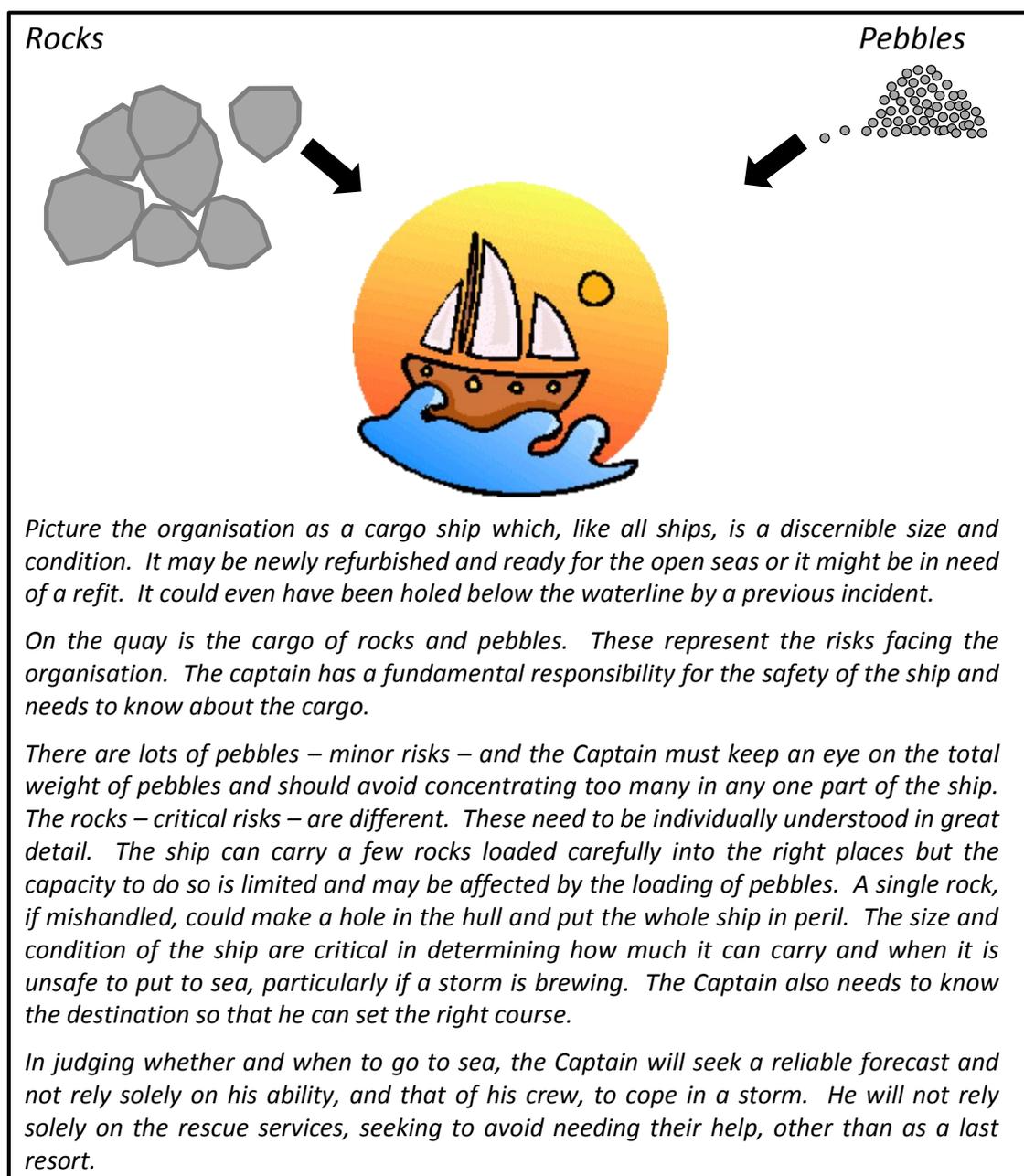
- Are there any significant omissions from that understanding?

A reading of the modelling literature suggested that a conceptual modelling approach might be appropriate. Pidd (2003), for example, describes conceptual models as “*minimal descriptions of the subsystems or components that would be necessary in any embodiment of the root definition not intended to refer ... to any particular implementation within any particular organization*”⁶⁶. The initial attempts to define a conceptual model were quickly realised to be too close to models of assumed or actual current practice with some dependence on the emergent understanding that the model was intended to help to evaluate, and perhaps develop, against the two questions set out above. A fundamentally different approach was needed, leading to the development of the *Rocks and Pebbles* model as a metaphor for strategic risk in local authorities⁶⁷. The model was developed into a paper to be submitted for publication and is not reproduced in full in this thesis. The model is presented in Figure 5.1 and the insights derived from it in Table 6.16.

⁶⁶ *ibid*, p130

⁶⁷ This approach followed Pidd’s (2003) fourth modelling principle (see Section 5.5)

Figure 5.1: The *Rocks and Pebbles* Conceptual Risk Model



Before drawing insights from the model, it was tested and evaluated in two ways. Firstly, the understanding that emerged from the model was compared to the risk literature. The clear conclusion was that the model led to an understanding of risk that was consistent with the literature and supported by it in the areas that were within the scope of the literature. Secondly, a soft credibility check was undertaken by asking a fellow doctoral researcher in Warwick Business School to review the model and the draft paper and to comment on them. The feedback received was positive, with no flaws in the model being identified and two additions to the model and its interpretation suggested. These were adopted and the suggested changes made.

5.4.4. Case Study and Risk Data Set

From the outset, the research design assumed that a later stage of the research would be the development, application and evaluation of risk assessment models which built on the earlier research and fitted the identified nature of strategic risk in local authorities. Without doing so, the

research would not have the potential to achieve its stated aim of satisfying Cepiku's (2011) ambition of *"carrying out academic research to produce conceptual systems for public managers to use to guide their actions"*⁶⁸.

The literature clearly established that the sense and definition of risk is context specific and the research to address Research Question One found that the construction of strategic risk varies between local authorities. The preceding research to address Research Question Two identified the extent of the variation between local authorities, and complexity theory suggested that small inter-authority variations in starting conditions, local authority circumstances and processes, and stakeholder positions could lead to large inter-authority risk differences. The literature suggested, and the Cynefin analysis for Research Question One confirmed, the relevance of complexity theory to strategic risk in local authorities.

The modelling needed to be set in a representative context. The risk event database and, to a lesser extent, the risk sample derived from the sample of annual audit letters indicated that the meaningful set of risks to be used for the modelling might be difficult to elicit from a local authority. Risks RED 32 and RED 46 in the risk event database⁶⁹ provide two examples of risks that it was anticipated local authorities might be reluctant to admit to and share with a doctoral researcher, for example. Such concerns were amplified by the access problems already experienced in the research⁷⁰ and the concerns raised by the research about the completeness of local authorities' risk registers.

A quasi case study approach was therefore taken in which a fictional local authority was defined and established as the context for the risks to be developed for the risk modelling. This local authority was defined as a unitary authority. To ensure that a full range of risks could be reflected, the fictional authority had to be one with the full range of local authority functions, and so not be a District or County Council. The case was recognised to need to provide a rich and credible context for the risks identified and was developed into a full teaching case study. A draft of the case study was reviewed by teaching colleagues within Warwick Business School, who commented very favourably on it and made no significant suggestions for change or improvement. As part of the context for the risk data set, a set of corporate objectives were defined for the local authority based on those seen in current practice⁷¹.

The risk data set was developed to form a consistent basis for testing all risks models to allow meaningful and valid comparisons to be made between those models. The data required for each risk was defined as that required for the most complex model anticipated at the time of the creation of the risk data set, with the recognition that not all of the data would be necessary for the simpler models. From the results of the preceding research, it was therefore determined that the data would need to cover the following:

⁶⁸ Ibid pp 131 - 132

⁶⁹ See Table 6.12

⁷⁰ See Section 3.2.1 for discussion of the access problems experienced

⁷¹ These are referred to as CO1, CO2, etc. in the risk data set

1. A description of the risk to ensure an initial understanding;
2. A summary of key starting conditions as indicated as necessary by complexity theory;
3. A summary of the risk in the two dimensions of likelihood and consequences / impact for each risk
 - a. At the inherent and residual risk levels, and
 - b. In each of the three fuzzy cases defined by reference to scenario planning – plausible best case, most likely case and plausible worst case;
4. A summary of the relevant controls with a narrative providing an indication of their reliability and the available assurance as to that reliability to enable the control confidence to be quantified using the tentative control confidence model presented in Table 6.14; and
5. A summary of the relevant stakeholder groups and any particular concerns that they might be assumed to have, following the stakeholder analysis in Section 6.4.5 and categorised as either those with influence / power over the risk or those who might be affected by it.

A five year time horizon was set for the risk data, drawing on the research findings indicating the value of doing so and the general absence of this temporal reference from current practice.

The risk data specification was brought together in the form of a one page template, as presented in Figure 5.2. The full risk data set is contained in Appendix 4.

Figure 5.2: Risk Data Set Template

Risk No. 12		Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises		
Relevant Starting Conditions	<ul style="list-style-type: none"> • There was a minor data loss two years ago involving the loss of a list of names, addresses and dates of birth for ten members of staff at a local authority area office • The previous data loss was reported to the Information Commissioners' Office, which acknowledged receipt of the report and decided not to investigate on that occasion given assurances provided by the local authority 			
Inherent Risk Position				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Extremely Unlikely (5 – 10%)	Unlikely (40 – 49%)	Very Unlikely (10 – 25%)	
Consequences Description	<ul style="list-style-type: none"> • Breach of Data Protection Act • The data lost is not sensitive and is recovered in a short time • The ICO takes no action • The media does not report the case • Staff are concerned but do not see the case as a betrayal of trust 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £100k imposed by ICO • Adverse national media coverage • Betrayal of trust • Further costs of £10k 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £500k imposed by ICO • Adverse national media coverage • Betrayal of trust • Members of staff become victims of identity theft and subsequent fraudulent financial loss for which the authority is deemed responsible • Further costs of £100k 	
Controls				
Description of Key Controls		Sources of Control Confidence		Level of Confidence in these Controls
1. Strict instructions have been issued to all staff on the removal and security of all data storage media taken out of the office for any reason		• This has been seen to be clearly the case but little is done to check that staff are not acting in breach of these instructions		Low / Medium
2. Data Protection policy in place and available to all staff. The policy is explained during inductions for new staff and many, but not all, members of staff have had training to explain it		• This has been seen to be clearly the case but work pressures may mean that staff have not read and understood it fully		Medium
3. All laptops, memory sticks and other data storage media encrypted and staff explicitly forbidden from using personal or external items on local authority systems or to store its data		• A recent review by the external auditor has confirmed the reliable operation of this control and the appropriateness of the encryption software used		High
4. All systems password protected with effective access controls and all breaches of security are reported to the Data Protection Officer for investigation		• A recent review by the external auditor has confirmed the reliable operation of appropriate access controls		High
Residual Risk				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Extremely Unlikely (5 – 10%)	Extremely Unlikely (5 – 15%)	Extremely Unlikely (5 – 10%)	
Consequences Description	<ul style="list-style-type: none"> • Breach of Data Protection Act • The data lost is not sensitive and is recovered in a short time • The ICO takes no action • The media does not report the case • The data encryption prevents the data being read • Staff are concerned but do not see the case as a betrayal of trust 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £100k imposed by ICO • Adverse national media coverage • Betrayal of trust • Further costs of £10k 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £250k imposed by ICO • Adverse national media coverage • Betrayal of trust • Members of staff become victims of identity theft and subsequent fraudulent financial loss for which the authority is deemed responsible • Further costs of £100k 	
Other Factors, e.g. stakeholder concerns	Pressure of work for many members of staff may result in convenience and wanting to get the job done causing data protection arrangements to be ignored or not complied with fully.			
Stakeholders		Affected by		Power / Influence Over
Such a data loss would be seen as a serious breach of trust and would be expected to be taken very seriously by the ICO, leading to potentially severe sanctions being imposed and reputation damage		Staff		Staff Regulator (ICO)

The sources of the risk data set are detailed in Table 5.4. The simplified risks presented in the case study were not suitable for use in the risk modelling, being tailored to the level and teaching needs of undergraduate students newly introduced to the discipline of risk management.

Table 5.4: Sources of the Risk Data Set

Risk	Source
1 Over-reliance on a single IT provider for all key information systems	Independently validated Cynefin sample, which in turn drew on multiple sources (See Chapter 3), with amendment and generalisation and substantial additional detail to fit the needs of the research to address Research Question Two
2 Failure to implement corporate strategy	
3 Non-compliance with Disability Discrimination Act (DDA)	
4 Office buildings flood	
5 Member of staff suffers serious trip injury at work	
6 There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	
7 Death or serious injury to vulnerable child / children in the local authority area	
8 Lack of private sector capacity for required level of residential and nursing home placements for older people	
9 Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	
10 Housing rent arrears exceed specified performance requirements	
11 Senior manager abuses his position to obtain high value fraudulent payments from suppliers	
12 Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises	
13 Breach of EU procurement directives on major procurement	
14 Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	
15 Failure to effectively plan and prioritise for future capital investment requirements	
16 The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	
17 Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	
18 Joint local and national elections run poorly	
19 Failure to respond to need for organisational change and performance improvement	
20 Changes to the economic environment make the Council economically unstable	
21 A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively	
22 The relationship between the elected council and the chief executive breaks down	Directly derived from possible narrow interpretation of ISO 31000
23 Failure to achieve Corporate Objective CO3 to develop and support a sustainable and economically thriving community	A local authority's risk register
24 Large loss on investment	A local authority's risk register
25 Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations	Researcher's professional experience - added to contrast uncertainty of occurrence and uncertainty of outcome
26 The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption	Risk Event Database – the risk provides the potential to draw on issues of <i>News Values</i>
27 A contractor makes a minor mistake which is reported in the national media	Annual Audit Letters analysis
28 The implementation of the new payroll system fails	Risk Event Database
29 Whistle-blowing case mishandled	Risk Event Database
30 Administrative error causes inconvenience and small financial loss to large number of local people	Risk Event Database

The stated sources were used to identify the risks for the risk data set and to start to populate the data template. Additional sources were sought and used to complete this process. A number of internal audit reports obtained directly and confidentially for the research proved to be particularly

useful for identifying controls and issues of control confidence. As explained below, a number of changes to the initial data set were made during the validation process.

The size of the risk data set was the result of a number of factors:

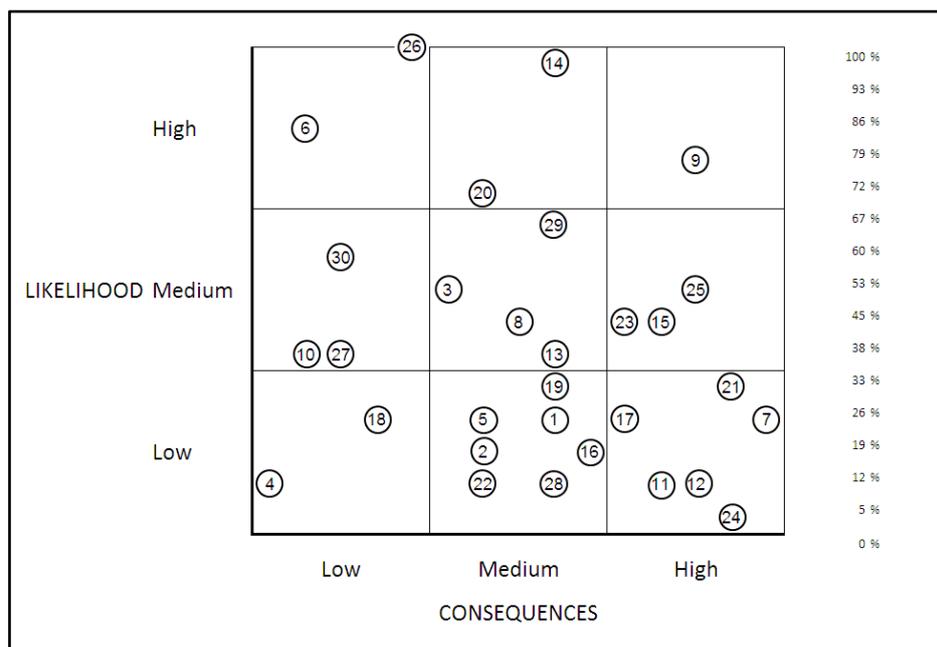
- A need to ensure that a substantial range of local authority strategic risks and activities generating risk were included to provide a meaningful and credible source of modelling data;
- The stratified sampling for the Cynefin sample⁷² provided a significant contribution to achieving this but, as indicated in Table 5.4, the subsequent research identified additional risks and issues that needed to be explored in the risk modelling and so necessitated an extension of the sample;
- A desire to create and work with a set of risks that was of a similar size to a typical local authority risk register; and
- A pragmatic need to develop, refine and validate the data set within the time available⁷³, the priority being to have a meaningful and reliable data set of high quality, rather than a larger set of poorer quality that might undermine the credibility of the subsequent modelling.

5.4.4.1. Validation of the Risk Data Set

The risk data set was designed to be a critically important element of the research to address Research Question Two and needed to be reliable. It was, therefore, designed carefully, drawing on multiple, complementary sources, and subjected to a number of validation checks.

The first check was to ensure that there was a reasonable spread of risks. To test this, a simple judgemental 3 x 3 risk matrix was defined and the risks plotted into it, as presented in Figure 5.3.

Figure 5.3: Judgemental Analysis of Risk Data Set to Ensure Reasonable Spread of Consequence / Likelihood Combinations



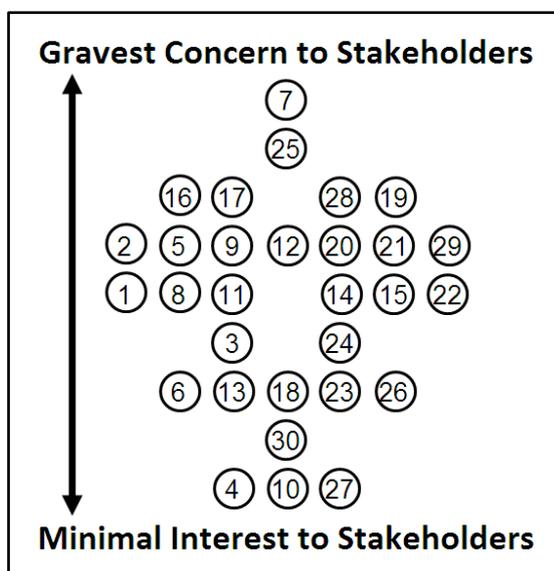
⁷² See Tables 3.9 and 3.10

⁷³ The total time taken for the thirty risks was about ten weeks

This analysis was undertaken on the basis of the most likely residual case data and five adjustments to the data set were made to ensure a reasonable spread and to ensure that risks were located in all of the cells in the simple, judgemental risk matrix. The risk data set was found to have a number of potential *Black Swans*⁷⁴ and so to present the means to ensure that the risk models treated such risks appropriately.

A judgemental check was then carried out to ensure that the risk data set presented a wide range of potential stakeholders' levels of concern. The analysis was undertaken by defining a simple judgemental score of 0, 1 or 2 for the deemed stakeholder concern factors of injury, death, infringement of privacy, being badly let down by the local authority, the potential for emotional harm and whether a substantial number of stakeholders might be affected. These scores were added and the risks ranked on the basis of these totals. The results of this analysis are presented in Figure 5.4 and indicated a good spread of stakeholder concern factors in the risk data set.

Figure 5.4: Judgemental Analysis of Risk Data Set to Ensure Varied Range of Potential Stakeholder Concerns



The data for each risk was also reviewed to check the progress in the apparent seriousness of the consequences from the best to the most likely and then to the worst case values and the reasonableness of the progression of the likelihood values for the three cases. The stated consequences and key stakeholders were checked for consistency and two additions to the latter made as a result.

After the risk modelling had been completed, the risk data set was discussed and shown to the interviewees in the two validation interviews. Both indicated that they thought the data set was a reasonable and representative one. However, the level of detail in the data set and the five minutes or so spent by each interviewee reviewing it mean that only limited assurance can reasonably be taken from their comments.

Before using the case study and risk data set for the risk modelling, they were carefully reflected on and these reflections are recorded as research results in Sections 6.6.1 and 6.6.2.

⁷⁴ The low, and very low, likelihood / high consequence risks in the risk matrix

5.5. Risk Modelling

5.5.1. Modelling Objectives and Approach

Having answered Research Question One concerning the nature of strategic risk in local authorities and the elements of Research Question Two concerning the dimensions and key aspects of such risk and current practice and guidance on assessment, the final stage of the research was to explore alternative assessment approaches, informed by the preceding research findings. The previously stated objective was to achieve Cepiku's (2011) ambition of "*carrying out academic research to produce conceptual systems for public managers to use to guide their actions*"⁷⁵, namely an approach to risk assessment that could be applied in local authorities.

Haimes et al (2002) advise that "*any [risk modelling] methodology must be comprehensive and holistic, addressing the hierarchical institutional, organizational, managerial, and functional decision-making structures*"⁷⁶. This has formed the started point for the risk modelling. From the review of documented current practice and the supplementary interviews this has led to the conclusion that, in the local authority context, risk assessment models should:

1. Be able to reliably assess the full range of strategic risks that could face a local authority;
2. Be able to be used by operational mangers and other staff, usually with the support of an in-house risk specialist who may have limited time in which to provide that support;
3. Be able to generate consistent risk assessment results when used by different assessors and at different times, again usually with the support of an in-house risk specialist who may have limited time in which to provide that support;
4. Not require demanding probability or likelihood judgements to be made;
5. Be able to be tailored to the specific construction of risk at each individual local authority;
6. Produce risk assessments that can be readily reviewed and their basis clearly understand, for example when the risk assessment process is subject to audit and review by the internal or external auditor;
7. Generate outputs which can be presented to senior management for review and amendment, as deemed necessary and appropriate and which can, in turn, be presented to elected members for further scrutiny and decision-making, the two presentation formats and contents being able to be tailored to the needs of each audience and so not necessarily the same; and
8. Avoid making unnecessary demands on increasingly limited resources of the local authorities using it.

In addition, it would be desirable for the model to embrace elements of current practice to minimise the need for change and to be perceived to *follow sector norms*.

These timely reminders and significant insights were carefully considered in the model design, as explained in Section 6.8. The final evaluation of the most promising model to emerge from the research is contained in Section 6.8.6.

⁷⁵ ibid pp 131 - 132

⁷⁶ Ibid p385, this paper has been cited frequently (145 times as at 08/02/14 per Google Scholar)

5.5.2. Risk Assessment Models

The risk assessment models are summarised in Table 5.5. They were developed to reflect and explore the key threads emerging from the literature and the preceding research, starting with a simple model derived from the *Rocks and Pebbles* conceptual model, progressing to risk matrix approaches, exploring initial crisp and then fuzzy approaches, and finishing with an alternative simplified risk matrix approach.

Table 5.5: Risk Assessment Models Developed for Research Question Two

Risk Assessment Model	Core Rationale and Objective(s)
a) A simple model derived from the <i>Rocks and Pebbles</i> conceptual model	To explore the potential and limits of the conceptual model and very simple approaches to strategic risk assessment in local authorities.
b) A model that seeks to improve current practice by applying a refined expected value approach and a small (3 x 3) risk matrix, a mature treatment of controls, a clear provision for explicitly assessing stakeholder concerns within the wider impact assessment, and their reliability, and taking into account starting conditions in the risk assessment	To explore the extent to which the identified weaknesses in current practice can be addressed whilst retaining its accessible simplicity, e.g. issues of false equality and other weaknesses inherent in the ordinal scales and other aspects of current practice, whilst also addressing the identified need to reflect key aspect of complexity theory
c) The extension of b) using a larger risk matrix providing greater differentiation between likelihood and impact levels in the risk assessment to address the possible over-simplification necessary for a 3 x 3 matrix	To explore the incremental effects of adding complexity to the developing expected value risk assessment model to address weaknesses in current practice and better reflect the research findings with respect to the nature of strategic risk in local authorities
d) An extension of c) into a multiple consequences risk assessment model	
e) Fuzzy versions of those of b), c) and/or d) which emerge from the research as promising and free from serious flaws	To seek to reflect the uncertain nature of risk and avoid “ <i>false precision</i> ” and its associated effects To explore the extent to which a fuzzy model can be sufficiently accessible to be operationalisable by practitioners given support and guidance
f) A simple variation of b) or c), as assessed to be most appropriate, the approach promoted by the Charity Commission which increases the emphasis of the assessment on the impact dimension	To explore a simple “fix” and its potential to address weaknesses in current practice, or to demonstrate that such an adjustment to current practice would be insufficient, evidencing a need for more fundamental change

The inputs, research outputs and inter-related development of these models are shown in Figure 5.5 and the Linking of Sources and Methods for Risk Modelling in Figure 5.5b.

Figure 5.5a: Development and Objectives of Risk Models

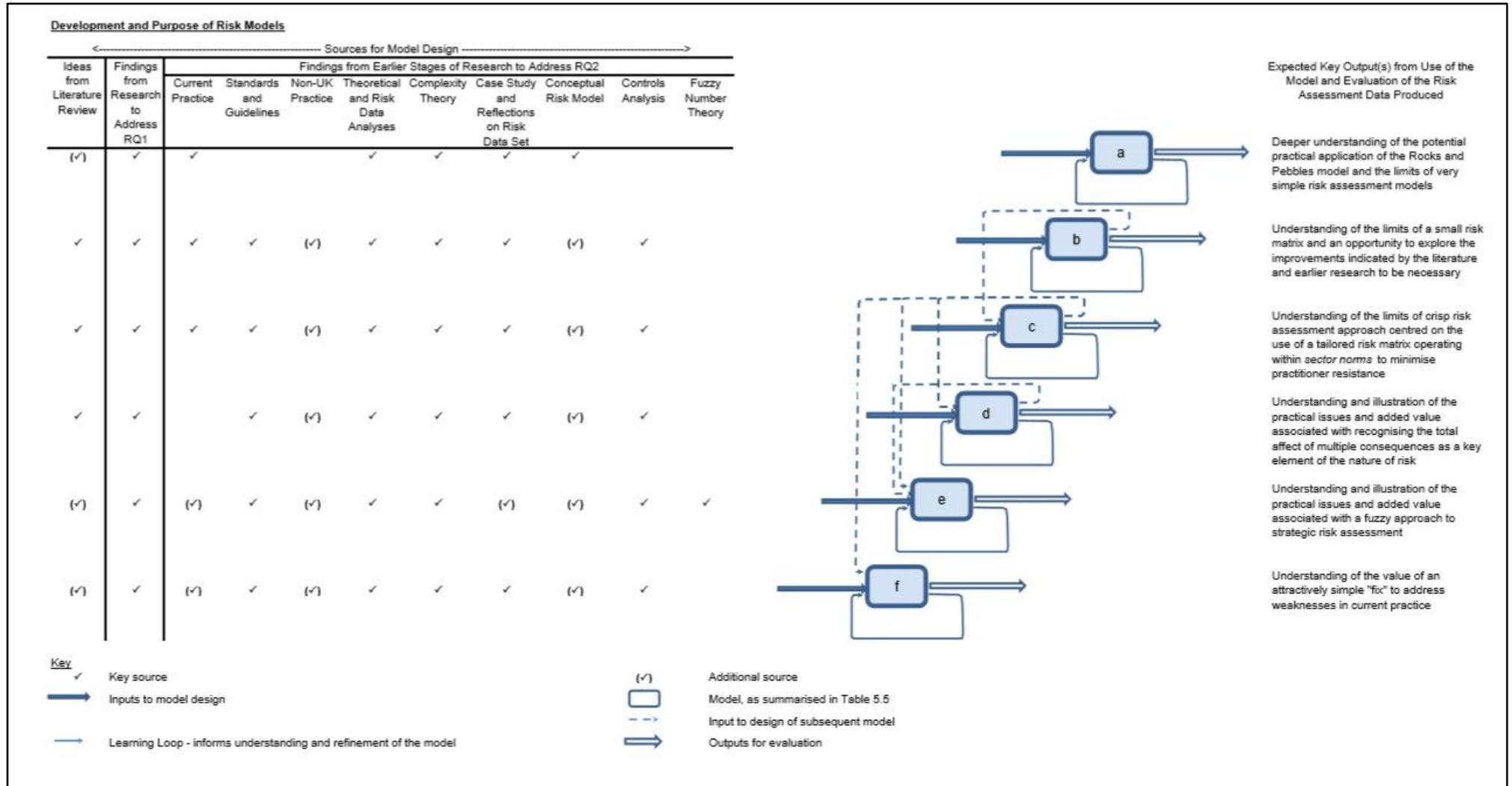
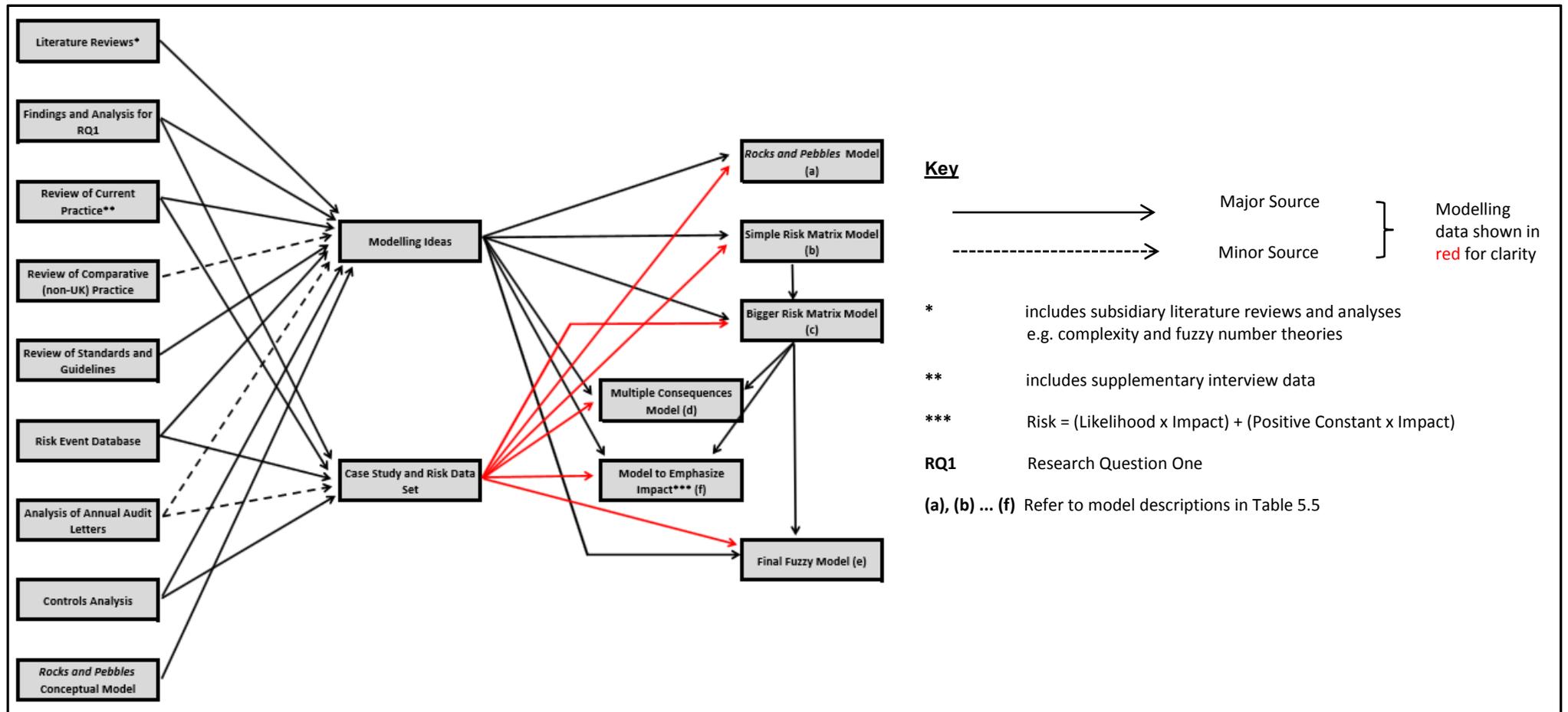


Figure 5.5b: Linking of Sources and Methods for Risk Modelling



The research has followed Pidd's (2003) six modelling principles, as summarised in Table 5.6. Pidd has written widely on the subject of modelling and his principles evolved over a considerable period of time, for example writing about five of these principles in an earlier paper in 1996.

Table 5.6: Adherence to Pidd's (2003) Six Modelling Principles

Principle	How the Research Followed this Principle
1. <i>Model simple, think complicated</i>	<p>The focus on Cepiku (2011) and the provision of conceptual tools for managers to use parallels Pidd's reminder that "<i>models are not just built, they are used</i>". Together they have provided a clear focus on ensuring that risk models are no complicated than they need to be. However, a key question was always that of how simple a risk assessment model could be whilst reflecting the complexities of risk (see Section 5.5.4).</p> <p>The associated principle of <i>requisite variety</i>⁷⁷ set out in Pidd that a control system must be able to match the system that it is controlling has been closely followed and provides a concise summary of the research approach starting with Research Question One as to the nature of strategic risk in local authorities, further exploration of the dimensions and key aspects of risk in the earlier stages of Research Question Two and then using these findings as the building blocks for a series of risk assessment models. The model design and evaluation criteria reflect Pidd's view that "<i>the model and the user form a system</i>"⁷⁸.</p>
2. <i>Be parsimonious, start small and add</i>	This was the approach adopted, as shown in Figure 5.5.
3. <i>Divide and conquer, avoid mega models</i> <i>"the best way to face up to complexity is to break it down into manageable chunks, all the time making sure that the inter-relationships between sub-models are understood"</i> ⁷⁹	The models have directly followed this approach, being built from components, each of which has been developed from the research, e.g. the exploration of the effects of controls (Section 6.4.4) and the relevance of starting conditions from complexity (Figure 6.13)
4. <i>Use metaphors, analogies and similarities</i> <i>"Rather than being restricted to a direct consideration of the problem at hand, it can be helpful to try to get another perspective on things"</i> ⁸⁰	<p>The research has taken this approach through the development of the Rocks and Models conceptual model (See Section 5.4.3).</p> <p>Pidd's advice that "<i>rather than being restricted to a direct consideration of the problem at hand, it can be helpful to try to get another perspective on things</i>"⁸¹ proved to be extremely apposite.</p>

⁷⁷ 2003, p83

⁷⁸ *ibid*, p83

⁷⁹ Pidd (1996, p723)

⁸⁰ 2003, p92

⁸¹ 2003, p92

Principle	How the Research Followed this Principle
<p>5. <i>Do not fall in love with data</i> <i>“Data are no substitutes for careful and analytical thought” (p103)</i></p>	<p>The same data was not used to build and test the model and great care was taken to avoid over-fitting the models to the data.</p> <p>A key flaw identified in the multiple impacts model (Section 6.8.3) was an over-dependence on the completeness of the risk data and its creation of unreasonable demands on practitioners if implemented. The model based on the Charity Commission Risk Model (Section 6.8.5) was found to be flawed, in part, due to issues associated with over-fitting the model to the risk data set and the absence of identified, credible grounds for defining a critical constant within the core algorithm of the model.</p> <p>Care was taken to ensure that the risk data set was not as series of hard cases, with the potential for distortion that that could have brought. The use of the carefully stratified and independently validated Cynefin sample as the basis of the risk data set was a significant contribution to this.</p>
<p>6. <i>Model building may feel like muddling through</i>⁸²</p>	<p>The process thinking in parallel while working on the model, continuously restricting ideas, a concern to understand the modelling context, and jumping from topic to topic whilst developing the ideas for the models and the models themselves, as described by Pidd, is a close reflection of the researcher’s experience and process.</p>

The designed output from each model was an assessment of the level of risk for each risk in the risk data set; examples of the way(s) in which the model could present those risk assessments to inform decision making and increase understanding of the risks assessed; and detailed notes on the operation of the model.

5.5.3. Prototyping, Validation and Testing

Prototype models for all of the above were developed and tested using the sample of twelve risks used for the initial judgemental Cynefin analysis⁸³. This sample was extended to provide the necessary data to test in full in each model. As the objective at this stage was to test the models and not to provide representative data, data values were selected purely to ensure that the models operated reliably and as intended.

All models were developed in Excel, ubiquitous spreadsheet software that is very commonly already used by practitioners. As a result, the models developed could be readily adopted by local authorities with no additional software costs and, with guidance on the models themselves, a minimum of training, thus minimising a possible barrier to implementation.

The *Rocks and Pebbles* model was a standalone model, just as it stands alone conceptually. The other models were developed together. Most importantly, the risk assessment data used by more than one model, for example the crisp and fuzzy assessments based on a larger risk matrix, were

⁸² *“Most Management Science models are would-be representations of the real works that are built so that action may be taken or understanding may be increased. As these are rational artefacts, it might be thought that model-building is a linear and highly rational process.but the evidence suggests that model-building is not a linear and nor is it classically rational. Instead, people seem to “muddle through”, making use of insights, perhaps taking time away from modelling, trying to look at things from different perspectives and so on. This may well indicate how successful analysts actually operate” (ibid, p100)*

⁸³ See Table 3.8

recorded and the assessments then used this same data, avoiding the need for multiple inputs of the same data and the associated greater potential for input errors and inconsistencies. This was also a matter of convenience and reduced the level of testing necessary.

At both the development and use stages, a series of checks were carried out on each model and between models to seek to ensure their reliable and consistent operation, as follows.

Input Checks

1. All data input was rechecked to identify any input errors that had been made
2. The re-inputting of data was avoided whenever possible and data that had already been input and checked linked and used

Functioning Checks

3. The formulae within the spreadsheets were extensively tested
4. Each stage of the modelling, other than the *Rocks and Pebbles* model, built on previous ones and comparison back to those previous models was made extensively to identify and query any apparent inconsistencies

Output Checks

5. The results of each model were brought together within the spreadsheets and without being re-input, to enable them to be compared and any differences highlighted and investigated, such differences being potentially the result of error or the correct operation of the models and consequently of potential research interest
6. The progression of assessment outputs was compared on the same basis as above, for example to ensure that a residual risk value was no greater than the inherent risk value for the same risk
7. At every stage, the operation and results of each model were questioned to ensure that they were reasonable and appropriate
8. All risk assessments were independently checked against the assessment criteria

In undertaking the above, the researcher's previous experience within the internal audit and accountancy professions proved to be extremely useful, both in terms of overall mind-set and the design and implementation of controls.

5.5.4. The Dilemma at the Heart of the Research

The analysis of risks using the Cynefin model has shown that strategic risk in local authorities can be simple, complicated or complex. The most serious risks tend to be complex. The wider research has identified a range of weaknesses and false assumptions in current practice. Addressing these in the risk assessment models has tended to make the risk assessment approaches more sophisticated and complex.

However, the research has also highlighted a desire, largely driven by expediency, amongst practitioners for risk assessment to be simple and to treat all risks as simple, which the research findings for Research Question One indicate to be fundamentally not the case.

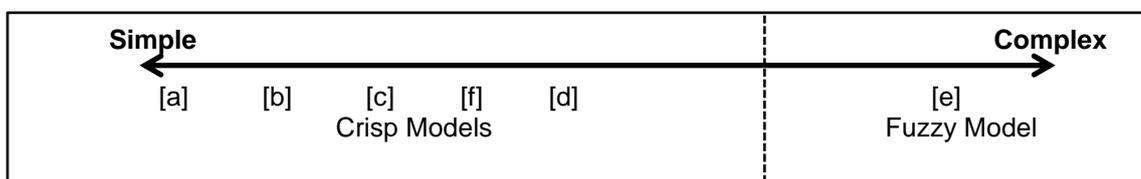
The key question is therefore:

How simple can a risk assessment approach be whilst providing a sufficiently reliable and meaningful assessment of risks that are complex?

The research to answer Research Question One and the early research to answer Research Question Two exposed this dilemma: the final stage of the research to answer Research Question Two has sought to address it.

The research models set out in Table 5.5 and Figure 5.5 progressively explore this balance between the desire for simplicity and the need to embrace complexity, as illustrated in Figure 5.6.

Figure 5.6: The Simplicity / Complexity of the Risk Assessment Models



As stated in Table 5.6, the modelling was guided by the principle “*model simple, think complicated*” set out in Pidd (2003). A critical question was that of how simple would prove to be too simple for the modelling of strategic risk in local authorities, given its complexity. This question has been considered in the light of Grassi et al’s (2009) caution not to over-simplify risk models.

5.5.5. Evaluation

The model evaluation was undertaken into two stages: an initial evaluation, the results of which are presented in Chapter 6, with a full evaluation of the most promising model to emerge from the research. The preceding research clearly established that input from practitioners would be of critical importance and this was achieved by two validation interviews with practitioners who had previously been interviewed at the supplementary interview stage and had indicated a commitment to, and interest in, the research and its findings⁸⁴.

The evaluation criteria were established from the literature, the preceding research and other sources, as shown in Table 5.7.

⁸⁴ The original plan had been to carry out live testing of the most promising model to emerge from the research at a local authority. One local authority initially agreed to participate in this testing and provide access to risk data and staff. Unfortunately that authority subsequently withdrew, citing staff workload as the reason for doing so. A second local authority had been identified as a standby but serious, long-term illness of the key manager meant that this ceased to be possible. Another alternative could not be found.

Table 5.7: Risk Assessment Model Evaluation Criteria

Evaluation Criteria	Source			
	Literature Review	Findings for Research Question One	Findings for Earlier Stages of Research Question Two	Other
1. The extent to which the model's outputs reflect the nature of strategic risk in local authorities		✓		
2. The presence of identified flaws and impediments to practical implementation			✓	First principles
3. The ability of the approach to be tailored to each local authority's individual construction of risk and to subsequently be changed as that construction changes			✓	
4. The ability to produce meaningful and accessible risk assessment information that supports effective decision-making and increases understanding of the risks assessed	✓		✓	
5. Suitability for practical implementation at a local authority and the achievement of Cepiku's (2011) research ambition of <i>"carrying out academic research to produce conceptual systems for public managers to use to guide their actions"</i> ⁸⁵			✓	Cepiku and the defined research objective
6. The ability to reflect the uncertainty that is inherent in strategic risk	✓	✓	✓	
7. The added complexity over simpler models is justified by the added-value over those simpler models	✓		✓	Pidd's First Modelling Principle
8. The model works as intended, for example to capture <i>Black Swans</i> and achieve the core design objectives as summarised in Table 5.5 and Figure 5.5.	✓	✓	✓	Fundamental objective of any model
9. Overall compliance with Pidd's <i>Six Modelling Principles</i>				Pidd

5.6. Summary of the Methodology for Research Question Two

This chapter presents the methodology for the second and final research question, building on the literature review and the findings of the research to address Research Question Two. The research is in two stages, the initial analysis and the modelling and continues to integrate them with the motivation and practitioner-focussed research approach set out in the Introduction to establish the methodology by which the research has sought to address the identified gaps in the literature.

Table 5.1 identifies the links between the Gaps in Knowledge with respect to Research Question Two and the methodology described in this chapter.

The results of the research following the methodology in this chapter and consideration of their meaning and implications are set out in Chapter 6 and include a final evaluation and discussion of the results of the most promising risk assessment model to emerge from the research.

⁸⁵ *ibid* pp 131 - 132

Chapter 6

Results and Analysis for Research

Question Two

6.1. Introduction

This chapter presents the results of the research to address Research Question Two. This research has followed the methodology in Chapter 5.

The Chapter follows the order in which the methodology is described in Chapter 5, progressing from the review of current practice in the UK and beyond, through a review of risks from multiple sources and subsidiary literature reviews and analysis with respect to complexity, fuzzy approaches, scenario planning controls and stakeholders, and ending with the results of modelling the risk assessment approaches developed for the research.

The analysis of the results of each stage of the research and the subsequent reflection is presented after those results to ensure a smooth flow into later stages of the research which build on and, in some cases, derive from those earlier results and analyses.

6.2. Review of Current Practice in the UK and Beyond, and Relevant Standards and Guidelines

This section starts by presenting the results of the review of documented risk assessment practice in English local authorities. It then adds to this by presenting the results of the supplementary interviews and the results of the review of documented practice at local authorities and comparable bodies outside the UK. It finishes by presenting the results of the review of relevant standards and guidelines.

6.2.1. Document Analysis and Supplementary Interviews

6.2.1.1. Document Analysis

Code 33, which emerged from the supplementary interview data for Research Question One (See Table 4.3), indicated a tendency in the local government sector to *follow sector norms*. That is, to adopt the methods used by other local authorities rather than to innovate, perceiving *following the sector norms* to bring greater credibility within the sector. The results of the review of documented risk management approaches are consistent with this interview data. A high level of consistency in the core approach has been identified. The overall position identified can be generalised to be that the research has found a common core approach to the construction of risk and its assessment, but with significant variation in the detail. The following pages set out the common core and the significant variations. The results presented at this stage also draw on the review of risk registers, these also being local authority risk management documents. The data from this source is not repeated in Section 6.3.1, which includes the further results of the review of local authorities' risk registers.

The Dimensions of Risk in Current Practice

The documented *sector norm*⁸⁶ risk management process in local authorities is easily summarised. The research has found that each local authority's documented risk management process involves a

⁸⁶ See explanation of Code 33 (*following sector norms*) in the preceding paragraph

process for identifying risks and recording them in a risk register. While the terminology varies, all local authorities in the original and validation samples assess the identified risks on the basis of the chance of the risk happening and the outcome(s) of it doing so. The former dimension is in most cases referred to as the likelihood or, less frequently, the probability or, only rarely, the frequency, and the latter dimension as the impact or consequence(s) or, rarely, the severity of the risk. In all cases, these dimensions are split into between three and ten levels, each of which is given a descriptive term, for example *Low*, *Medium* or *High* and *Minor*, *Major*, *Serious* or *Catastrophic* for likelihood and impact / consequences respectively.

Overall, 53% of the original sample were found to refer to probabilities in the explanation of each level of likelihood or probability. In all but one case, this was on the basis of probability bands, for example a “*Possible*” likelihood being defined by one district council as having a probability of between 15 and 55%. Two local authorities in the original sample (6%) made partial reference to probabilities, using them to help define some but not all levels of likelihood. Fifteen local authorities in the original sample (42%) made no reference to probabilities in their documented risk assessment methodologies. Twelve of these just used descriptive terms, for example a *Low* likelihood. In a further two of the fifteen cases, reference was made to expected frequencies, for example the risk event would be expected to happen “*Once every [x] years*”. A significantly different approach to the likelihood dimension of risk was found at just one district council. This local authority determined likelihood with reference to previous experience – both that of the local authority itself and of other organisations - and the presence of relevant controls and the extent to which the effectiveness of those controls had been tested. The approach used in this one local authority is presented in Table 6.1.

Table 6.1: Divergent Approach to Likelihood Assessment at a District Council

<i>Highly Unlikely</i>	<i>Unlikely</i>	<i>Possible</i>	<i>Very Likely</i>	<i>Definite</i>
<i>Previous experience at this and other similar organisations makes this outcome highly unlikely to occur.</i>	<i>Previous experience discounts this risk as being likely to occur but other organisations have experienced problems in this area.</i>	<i>The council has in past experienced problems in this area but not in last three years.</i>	<i>The council has experienced problems in this area in last three years.</i>	<i>The council is experiencing problems in this area or expects to in the next 12 months.</i>
<i>There are effective, tested and verifiable controls in place that prevent occurrence of this risk.</i>	<i>There are controls in place that whilst not tested appear to be effective.</i>	<i>Some controls are in place and generally work but there have been occasions when they have failed and problems have arisen.</i>	<i>Controls may be in place but are generally ignored or ineffective.</i>	<i>No controls are in place.</i>

(Source: A District Council)

No indications of alternative approaches to those found in the original sample were identified within the validation sample and the approach in Table 6.1, or a similar approach, was not found in the validation sample.

The local authorities in the original sample have defined between three and ten levels of likelihood and a range of descriptors for each of these levels of risk. These are presented in Table 6.2.

Table 6.2: Likelihood Descriptors used in Documented Current Practice

Low			Medium				High			x5		
Remote		Unlikely			Likely / Possible		Very Likely					
Extremely Remote		Remote			Reasonably Probable		Probable					
Unlikely		Possible			Probable		Certain					
Unlikely		Possible			Probable		Almost Certain					
Unlikely		Possible			Likely		Very Likely					
Low		Medium			High		Very High					
Rare or Never		Occasional			Often		Frequent					
Rare		Unlikely		Possible		Likely		Almost Certain		x3		
Rare		Possible		Likely		Highly Likely		Almost Certain				
Rare		Possible		Likely		Very Likely		Almost Certain				
Improbable		Remote		Possible		Probable		Almost Certain				
Highly Unlikely		Unlikely		Possible		Very Likely		Definite				
Very Unlikely		Unlikely		Possible		Likely		Very Likely				
Remote		Unlikely		Moderate		Likely		Almost Certain				
Very Low		Low		Medium		High		Very High		x2		
Almost Impossible		Very Low		Low		Significant		High		Very High		x7
Almost Impossible		Very Low		Low		Medium		High		Very High		
Almost Impossible		Low		Moderate		Significant		High		Very High		
Unlikely		Very Low		Low		Medium		High		Very High		
Very Unlikely		Unlikely		Possible		Likely		Very Likely		Certainty		
Incredible	Improbable	Remote	Remote	Occasional	Occasional	Probable	Likely	Frequent				
Almost Certain Not To Occur	Very Unlikely / Remote Chance	Unlikely	Not Very Likely	Even Chance	Fairly Likely	Significant	High Likelihood	Almost Certain	Certain / Inevitable			

Note: The annotation “x2” indicates, for example, that this set of terms has been identified at two of the local authorities in the original sample.

The likelihood descriptors in Table 6.2 are not aligned on the basis of the indicated chance of the risk event occurring. In a number of cases, no such indications are given. The clearest conclusion from the data would seem to relate to the lack of clarity provided by the descriptors. For example, *Likely* and *Possible* are treated as synonymous at one local authority but indicative of different levels of likelihood at seven others. The clearest descriptors would seem to be some of those used for very low and very high likelihoods, for example *Almost Impossible* and *Almost Certain*. The two cases of likelihood being defined in more than six levels show a clear lack of differentiation between those bands.

Overall, the lack of consistency in the descriptors used appears to indicate that they should only be used as an indicator of likeliness in conjunction with others, perhaps indicative probabilities, and cannot form an objective indication of likelihood that can be reliably used independently of any other indicators of likelihood.

Table 6.3 sets out the documented descriptors for the consequence / impact dimension of risk within the original sample.

Table 6.3: Consequence / Impact Descriptors used in Documented Current Practice

Low			Medium			High			x5		
Negligible		Marginal		Critical		Catastrophic		x5			
Negligible		Marginal		Significant		Critical					
Negligible		Marginal		High		Critical					
Negligible		Marginal		Major		Critical					
Negligible		Moderate		Serious		Major					
Negligible		Substantial		Critical		Extreme					
Minor		Significant		Serious		Major					
Low		Medium		Significant		High					
Minor		Medium		Major		Catastrophic					
Minor		Medium		Serious		Major					
Low		Moderate		Serious		Catastrophic					
Low		Medium		High		Very High					
Minimal		Noticeable		Bad		Disaster					
Insignificant		Minor		Moderate		Major		Extreme			
Insignificant		Minor		Moderate		Major		Catastrophic			
Insignificant		Minor		Moderate		Major		Disastrous			
Insignificant		Minimal		Moderate		Significant		Severe			
Negligible		Low		Medium		High		Very High			
Negligible		Slight		Moderate		Critical		Catastrophic			
Very Low		Low		Medium		High		Very High			
Negligible		Very Low		Low		Medium		High		Very High	
None	Insignificant	Minor	Moderate	Significant	Significant	Substantial	Major	Catastrophic			
Negligible	Minimal	Some	Minor	Limited	Significant	Substantial	High	Critical	Catastrophic		

Note: The annotation “x5” indicates, for example, that this set of terms has been identified at five of the local authorities in the original sample.

Like Table 6.2, Table 6.3 is designed to show the descriptors used, the number used and frequency with which they have been used within the original sample. Differences in their application, for example any associated quanta of impact, mean that the tables cannot be taken as an indication of the alignment of the terms between different local authorities. For example, the term *Catastrophic* in the second row of Table 6.3 can be seen to have been used by seven local authorities to described the highest of four levels of impact but should not be interpreted to indicate that each of those local authorities have assigned the same meaning to it. They have not. Similarly, it should not be assumed to align precisely with the other descriptors used by those local authorities that have defined four levels of impact, for example *Critical*, *Major* or *Disaster*. In contrast to the likelihood descriptors, the impact / consequence descriptors provide a significant element of consistency, for example in the frequency of the use of *Negligible* / *Insignificant* for the lowest level and *Catastrophic* / *Disaster* / *Disastrous* / *Critical* for the highest. The two cases of impact / consequence being defined in more than six levels show a clear lack of differentiation between those bands.

The clearer differentiation of impact / consequences by the descriptors than was found to have been achieved by the likelihood descriptors is consistent with the literature and the conclusions contained therein about difficulties understanding and applying probabilities to risk assessment⁸⁷. The validation sample did not indicate any significant departures from Table 6.2 and 6.3.

The construction of the consequence / impact dimension of risk varies between local authorities. All the local authorities in the original sample have documented banded definitions and allocate a descriptor to each of these. In almost all cases the documented approach also contains a table setting out the scope of each band. An example is provided in Table 6.4. The small number of exceptions document the likelihood and impact categories in terms of the descriptors with no indications of their meaning or intended scope.

Table 6.4: Example of a Local Authority's Documented Impact Assessment Table

Score - 1 Negligible	Score - 2 Low	Score - 3 Medium	Score - 4 High	Score - 5 Very High
Little or no financial impact (less than £5,000).	The financial impact would be losses or loss income of no greater than £25,000.	The financial impact would result be losses or loss income of no greater than £100,000.	The financial impact would result be losses or loss income of no greater than £500,000.	The financial impact would be greater than £500,000.
Council services are not disrupted.	Some temporary disruption to the activities of one council service but not beyond this.	Regular disruption to the activities for one or more council service.	Severe service disruption on a departmental level or regular disruption affecting more than one department.	Severe disruption to the activities of all council departments.
No impact on the delivery of the council's corporate objectives.	It may cost more or there may be delay in delivery one of the council's corporate objectives.	A number of corporate objectives would be delayed or not delivered.	Many corporate objectives delayed or not delivered.	Unable to deliver most objectives.
No loss of confidence and trust in the council.	Some loss of confidence and trust in the council felt by a certain group or within a small geographical area.	A general loss of confidence and trust in the council within the local community.	A major loss of confidence and trust in the council within the local community.	A disastrous loss of confidence and trust in the council both locally and nationally.

(Source: A District Council)

In this case, impact is defined as a potential combination of four factors, namely:

1. Financial loss;
2. Disruption to council services;
3. Impact on the achievement of the council's corporate objectives; and
4. The loss of trust and confidence in the council.

Table 6.5 summarises the elements of the consequence / impact dimension of risk in the documented approaches in the original sample. The table is sorted into the decreasing order of frequency and banded to provide a clearer focus on the more and less frequently defined elements of the consequence / impact dimension of risk.

⁸⁷ Section 2.7.2

Table 6.5: Documented Construction of the Consequence / Impact Dimension of Risk

Impact / Consequence	Frequency		
Service Disruption	34	94%	More than 75%
Financial Loss	32	89%	
Reputation Damage or Embarrassment	32	89%	
Harm to People	28	78%	
Achievement of Objectives	21	58%	Between 50% and 75%
Breaking the Law / Failure to Meet Legal Responsibilities	19	53%	
Environmental Damage	10	28%	Between 25% and 50%
Manageability / Ability to Recover	8	22%	Between 10% and 25%
Personal Privacy Infringement	6	17%	
Success and Delivery of Projects	6	17%	
Additional Government or Regulatory Interest and Intervention	6	17%	
Adverse Effects on Staff Morale	5	14%	
Damage to Property / Loss of Assets	4	11%	
Opportunities Missed	4	11%	
Not Meeting Stakeholder / Service User Expectations	3	8%	
Number of People Affected	2	6%	Less than 10%
Adverse Effects on the Local Community	1	3%	
Delivery of Government Policy	1	3%	
Disciplinary Action Required Against Staff	1	3%	
Failure of Governance Arrangements	1	3%	
Breach of Internal Standards	1	3%	

(n = 36)

Individual local authorities document up to eleven of the twenty-one impact categories, though most use between five and nine. The validation sample did not identify any new elements of the consequence / impact dimension but did identify the same core elements.

Table 6.6 presents the analysis of the impacts in Table 6.5 against a smaller number of wider impact types. This analysis is the final stage of an iterative process from which this final set of impact categories evolved.

Table 6.6: Refinement of Impact Categories

No.	%	Category of Impact from Review of Current Practice Documents	Summary Categories for Further Analysis						Possible Meta Analysis for Defining Impact Levels	
			Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage		Betrayal of Trust
34	94%	Service Disruption				✓			(✓)	
32	89%	Financial Loss	✓							
32	89%	Reputation Damage or Embarrassment					✓			
28	78%	Harm to People		✓					✓	
21	58%	Achievement of Objectives			✓				(✓)	
19	53%	Breaking the Law / Failure to Meet Legal Responsibilities					✓		(✓)	
10	28%	Environmental Damage					✓		(✓)	
8	22%	Manageability / Ability to Recover								✓
6	17%	Personal Privacy Infringement		(✓)					✓	
6	17%	Success and Delivery of Projects				✓				
6	17%	Additional Government or Regulatory Interest and Intervention					✓			
5	14%	Adverse Effects on Staff Morale		(✓)		✓			(✓)	
4	11%	Damage to Property / Loss of Assets	✓			(✓)				
4	11%	Opportunities Missed			(✓)	(✓)				
3	8%	Not Meeting Stakeholder / Service User Expectations			(✓)	(✓)		(✓)	✓	
2	6%	Number of people affected		(✓)		(✓)		(✓)	(✓)	
1	3%	Adverse Effects on the Local Community				✓			✓	
1	3%	Delivery of Government Policy					(✓)			
1	3%	Disciplinary Action Required Against Staff			(✓)				(✓)	
1	3%	Failure of Governance Arrangements					(✓)			
1	3%	Breach of Internal Standards					(✓)		(✓)	

(Note: (✓) indicates a partial correlation or one that might arise in some circumstances only)

It was not possible to cover all the categories identified in current practice in less than the seven in Table 6.6 whilst retaining a good degree of clarity. The Betrayal of Trust category has the potential to be used as a catch all but quickly loses clarity if this is done, leading to difficulties in its consistent application. The meta-analysis column is the result of the conclusion that the *Manageability / Ability to Recover* category identified in current practice relates not to the type of impact but to the significance of the level of impact and so should be treated differently.

In all but two of the original sample, a time horizon for the risk assessment is not stated. That is, the likelihood is not linked to a time period and the consequences / impact are similarly not defined as being within a specific period of time. One unitary authority states that the financial loss element of

impact / assessment is for that for one year but does not otherwise refer to the time horizon and a district council explicitly states that the assessment is to be undertaken on the basis of a three-year time period. This local authority documents two bases for the likelihood assessment; the firstly references probability bands and the second expected frequencies. The two reveal significant inconsistencies. For example, a *significant* likelihood is defined as being between 25% and 60% likely to happen over the three year time horizon and to be expected to happen within the *next year*. The latter is a substantially greater likelihood than the former. One element of a number of consequence / impact assessment models does provide a time reference. As shown in Table 6.8, a service interruption element of consequence / impact is defined by reference to the period of interruption by a number of local authorities. The validation sample similarly lacks significant time period references other than for the service interruption element of impact / consequences, with just one local authority explicitly stating that the likelihood assessment is within a five year period. Overall, this seems to be a significant gap in practice, for clarity and consistency, the likelihood and impact assessments should be stated within the assessment model as being within a defined time horizon.

The documented approaches vary as regards issues of literal adherence and judgemental adjustments to assessed risk levels, as summarised in Table 6.7.

Table 6.7: Provision for Judgemental Adjustment to Risk Assessments

	Judgemental Adjustments are Explicitly Encouraged	Judgemental Adjustments are Permitted	The Definitions are So Vague that Precise Interpretation is Not Possible	Judgemental Adjustments are Not Provided For	Judgemental Adjustments are Explicitly Forbidden
Frequency	2	10	5	18	1
%	6%	28%	14%	50%	3%

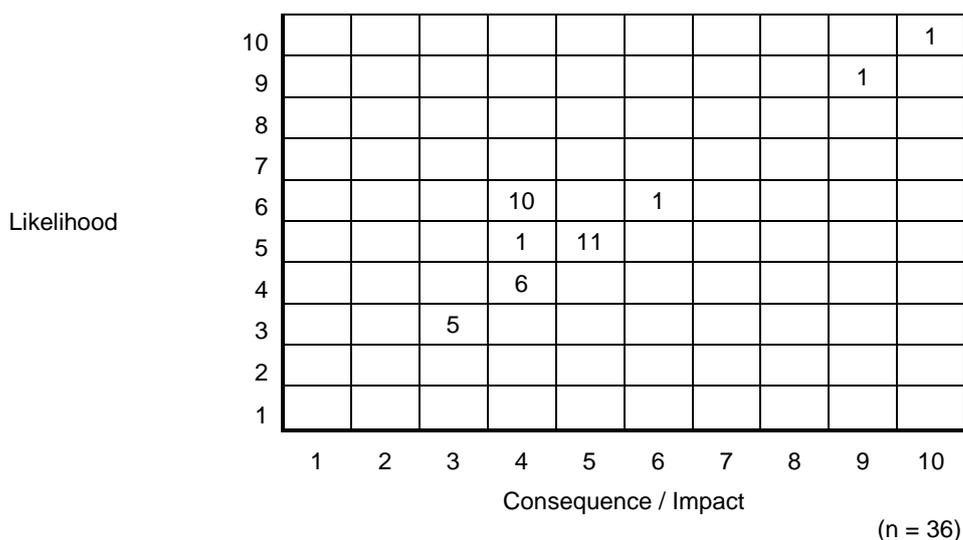
(n = 36)

Overall, seventeen (47%) explicitly or implicitly allow for judgemental adjustments and nineteen (53%) do not. Hence, in about a half of the local authorities, those assessing risks are documented to be expected to directly apply the specified assessment criteria and in about half they appear to be permitted, and in a few cases encouraged, to vary the assessment on an individual risk basis if the documented criteria would otherwise be deemed by the risk assessor to lead to an inappropriate result. An example of the latter is that of a district council whose documented approach states that the "*criterion against each [impact] score is to be used as a guide and is not an exhaustive list*".

Risk Matrices in Current Practice

All the local authorities in the original and validation samples bring together the likelihood / probability and consequence / impact dimensions in a risk matrix. As a result of the variation in the number of bands in each of the two dimensions, the size of the risk matrices varies from 3 x 3 to 10 x 10. Figure 6.1 shows the variation and frequency of variation in documented risk matrix size and configuration.

Figure 6.1: Risk Matrix Size and Configuration in Documented Practice



Note: The cell values indicate the number of local authorities in the original sample with a risk matrix of this size and configuration

There are three matrix size groups:

1. Small 3 x 3 matrices describing likelihood and consequence / impact on a Low / Medium / High basis – these have been identified primarily at district councils (four out of the five);
2. Intermediate matrices with 4, 5 or 6 levels in each dimension – these have been identified at all types of local authority and Figure 6.1 shows that these are the most common; and
3. Large risk matrices with 9 or 10 levels in each dimension – these have only been found at two unitary authorities.

The risk assessment models for the thirty-six local authorities in the original sample provide a varyingly clear differentiation between the likelihood and consequence / impact levels for the small and intermediate matrices in most cases. Those that provide reference probability ranges provide a clear differentiation between the likelihood levels, for example a district council with a *Likely* range from 41 – 75% and a *Very Likely* range above 75%. The financial loss consequences / impact levels are usually defined with reference to monetary amounts and so are similarly clear, for example the same district council defines a *Very High* impact as being, in part, one causing a loss of more than £150,000. The clarity of the descriptions of the non-financial impacts is more varied. These range from service interruption levels clearly defined in terms of the length of time in which a service would be anticipated to be interrupted but with little indication as regards the level of disruption in some cases, through reputation damage defined with reference to the form of adverse publicity⁸⁸, to qualitative impact described in terms of serious, minor, major or other adjectives which are not defined or differentiated. An example of the latter is a district council that describes a *Low* legal impact as being one involving *Minor* civil litigation, and a *Medium* legal impact as being one involving *Major* civil litigation. To add to the interpretive difficulties, in neither case is reference made to the outcome of the litigation. The risk assessment models at the two local authorities with large (9 x 9

⁸⁸ For example critical letters published in a local newspaper, critical comment in the national media or, in a few cases, specification of the type of national newspaper in which the critical or adverse comment is published (that in broadsheet newspapers being considered to be more serious than that in tabloid newspapers)

and 10 x 10) risk matrices were both been found to be difficult to apply for two reasons. Firstly, the interpretive difficulties described above and, secondly, the distinctions between the likelihood and consequence / impact levels lack clarity and require a particularly precise sense of the outcome of a risk event.

Ambiguity in Current Practice

The data and results of the comparison of the impacts / consequences that the local authorities in the original sample deem to be equivalent to a member of the public being permanently disabled, disregarding consequential impacts, for example any subsequent legal action and costs, are contained in Appendix 5. Examples to illustrate the variations are contained in Table 6.8. The full data and results are grouped by local authority type to aid comparison within and between the different types of local authority. Those local authorities which do not consider harm to people as an element of the consequence / impact dimension of risk are not shown in the analysis.

In a number of cases, the description of the harm to people at each level of consequence / impact is such as to make it unclear how the permanent disability would be assessed. In these cases, the terminology provided has been quoted in the final column of the table and where it was not clear which of two levels applies, comparisons to both have been drawn. The data provides a clear sense of the identified variability of the local authorities' risk assessment models as regards the seriousness attributed to a permanent disability but is not intended to provide a complete summary. Such a summary would be overly detailed and perhaps cloud the key issues that emerge from the analysis.

The data and results of the second comparison are presented in Appendix 6 and illustrated in Table 6.9.

Table 6.8: Illustrative Examples of Consequences / Impacts Deemed to be Equivalent to a Permanent Disability

Local Authority Type	Financial Loss	Reputation Damage / Publicity	Other	Definition of Harm to People Assumed to Embrace the Permanent Disability and Notes
District	£5k - £10k	Negative local media but not widespread	<ul style="list-style-type: none"> • Service failure impacts on property or non-vulnerable groups • Expected impact but manageable within contingency plans 	<i>Extensive, permanent / long term injury or long-term sick</i>
District	£500k - £1m	Coverage in national press and/or low national TV coverage	<ul style="list-style-type: none"> • Requires resignation of Head of Service/Director • Major damage to local environment • Longer-term damage to reputation 	<i>Extensive/multiple injuries</i>
County	£1m - £10m	Coverage in national broadsheet press and/or low level national TV reporting	<ul style="list-style-type: none"> • Major disruption • Serious damage to authority's ability to service customers (loss of service between 2 and 7 days) • Major damage to local environment 	<i>Extensive multiple injuries</i>
London Borough	£2.5m - £5m	Adverse publicity in professional / municipal press, affecting standing in professional / local government community	<ul style="list-style-type: none"> • Major loss of an important service area • Service Disruption: 3-5 Days • Service Resource Diversion: Up to 60% 	<i>Severe injury to an individual or several people, requiring immediate hospitalisation</i>

Table 6.9: Illustrative Examples of Financial Consequences / Impacts Deemed to be Equivalent to Breaking the Law

Local Authority Type	Stated Position as Regards Breaking the Law	Financial Equivalence
District	<i>Breaches of law punishable by fine</i> <i>Breaches of law punishable by imprisonment</i>	Financial loss £100k - £1m Financial loss > £1m
District	<i>Legal action expected / Non-compliance with law resulting in fines</i> <i>Legal action almost certain and difficult to defend</i>	£5k - £10k > £10k
District	<i>High risk of successful legal challenge with serious implications</i> <i>Very serious risk of successful legal challenge with substantial implications</i>	£500k - £1m >£1m
Unitary	The focus is on attracting the attention of legislative / regulatory bodies as an element of reputation damage, not to breaking the law per se	-
Unitary	<i>Litigation likely and may be difficult to defend / Breaches of law punishable by fines or possible imprisonment</i> <i>Litigation certain and difficult to defend / Breaches of law punishable by imprisonment</i>	<i>Major financial loss which will have a major impact on the Council's financial plan</i> <i>Severe financial loss which will have a catastrophic impact on the Council's financial plan and resources are unlikely to be available</i>

The analyses presented in Tables 6.8 and 6.9 illustrate the extent of the ambiguity in the consequence / impact assessment in documented current practice models. Many questions arise, including the following.

- a) What level of impact is sufficient to be *Extensive*, *Serious* and *Major*?
- b) Does the media coverage have to be adverse and, if so, to what degree?
- c) Does the permanent injury have to be a serious one, e.g. the loss of a limb or faculty, or would a scar or reduction in manual dexterity be enough?

The analyses provide a strong indication of the variability of the seriousness which different local authorities assign to similar events. The research has, therefore, identified clear evidence of the ambiguity of risk as discussed by Klinke and Renn (2002) as one of the challenges of risk: one of the over-arching aspects of risk identified in the literature review⁸⁹. Judged by their risk assessment models, harm to people and breaking the law per se appear to be valued differently by different local authorities. This position is replicated in the validation sample.

As indicated by the comparative volume and detail in Tables 6.8 and 6.9, the documented current practice models were easier to apply for the permanent disability than for breaking the law. In part, this was due to the former consequence / impact being clearer. It was also a result of the documented models being easier to interpret and apply for the permanent disability, although as shown in Table 6.8 there were nevertheless still a number of difficulties in interpretation and degree.

Risk Scoring and Overall Risk Seriousness in Current Practice

The documented methodologies take three different approaches to defining the relative seriousness of the cells in the risk matrix.

⁸⁹ See Section 2.6.4

1. Ordinal values are assigned to the likelihood and consequence assessments and these are then multiplied to give a risk score; for example in a 5 x 5 risk matrix the risk scores range from 1 to 25.

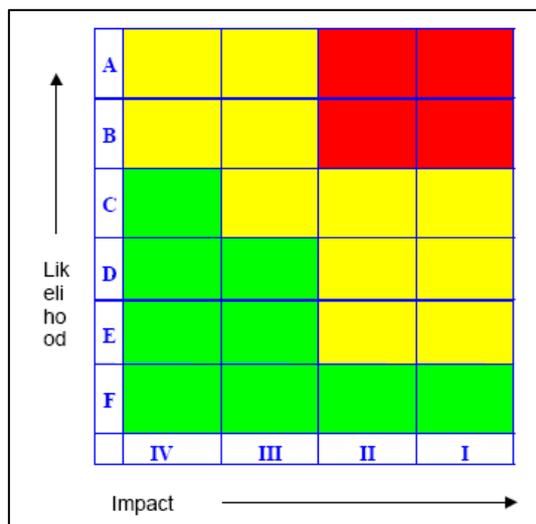
Three, or in some cases four or five, overall levels of risk are defined with reference to the risk scores, with the cells in the risk matrix being colour-coded to show the different levels of seriousness. An example of this approach is shown later in Figure 6.4.

One variant on this approach was identified in the original sample whereby the likelihood assessment was assigned ordinal values starting at one and increasing in increments of one and the impact assessment assigned values starting at one and increasing in increments of two. The effect is to make the risk score more sensitive to the impact dimension than the likelihood dimension.

2. Ordinal numeric and alpha values are assigned to the two dimensions and brought together to provide cell references, for example D3, which do not imply a risk score.

The cells are then judgementally colour-coded to reflect deemed levels of seriousness, again most commonly using three levels of seriousness. Figure 6.2 provides an example of this approach.

Figure 6.2: Example of a Local Authority Risk Matrix with Numeric and Alpha Values for Impact and Likelihood



(Source: A District Council)

3. The likelihood and consequence assessments are not assigned values, instead judgemental values are assigned to the cells of the risk matrix and these colour coded to reflect deemed levels of seriousness, again most commonly using three levels of seriousness. Figure 6.3 provides an example of this approach.

Figure 6.3: Example of a Local Authority Risk Matrix with Judgementally Assigned Cell Values

RISK ASSESSMENT MATRIX				
IMPACT ON SERVICES	HIGH			
		6	7	9
	MEDIUM			
		3	5	8
	LOW			
		1	2	4
		LOW	MEDIUM	HIGH
	LIKELIHOOD OF OCCURENCE			

(Source: A District Council)

The colour-coding of the risk matrix defines the local authority's risk appetite. The terminology assigned to the levels of overall risk varies. However, the consistent sense is that the lowest level of risk (usually shown in green and referred to by some local authorities as *green risks*) is deemed to be minor and not of significant concern; the intermediate level of risk (typically shown in yellow or orange and referred to by some as *yellow, orange* or *amber risks*) is deemed to be significant and in need of management attention; and the highest level (usually shown in red and referred to by some as *red risks*) is deemed to be the most serious. Documented attitudes to this final, highest level of risk vary between defining them as the most serious risks, needing the greatest and most urgent management attention, and defining them as risks that are unacceptable to the local authority and which must be addressed to reduce the level of risk: the difference being the apparent strength of the imperative to action. Sample cross-referencing of these definitions to the local authorities' risk registers and/or internal risk management reports suggests that the stronger statements are aspirational, requiring, or at least receiving, strict compliance. In each case, risks at this level are recorded in the risk registers and/or internal risk management reports and, in the more detailed documents, accompanied by an explanation of why the risks concerned have had to be accepted and how they are being monitored and managed.

Three approaches to controls have been identified in documented current practice. The first explicitly addresses and defines inherent and residual risk: that is the level of risk before consideration of the effects of any controls that may be in place and the level of risk after taking those controls into consideration. The risk registers for the local authorities taking this approach usually show the two levels of risk and include a summary of the controls. The second, simpler, approach assesses risk on the basis of its current level. In a few cases this is stated to be taking into account the effects of controls and in others controls are not mentioned. The third approach, identified at just one local authority, is shown in Table 6.1. This is the only documented methodology in the original and validation samples that indicates that controls may be other than fully implemented and operating reliably. The aspects of controls considered in this approach are:

- Their effectiveness;
- Whether they are in place and working;
- Whether they have been tested;

- Whether there have been any failures of the controls; and
- The level of compliance.

The literature review⁹⁰ has raised the issues of *Black Swans*⁹¹ and the importance of their being reliably identified. The documented risk assessment approaches have been found largely not to recognise this issue. Only one of the thirty-six in the original sample explicitly refers to such risks and five had a risk matrix that could identify them. An example of a risk matrix that could reasonably be concluded not to recognise Black Swans is provided in Figure 6.4.

Figure 6.4: Example of a Risk Matrix from Documented Practice that Does Not Recognise *Black Swans*

Risk Rankings						
Likelihood/Probability	Almost Certain >80%	5	10	15	20	25
	Likely 51%-80%	4	8	12	16	20
	Possible 21%-50%	3	6	9	12	15
	Unlikely 6%-20%	2	4	6	8	10
	Rare <6%	1	2	3	4	5
		Insignificant	Minor	Moderate	Major	Catastrophic
Impact/Severity						

(Source: A Unitary Authority)

In this example, one could conclude that a 5% (*Rare*) likelihood of a *Catastrophic* Impact might be sufficient to constitute a *Black Swan* and yet it is assessed to be within the lowest level of risk. Less unequivocally, one could certainly question a 20% (*Unlikely*) likelihood of such an impact still being classified as only being an intermediate low level of risk. There was a similarly low level of engagement with *Black Swans* in the validation sample.

Figure 6.4 also indicates the potential problems that can arise from the practice of multiplying ordinal likelihood and impact scores to arrive at an overall risk value. A *rare / catastrophic* risk is assigned the same value (5) as an *almost certain / insignificant* one. Within the risk management strategy of the local authority concerned these levels of impact include *death* and *no obvious harm / injury* respectively. It is not credible that a 5% chance of a death is no more serious than an 81% chance of a trivial scrape which does not even leave a bruise. This is a false equality and one of many that have been identified in current practice models in both the original and validation samples. The sense of relative risk levels is also distorted by this approach. An *almost certain* (>80%) incident that would be expected to cause *death* and/or an inability for the local authority *to function without*

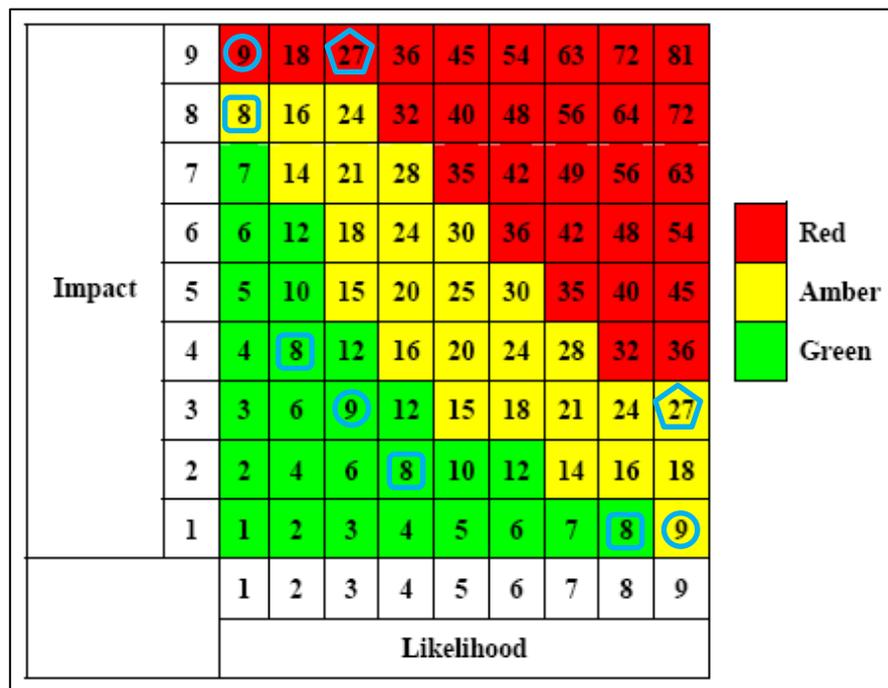
⁹⁰ See Section 2.7.3

⁹¹ Those very unlikely risks that, if they do happen, will have a very serious effect (Taleb, 2007)

aid of Government or other external Agency (score 25) must surely be more than twenty-five times as serious as a rare (<6%) incident causing *no obvious harm / injury*⁹².

A small number of current practice models have been identified in the original and validation sample which appear to recognise and address this issue of false equalities. An example is contained in Figure 6.5. The symbols superimposed on the matrix by the researcher highlight a sample of cells with equal risk scores.

Figure 6.5: Local Authority Risk Matrix that Appears to be Seeking to Address False Equalities



(Source: A Unitary Authority)

This example contains judgemental overrides of the calculated risk scores and identifies the *Black Swans* in doing so. It also indicates that this judgemental approach can lead to further problems, for example, a risk score of 9 can be in any of the three levels of risk; and a score of 8 or 27 can be in two levels of risk. The simple expedient of not showing the risk scores would avoid this problem.

The conversion for the research of local authority risk matrices to an expected value basis indicates a far greater lowest to highest range. Figures 6.6 and 6.7 present the results of such a conversion for a County Council. The first is the local authority's own risk matrix with the Council's own calculation of the risk scores by multiplying ordinal values for impact and likelihood. The second is the same matrix presented on an expected value basis. The cell values are calculated by taking the financial impact defined by the local authority at each level of impact as a proxy for all impacts at that level and multiplying the mid-point of the specified range by the mid-point of the reference probabilities specified by the local authority. These values are then indexed to give a minimum value of one, thereby providing a simple means for direct comparison with the original matrix.

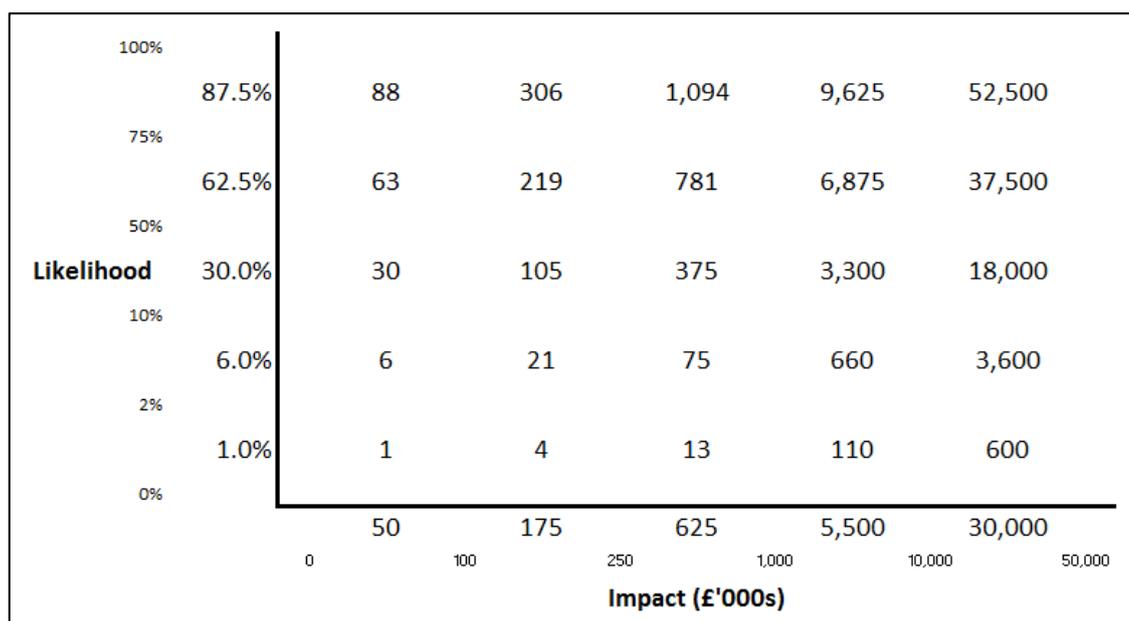
⁹² The phrases in italics are taken directly from the local authority's Risk Management Strategy

Figure 6.6: Original County Council Risk Matrix

		Impact				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (5)	Catastrophic (7)
L i k e l i h o o d	Almost certain (5)	5	10	15	25	35
	Likely (4)	4	8	12	20	28
	Moderate (3)	3	6	9	15	21
	Unlikely (2)	2	4	6	10	14
	Remote (1)	1	2	3	5	7

(Source: A County Council)

Figure 6.7: Indexed Expected Value Conversion of the County Council Risk Matrix



A total of ten similar conversions for the research have been carried out. In all cases the lowest to highest risk score range is substantially greater in the expected value matrix and the expected value matrix provides a significantly higher score for low likelihood / very high impact risks than for high likelihood / low impact risks. In Figure 6.6 and 6.7 the ratios of the scores of the two cells in the risk matrices are 600:88 [= 6.8:1] and 7:5 [= 1.4:1]. The original ordinal score based matrices either equate or provide very similar scores for these risks, with the slight variation being due to the configuration of the matrix. In a square matrix these risks are given equal values.

The converted matrices display two particular sensitivities. The first sensitivity is to the value assigned to the upper limit of the highest impact category. In Figure 6.7 a value of £50m was assigned, with the lower limit being the £10m value defined by the local authority. As the upper limit increases, the overall spread of the indexed expected value risk scores increases. The second sensitivity is to the width of the likelihood and impact ranges for the lowest risk cell in the matrix⁹³. As this cell narrows in either dimension, the overall spread of risk scores increases.

⁹³ This is the cell representing those risks with the lowest likelihood and the lowest consequences / impact

As indicated above, one effect of the conversion to expected value based risk scoring is a skewing of the risk matrix towards prioritising consequences / impact over likelihood in the determination of risk scores and, consequently, risk seriousness. Further inspection of the documented current practice models in the original sample has found that twenty-four (67%) are not skewed, either displaying symmetry or as close to symmetrical as the matrix shape will allow and use a methodology that would produce a symmetrical $n \times n$ matrix. Of the remaining twelve (33%), all but one skew the indicators of seriousness towards consequences / impact and just one skews them towards likelihood. A similar pattern was identified in the validation sample with just one matrix skewed towards likelihood and the majority not skewed towards either dimension.

Unlike the Original County Council Risk Matrix, the converted matrix clearly indicates the non-linearity of strategic risk, a key characteristic of the complexity recognised by the literature review to be a key challenge of risk: one of the over-arching aspects of risk identified in the literature review⁹⁴. The non-linearity is evidenced in both the impact and overall risk scores.

Reference to Historical Data in Current Practice

Other than in the case of the District Council whose risk matrix is presented in Table 6.1, very little reference was found to be made in the local authority risk assessment documents to the use of historical data to inform risk assessments.

6.2.1.2. Supplementary Interviews

The data from the coding of the notes of the supplementary interviews that relate to Research Question Two and an analysis of their relevance to the research question are presented in Appendix 7 and the emergent codes summarised in Table 6.10.

⁹⁴ Section 2.6.2

Table 6.10: Emergent Codes from Supplementary Interview Data for Research Question Two

Code	
Culture and Context	
3	Service standards and the consequences of risk
33	Following the sector norms
Why Risk Management Matters	
34	The importance of risk management
The Detail of the Risk Assessment Method and Process	
4	Scrutiny and reputation
5	Multiple risks
8	The relevance of likelihood
9	Risk matrices and overall risk scoring
10	Controls to reduce the level of risk
16	Emotional problems with risk assessment processes
21	The relevance of uncertainty
24	Risk registers
25	Determining impact
27	Risk appetite and tolerance
28	Road safety risk
29	Calculating risk seriousness
37	The final say
38	Time horizon
Making the Risk Assessment Process Work and Compliance Issues	
1	Barriers to effective risk assessment
11	Quality control and the need for consistency in the risk assessment process
13	Need for in-house risk expert(s)
20	Resource constraints on the risk management process
30	Compliance with the risk management approach
36	Need to improve the risk assessment process
Process Comparisons	
26	Inter-authority comparisons of risk management
31	The internal audit needs assessment
Process Credibility, Accessibility and User Appeal	
12	Added-on and alternative risk assessment processes that are in operation
17	Ease of use versus reliability
19	Don't make it too academic
Management Decisions Following the Risk Assessment	
7	Risk treatment
Public Disclosure of the Risk Data	
32	External disclosure

Examination of the coding of the supplementary interview data adds to and develops the understanding obtained from the review of practice documents above. There is overall assurance of compliance with the procedures set out in those documents, but compliance is not total in all cases (Code 30) due to a combination of incomplete implementation and an element of filtering and reinterpretation by senior managers (Code 12). The latter can be seen as both a matter of culture and perhaps an indication of possible shortfalls in the credibility of the documented process as perceived by the senior managers. Access to senior managers to explore the reasons for this filtering was requested but politely refused.

It is clearly established that effective strategic risk management is important in local authorities, though there are indications that the process actually in place is not always considered to be an effective one (Code 34) for reasons of tokenism and senior management interference. The latter can be linked to the political context of local authorities as public bodies led by locally-elected politicians

(Code 4). The final say on risk management formally rests with those elected councillors but the chief executive has substantial control over the information provided to them (Code 37) and so over the risk management process presented as being overseen by elected councillors. These political issues are closely related to the indicated importance of reputation damage as an element of the potential impact of strategic risks in local authorities (Codes 4 & 25). There are clear links between effectively managing risk and issues of wider corporate culture (Codes 1, 2⁹⁵ & 15⁹⁶).

Following sector norms (Codes 26 and 33) is important. Indeed, the data indicate that a significant determinant in the form of risk assessment approach adopted by local authorities is the approach adopted by other local authorities and the objectives to follow those norms. This is seen as more important than innovating, implementing an approach that might be better but departs from those sector norms. Central to those sector norms is the ubiquitous use of risk matrices (Code 9) and an impact (or consequences) / likelihood construction of strategic risk in local authorities (Code 25).

Controls and their effects are also considered to be an important factor in assessing the level of risk (Code 10). It is recognised that controls are not always in place, appropriate and working wholly reliably. One interviewee described it as a “*gross over-simplification*” to assume otherwise. With echoes of the precautionary principle, for the most serious risks controls and impacts are indicated to be the most important aspects of risk: that it could happen is enough, making further consideration of the likelihood of little further importance (Codes 8 & 10). The effectiveness of the controls assessment is, therefore, a critical component of the overall risk assessment. This is reinforced by the data on risk treatment that indicate that terminating the underlying activity is rarely an option in local authorities which suggests a need for a particular emphasis on controls in the risk assessment, the assessment of residual risk and the ability to carry out robust assessments of alternative risk mitigation strategies (Code 7).

The data are clear that the judgements on control effectiveness are ones for the responsible managers, with some input from the local authority’s internal auditors (Code 10). More widely, the data are also clear that it should be managers who carry out risk assessments and not the risk management specialist(s) within the local authority. Their role is to provide the mechanisms, support and guidance to those managers, not to carry out the risk assessments. The data are similarly clear that those specialists have an important co-ordinating and supporting role to play (Code 13). Risk assessments are identified to need to be consistent and quality controlled, an in-house risk specialist or team can help to ensure this, for example by providing training in the risk assessment methodology to the managers who will subsequently be required to use the methodology to carry out risk assessments (Code 11).

Whilst likelihood is indicated to be a dimension of risk, at least other than for the most serious risks for which the precautionary principle applies, the data suggest that managers have difficulty assessing likelihoods and probabilities (Codes 11 & 17). This consequently requires particular attention to ensure consistency and reliability.

⁹⁵ Detailed in Appendix 3

⁹⁶ Detailed in Appendix 3

The data indicate that the impact dimension to strategic risk in local authorities should take account of the following (Codes 3, 4, 18⁹⁷ & 25):

1. Reductions in service standards and delivery – this appears to be a particularly important issue for services that are important to people's lives but need not be sensitive to minor reductions, major reductions having to be taken seriously however;
2. Financial loss – the importance of this has increased with austerity; and
3. Reputation damage from all sources to the local authority and perhaps those that control it, though as with reductions in service standards and delivery above sensitivity to minor impacts may not need to be acute.

It is important to note that the data contain differences of view about the importance of reputation damage. There is not a consistent view that this is an important element of impact, but some very clearly take this view (Code 25). The data indicate that there always needs to be provision for managers' discretion in assessments: not every potential scenario can be provided for and assessment models should not seek to do so. A discretionary catch-all consequences / impact category may be the best solution (Code 25). This may be linked to the data on stakeholders and the relevance of impacts / consequences for them, which indicate varied views on their relevance to local authority strategic risk assessments (Codes 3 & 25).

Risks are recognised to have multiple impacts and the cumulative effect of these should be considered in a risk assessment methodology (Code 5).

Just as austerity is indicated to have increased the sensitivity of local authorities to financial losses, it is also indicated to have increased the pressures on resourcing risk management in local authorities (Code 20).

There are indications of the ambiguity aspect of risk in the data; namely in the emotional aspects of risk assessments and the variations in interpretation that these can bring (Code 16). The data specifically include reference to different levels of importance attached to impacts by managers when considered in comparison to the death of a child.

There are mixed indications in the data about the uncertainty aspect of risk. Most directly, this is indicated to be equated with likelihood (Code 21) and not to relate to impact / consequences. However, the data on plotting risks into a risk matrix (Code 17) suggest that managers recognise that risks may be able to be assessed in a number of different ways and so plotted into a number of different cells as a result of associated uncertainties. A tentative conclusion that can be drawn is that managers may have a more sophisticated understanding of risk than current practice assumes and recognises. This more sophisticated view would seem to be consistent with the risk literature as regards the uncertainty of risk. The interview data are largely silent on the issue of risk cases (for example most likely case or worst case), though the data on the difficulty plotting risks into the cells of a risk matrix may indicate that such cases are recognised by managers (Codes 17 & 25). Some

⁹⁷ Detailed in Appendix 3

current practice approaches treat risks that are certain to happen as being in the highest category of likelihood (Code 21).

The data are silent on the issue of a time-horizon for risk assessments, there being little evidence that this has been thought about by practitioners (Code 38).

A sound methodology is needed for scoring the cells of a risk matrix or, if one is not available, they should not be scored at all (Code 9). A sound methodology is also needed for determining risk appetite and tolerance levels and linked to the overall risk assessment model (Code 27). From the data, this would appear to need a combination of overall descriptors, for example moderate or high, and more detailed analysis of each level of each dimension of risk incorporated into the assessment model. The practice of some managers to base risk assessment decisions just on the descriptors needs to be noted (Codes 11 & 29) and the likelihood assessment guidance should provide more than just probabilities (Code 17).

The risk assessment model needs to be credible and easy to use (Codes 4, 12 & 17). The data suggest that current practice can value making a risk assessment decision above the reliability of the assessment (Codes 17 & 25). Simple, practical risk assessment models are preferred (Codes 1, 17 & 19), though specialist in-house risk management support staff enable models to be more complex than would be appropriate in the absence of that support (Code 13). The data indicate recognition that no risk assessment can be perfect (Code 12).

There will always be a residual need to provide for judgemental adjustments. Current practice is to interpret the documented process flexibly as the need arises so as to allow judgemental adjustments to avoid a poor risk assessment decision (Code 27).

The data are not consistent as regards the perceived need for change. Some indicate that the current *sector norm* model (Code 33) needs to be improved but practitioners are not sure how to make those improvements (Code 36), whilst others indicate satisfaction with current practice (Code 26). The latter are tempered by the solely intra-sector nature of the comparisons upon which the practitioners' judgements are made, particularly when these are considered in the light of the data on following sector norms (Code 33).

There are a few codes (Codes 24, 28, 31 & 32) which are of passing interest but have little bearing on the research. These are included in Appendix 7 for completeness.

6.2.1.3. Reflections on the Review of Documented Current Practice

Strategic risk in English local authorities has been found to be ubiquitously constructed on the basis of likelihood and impact / consequences. Following an assessment of each of these dimensions, the risk as a whole is assessed with similar ubiquity by the use of a risk matrix. This is an approach that, outside the local authority context, is described in the literature⁹⁸. The interview data provide a clear message that these sector norms are followed in the risk assessment methodology established by individual local authorities in preference to seeking to step outside of these norms and innovate.

⁹⁸ See Section 2.7.5

Despite this, there are clear indications in the data that practitioners recognise considerable scope to improve the current practice of risk assessment in local authorities but lack the understanding of how this might be achieved.

Likelihood and impact / consequences have in all cases been found to be assessed with reference to likelihood and impact / consequence grids setting out the assessment criteria. The level of detail in these varies greatly. The less detailed leave much to the judgement of the risk assessor and do little to ensure consistency between assessments. The more detailed ones can be more difficult to interpret than might superficially appear to be the case. All the documented current practice models have been found to provide brief descriptors to indicate likelihood and impact / consequence levels, for example *High*, *Major* or *Serious*. Whilst the supplementary interview data suggest that some managers place reliance on their interpretation of these descriptors in assessing risks, the research has found that the use of specific descriptors by different local authorities is inconsistent and particularly so for the likelihood dimension. As a result, they have been concluded to be a poor basis for assessing either of these dimensions of risk. Nevertheless, the research finding that they are used as a direct indicator of likelihood and impact / consequence levels means that any such indicators must be selected with great care on the basis that they form a material element of the overall risk assessment model. More widely, the likelihood and impact / consequence assessment grids have been found to be easy to use and very readily understood.

The division of either dimension into more than six categories or bands is rare and the very few cases identified demonstrate poor differentiation between those categories or bands. Conversely, the cases of just three such categories or bands identified seem to be too broad-brush. The modal size of between four and six seems to provide a reasonable balance and its frequency in current practice indicates practice acceptance and utility. Cox's (2008) criticism of risk assessment tools which do not make value judgements explicit partially applies to these likelihood and impact / consequence grids.

The analysis of current practice indicates that the impacts of local authority strategic risk can be described within the seven headings in Table 6.6, with necessary provision for judgemental adjustments to the overall level of impact. There may be a case for an eighth ("*other*") heading as a final safety net, though the research has not identified a specific example of such a need at this stage. Whilst current practice consistently recognises that strategic risk in local authorities can have different forms of impact, there is very little explicit recognition that individual risks can have multiple impacts. The research has not found a single example in current practice of a risk assessment model which combines assumed or estimated impacts to arrive at an overall assessment of the risk as a whole⁹⁹.

Documented current practice provides plenty of evidence of the ambiguity of risk as emphasised by Klinke and Renn (2002)¹⁰⁰ as one of the *challenges* of risk: for example, the question of how much it matters if a local authority breaks the law in terms of deemed equivalent risk impacts. Potentially the most surprising finding, at least to those outside the local authority sector, is the high value attached

⁹⁹ The potential of additive risk assessment models is suggested but little addressed in the literature (Section 2.7.7)

¹⁰⁰ See Table 2.1

by some local authorities to potential reputation damage and, specifically, to adverse comment in the media. This is clear support for Corvellec's (2010) wider conclusions about the importance of reputation in public sector risk management. The design of the impact / consequences assessment within the overall risk assessment model needs to be able to reflect these inter-authority differences in the value assigned to risk impacts / consequences and, in doing so, to be such as to support thoughtful and appropriate model design to avoid any inadvertent equalities and/or valuation differences that may lie behind current impact / consequence assessments. This might be achievable by designing the risk model so that the value assigned to different impacts can be differentially defined during the implementation process. The review of current practice has also indicated that this calibration of the impact / consequences assessment needs to be able to be revised over time as the values assigned change. The research indicates that this provision for inter-authority differences needs to extend to the question of whose risk is being assessed: that of just the local authority or of the local authority and its key stakeholders.

Surprisingly, documented current practice has been found to be largely silent on the issue of impact / consequence uncertainty and the risk assessment case, for example not indicating that risk should be assessed on a worst or most likely case basis. From the literature¹⁰¹, it would seem that this is a substantial omission. Significant insights into how this might be addressed have not been obtained from this element of the research to address Research Question Two and need to be sought from the later stages of the research. Documented current practice has also been found to be largely silent on the issues of time horizons, both for the likelihood and impact / consequence assessments. This is a significant omission.

Documented current practice has been found not to reliably identify those important risks that Taleb (2007) would call *Black Swans*¹⁰². In some cases these are falsely equated with very likely, low impact risks. Further consideration of *Black Swans* brings to mind Paté-Cornell's (2002) conclusion that there is a residual role for the precautionary principle¹⁰³, albeit in the amended sense that the impact(s) associated with some risks are potentially so serious that they must be assessed as being very serious risks at all but extremely low levels of likelihood.

The expected value based recalibration of local authority risk matrices may offer a contribution to risk assessment models, providing a solution to issues of false equalities, relative scaling and Black Swan identification. In taking this forward in the research, account needs to be taken of the significant limitations of expected values identified in the literature¹⁰⁴.

The amended risk matrices identified by the research indicate the need for risk assessment models to be carefully and holistically designed to reflect the nature of strategic risk in local authorities and to meet the assessment need, rather than to be created by a process of judgemental amendment to a core model that has been recognised to be flawed. Such processes have been found to create consequential problems that are better avoided. Closely related to this is the need to ensure the credibility of the risk assessment model. The example of the local authority in the supplementary

¹⁰¹ See Section 2.7.4

¹⁰² Those rare and very rare risks that, if they were to happen, would have very serious consequences

¹⁰³ See Section 2.4.1

¹⁰⁴ See Section 2.7.2

interview data at which senior managers reinterpret the risk assessment results and do not share the reassessment methodology with the risk management staff provides an indication of credibility problems with documented current practice. Unfortunately, access to explore this reinterpretation methodology was not available.

The risk appetite or tolerance level of a local authority has been found to be a key element of the risk assessment, providing the threshold above which risks are deemed to be especially serious. No clear methodologies for identifying this level have been found, providing an important issue to be addressed at a later stage of the research.

A contribution of specialist advice and co-ordination of the risk assessment process in a local authority emerges clearly from the research. Current practice is for such roles to exist, either on a dedicated basis or in combination with other responsibilities. The role is consistently seen to be one of co-ordination and support and not one which takes the responsibility of risk assessment away from managers and staff in whose areas of responsibility and knowledge those risks arise. Such roles help to provide consistency in risk assessments across the organisation and can reduce the need for excessive detail in the risk assessment model as those using the model have access to specialist support and advice to help interpret it. An example of the need for such support identified by the research is the assessment of likelihoods, a task found to be a difficult one for local authority staff.

The supplementary interviews have identified a significant resources dimension to the local authority risk assessment problem. The resources local authorities have available for risk management are reducing, just as local authority resources as a whole are reducing in these times of austerity. As a result, there is a particular need for the risk assessment model to be as efficient and simple as possible, whilst still functioning effectively and reliably. The responses to strategic risk in local authorities have been found to be narrower than is traditionally presented to be the case, with the supplementary interview data indicating that stopping the underlying activity is rarely an option.

Controls are clearly established in documented current practice as a key element in determining the level of risk. However, the explicit provisions are almost exclusively naïve ones, assuming that controls are always operating and reliable. The supplementary interview data support this conclusion of naïvety but offer no solutions beyond the starting points offered by the approach of one District Council presented in Table 6.1. Reflection on this issue underlines the extent to which the inherent uncertainty of risk extends to the controls implemented to manage individual risks.

Some of the issues identified by the supplementary interviews, for example manipulation of the risk management process by senior managers, are outside the scope of the research, being primarily issues of organisational culture and not matters of risk assessment. However, attention to maximising the credibility of the practical tools to emerge from the research may make a contribution, at least to the extent that an element of the manipulation is the result of a lack of confidence in the current risk assessment models.

Notwithstanding the identified weaknesses in documented current practice, the ubiquitous current practice approach has been found to be easily understood and implemented and to achieve a core

objective of providing a ranked list of risks for management attention. It would be easy to underestimate the value of these positive factors.

6.2.2. Document Analysis for International Comparators

The analysis of documented risk assessment approaches at local authorities and comparable bodies outside the UK¹⁰⁵ has found that the core approach to the construction and assessment of strategic risk identified in English local authorities is followed in other jurisdictions.

Risk is constructed on the basis of likelihood and consequences / impact and, as was found to be the case in England, other terminology is also used, e.g. probability, but the sense is clearly that risk is a function of likelihood and consequences / impact. The “*Victorian Government Risk Management Framework*”¹⁰⁶, however, indicates that this is not seen as the whole picture, stating that “*risk is analysed by determining consequences and their likelihood, and other attributes of the risk*” (ibid, p31). The “*other attributes*” are not defined or explained. However, the document states that there is a need, linked to ISO 31000, to explicitly address uncertainty (ibid, p12) in the risk management process, taking “*account of the nature of the uncertainty and how it can be addressed*” (ibid, p12). The reasonable conclusion is that this is intended to be an attribute of risk. The document also indicates that there is an important place for stakeholders in the risk management process in local authorities as part of the process of public accountability and that this should be primarily part of the decision-making phase and not part of the risk assessment phase.

The constructions of the consequence / impact dimension of risk have been found to be similar to those documented at English local authorities, for example as including “*damage to assets, people, the environment, or our reputation within the community*” (Derwent Valley Council)¹⁰⁷.

The guidance on risk management for Irish local authorities¹⁰⁸ describes risk assessment as “*a process of clearly defined steps which support better decision making by contributing a greater insight into risks and their impacts*” (p11). In doing so, it provides an insight into a key objective of risk assessment: that is, to provide insights into the risk assessed beyond just an assessment of likelihood and impact. This is reinforced by the view that risk assessments should provide “*a roadmap to guide the council in managing [the assessed] risks*” (p30). Risks are stated to be variously qualitative or “*more subjective*” (p31). Emphasis is also placed on basing risk assessments “*as much as possible on unbiased independent evidence*” (p31). This reference to risk assessment evidence has not been seen before in any documented approach to risk management in local authorities or comparable bodies accessed for the research in the UK or elsewhere. It also emphasises the importance of context and that there are risks that are specific to the local authority sector.

¹⁰⁵ A list of these bodies is contained in Appendix 2

¹⁰⁶ [http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/VicGovRiskManagementFrameworkApril2011/\\$File/VicGovRiskManagementFrameworkApril2011.pdf](http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/VicGovRiskManagementFrameworkApril2011/$File/VicGovRiskManagementFrameworkApril2011.pdf) (Last Accessed 08/06/12)

¹⁰⁷ http://www.derwentvalley.tas.gov.au/webdata/resources/files/-_FINAL_-_Risk_Management_Policy.pdf (Last accessed 11/06/12)

¹⁰⁸ Irish Public Bodies Mutual Insurance Ltd (2005), “*Local Authority Risk – Excellence in governance through best practice risk management*”, IPB, Dublin

“The risk context is an important consideration [t]he primary context driver is the corporate plan of each local authority and the achievement of its objectives. There are risks that are specific to the local authority sector and it is important that these are recognised and dealt with...”
(p16)

The risk assessment methodology for Nongoma Municipality in South Africa demonstrates an instructive approach at the detailed implementation level that has not otherwise been seen. The core methodology is one that parallels those in English local authorities. Risk is constructed on the basis of impact and likelihood and these are brought together in a 5 x 5 risk matrix. Ordinal scores (1 - 5) are assigned to the two dimensions and multiplied to calculate a risk score from one to twenty-five. It is in the implementation that practice varies from that documented in English local authorities. The first stage of this departure is similar to that shown in Figure 6.5. The cells in the risk matrix are judgementally prioritised into four levels of risk (*Low, Moderate, High* and *Extreme*) and skewed towards impact. As in Figure 6.7, this results in some risk scores having different interpretations depending upon their position in the risk matrix. For example, a score of 4 is defined as indicating a *Low, Moderate* and *High* risk in different matrix cells, whilst a score of 6 is only defined as *Moderate*, and so is deemed to be less serious than some risks with a lower score. Unique to Nongoma Municipality is the documented practice of taking the mean of the scores assigned by four senior managers for each dimension to arrive at the overall risk impact and likelihood assessments. These are then multiplied to calculate the overall risk score. This then creates two problems, the first arising from the different significances assigned to the same scores in the risk matrix, as described above, and the second being that this methodology results in risk scores that are not presented in the risk matrix at all. The documents accessed do not indicate a solution to either of those problems.

The US approaches constructing risk as a matter of insurance have been dismissed as not relevant to the research and have not been considered further for Research Question Two

Reflections

Overall the review of documented international practice in comparable bodies has found little to contribute to an answer to Research Question Two. The most significant finding is the absence of alternative risk assessment approaches. Internationally, there are some examples of a greater understanding of the centrality of uncertainty to risk and the scope for risk assessments to do more than just provide a ranking of risks for management attention. The indications that risk is a function of more than likelihood and impact / consequences are frustrating in that they do not suggest what those other elements of risk might be. The indications that the context-dependence of strategic risk in local authorities has been recognised are informative, as is the description of the corporate plan as a key driver of that context. The Nongoma example reinforces the findings of the research in Section 6.2.1 which highlighted the consequential problems that can be caused by judgemental changes to the core impact / likelihood matrix approach, further reinforcing the need for good risk assessment design from the outset. ISO 31000 has a higher profile in some jurisdictions outside of the UK, as might be expected given its origins as an Australia / New Zealand standard. Risks assessments are presented as having an objective to provide information for decision-makers that goes beyond a mere ranking of risks: a point not recognised in documented current practice in

England. There is an interesting note in the Irish practice guidance that risk assessments should be evidence-based where possible and unbiased.

6.2.3. Document Analysis for Published Standards and Guidelines

6.2.3.1. Accounts and Audit (England) Regulations 2011

The research to address Research Question Two¹⁰⁹ found that the Accounts and Audit (England) Regulations 2011 have little to say about the construction of risk beyond a sense that it is about the effective exercise of the local authority's functions and a question about whether risk is financially-led. The Regulations provide no guidance on how risk is to be managed and, as part of its management, assessed.

6.2.3.2. *Worth the Risk* (The Audit Commission, 2001)

As found by the research to address Research Question Two¹¹⁰ this guidance on risk management in local authorities was produced at an early stage in the development of the professional literature but is still quoted as authoritative in local authorities' current practice documents. It concentrates on advocating good risk management systems in local authorities and providing advice on the associated governance arrangements.

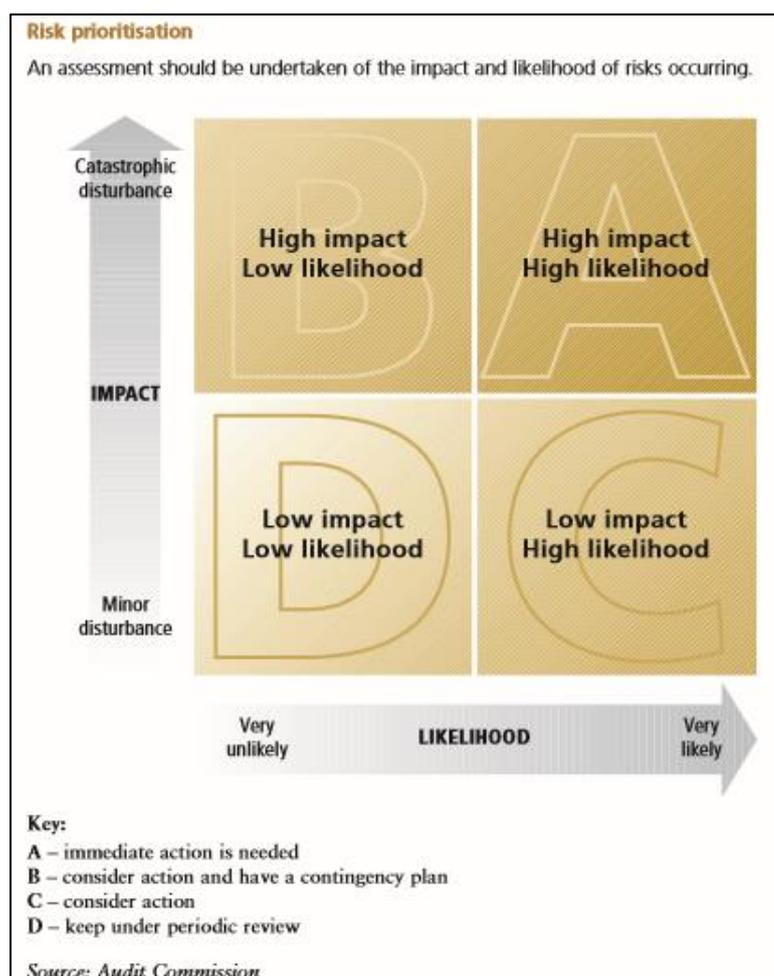
Risk is presented as being a function of likelihood and impact, providing little detailed guidance on the construction of the impact dimension beyond stating that "*all types of impact need to be considered*" (ibid, p31). Specific assessment scales are not provided. Instead, they are presented as being context dependent: "*it is important that they are relevant to the organisation, easily understood and provide a common formula for those taking part in the [risk assessment] process*" (ibid, p31). Controls are clearly considered to be a significant factor in determining the level of risk but no significant guidance is given on how account should be taken of their effects.

A risk matrix approach is indicated and supported by the simple tool reproduced in Figure 6.8 as an aid to risk prioritisation. The Audit Commission is explicit that the purpose of risk scoring is to prioritise risks for management attention.

¹⁰⁹ See Section 4.2.2.1

¹¹⁰ See Section 4.2.2.2

Figure 6.8: Risk Prioritisation Model in *Worth the Risk* (The Audit Commission, 2001)



(Source: *Worth the Risk*, p32)

“Throughout the risk management process it is essential to gain the input of a wide range of stakeholders” (ibid, p33). However, the Audit Commission seems to take a narrow view on this, concentrating on staff and experts within the local authority as stakeholders, though not to the complete exclusion of external stakeholders, and cautioning against unproductively broad consultation. Emphasis is placed on managing risks to a local authority’s reputation and it being “useful to read what is being said about the council in the media” (ibid, p33).

The Audit Commission lists “*Pitfall[s] to avoid*” (ibid, p36) in risk management and establishing risk management processes. Five of these have direct and significant bearing on Research Question Two:

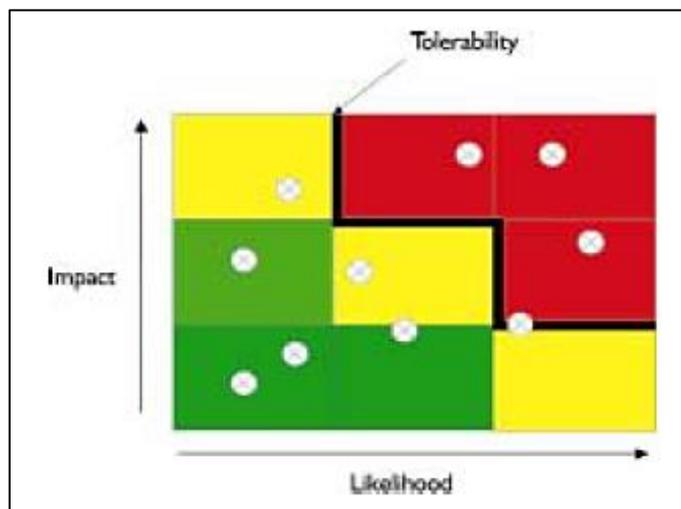
- “*Failure to consider risk in the broadest context*”;
- “*Failure to link risks with corporate objectives*”;
- “*Risk management systems that are too complex*”;
- “*Failure to prioritise and focus only on significant risks*”; and
- “*Inadequate resourcing and training*” (ibid).

6.2.3.3. *The Orange Book: Management of Risk - Principles and Concepts* (HM Treasury, 2004)

Like *Worth the Risk* (ibid), *The Orange Book* concentrates on wider risk management and governance issues, having little to say on the construction and assessment of risk.

Risk is constructed on the basis of likelihood and impact and suggests that a *Low / Medium / High* assessment of each may be sufficient. No further guidance on the assessment of either dimension of provided. A risk matrix approach is advised and a 3 x 3 matrix based on the *Low / Medium / High* assessment of each dimension is illustrated. A 5 x 5 risk matrix is also discussed and illustrated. The stated view is that the size of a risk matrix should be driven by “*the level of analysis that [the organisation] finds most practicable for its circumstances*” (ibid, p19). It also indicates the need to work within a defined time horizon, which varies on the basis of contextual need. The traffic-lighting method is advocated to indicate risk tolerance levels within the risk matrix. The example provided and reproduced in Figure 6.9, shows diagonal symmetry and appears not to allow for *Black Swans*.

Figure 6.9: Risk Matrix Illustrated in *The Orange Book* (HM Treasury, 2004)



(Source: HM Treasury, ibid, p19)

The risk matrix illustrated shows risks plotted within the matrix cells and, implicitly, appears to suggest that that positioning has significance. In so doing, there appears to be a contradiction between the textual position that key to the risk assessment is positioning with respect to the apparently hard risk tolerance boundary and the illustrated position which appears to suggest that the risk assessment is finer than the simple 3 x 3 matrix initially implies. The interpretation of the risk plotted on the risk tolerance line is not explained.

A clear distinction is drawn between inherent and residual risk and, in so doing, a clear place for consideration of the effects of controls within a risk assessment is defined.

6.2.3.4. ISO 31000 and ISO 31010

ISO 31000

ISO 31000 is a general risk management standard and the subsidiary ISO 31010 deals with risk assessment specifically. However, ISO 31000 makes a number of key points that relate to Research Question Two.

- The criticality of context and the need to establish the context and fully reflect it throughout the risk management process, aligning the process with both the *internal* and *external* contexts and recognising that these contexts themselves change as risk events occur
- The importance of
 - developing a full understanding of each risk
 - organisational objectives – these are taken to embrace different aspects, stated examples being financial, health and safety, and environmental goals which can apply at different levels (such as strategic, organisation-wide, project, product and process) and hence appear to go beyond explicitly defined corporate objectives in the narrow sense of the priorities identified in a high-level corporate plan
 - the environment in which the organisation operates
 - stakeholders¹¹¹ and “*ensur[ing] that the interests of stakeholders are understood and considered*”¹¹²
 - uncertainty
- The diversity of risk criteria
- The complexity of risk
- Those using risk management information should be aware of the limitations of the systems that produce it and of any differences of opinion, for example between relevant experts

Risk is constructed on a likelihood / impact basis, with both dimensions being described as being able to be described quantitatively or qualitatively. Likelihood is seen as potentially subjective and not just a matter of probabilities. There is also an indication that initial consequences can escalate over time. Controls are seen to be relevant to risk assessment but there are no indications of how the operation of controls should be taken into account in risk assessments.

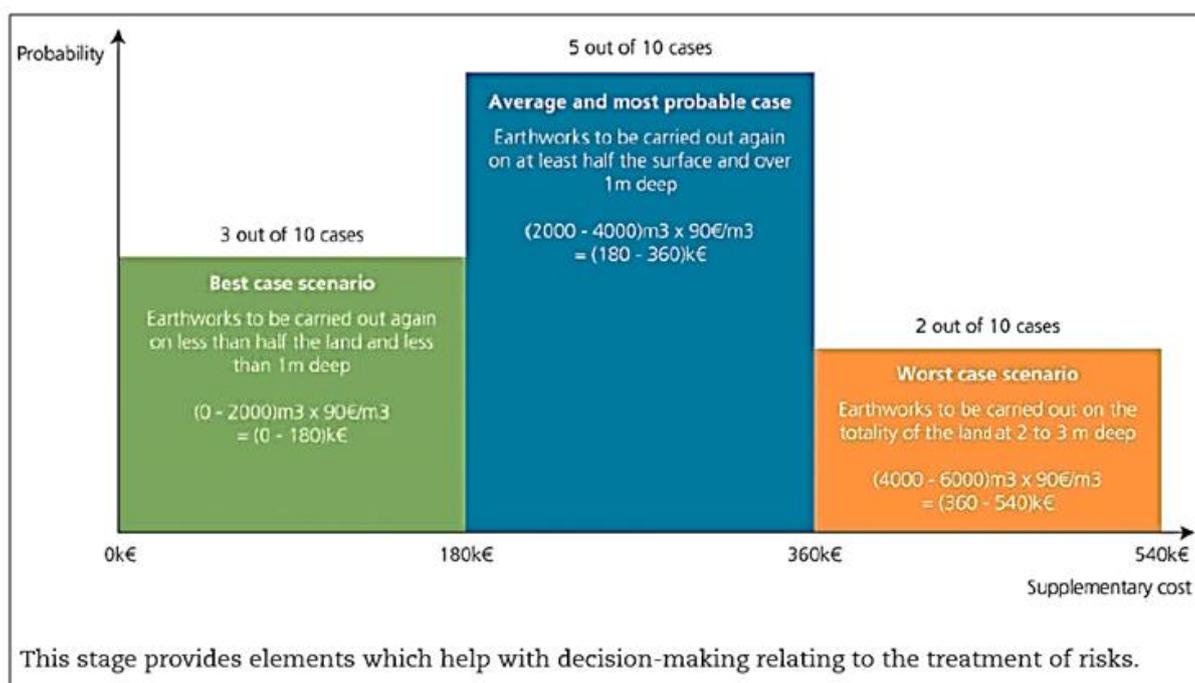
A review of publications commenting and seeking to advise on the application of ISO 31000 in the public sector found no new insights. However, the Marsh Report¹¹³ includes a clear example of the uncertainty of risk outcomes and an approach to modelling them. This is reproduced in Figure 6.10.

¹¹¹ The definition of stakeholders adopted in ISO 31000 is that of a “*person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity*” (para 2.15) and is close to, but a little wider than, the commonly referenced definition in Freeman (1984) that stakeholders are “*any group or individual who can affect or is affected by the achievement of the organization's objectives*”

¹¹² The standard does not say that stakeholders should be consulted as part of a risk assessment process, though it may be that this could be a means to obtain the understanding of their interests that is indicated to be important

¹¹³ Marsh (2011) “*Preparing the local public sector for risk governance: First steps towards an ISO 31000 framework*” http://www.alarm-uk.org/pdf/Marsh%20Report_ISO31000.pdf (Last accessed 27/10/11)

Figure 6.10: Example of the Uncertainty of Risk Outcomes Presented in the March Report



Source: (Marsh, 2011)

The reproduced footnote to the example highlights the intended purpose of the three-scenario model as being to *help with decision-making* concerning the risk modelled. In using this source, account needs to be taken of Marsh's role as a commercial risk advisor¹¹⁴. The probability referred to in the model is that of the specific scenario if the risk event has happened, not the probability of the risk event happening. The most significant aspect of the model is the recognition and specification of three scenarios:

- *Best case;*
- *Average and most probable;* and
- *Worst case.*

This is the first explicit reference to different assessment cases identified in the research.

ISO 31010

ISO 31010 is the subsidiary standard to ISO 31000 that deals specifically with risk assessment. It includes a detailed description of thirty-one approaches to risk assessment and a summary table of their applicability to different risk problems. This is reproduced in the unshaded part of Table 6.11. The shaded part of the table is the researcher's analysis of the applicability of the risk assessment approaches to the assessment of strategic risk in local authorities in the light of the findings from the research to address Research Question One. The approaches indicated in ISO 31010 thought not to be applicable to the research context have not been analysed further, the researcher's analysis

¹¹⁴ See for example <http://uk.marsh.com/News/PressReleases/MarshPressReleases/articleType/ArticleView/articleId/4937/Marshs-report-on-preparing-local-public-sector-for-risk-governance.aspx> (Last accessed 27/10/11)

only considering those that appeared to be worthy of consideration. The standard advises that the risk assessment tool should be:

- Justified and appropriate in the context;
- Enhance understanding of the risks assessed; and
- Be traceable, repeatable and verifiable in the application.

ISO 31010 describes the risk assessment process in the research context – that is an analysis of risks to identify those that are in need of further, more detailed, management attention and decision-making, not least as regards the allocation of resources – as *preliminary analysis*¹¹⁵. In doing so, it allows for the possibility of further, far more detailed and time and resource intensive analysis of individual risks at the subsequent decision-making stage.

¹¹⁵ *ibid*, p15

Table 6.11: Applicability of Risk Assessment Techniques Detailed in ISO 31010

Tools and Techniques	Risk Assessment Process					Apparently Applicable to Research from Description in ISO 31010	Applicable to Different Context(s) Only	Requires Cause and Effect to be Identifiable In Advance	Applicable to Initial Assessment of Many Diverse Risks	Historical Data is Not Required	Worthy of Further Consideration?
	Risk Identification	Risk Analysis			Risk Evaluation						
		Consequence	Probability	Level of Risk							
Brainstorming	SA	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Structured or semi-structured interviews	SA	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Delphi	SA	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Check-lists	SA	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Primary hazard analysis	SA	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Hazard and operability studies (HAZOP)	SA	SA	A	A	A	(Yes)	X	-	-	-	No, appears unsuitable
Hazard Analysis and Critical Control Points (HACCP)	SA	SA	NA	NA	SA	-	-	-	-	-	No, appears unsuitable
Environmental risk assessment / Toxicity assessment	SA	SA	SA	SA	SA	Yes	X	-	-	-	No, appears unsuitable
Structure « What if? » (SWIFT)	SA	SA	SA	SA	SA	Yes	X	-	-	-	No, appears unsuitable
Scenario analysis	SA	SA	A	A	A	(Yes)	OK	OK	X	OK	No, too time consuming
Business impact analysis	A	SA	A	A	A	(Yes)	X	-	-	-	No, appears unsuitable
Root cause analysis	NA	SA	SA	SA	SA	Yes	X	-	-	-	No, appears unsuitable
Failure mode effect analysis (FMEA)*	SA	SA	SA	SA	SA	Yes	X	-	-	-	No, appears unsuitable
Fault tree analysis	A	NA	SA	A	A	(Yes)	X	-	-	-	No, appears unsuitable
Event tree analysis	A	SA	A	A	NA	-	-	-	-	-	No, appears unsuitable
Cause and consequence analysis	A	SA	SA	A	A	(Yes)	X	-	-	-	No, appears unsuitable
Cause-and-effect analysis	SA	SA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Layer protection analysis (LOPA)	A	SA	A	A	NA	-	-	-	-	-	No, appears unsuitable
Decision tree	NA	SA	SA	A	A	(Yes)	X	-	-	-	No, appears unsuitable
Human reliability analysis	SA	SA	SA	SA	A	Yes	X	-	-	-	No, appears unsuitable
Bow tie analysis	NA	A	SA	SA	A	Yes	OK	X	X	OK	No, appears unsuitable
Reliability centred maintenance	SA	SA	SA	SA	SA	Yes	X	-	-	-	No, appears unsuitable
Sneak circuit analysis	A	NA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Markov analysis	A	SA	NA	NA	NA	-	-	-	-	-	No, appears unsuitable
Monte Carlo simulation	NA	NA	NA	NA	SA	-	-	-	-	-	No, appears unsuitable
Bayesian statistics and Bayes Nets	NA	SA	NA	NA	SA	-	-	-	-	-	No, appears unsuitable
FN curves	A	SA	SA	A	SA	Yes	X	-	-	-	No, appears unsuitable
Risk indices	A	SA	SA	A	SA	Yes	OK	OK	OK	OK	Yes
Consequence/probability matrix	SA	SA	SA	SA	A	Yes	OK	OK	OK	OK	Yes
Cost/benefit analysis**	A	SA	A	A	A	Yes	X	-	-	-	No, appears unsuitable
Multi-criteria decision analysis (MCDA)	A	SA	A	SA	A	(Yes)	OK	OK	(OK)	OK	Yes, with amendments

Key to Table 6.11

* Also includes Failure modes and effects and criticality analysis (FMECA)

** Based on NPV analysis of risks and the associated benefits with added-on risk acceptability and tolerance assessment for some serious negative risks, hence extends into the decision-making and requires monetising of all risks and benefits

Analysis in ISO 31010

NA Not Applicable

A Applicable

SA Strongly Applicable

Researcher's Additional Analysis

Yes / OK This criterion appears to be met (OK is used where the wording of the criterion might lead to confusion in the interpretation of a "Yes" answer)

X This criterion appears not to have been met

() Indicates a weaker or qualified response

The analysis has found two approaches that appear to fit the research context and a third that might fit with some amendment.

a. Approaches indicated to be applicable to the assessment of strategic risk in local authorities

Risk indices	<p>A simplified MCDA approach using ordinal scales, subject to cautionary notes in ISO 31010 about the scope for misinterpretation</p> <p>This technique is closely linked to consequence / probability matrices, providing for the same ordinal scale combining methodology that can be used in the latter but without using the matrix presentation and allowing for more than two risk factors</p> <p>The scales are stated not to need to be ordinal, but the defined methodology does not provide for the basis of the scales or how they should be combined, recognising these as limitations along with the scope for misinterpretation of the calculated scores</p> <p>The approach appears to have nothing to offer over consequence / probability matrix in the context of the two-dimensional risk model and lacks the accessibility of the matrix presentation; it may be useful for multi-dimensional risk models</p>
Consequence / probability matrix	<p>Essentially the current practice model in local authorities and the traditional / standard model as described in the risk literature</p>

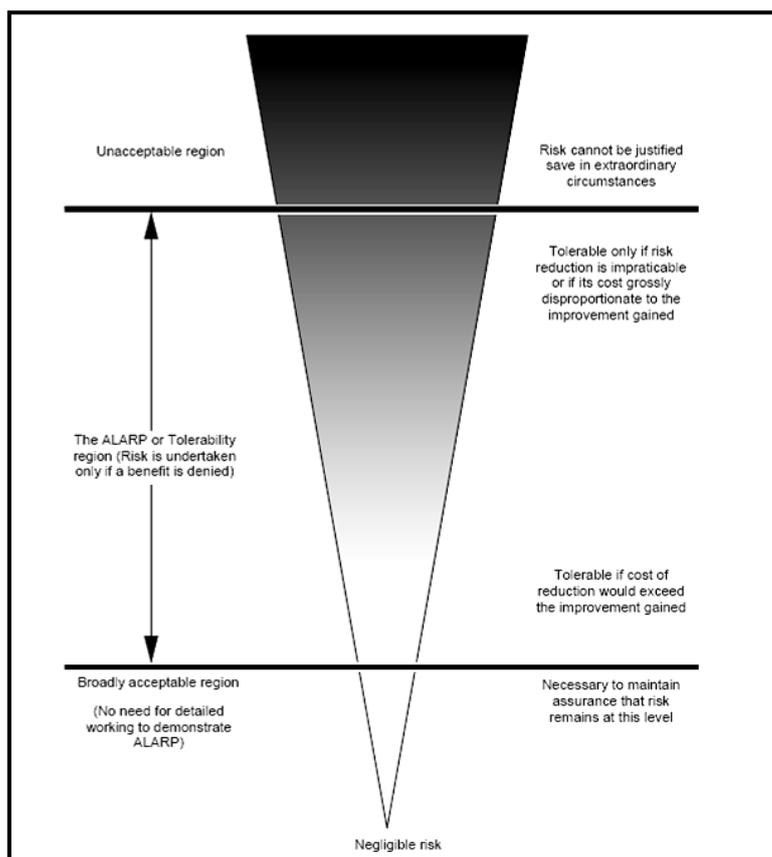
b. Approach indicated to be a possible fit with some amendment

Multi-criteria decision analysis (MCDA)	<p>This is presented as an option appraisal tool but it would appear that it could be amended to assess and rank risks</p> <p>The approach involves setting a range of assessment criteria, which are arranged into a hierarchy and weighted accordingly and the weighted attribute scores combined into a single risk score</p> <p>Like risk indices, the approach is not tied to a two-dimensional construction of risk, allowing for multi-dimensional risk models</p> <p>Determination of the weightings and accumulation algorithm are identified in the standard as problematic</p>
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Twenty-eight of the thirty-one approaches described have been found not to be applicable to the assessment of strategic risk in local authorities. Of the remaining three, one is the current practice risk matrix approach and the other two appear better suited to multi-dimensional constructions of risk when the inherently two-dimensional risk matrix presentation cannot be simply and directly applied. Such models require a balance to be drawn between the multiple criteria and for the means of drawing that balance to be a sound and appropriate one. This may not be a simple matter.

The standard presents the ALARP (As Low As Reasonably Practicable) concept¹¹⁶ for the classification of overall risk levels: broadly acceptable; tolerable and unacceptable. The most serious category is described as applying to very serious risks that *cannot be justified save in extraordinary circumstances*.

Figure 6.11: ALARP Concept as Presented in ISO 31010



(Source: ISO 31010, p79)

The key message from the ALARP concept is that the seriousness of risk can be reduced to being a matter of one of three levels of risk. The lowest is not a matter of concern, subject to reassurance that the risk remains at this level over time. The second is a matter of concern but there must be proportionality between the cost of mitigations and the extent to which they reduce the level of risk. The third is intolerable and the starting assumption is that a risk at this level must be treated to reduce the level of risk so that it does not remain at this level.

¹¹⁶ Reproduced from ISO 31010 in Figure 6.11

ISO 31010 has been found to be a refined source of guidance on risk assessment with a notable consistency with the risk literature¹¹⁷ and to be significant source of guidance as regards Research Question Two. The key issues are:

- a) The importance of context, including the importance of the key stakeholders;
- b) Risk being a function of consequences and probability / likelihood¹¹⁸, with a need to take account of the effects of controls;

But, in “most cases, a high level of accuracy is not warranted. However, it may be valuable to express and record a measure of risk effectiveness so that judgements can be made on whether effort is best expended in improving a control or providing a different risk treatment” (p14);

The key questions on controls are: what are the relevant existing controls; are they capable of treating the risk; are they actually “operating in the manner intended and can they be demonstrated to be effective when required” (p14) and what difference do they make to the level of risk?

The effects of controls are stated to be difficult to understand in complex systems;

- c) Risks can have multiple consequences and can affect multiple objectives;
- d) Single parameter risk estimates are only appropriate where the consequences are expected to be insignificant or the probability extremely low – otherwise both need to be taken into account;
- e) Assessment methods can be quantitative, semi-quantitative or qualitative;
- f) Uncertainty is an inherent element of risk and understanding this uncertainty, which requires an appreciation of the imprecision of the analysis, is key to both the assessment of risk and the subsequent communication of the results of the risk assessment;
- g) “Levels of risk should be expressed in the most appropriate terms for that type of risk” (p14)
- h) The time horizon for assessing risk consequences should extend beyond the immediate, low consequence impacts may have longer-term effects that could be more serious than they initially appear, and secondary consequences also need to be considered;
- i) Even where it is available and relevant, historical data is particularly uncertain for very low probabilities;
- j) The assumptions made in a risk assessment should be documented;
- k) Any significant known gaps in the risk assessment should be communicated to management as part of the information communicated from the risk assessment; and
- l) The availability of resources has a significant, and implicitly legitimate, effect on the choice of risk assessment tool / technique and its operation.

¹¹⁷ For example the common emphasis on the centrality of uncertainty and the avoidance of false precision

¹¹⁸ Both terms are used

ISO 31010 provides an approach to the calibration of an impact / likelihood risk matrix: an important process for the research and one not seen to have been meaningfully addressed elsewhere. The standard suggests that the upper limit of the lowest likelihood band should be set at the level at which a risk in the highest impact category would start to be intolerable. That is, it should be defined as the level of likelihood at which risks cease to be *Black Swans*.

6.2.3.5. Charity Commission Guidance for Charities

The guidance starts with a brief exposition of the common impact / likelihood risk assessment matrix and indicates that risk assessments in charities are starting to move away from this simple approach, highlighting the particular problem of rare, catastrophic events and their being falsely equated with events that would have only a modest impact but are likely when assessed using an impact / likelihood matrix. The guidance is clear that it is “*important to bear in mind that on rare occasions improbable events do occur with devastating effect*” (ibid p19) and suggests a simple solution whereby “*a scoring of $xy + y$ where x is likelihood and y is impact. This formula multiplies impact with likelihood then adds a weighting again for impact*” (ibid p22). The modified impact / likelihood matrix is referred to a “*heat map*” and the following example is provided (Figure 6.12). It is noted that the risk equation uses ordinal likelihood and impact values.

Figure 6.12: Charity Commission Example of an Adjusted Risk Matrix

Red – major or extreme/catastrophic risks that score 15 or more
 Yellow – moderate or major risks that score between 8 and 14
 Blue or green – minor or insignificant risks scoring 7 or less

	Extreme/ Catastrophic	5	10	15	20	25	30
	Major	4	8	12	16	20	24
Impact	Moderate	3	6	9	12	15	18
	Minor	2	4	6	8	10	12
	Insignificant	1	2	3	4	5	6
			1	2	3	4	5
			Remote	Unlikely	Possible	Probable	Highly Probable
			Likelihood				

(Source: Charity Commission, 2010, p16)

(Risk Score = $xy + y$ where x is likelihood and y is impact)

It is stated that charities may want to take this further and adopt a risk equation of:

Risk Score = $xy + 2y$ where, as before, x is likelihood and y is impact.

The guidance does not suggest going beyond the “*even greater weighting for impact*” of $xy + 2y$. However, a critical reading of the guidance raises the question of the most appropriate weighting for impact and the wider question of the applicability of the approach to local authority strategic risk. Hence, the research has taken forward the following generalised formula¹¹⁹ applicable to ordinal impact and likelihood scores, with the determination of the value for the positive constant being a key issue for the research.

$$\text{Risk} = (\text{Likelihood} \times \text{Impact}) + (\text{Positive Constant} \times \text{Impact})$$

The guidance provides a reminder that “*risk scoring often involves a degree of judgement or subjectivity [and] where data or information on past events or patterns is available, it will be helpful in enabling more evidence-based judgements*” (ibid p22). Guidance on risk scoring for charities is also provided and is very similar to that seen in local authorities’ risk management policies and strategies. The range of impact types indicated does not include financial loss, harm to people or the achievement of objectives. Instead it focuses on the impact on service and reputation, and includes the possibility of litigation and the loss of beneficiary confidence. The latter is in the highest (*catastrophic*) impact category.

The guidance indicates that “*the steps a charity has taken to manage risk helps to demonstrate the charity’s accountability to its stakeholders*” (ibid, p5) but does not suggest that those stakeholders may have a role to play, or views that should be considered, in the risk assessment process.

In Annex A (ibid, p29), the guidance shows how further mitigations can be used to reduce risk beyond the current level at which it has been assessed. The guidance does not, however, indicate that existing controls and mitigation need to be considered in carrying out that risk assessment.

6.2.3.6. Other Sources

The research has also reviewed the Alarm publications “*National Performance Model for Risk Management in the Public Services*”¹²⁰ and “*Core Competencies in Public Service Risk Management*”¹²¹. These have provided useful background reading but do not make a useful contribution to Research Question Two.

6.2.3.7. Reflections on the Document Analysis for Published Standards and Guidelines

The document analysis of published standards and guidelines has provided a rich source of ideas not available from the literature or the document analysis of current practice in the UK and beyond. There is a marked and reassuring consistency between the standards, particularly ISO 31000, and the literature, for example as regards context-dependence, the centrality of uncertainty and issues of complexity. The review has consequently not led to a significant questioning of the literature. There

¹¹⁹ This is addressed in Section 6.8.5

¹²⁰ <http://www.alarm-uk.org/PDF/Alarm%20National%20Performance%20Model.pdf> (Last accessed 26/10/11)

The origins of Alarm are as the Association of Local Authority Risk Managers, hence the origin of the name as an acronym (ALARM). It has now become a membership body for risk managers in the wider public sector

¹²¹ www.alarm-uk.org/news/2011/core_competencies.aspx (Last accessed 26/10/11)

are some extremely useful and interesting ideas for the later stages of the research in the published standards and guidelines.

The likelihood / impact model of risk is well established and not challenged. The need for a consistent risk assessment approach across an organisation is clearly stated. The core approach which is repeatedly referred to is that of the impact / likelihood risk matrix. Whilst the published standards and guidelines are, as a whole, not clear about either matrix size or the basis of determining matrix size, the limited comments on this issue are consistent with current practice, as summarised in Figure 6.1. ISO 31010 is helpful here, suggesting that *a high level of accuracy is not warranted*¹²². The guiding principle would appear to be that a risk matrix should only be as large as is necessary to provide sufficient differentiation between likelihood and impact / consequence levels. This appears to be a pragmatic judgement. It would be consistent with the contextual dependence of the definition of risk, as established for Research Question One, for the matrix size to be similarly dependent on its context. An interesting extension of the issue of matrix size is provided in *The Orange Book*¹²³. The plot of risks within the cells of a 3 x 3 matrix suggests either a level of analysis beyond that necessary for the simple three-level analysis in each dimension or scope for judgemental adjustment within the core three-level analysis. Uncertainty as a key characteristic of strategic risk is clearly established within the published standards and guidelines: more clearly so than within documented current practice.

The summary of risk assessment approaches, though of course not complete, provides a useful source of soft assurance. Twenty-eight of the approaches are not appropriate to the research context and two of the remaining three have been concluded to be worth serious consideration only if a multi-dimensional construction of risk is adopted. This leaves the well-established likelihood / impact risk matrix approach. Whilst it would be wholly inappropriate to conclude that this must be the approach adopted by the research, the breadth of ISO 31010 and the absence of identified alternatives amongst these indicate the thoroughness of the research.

The emerging breadth of the support from all stages of the research so far presented to address Research Question Two for a risk matrix approach to assessing strategic risk, combined with the *following sector norms* data from the supplementary interviews¹²⁴, provides a compelling case for exploring a risk matrix-based approach as part of the research to address Research Question Two, though not to the exclusion of exploring other approaches.

There is a clearer sense from the standards and guidelines that strategic risks have multiple impacts than is recognised in documented current practice. There is not, however, a proposed method for assessing risk which takes account of these multiple impacts. Controls are similarly clearly established as a significant factor in determining the level of risk. The Audit Commission places emphasis on reputation damage as an impact of risk, the emphasis on this in documented current practice would seem, at least in part, to be closely linked to the deemed authoritative nature of the Audit Commission publication amongst local authorities.

¹²² From the results for Research Question Two, we can see that there is a second element to this – it is about what is possible as well as what is warranted, and the need to avoid false precision

¹²³ See Figure 6.9

¹²⁴ See Table 6.10

The inherent and residual risk assessment points are clearly established in the published standards and guidelines. However, the uncertainties of control implementation and effectiveness, as established in the supplementary interview data, and ways to take them into account in risk assessments are not clearly provided for.

The relevance of stakeholder issues emerges clearly from the published standards and guidelines. However, clarity as to who those stakeholders are or how they might be identified does not. The Audit Commission cautions against unnecessary consultations.

The recognition of multiple risk cases in the March Report commentary of ISO 31000 is an invaluable insight, and one that it is surprising not to see presented more widely. The description and subsequent assessment of risks on the basis of best, most probable and worst cases is extremely persuasive, not least as a way of embracing the inherent uncertainties. This is a key issue to take forward to later stages of the research to address Research Question Two. It does, of course, have direct parallels with the limited literature on fuzzy approaches to risk assessment¹²⁵.

Documented current practice has been found to be largely silent on issues of timing and time scales. The published standards and guidelines are clearer on the need for risk assessments to be undertaken with reference to defined time-horizons and ISO 31000 adds a useful indication that the consequences of risk events may change as time moves on from the initial impact, adding clarity that the impact assessment should be on the basis of the ultimate consequences within the defined time horizon. This also suggests that the time-horizon should not be too short, leaving risks to develop further beyond that too short time horizon.

The positioning of the risk assessment process in the research context as one of *preliminary analysis* is a useful contribution from ISO 31010. It helps to clarify the comparatively quick, broad-brush nature of the process and differentiate it from some of the far more resource intensive methodologies described in the standard. Similarly, the ALARP concept presented in Figure 6.11 provides a very welcome clarity to the issue of defining risk seriousness and the links to the issue of risk matrix traffic-lighting.

The guidance in ISO 31010 on defining the upper bound of the lowest likelihood category is potentially very significant. By indicating that it should be the highest point at which the most serious impact category is tolerable, it provides a starting point for the calibration of both the likelihood and impact / consequence¹²⁶ dimensions of risk, and for calibrating the risk appetite / tolerance zones within the risk matrix. This is a key idea to be explored in the later stages of the research.

The Charity Commission guidance provides a challenging, simple adjustment to the well-established impact / likelihood risk matrix with ordinal scoring of each dimension. The expedient of multiplying the two ordinal scores and adding an additional factor based on the impact score is at the same time an attractively simple idea and a potential example of a poorly thought through adjustment to the standard method which may create more problems than it solves. The review of documented

¹²⁵ For example, Grassi et al (2009)

¹²⁶ From the core guidance, the most serious impact /consequence category must be such as to define impacts / consequences that are intolerable at all but the very low levels of likelihood, it must therefore be defined to be other than at this very high level of seriousness

current practice in the UK and beyond has provided a number of powerful examples of the latter which combine to provide apparently cogent evidence for rejecting the Charity Commission's approach. The credibility of the source and the potential simplicity of the approach are such that it will be taken forward but on a very cautious basis given the body of evidence cautioning against such an approach.

6.3 Analysis of Risks from Multiple Sources

This section draws together the results from analysis of risk data from local authorities and from independent sources.

6.3.1. Local Authorities' Risk Registers

Concerns about the completeness of local authorities' risk registers were raised during the research to address Research Question One¹²⁷. They have subsequently been used with caution and no generalisable conclusions about the types of risk recorded have been sought to be drawn. The further analysis and review of the risk registers for Research Question Two reinforced these concerns.

The risk registers were all found to record risks on the basis of likelihood and consequences / impact. All the local authorities in the sample recorded the assessed residual / current risk level and twenty four percent also recorded the assessed inherent risk level. A slightly largely proportion recorded a target risk level; that is the assessed level of risk after taking into account the assumed effects of identified additional controls.

For each risk register, the extent to which the information and assessment recorded for each risk provided a clear understanding of the risk and what would happen were each risk to occur was considered by the researcher. Overall, the position was found to be that this understanding was not communicated. A small number of exceptions provided fuller information and these were found to lack coherence and consistent content as regards the potential consequences of the risks recorded.

With just one exception, the risk registers recorded very little detail of the anticipated impacts. Only in this exceptional case was it possible to get a clear understanding of the anticipated overall impact. A risk description was found to be normally provided but this usually concentrated on the risk, rather than the impacts. The detail of relevant controls was also found to be limited with some providing no details at all, one specifying a single control for each risk and a few providing a list of controls. No assessments of control effectiveness were found to be included in the risk registers other than for the District Council whose likelihood assessment is presented in Table 6.1 and treats issues of control effectiveness as the driver of likelihood.

Nearly seventy percent recorded a risk score calculated on the basis of multiplying ordinal scores for likelihood and impact. The remainder provide just a positional value, e.g. C2¹²⁸, the assessed level of risk as defined by the traffic-lighting or a positioning of the risk in a thumb-nail risk matrix.

¹²⁷ Section 3.4.1.1

¹²⁸ Figure 6.2 provides an example of this approach

All of the risk registers were consulted for the risk data set and twelve directly contributed to it¹²⁹.

Reflections

Local authorities' risk registers have been found to be of limited value as a source of research data. There is significant evidence of compliance with documented current practice and consistent reference to residual risk, sometimes accompanied by the inherent and / or target risk positions. Cross-referencing of the risk registers to the supplementary interview data for the local authorities concerned indicates that the risk registers are a poor indicator of the level of work and understanding involved in assessing risks. The value of this element of the research is limited to the provision of compliance evidence and as a source for the Risk Data Set, which is critical for the modelling stages of the research to address Research Question Two.

6.3.2. Risk Event Database

The risks identified to populate the risk event database are shown in Table 6.12. Also shown are the source(s) for each risk and the extent to which their impact can be understood with reference to the seven impact categories defined by the research summarised in Table 6.6, with the additional of a final *Other* impact category. As established in Chapter 4, for clarity risks in the Risk Events Database are referred to as REDx, e.g. RED9.

The analysis in Table 6.12 shows that forty-eight of the forty-nine risks in the risk event database (98%) have fitted the seven impact categories. The remaining risk – RED33 – proved to be a little problematic. This risk concerns a fundamental change in *the ways in which the local authority operates and/or its functions & responsibilities*. This risk was analysed to have the potential to give rise to impacts in all categories except Betrayal of Trust. It could also be argued that the risk was too loosely defined and needed to be more fully understood and then redefined on the basis of this greater understanding. The approach taken fits the preliminary analysis approach defined in ISO 31010.

¹²⁹ See Section 6.6.2

Table 6.12: Risk Event Database – Analysis of Impact Categories

Risk	Which of the Following Categories can be Used to Describe the Total Consequences as Set Out in the Media Report(s)?								Source Reference(s)
	Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage	Betrayal of Trust	Other	
1 Failed legal action v former Managing Director (CEO)	✓		✓		✓	✓	✓		http://news.bbc.co.uk/1/hi/england/gloucestershire/8598288.stm (Last accessed 23/09/12)
2 Abuse and death of a vulnerable child and subsequent legal issues, including employment law, compensation and regulatory intervention	✓	✓		✓	✓	✓	✓		http://www.bbc.co.uk/news/uk-england-essex-16646579 (Last accessed 20/01/12) http://www.bbc.co.uk/news/uk-england-london-17109901 (Last accessed 21/02/12) http://www.bbc.co.uk/news/uk-england-birmingham-20935424 (Last accessed 07/01/13) http://www.bbc.co.uk/news/uk-england-hereford-worcester-21859804 (Last accessed 20/03/12) http://www.bbc.co.uk/news/uk-england-south-yorkshire-21941133 (Last accessed 26/03/13)
3 Local authority poorly run (a "shambles")	✓		✓	✓	✓	✓		LA's ability to function	http://www.bbc.co.uk/news/uk-england-dorset-17015042 (Last accessed 16/02/12)
4 Errors in issuing car parking fines	✓			✓					http://www.bbc.co.uk/news/uk-england-shropshire-15375489 (Last accessed 21/10/11)
5 Financial management errors during project to develop new housing	✓				✓	✓			http://www.bbc.co.uk/news/uk-england-northamptonshire-16791024 (Last Accessed 02/02/12)
6 Council high earners use "tax avoidance scheme"						✓			http://www.bbc.co.uk/news/uk-politics-17339374 (Last accessed 13/03/12)
7 Wrongful attempt to put children into care	✓	✓			✓	✓	✓		http://www.bbc.co.uk/news/uk-england-coventry-warwickshire-11418694 (Last accessed 31/8/11)
8 Breach of procurement law resulting in need to pay damages or other sanction(s)	✓				✓	✓			http://localgovernmentlawyer.co.uk/index.php?option=com_content&view=article&id=5743%3Acouncil-to-pay-damages-after-breaching-procurement-rules-in-housing-services-tender&catid=53%3Aprocurement-and-contracts-articles&q=&Itemid=21 (Last accessed 31/08/11) http://www.bbc.co.uk/news/uk-england-london-11833904 (Last accessed 25/11/10)
9 Inability to achieve required cost savings ("cuts")	✓		✓	✓				LA's ability to function	http://www.publicservice.co.uk/news_story.asp?id=13591 (Last accessed 23/09/11) Public Finance May 2011 pp 12-13 http://www.publicnet.co.uk/abstracts/2012/02/02/councils-will-find-increasing-difficulty-in-managing-cuts/ (Last accessed 28/09/12) http://www.bbc.co.uk/news/uk-england-coventry-warwickshire-21856848 (Last accessed 20/03/13)
10 Failure to secure and protect sensitive personal data	✓	✓			✓	✓	✓		http://www.bbc.co.uk/news/uk-england-london-17012345 (Last accessed 13/02/12) http://www.worcesternews.co.uk/archive/2007/02/26/Kidder+News+Latest+%28kidder_news_latest%29/1219709.Laptop_theft_sparks_worker_anger/ (Last accessed 23/09/12) http://www.bbc.co.uk/news/uk-england-lancashire-17363814 (Last accessed 23/09/12) http://www.bbc.co.uk/news/uk-england-hereford-worcester-13842137 (Last accessed 31/08/11) http://www.bigbrotherwatch.org.uk/home/2011/11/local-authority-data-loss-exposed.html#disqus_thread (Last accessed 24/11/11)
11 Sexual misconduct by very senior person		✓			✓	✓	✓		http://www.bbc.co.uk/news/uk-england-hereford-worcester-14719343 (Last accessed 31/08/11) http://www.bbc.co.uk/news/uk-england-hereford-worcester-17596064 (Last accessed 03/04/12)

Risk	Which of the Following Categories can be Used to Describe the Total Consequences as Set Out in the Media Report(s)?								Source Reference(s)
	Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage	Betrayal of Trust	Other	
12	Errors in law by social worker leading to collapse of child protection case in court	✓	✓			✓		✓	http://www.familylawweek.co.uk/site.aspx?i=ed1139 (Last accessed 13/08/11)
13	Large payroll error - payment of monies to which the payee is not entitled	✓					✓		LA victim of fraud http://www.bbc.co.uk/news/uk-england-kent-18074577 (Last accessed 22/05/12)
14	Procurement fraud	✓					✓	✓	LA victim of fraud http://www.lgcplus.com/briefings/corporate-core/legal/former-kent-officer-used-fees-to-buy-jaguar/5033375.article (Last accessed 23/09/12) http://www.brokenbarnet.blogspot.co.uk/2011/08/barnet-kent-head-of-procurement-facing.html (Last accessed 17/08/11)
15	Loss of control of major project	✓		✓	✓		✓		http://www.publicservice.co.uk/news_story.asp?id=17256 (Last accessed 23/09/11) Public Finance Mar 2012 p 7
16	Future demand for new service greatly over-estimated / Failure to publicise new service	✓			✓		✓		http://www.bbc.co.uk/news/uk-england-bristol-14717672 (Last accessed 31/08/11)
17	Death as a result of new traffic scheme introduced by the local authority		✓					✓	http://www.bbc.co.uk/news/uk-england-coventry-warwickshire-17038711 (Last accessed 15/02/12)
18	Conduct by member of staff that could be interpreted as an abuse of position for small scale personal financial gain	✓					✓	✓	LA victim of fraud http://www.bbc.co.uk/news/uk-england-london-11414453 (Last accessed 23/10/10)
19	Heavy-handed council tax arrears action against person with known, serious mental health problems	✓	✓			✓	✓	✓	http://www.bbc.co.uk/news/uk-england-devon-18100375 (Last accessed 17/05/12)
20	Contractor paints road bridge the wrong colour or makes other error which is potentially embarrassing for the local authority but no more						✓		http://www.bbc.co.uk/news/uk-england-hereford-worcester-15902507 (Last accessed 27/11/11) http://www.bbc.co.uk/news/uk-england-wiltshire-22158829 (Last accessed 16/04/13)
21	Whistle-blowing case mis-handled		✓		✓		✓		http://www.bbc.co.uk/news/uk-england-merseyside-17009338 (Last accessed 13/02/12)
22	Embarrassing error that is easily rectified, but could have been easily avoided	✓					✓		http://www.bbc.co.uk/news/uk-england-york-north-yorkshire-13873091 (Last accessed 22/06/11)
23	Large volume of pot hole repairs required as a result of bad winter	✓	✓		✓		✓		http://www.bbc.co.uk/news/uk-england-12253364 (Last accessed 23/09/12)
24	Serious failure to support schools resulting in regulatory intervention				✓	✓		✓	http://www.bbc.co.uk/news/uk-wales-south-east-wales-14136356 (Last accessed 23/09/12)

Risk	Which of the Following Categories can be Used to Describe the Total Consequences as Set Out in the Media Report(s)?								Source Reference(s)
	Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage	Betrayal of Trust	Other	
25 Large theft by a senior member of staff	✓					✓		LA victim of fraud	http://www.bbc.co.uk/news/uk-england-beds-bucks-herts-12587243 (Last accessed 23/09/12) http://www.bbc.co.uk/news/uk-england-21619287 (Last accessed 28/02/13)
26 Local authority deems it necessary to take legal action to protect the reputation of elected councillors	✓					✓			http://www.bbc.co.uk/news/uk-england-tyne-13588284 (Last accessed 23/09/12)
27 Conduct of member of staff in private life attracts adverse media attention						✓	✓		http://www.thesun.co.uk/sol/homepage/news/4065414/Catholic-school-secretary-Kerri-Mallier-is-kinky-hooker.html (Last accessed 23/09/12) http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-14345227 (Last accessed 31/08/11)
28 Failure to run the local authority as a whole satisfactorily	✓	✓	✓	✓	✓	✓	✓		Daily Telegraph 20/04/10
29 Failure to treat highly vulnerable older people and their families with care and respect for their needs and dignity	✓	✓		✓	✓	✓	✓		http://www.bbc.co.uk/news/uk-england-leeds-16035922 (Last accessed 24/09/12) http://www.bbc.co.uk/news/uk-england-coventry-warwickshire-21856848 (Last accessed 20/03/13)
30 Sports facilities do not have expected durability and have to be closed, repaired or replaced earlier than planned	✓			✓					http://www.bbc.co.uk/news/uk-england-sussex-19318050 (Last accessed 24/09/12)
31 Misconduct by high profile member of staff and the way in which it is handled	✓	✓		✓	✓	✓	✓		http://www.bbc.co.uk/news/uk-england-cornwall-19671528 (Last accessed 24/09/12) http://www.bbc.co.uk/news/uk-england-cornwall-21936009 (Last accessed 26/03/13) http://www.bbc.co.uk/news/uk-england-cornwall-20753790 (Last accessed 18/04/13)
32 Breakdown in relationship between council and chief executive			✓	✓			✓	LA's ability to function	http://www.bbc.co.uk/news/uk-england-cornwall-19754847 (Last accessed 29/09/12) http://www.bbc.co.uk/news/uk-england-cornwall-20142435 (Last accessed 01/11/12) http://www.bbc.co.uk/news/uk-england-cornwall-20752970 (Last accessed 17/12/12)
33 New legislation fundamentally changes the ways in which the local authority operates and/or its functions & responsibilities	✓	✓	✓	✓	✓	✓		LA's ability to function	Public Finance Feb 2011, pp 6-7 Public Finance Aug 2011 pp 7 & 10
34 Failure to meet regulatory standards in social care	✓	✓			✓				Public Finance Feb 2011, p 18
35 Managers inadequately trained and developed				✓					Public Finance Mar 2011, pp 40-41
36 Wrong staff identified for redundancy		✓			✓	✓			Public Finance April 2011, pp 42-43
37 High cost schemes to address social problems do not work	✓		✓						Public Finance Nov 2011, pp 8-9

Risk	Which of the Following Categories can be Used to Describe the Total Consequences as Set Out in the Media Report(s)?								Source Reference(s)
	Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage	Betrayal of Trust	Other	
38 Over-payments to suppliers	✓							Controls	Public Finance Nov 2011, p 44 http://www.bbc.co.uk/news/uk-england-somerset-14528783 (Last accessed 17/08/11) http://www.bbc.co.uk/news/uk-england-birmingham-21959487 (Last accessed 27/03/13)
39 Staff lack soft skills to enable them to do their jobs well, e.g. influencing and negotiating skills				✓					Public Finance Dec 2011 p 49 Public Finance Feb 2012 pp 42-43 http://www.bbc.co.uk/news/uk-england-somerset-14528783 (Last accessed 17/08/11)
40 Shared services arrangements between local authorities fail to deliver	✓		✓	✓	✓	✓	✓		Public Finance April 2012 pp 32-34 Public Finance Oct 2012 pp 32-35
41 Failure of provider of contracted-out care services	✓	✓	✓	✓				✓	Controls Public Finance May 2012, p19
42 Pension fund risks ineffectively managed	✓				✓				Controls Public Finance Jul/Aug 2012 p 45
43 IT systems insecure / "Cybercrime"	✓			✓				✓	Controls Public Finance Sep 2012 p 45
44 Administrative error causes inconvenience and small financial loss to large number of local people				✓		✓			Controls http://www.thisisexeter.co.uk/North-Devon-residents-council-tax-taken-day-early/story-13238026-detail/story.html (Last accessed 31/08/11)
45 Large errors made in budget setting and longer-term financial planning						✓			Controls http://www.bbc.co.uk/news/uk-england-cambridgeshire-20926776 (Last accessed 06/01/13) http://www.cambridge-news.co.uk/News/More-cuts-as-council-gets-sums-wrong-04012013.htm (Last accessed 06/01/13)
46 A series of errors and problems create a sense that the authority lacks competence and cannot be trusted						✓		✓	Controls http://www.cambridge-news.co.uk/News/More-cuts-as-council-gets-sums-wrong-04012013.htm (Last accessed 06/01/13)
47 Allegations are made that a service provided to another local authority has been delivered negligently or incompetently	✓					✓			Controls http://www.bbc.co.uk/news/uk-england-cornwall-21259454 (Last accessed 30/01/13) http://www.bbc.co.uk/news/uk-england-cornwall-21936009 (Last accessed 26/03/13)
48 A member of staff behaves improperly whilst delivering services to the public	✓			✓				✓	http://www.bbc.co.uk/news/uk-england-hereford-worcester-21900971 (Last accessed 27/03/13)
49 Changes to council tax benefit / support arrangements cause a substantial increase in non-payment rates and losses	✓								http://www.bbc.co.uk/news/uk-21963257 (Last accessed 28/03/13)

The following detailed judgements were made in performing the analysis in Table 6.12 and helped to clarify the potential scope of the impact categories.

- Interventions and investigations by the external auditor have been taken to be regulatory action
- Similarly, investigations and interventions by ombudsmen have been treated as regulatory action
- Issues of staff morale have been assumed to impact on service delivery at the lower end and harm to people and breach of trust at the higher end
- A risk with the potential for the local authority to be the victim of fraud, e.g. RED25 was deemed to be a matter of financial loss and reputation damage, though it was also recognised that it could be seen as a betrayal of trust by the local community as a failure to protect public money in the stewardship of the local authority

Some difficulty was experienced as regards reports of failures and the point at which these apparent demonstrations of a lack of care and/or competence would be sufficient to constitute a betrayal of trust and/or source of reputation damage. These issues served as reminders of the issues of context and reputation raised in the literature and the published standards and guidelines, particularly ISO 31000.

Reflections

The analysis has shown that there is a clear difference in focus between the general and specialist media; the latter providing greater context-specific detail. An example of this is the ability to discern issues of control. The general media reports have not touched on the achievement of local authorities' corporate objectives. If the reasonable assumption is that these issues are unlikely to be interesting to lay audiences, this is not surprising. Nevertheless, a review of Table 6.12 suggests that this element of the analysis is weak. This view is also consistent with Harcup and O'Neill (2001)¹³⁰ and their conclusions as to *What is News?*¹³¹

The analysis indicates the potential for duplication between the achievement of objectives and service delivery categories of impact. If a service is important, its effective delivery is likely to be an objective for the local authority at either the corporate or a subsidiary level. The approach taken in Table 6.12 implies that a failure would cause two impacts: the service failure and the failure to achieve an objective.

The risk event database has become a key source of research data and analysis to address Research Question Two. The sheer diversity of the risks contained in the database says a great deal about the diversity of local authority strategic risk and further reinforces the concerns about the completeness of local authorities' own risk registers. The database also says a great deal about uncertainty, particularly epistemic uncertainty. In carrying out the analysis, a recurrent thought for

¹³⁰ This is a highly cited paper in the journalism literature with 355 citations, per Google Scholar, as at 13/10/13 and is considered in more detail in Section 6.4.6

¹³¹ See Section 6.4.6

the researcher was a desire for more information about the individual risks and the developing sense that this information was often not available. Access to sources, experience and expertise within a local authority would have helped but would not have removed many of the uncertainties.

The analysis supports a dual conclusion that the proposed categories of impact, including a final *Other* category are sufficient to capture the multiple impacts / consequences of local authorities' strategic risks, and that a significant element of judgement will always be necessary to assess the potential impact / consequences of strategic risks. The need for such judgements supports the supplementary interview data which indicate a need for specialist support and co-ordination of the risk assessment process. A simple example from the risk event database is the need to interpret the financial loss category as embracing the diminution in the value of damaged, destroyed or lost assets. A second example is provided by the potential for double-counting, for example between harm to people and betrayal of trust in cases of upset, stress and anxiety. A specialist risk assessment co-ordinator would be able to anticipate and address such problems during the risk assessment process. Attempts within the research to specify the categories in sufficient detail to avoid this need were soon aborted, proving to be cumbersome and of little real value. The co-ordination would also be critical in maximising consistency by ensuring that similar interpretations are applied across the local authority. The value of the *Other* category has been more clearly established by this analysis than had previously been the case. This arises, for example, in the case of the risk of fraud and the apparently special nature of such events in a public sector organisation.

The database again raises the issue of the relevance of a risk that might undermine the ability of the local authority to function in the future, for example RED32 and RED33. This would seem to be partly a matter of the impact, for example the impairment of corporate objectives, and partly a matter of the overall seriousness of the risk.

The data very clearly support the need to take control issues into account when assessing local authority strategy, a need that has now become well established across the research as a whole. The analysis does not address how this might be done.

The analysis raises difficult questions about the importance of reputation damage to a local authority and its importance within the management of strategic risk in local authorities. The sources of the data are media reports. As shown in Table 6.5, the very existence of these negative media reports would be deemed to be a significant risk impact / consequence at most local authorities. Clearly, these local authorities seek to carefully protect their reputations and the impact / consequence assessment model should enable this dimension of risk to be constructed and assessed to take this into account. It should also enable it to be disregarded, as a few local authorities currently do.

The media report that provided the source for Risk RED47 suggests that there is a cumulative effect on reputation damage that arises from a number of media stories indicating a lack of competence, with the potential damage to reputation from a single event being greater because it has been preceded by other similar events¹³².

¹³² This will be seen later to be an indication of the relevance of starting conditions within a complex system (Section 6.4.1)

The literature raised the issue of a potential stakeholder dimension of risk¹³³. The analysis of the risk event database confirms the importance of stakeholder issues and indicates that these can be taken into account within the impact / consequence assessment. Of particular relevance is the betrayal of trust element. Specific consideration of the stakeholder issues indicates a need to be clear as to whose trust is relevant in making this element of the assessment of impact / consequences.

6.3.3. Annual Audit Letters

The results of the analysis of the risks identified from the annual audit letters are presented in Table 6.13.

¹³³ See Section 2.4.3

Table 6.13: Annual Audit Letters – Analysis of Impact Categories

	Risk	Local Authorities at which this was Raised		Which of the Following Categories can be Used to Describe the Total Consequences as Set Out in the Media Report(s)?							
		Number	%	Financial Loss / Cost	Harm to People	Failure to Achieve Corporate Objectives	Service Interruption and Quality	Legal / Regulatory Action v the Local Authority	Reputation Damage	Betrayal of Trust	Other
1	Balancing the budget / necessary savings not achieved	20	100%	✓		✓		✓			
2	Inefficient use of resources and value for money	15	75%	✓		✓			✓		
3	Insufficient unallocated reserves to provide a cushion to absorb risk	12	60%	✓							
4	Errors and/or delays in the annual accounts occur	12	60%					✓	✓		
5	Benefits and/or other frauds are perpetrated	8	40%	✓				✓	✓		✓
6	Joint working arrangements with other councils inappropriate / ineffective	8	40%	✓			✓				
7	Serious weaknesses in financial systems cause losses or other problems	7	35%	✓			✓			✓	
8	Pension fund deficit not effectively addressed	6	30%	✓							
9	Procurement and/or commissioning arrangements fail, e.g. legal non-compliance	6	30%	✓				✓	✓		
10	Partnership arrangements are inappropriate / ineffective / fail	5	25%	✓			✓				
11	Treasury management systems fail, including losses in Icelandic banks	5	25%	✓					✓	✓	
12	Non-compliance with legal and/or regulatory requirements	5	25%					✓	✓		
13	Workforce planning and staff development procedures are ineffective / fail	4	20%				✓			✓	
14	Project management and decision-making procedures are ineffective / fail	3	15%				✓				
15	Capital programme and major capital projects are inappropriate / fail	3	15%	✓		✓	✓		✓		
16	Stakeholder involvement in planning and change management is insufficient / ineffective	3	15%				✓			✓	
17	Management arrangements, structures and culture are inappropriate / ineffective	3	15%			✓	✓			✓	
18	The implementation of an important new system fails / is inefficient	2	10%	✓			✓				
19	Risk management processes are ineffective / fail	2	10%	✓	✓	✓	✓	✓	✓	✓	
20	Change management programmes are inappropriate / ineffective / fail	2	10%			✓	✓				
21	External changes impact negatively on the council	2	10%	✓			✓				
22	Controls and assurance arrangements are ineffective / inefficient	2	10%	✓	✓	✓	✓	✓	✓	✓	
23	IT systems are insecurity or lack resilience	2	10%	✓			✓	✓		✓	
24	Necessary legal and/or regulatory permissions are not obtained	2	10%					✓			
25	Demand for services increases beyond current capacity / resource levels	1	5%	✓	✓	✓	✓		✓	✓	
26	Ineffective / inefficient arrangements are made for new unitary status	1	5%	✓		✓	✓				
27	Management of new functions and responsibilities is ineffective / fails	1	5%	✓		✓	✓			✓	
28	Safeguarding arrangements for children fail	1	5%	✓	✓	✓	✓	✓	✓	✓	
29	VAT efficiency not maximised / VAT errors occur	1	5%	✓				✓			
30	The council's activities are not environmentally sustainable	1	5%								✓

As established in Chapter 4, for clarity, risks identified from annual audit letters are referred to as AALx, e.g. AAL9.

Reflections

Even from the limited perspective of the external auditor, the annual audit letters have shown the diversity of strategic risk in local authorities and reinforced the concerns about the completeness of local authorities' own risk registers.

The expected range of impacts for the risks identified from the annual audit letters have been found to be able to be analysed using the impact categories developed and refined by analysis of the risks in the risk event database and presented in Table 6.12. The analysis for the annual audit letter risks is presented in Table 6.13.

The analysis supports the need for a residual impact category (*Other*). Whilst the analyses in Table 6.12 and 6.13 indicate that it is likely to be little used, it appeared necessary for Risks AAL 30 and AAL 5. The latter again raises the question of the possible special nature of fraud in a public sector organisation.

6.4 Subsidiary Literature Reviews and Analyses

This section contains the results of the focused reviews of the literature with respect to complexity, fuzzy approaches and scenario planning and the results of the analysis of their relevance to Research Question Two. It then considers issues of control effectiveness and stakeholder issues, finishing with a brief consideration of the possible lessons for the research from the literature on news values and what constitutes a news-worthy story about a local authority.

6.4.1. Complexity

The research to address Research Question One has established that strategic risk in local authorities is in part a complex thing: serious risks are predominantly complex and 81% of the risks in the Cynefin sample were found to have some complex characteristics¹³⁴. Kiel (2005) would seem to suggest that this is not an unexpected result: the study of public administration being concluded to need to embrace complexity theory as public bodies are inherently complex¹³⁵. Morçöl (2005) suggests that part of the complexity of public policy problems arises due to the socially constructed nature of those problems¹³⁶. A reassuringly consistent conclusion from the literature review¹³⁷ is that strategic risk in local authorities shares this socially constructed nature. Morçöl¹³⁸ goes on to emphasize the importance of definitions in this context, again an issue that emerges from the literature review¹³⁹. From the literature¹⁴⁰, the key characteristics of complex systems can be seen to be:

- A complex system is one in which small changes in inputs can result in large changes in outputs and it is, hence, non-linear;

¹³⁴ See Section 4.4.2

¹³⁵ *ibid*, p269

¹³⁶ *ibid*, p308

¹³⁷ Section 2.5.1

¹³⁸ *ibid*, p308

¹³⁹ Section 2.2.1

¹⁴⁰ Grobman (2005); Kiel (2005); Mainzer (1997), Morçöl (2005); Rhodes et al (2011); Snowden (2002); and Snowden & Boone (2007)

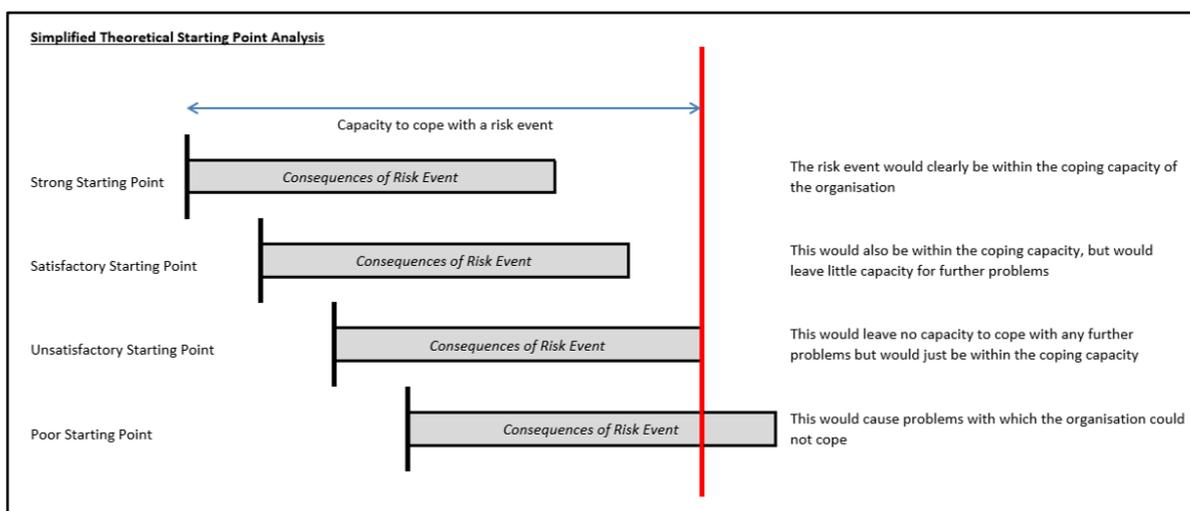
- The importance of starting conditions;
- The importance of interactions and the collective effect of those interactions;
- The inappropriateness of seeking to apply probabilistic models to complex systems;
- The criticality of context;
- Complex systems require more sophisticated models than simpler systems;
- Complex models need not be quantitative and can help to bridge the quantitative / qualitative divide; and
- Being socially constructed is a source of complexity.

A meta-message is that local authority strategic risk models must be grounded in their specific context, follow the definition adopted for such risk, and may have to be more detailed than might superficially appear to be necessary. Complexity is a fundamental source of epistemic uncertainty: a point echoed by Snowden (2002) and Snowden and Boone (2007).

The current practice impact / consequence assessment tools analysed in Section 6.2.1.1 demonstrate non-linearity in the defined levels of impact, as indicated by the analysis around Figures 6.6 and 6.7 and the subsequent discussion.

Risk data to input to a risk assessment model clearly needs to include the significant starting conditions. This need is effectively illustrated in Figure 6.13, which presents the effects of the same risk event given varying favourable / unfavourable starting conditions.

Figure 6.13: The Relevance of Starting Conditions to the Assessment of Risk



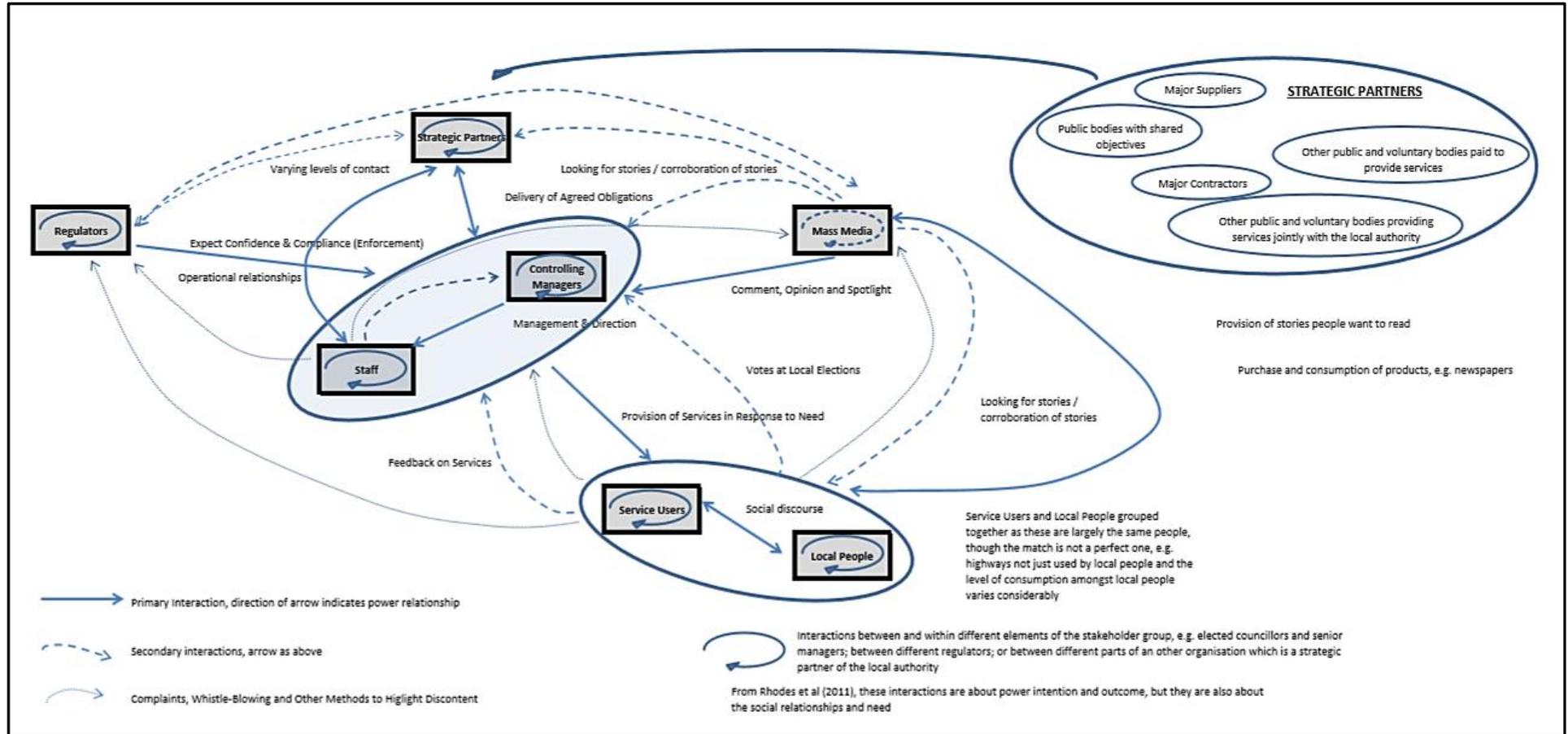
The interactions are more difficult. Even a simplified representation of the potential stakeholder interactions associated with a possible local authority service failure presented in Figure 6.14 shows the sheer impossibility of anticipating these in a risk assessment model, and this does not include starting condition variations and process interactions. This reflects the epistemic uncertainty of complex systems due to their very complexity. The only reasonable conclusion is to seek to identify and reflect those significant starting conditions, the range of potential outcomes and the associated

uncertainty, remembering Jablonowski's¹⁴¹ warnings about not fooling ourselves with false precision. Morçöl's view that public policy, and by implication the most difficult of public sector risks, is "*staggeringly complex*" and has outcomes that are "*not precisely predictable or controllable*"¹⁴² seems to have a particular resonance in the light of this analysis. Rhodes et al (2011) are clear about the need to focus on outcomes rather than inputs and interactions: in a risk context, it is the ultimate impacts / consequences that will matter and not the details of the mechanisms by which they will be generated. Hence, risk assessment models in the complex context of local authority strategic risk may need to be more sophisticated than might at first be thought to be necessary, so as to reflect this complexity.

¹⁴¹ Jablonowski (2000)

¹⁴² Morçöl (2005, pp313-314)

Figure 6.14: Simplified Mapping of Stakeholder Interactions



The key message for Research Question Two that emerges from the complex nature of local authority strategic risks, as identified by the Cynefin analysis to address Research Question One, is the need for assessment models to include a focus on starting conditions and outcomes. There needs to be consideration of the specific risks associated with poor starting conditions and changes to them arising from risk events. The non-linear nature of strategic risks needs to be recognised, a point that makes risk assessment models that take into account multiple impacts particularly challenging. A focus on outcomes, rather than intermediate effects, raises the question of time horizons. This has been addressed by ISO 31010 but is very rarely addressed in current practice. Complexity is a key source of uncertainty for strategic risk in local authorities and makes probabilistic approaches to risk assessment inappropriate, and cause and effect relationships are not identifiable other than with hindsight, which is of little use in the risk assessment context.

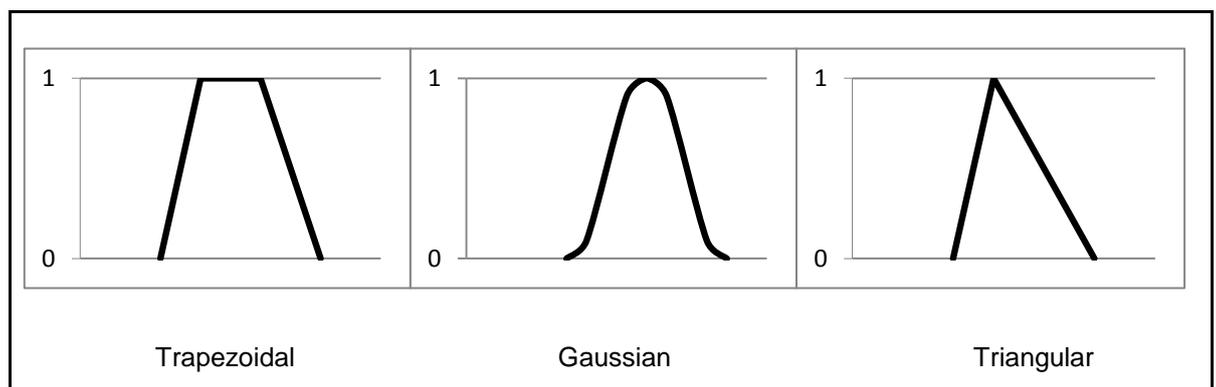
6.4.2. Fuzzy Approaches

Conceptually, fuzzy logic is very simple. It is a move away from established “*crisp*” bivariate logic. Instead of “Yes” / “No”, “A” or “Not A” values, fuzzy approaches recognise degrees of membership so that, for example a fuzzy value could be 0.9 of A and 0.1 of B or 0.3 of A, 0.5 of B and 0.2 of C. The approach recognises uncertainty and avoids false precision; both identified by the literature review¹⁴³ as key objectives for risk assessment models¹⁴⁴.

Applied to the assessment of strategic risk, a fuzzy impact assessment model developed from current local authority practice could, perhaps, assess the impact of a risk as 0.6 “*Major*” and 0.4 “*Catastrophic*”, not least because it may be a risk that has never actually happened, providing no historical impact data, and there may be uncertainty about, for example, the financial loss that would be incurred or whether the risk event would trigger regulatory intervention.

Nunes (2010) describes the three most commonly used representations of fuzzy numbers: trapezoidal, Gaussian and triangular, as illustrated in Figure 6.15.

Figure 6.15: Representations of Fuzzy Numbers



In the trapezoidal case there are four values which combine to describe the fuzzy number, three in the triangular and two in the Gaussian. In the trapezoidal and triangular cases the first value is that

¹⁴³ See Section 2.6.1

¹⁴⁴ There is a resonance here with issues of *sufficient precision*, for example Hänninen (1995), though uncertainty and the results of the subsequent research come to imply that the issue is most appropriately characterised as one of possible or achievable precision

at which membership ceases to be 0 and the last value is that at which it becomes 0 again. In the triangular case, the middle value is that at which membership is 1 and in the trapezoidal case the middle two values are the start and end values of the range within which membership is 1. In the Gaussian case the two values define the central value and the distribution.

In the uncertain and complex context of local authority strategic risk, there appears to be no clear basis for defining a distribution for the membership function. The shape may be Gaussian but it may also be convex or the two arms may be of unequal length, for example. Such an approach would be too rigid in this context. The representation of a fuzzy number is just that: a representation and not a probability distribution. The significant values are the three or four that define the fuzzy number. Unlike a probability density function¹⁴⁵, the values are not intended to imply associated probabilities. They are a *“useful approximation in the absence of data”*¹⁴⁶, an absence whose existence is confirmed by the Cynefin analysis as part of the research to address Research Question One.

The trapezoidal and triangular forms do not have the immediate weaknesses of the Gaussian in the strategic risk context. Applying these to a fuzzy number for the financial loss associated with a risk (i.e. a fuzzy assessment of the financial impact of that risk) might result in (1000, 3000, 8000) in the triangular representation and (1000, 2500, 3500, 8000) in the trapezoidal. The former would indicate a lowest anticipated value of £1,000, a highest of £8,000 and a best estimate of £3,000. In the latter, trapezoidal, case the fuzzy number would indicate a lowest anticipated value of £1,000, a highest of £8,000 and a best estimate of between £2,500 and £3,500.

The trapezoidal representation appears problematic in the risk assessment context, implying an equal likelihood for all values between the second and third numbers - £2,500 and £3,500 in the above example - whereas the triangular representations provide a much simpler single-value best estimate.

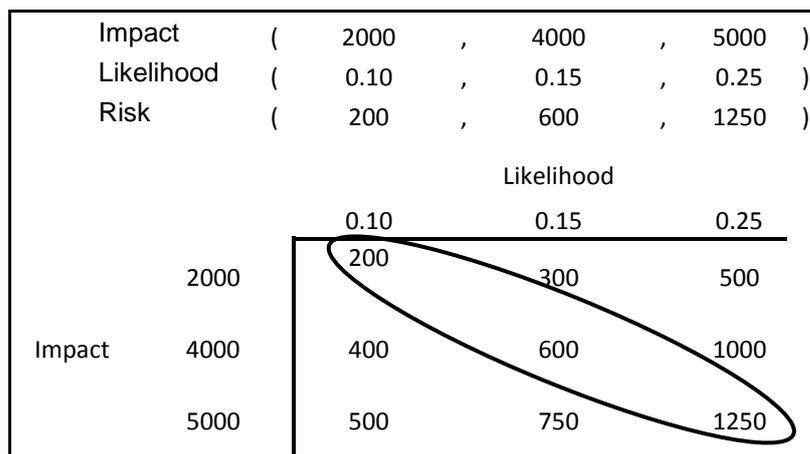
In contrast to the situation described by Durbach and Stewart (2012) of triangular membership functions being *“widely used but often with little meaningful justification”* (p10), there can be seen to be a clear justification for the form of fuzzy number proposed. The triangular representation is preferred as a representation of a fuzzy risk assessment as it embraces the three numbers which could reasonably be assumed to be able to encapsulate the essence of the fuzziness without implying or forcing inappropriate and constant adherence to a specific distribution for all risks. It also has a greater visual immediacy, a further contribution to the accessibility of the underlying picture. This position is reinforced and developed by the consideration in section 6.4.3 of the insights and influences from the scenario planning literature.

Mathematical operations with fuzzy numbers are elegantly simple as long as they are from a ratio scale, as illustrated in a tentative risk example in Figure 6.16.

¹⁴⁵ See for example Grey, 1995

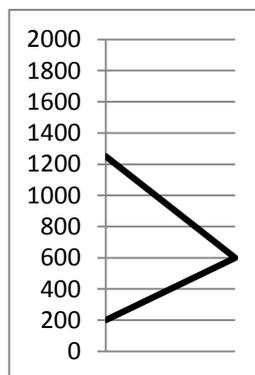
¹⁴⁶ Robinson (2004), p105

Figure 6.16: A Simple Fuzzy Risk Assessment Calculation



The table at the bottom of Figure 6.16 shows the nine possible combinations of the elements of the fuzzy numbers for impact and likelihood and clearly shows why the multiplication of the like elements in the ordered fuzzy numbers for impact and likelihood (e.g. best case impact element x best case likelihood element = best case risk element) results in the fuzzy number for the risk on the basis of its impact and likelihood. Critical to this is the ordering of the fuzzy numbers for impact and likelihood, both being ordered on the basis of (best case, mostly likely case, worst case). The values must be on a ratio scale, necessitating a welcome departure from the current practice ordinal scale models of impact and likelihood assessments¹⁴⁷. The triangular representation of this fuzzy risk assessment is shown in Figure 6.17.

Figure 6.17: Triangular Representation of the Example Risk Assessment



The vertical scale presents the level of risk and the horizontal component exists to give clarity to the triangular form. It is not otherwise significant.

This approach to fuzzy risk assessment requires the values in the fuzzy numbers to be on a ratio scale. In the strategic risk context this could be achieved by equating the categories of impact with the level of financial impact deemed to be equivalent. This would not be a significant departure from current practice in local authorities, which has been found to define each level of impact in terms of a range of impacts, one of which is almost always financial, and then assume an equality between impacts deemed to be at the same level. Common current practice is already to define likelihood with reference to estimated probabilities, providing the basis for a ratio scale. Figure 6.7 and the

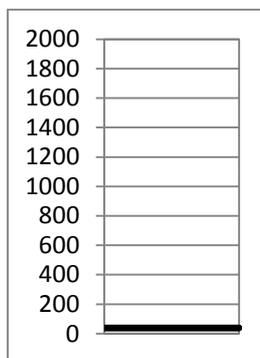
¹⁴⁷ A point of reconciliation with the non-linear nature of complex risk will need to be found if this is to be taken forward within the research

associated analysis have already explored this transformation of a current practice model to explore the associated expected values. This approach would appear to offer a point of reconciliation with the non-linear nature of complex risks and accessibility of the risk assessment outputs to decision-makers.

Fuzzy approaches have the potential to allow for variability in the level of uncertainty between different risks. A risk may have little uncertainty about its impact but there may be a much greater uncertainty about whether it will happen. Similarly, two different risks with the same most likely impact may have considerably different best and/or worst case impacts. This provision for variability can be achieved by providing the ability to specify fuzzy values on an individual dimension and individual risk basis thus bringing the ability to, for example, differentiate a risk which would almost certainly result in death, if it were to happen, from one which would probably result in death but which also has a significant, perhaps 40%, likelihood of a far less serious outcome. The overall uncertainty in a risk presented as a triangular fuzzy number risk assessment output is indicated by the range from the best to the worst case values. This approach avoids the weakness in Grassi et al (2009) of assuming consistent levels of uncertainty.

In the theoretical case of a simple risk about which there is no significant uncertainty, the three elements of the fuzzy numbers for impact and likelihood could be the same, for example (1000, 1000, 1000) and (0.04, 0.04, 0.04), resulting in a crisp risk assessment value, in our example (40, 40, 40). Figure 6.18 shows how such an assessment could be presented. The results of the Cynefin analysis for Research Question One suggest that it would be rare for a risk to be quite this simple.

Figure 6.18: Triangular Representation of a Simple, Crisp Risk



A risk assessment approach based on triangular fuzzy numbers appears to have the potential to produce a risk assessment that reflects the uncertain, and variably uncertain, nature of strategic risks. The next question is whether or not to adopt a process of defuzzification: a “*transformation that bridges the uncertainty-orientated domains and certainty-orientated domains*”¹⁴⁸ by converting a fuzzy number into a crisp one.

The centre of gravity, or centroid, defuzzification strategy, for example, takes the centroid of the fuzzy number to summarise the fuzzy number in a single, crisp value. In doing so, the richness of the fuzzy number appears to be lost and assumptions must be made about the shape of the

¹⁴⁸ Roychowdhury and Pedrycz (2001, p680)

distribution represented by the elements of the fuzzy number in determining the defuzzification algorithm. Such assumptions cannot easily be made, not least because there is no reason to assume that the distribution would be constant for all risks. Indeed, it seems wholly reasonable to assume that it would be different for different risks. More fundamentally, given the uncertainty of risk, the bridge into the crisp would seem to be most appropriately made at the decision-making stage by those who are responsible and accountable for those decisions and not at an earlier stage by those carrying out or supporting the risk assessment. If we follow the message from the literature and the research, the uncertainty should inform the decisions and not be hidden from the decision-makers. To do so, would be to fail to heed Jablonowski's (2000) warning about false precision. To take a very simple example, a fuzzy risk assessment (1000, 2000, 6000) would indicate a risk with a substantial level of uncertainty, particularly as to the worst case. The centroid would be the mean of the three values, namely 3,000. To present this as the risk assessment output would hide both the uncertainty and the worst case potential of the risk. It might, at the same time, also be seen to overstate the risk as the crisp value is 50% higher than the assessed most likely case. An approach that presents risk assessments on a fuzzy basis to retain the richness of the fuzzy risk assessment and not dilute its overall significance, would be a significant departure from both Nasirzadeh et al (2008) and Grassi et al (2009)'s approach of including a defuzzification stage. Such an approach would, however, require a new approach to ranking risks for management decision-making.

6.4.3. Insights and Influences from Scenario Planning

Scenario planning techniques appear to provide invaluable insights to inform the development of a fuzzy approach to strategic risk assessment.

The "*ultimate aims*" of scenario approaches as set out in Hodgkinson and Wright (2002, p958) are compellingly relevant to strategic risk management and can be embraced with only slight amendments [in square brackets] to fit the risk context, both as an immediate source of focus for risk management and as a spur for a more detailed review of the scenario literature for insights and influences:

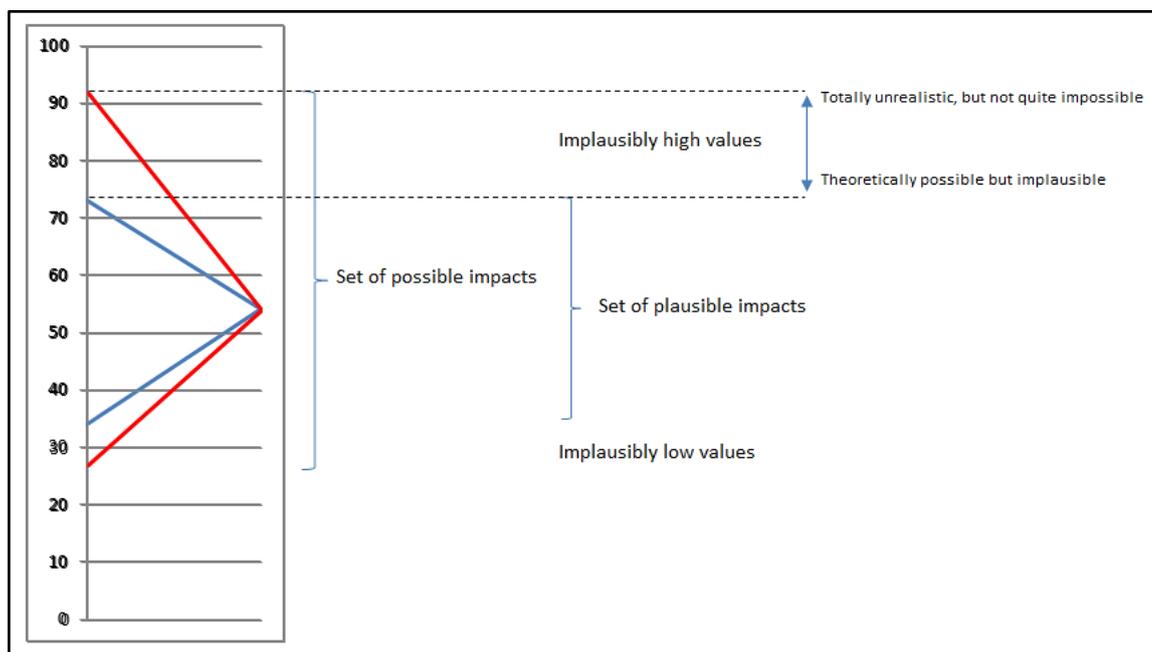
- a) "*To question systematically the adequacy of the extant strategic [risk management arrangements] ... over the medium-to-long*"; and
- b) "*Should it prove necessary, to generate new strategic alternatives that will ensure the longer-term viability of the [organisation]*".

A key stage in scenario planning is the definition of scenarios which set out "*alternative plausible futures that ... collectively bound the medium-to-long term uncertainties*" (Hodgkinson and Wright, 2002, p957). The emphasis is on tailoring the specification of these to the problem need and there is significant support (Vanston Jr. et al, 1977; Bezold, 2010) for the most likely scenario being one of these. There is a clear and compelling resonance with the specification of the fuzzy risk cases. Whilst the scenarios to be developed for other strategic management problems may be different (for example "*aspirational futures*" or "*paths to surprising success*" (Bezold, 2010) or exclude a most likely case), in the strategic risk context it would seem to be most appropriate to adopt three: the most favourable situation and outcome; the most likely situation and outcome; and the worst

situation and outcome. The best and worst case scenarios are commonly used ones and the logic in Section 6.4.2 for fuzzy approaches is pertinent here.

Strategic risks in local authorities, often being complex¹⁴⁹, can have many causative elements and interactions, both before and after they have started to happen. As a matter of simple probability theory, if each of these individual elements is assumed to be the absolute best or worst case, the probability of the risk as a whole will be so low as to be implausibly unrealistic and so not a reasonable basis for a risk assessment. If, however, scenario planning approaches are followed, we can define these cases as being the plausible best and worst cases. These provide a narrower set than the absolute best and worst cases, excluding purely fanciful scenarios, and so form a better basis for meaningful (plausible) risk assessment. This is illustrated in Figure 6.19.

Figure 6.19: Use of Insights from Scenario Planning to Define the Fuzzy Risk Set



The most likely case will locate between these two values but its position need not be predefined as it can be assumed to vary between risks. Indeed, it would be a mistake to seek to do so, just as it would be a mistake to seek to fit risks to a predefined distribution or to appear to do so. The potential for identifying “*still worse and unlikely outcomes*” is highlighted by Paté-Cornell (2002, p640) and used to support the use of “*plausible upper bounds*”¹⁵⁰ in risk assessments, with the effect of truncating the probability distribution by excluding the implausible but theoretically possible extremes of that distribution.

Scenario planning takes a long time, due, for example, to the use of participative techniques such as workshops (Owen and Daskin, 1998; Durance and Godet, 2010). Durance and Godet, for example, tell us that it “*requires time to be done right, and a 12- to 18-month timeframe is not rare*”¹⁵¹. These timescales are wholly inconsistent with the tight time and resource constraints of the risk assessment task in local authorities. Hence, whilst drawing insights and influences from scenario

¹⁴⁹ This is a key finding of the research to address Research Question One

¹⁵⁰ Paté-Cornell (2002, pp 638-9), as discussed in Section 2.7.4

¹⁵¹ *ibid*, p1489

planning, the methodology is not directly applicable to the risk task when many tens of such assessments typically need to be carried out quickly and regularly. The characterisation of the tasks in ISO 31010 as a *preliminary analysis* adds clarity to this practical requirement¹⁵².

The scenario planning literature (for example, Vanston Jr. et al, 1977; Schoemaker, 1995; Hodgkinson and Wright, 2002; O'Brien, 2004; Durance and Godet, 2010) also reminds us of the importance of:

- Developing a full understanding of each scenario;
- Including all critical relevant factors;
- Consistency within and between scenarios;
- Focusing on a medium-to-long term time horizon so that possible outcomes are defined once an equilibrium state has been reached, avoiding too short-term a focus;
- Seeking to overcome bias;
- Gathering informed judgements and forming a consensus;
- Avoiding the tendency to think too narrowly when generating scenarios;
- Developing scenario narratives to engage the imagination of analysts and decision-makers; and
- The need for honesty and openness in defining scenarios.

The factors that could inform a risk assessment have provided a substantial element of the specification for the risk data set. These have been able to be provided for within a single page risk template incorporating the consistent definition of all three risk cases (scenarios). In addition, they suggest a need for only modest additions to current process documents and practitioner training, both of which are already a common feature of risk management practice in local authorities. The exception is the last point, the need for honesty and openness, which is primarily a matter of organisational culture and stakeholder maturity, not risk assessment methodology. The issues about the risk assessment, for example overcoming bias, are primarily a matter for training and system documentation and guidance for risk assessors.

The scenario planning literature advocates the development of scenarios that “*describe generically different futures rather than variations on one theme*” (Schoemaker, 1995, p30). It would not, however, be appropriate to make any such provision for the three risk cases. It may be that they emerge as “*generically different futures*”. It may be that they emerge as “*variations on one theme*”. This should be left to reflect the judgement of those assessing each risk and the details of those risks are not pre-defined.

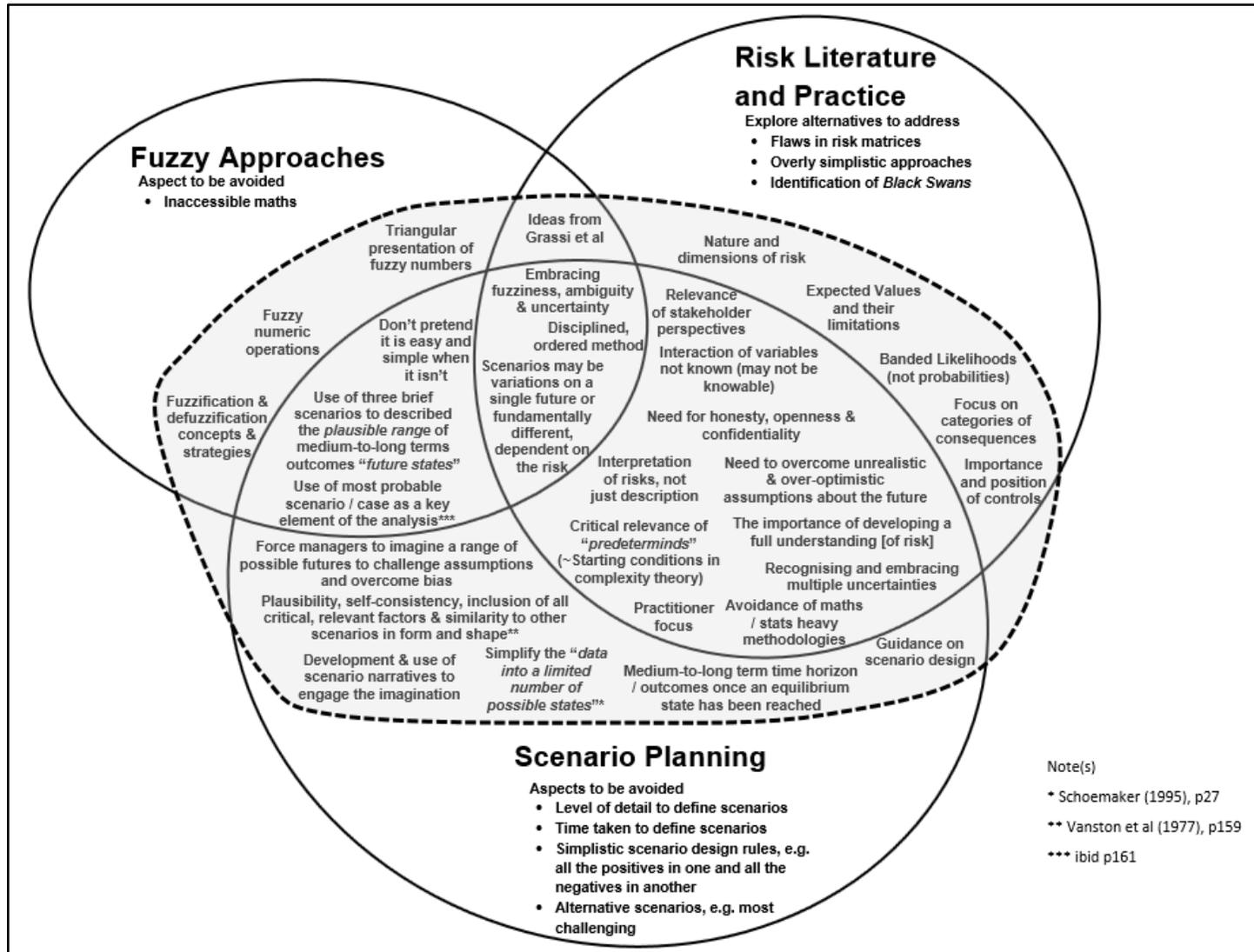
The potential synergies between risk assessment and scenario planning approaches have recently been noted and explored in the context of supply chain network risk modelling (Klibi and Martel, 2012). However, theirs is a time-intensive analysis undertaken by experts. The research application is rather different. A risk assessment approach specifically for local authority strategic risk that

¹⁵² See Section 6.2.3.4

adopted scenario planning techniques to inform the development of fuzzy cases (scenarios) would need to be one for non-expert use in a tightly time and resource constrained application and to be able to support the regular assessment of substantial numbers of very different risks.

Figure 6.20 shows the extent of the potential contribution to the research offered by fuzzy approaches, scenario planning and the risk literature, the central shaded area being the overall contribution from the three sources.

Figure 6.20: Fuzzy Approaches, Scenario Planning and Risk



6.4.4. Controls and Risk Event Diagrams

Risks do not exist in a vacuum. Managers are expected to take steps to make risks less likely to happen and/or to reduce the consequences if they do happen. These management arrangements are the controls and mitigations, which for convenience are referred to in this thesis under the collective term of controls.

Control Effectiveness and Confidence

The issue of controls and their effects on risk has emerged as a key issue for Research Question Two, both from the literature review¹⁵³ and from the results of the research set out earlier in this chapter. The latter includes the review of current practice, the review of standards and guidelines and the findings from the analysis of the data in both the risk event database and the risks derived from annual audit matters. Indeed, Code 10 from the supplementary interview data suggests that controls may be a more important aspect of risk than likelihood, given a real chance of a risk happening. This would be especially so if a precautionary approach is taken to risk management. Given the overall conclusion that controls are a critically important aspect of risk, it is striking that there is so little to draw on as to how to assess their effectiveness within an overall strategic risk assessment.

At this stage of the research it is clearly established that risk can be, and commonly is, assessed at the inherent and residual risk levels. That is without and with the assumed mitigating effects of controls. It is also clearly established that current practice, with the sole notable exception set out in Table 6.1, makes a false assumption that the controls are suitable, in place and operating reliably. It may be that current practice includes informal judgemental adjustments to allow for this but no evidence of such practices has been seen and the supplementary interviews support this. The problem is to seek to locate the level of risk between the inherent and residual levels. These are effectively worst and best cases for control effectiveness.

As established in Section 2.4.3, Grassi et al (2009), writing about health and safety risk in the workplace, propose a model of risk which includes dimensions to reflect the level of confidence that key controls and mitigations will actually be in place and operating reliably – the lower the confidence, the greater the risk – and the undetectability of the risk event at a sufficiently early stage for countermeasures to be put into operation to reduce those consequences. Table 2.2 shows that others raise similar issues. Leitch (2008), however, tells us that the “*better quantification*” of control judgements is a key challenge for the future¹⁵⁴. This has been specifically identified as Gap in Knowledge 12 to be addressed by the research to address Research Question Two.

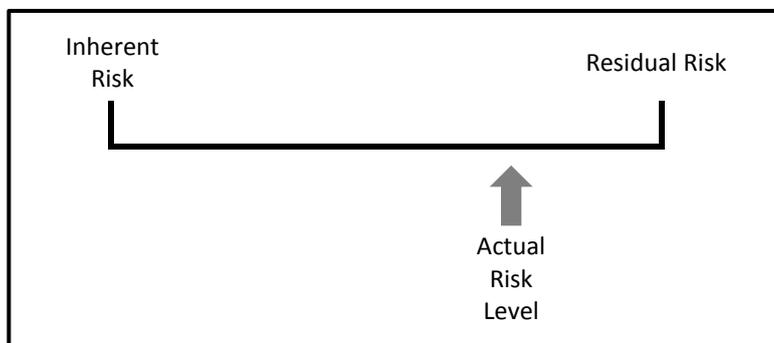
From the starting point of the well-established practice of assessing inherent and residual risk positions, control effectiveness can be seen not to be a dimension of risk in the sense that likelihood and impact / consequences are dimensions of risk. It is of course a critically important aspect of

¹⁵³ See the summary of risk models in Table 2.2

¹⁵⁴ “*It’s ironic that internal controls thinking, despite being a movement led by the big audit firms (of accountants), has paid almost no attention to quantifying risks or the benefit of controls in a credible, mathematically competent, and data-supported way*” (ibid, p244)

risk. The risk assessment task as regards controls must be to position a risk between the inherent and residual risk levels. If the controls are not working, the current level of risk is at the inherent level. If those controls are wholly effective, the current level of risk is at the residual level. If they are partially effective, it will be at an intermediate position, as illustrated in Figure 6.21.

Figure 6.21: Positioning of Actual Risk Level



The supplementary interview data indicate that the position illustrated is the usual one. Hence, a methodology for positioning risk is essential. The only current practice approach of relevance here is that set out in Table 6.1, which inappropriately treats control effectiveness as a matter of likelihood. From this and a wider reading of the professional internal audit literature, it can be tentatively seen that control effectiveness is a function of the following:

- The quality and relevance of the control design;
- Whether the control(s) are actually operating;
- The reliability of the operation of the control(s);
- The number and inter-operation of controls, i.e. the *system* of internal control as a whole;
- Issues of resilience within the system of internal control;
- Behavioural and cultural issues, for example the extent to which compliance with defined controls is seen and promoted as a central responsibility for all staff or as burden and barrier to creativity; and
- The extent and reliability of available assurance as to the effectiveness of the controls and the system of internal control.

It must be the case that controls and, even more so, control systems for complex risks are complex. The extent of the above issues affecting the effectiveness of the controls must also be uncertain, partially as a result of this complexity and partially as a result of wider uncertainties.

A key source of comment on local authorities' internal controls is the reports of those authorities' internal auditors. These are not generally publically available documents. However, a total of eleven have been obtained for the research: either directly from local authorities on a confidential basis, or online. The reports consistently provide an opinion on the internal controls with respect to the subject of the report, for example the local authority's payroll system. In every case seen, the

opinion is generalised, guarded and fuzzy, such as the following from the London Borough of Newham¹⁵⁵.

Figure 6.22: Example of Local Authority Internal Audit Opinions on Controls and Control Systems

Audit Opinion
<p>Our opinion is provided to enable all our stakeholders¹ to assess the control environment within the area subject to audit. In addition, it enables the Chief Internal Auditor to construct an annual opinion on the control environment. The opinion is based on the results of the audit work carried out, the scope of which is defined by the Audit Objective and Scope of Review stated above.</p> <p>Our opinion has four levels of assurance. These are:</p> <p><i>Full Assurance</i> as there is a sound system of controls and controls are being consistently applied. Consequently, risk exposure is very low.</p> <p><i>Substantial Assurance</i>. While there is basically a sound system of control, there are weaknesses in the system and there is evidence of non-compliance with some of the controls. Risk exposure, is therefore, increased.</p> <p><i>Limited Assurance</i> as the system of control is weak and there is evidence of non-compliance with the controls that do exist. The level of risk exposure is not acceptable.</p> <p><i>No Assurance</i> as there is no system of control in place and, therefore, risk exposure is unlimited.</p>

The form of these opinions reflects the epistemic uncertainties. Quite simply, the internal auditor does not, and could not, have the complete knowledge that would be necessary to make a precise and wholly reliable statement on the effectiveness of the controls that have been audited.

A key problem in quantifying control effectiveness is that a control may need to operate many times a day for the full period of the time horizon, perhaps 5 years, to be wholly effective. Just one failure may be enough to avoid preventing a disaster. Hence, the superficial algorithm that, say, a control that operates 90% of the time is 90% effective is fundamentally flawed. Bad luck or deliberate abuse, for example a carefully planned fraud, could mean that that one control failure in a number of years is enough for the worst to happen.

The current research concerns strategic risk in local authorities and its scope does not extend to a detailed exploration of the quantification of the effectiveness of internal controls in local authorities. However, the research has clearly established that such a quantification model appears to be an essential element of a model for assessing strategic risk in local authorities, and so for Research Question Two. Consequently, a tentative model has been developed for use in the research on the basis of the matters raised in this section. It is recognised that substantial further research is necessary to refine this tentative model. In defence of this approach, the objective of the risk assessment process has been established to be to inform management decision-making concerning the risks assessed. If the positioning of risks between the inherent and residual positions errs on the side of caution, this will highlight risks which may be serious due to a lack of robust confidence in the associated controls and provide an imperative for management attention to be directed towards that

¹⁵⁵ <http://mgov.newham.gov.uk/mgConvert2PDF.aspx?ID=25143> (Last Accessed 19/01/12)

lack of confidence: an appropriate and desirable outcome. This approach is consistent with the position stated in ISO 31010¹⁵⁶ that a high degree of accuracy is not needed.

The approach illustrated in Figure 6.22 of defining a small number of control levels, rather than seeking to establish a sophisticated control effectiveness / confidence scoring model has tentatively been assumed to be a good one and the following risk confidence model proposed for use in the later stages of the research.

Table 6.14: Tentative Control Confidence Model

	Confidence Level	Notes
Appropriate and effective controls are considered to be in place and operating reliably and There is reliable independent assurance that this is the case	100%	This is the level at which the residual risk position can confidently be used without adjustment or doubt
Appropriate and effective controls are considered to be in place and operating reliably (It is assumed that this would be the default position in a well-managed environment)	90%	This is the slightly reduced level at which the manager(s) are confident in the controls but lack independent sources of assurance
Managers have slight doubts about controls but there are significant sources of assurance that the controls are adequate and effective, and there is no evidence of significant control failure having occurred	80%	This is an intermediate level to reflect the situation in which the control system may be thought to be less than perfect but there are significant sources of confidence that these do not present a serious problem
Managers are not wholly confident about the overall quality of the internal controls but there is no evidence of significant control failure having occurred	60%	This level reflects the potential for quite small control gaps to let serious failures happen – the % level has been set to provide a significant departure from the residual position to highlight the concerns within the risk assessment
Controls have been seen to be weak but not wholly unreliable	25%	At this level the value of the controls is known to be in serious doubt and so confidence must be low
The controls must be assumed not to be in operation	0%	This is the inevitable consequence of there being no confidence in the controls - they must be ignored and risk assessed at the inherent risk level

The intermediate percentage levels are such as to incentivise managers actively seeking reliable assurance as to the effectiveness of controls.

Further research is needed to develop this model for quantifying control confidence. This could include consideration of control complexity, the history of control failure and the availability, extent and reliability of the various possible sources of control assurance, for example internal and external audit reports.

¹⁵⁶ See Section 6.2.3.4

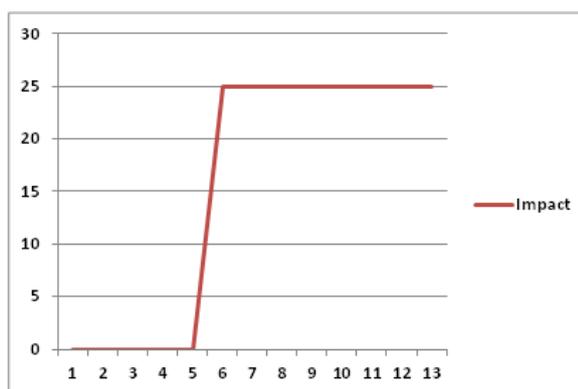
Risk Event Diagrams

As identified by the research, ISO 31010 states that the consequences of a risk event may be different from those that are initially experienced. The full effects may take some time to develop and become clear. This links closely to the need to assess risk with reference to a defined time horizon, a need that the research has found largely not to be addressed by current practice.

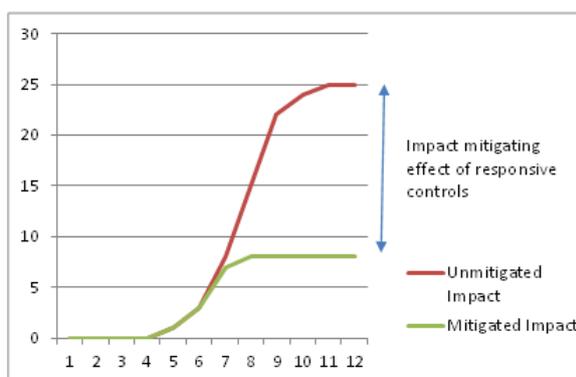
Simple risk event diagrams have been developed for the research and serve to illustrate and develop understanding of these related issues. These diagrams also provide a simple basis for considering the detectability dimension suggested in the literature¹⁵⁷.

Figure 6.23: Risk Event Diagrams

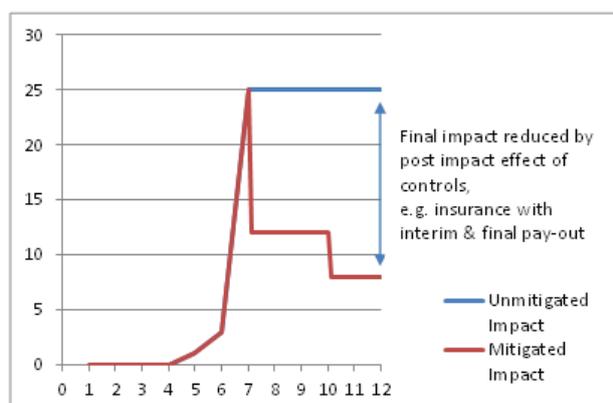
A) Near instantaneous full impact



B) Slow Impact with Time for Detection and Responsive Mitigation



C) Fast Impact with Post-Impact Mitigation



¹⁵⁷ See Table 2.2

The horizontal axis indicates the progression of time and the vertical axis a judgemental assessment of the risk impact. The diagrams indicate that it is the ultimate level of impact after the risk event has fully developed and after controls have had their full effect that matters. Given this, the issue of detectability is essentially irrelevant unless the period of time concerned is a number of years and none of the local authority strategic risks identified for the research would have such long delays before their effects are noticed. The importance of assessing risk, including the effects of controls, with reference to an appropriate time-horizon is confirmed by the analysis.

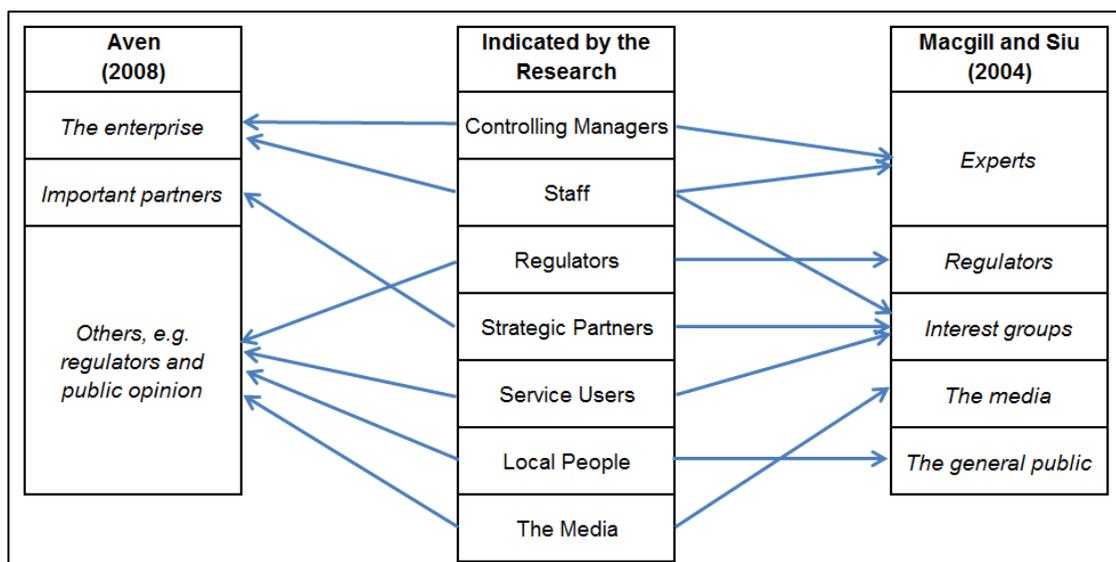
6.4.5. Stakeholders

A review of the risks contained in the risk event database, local authority risk registers and those identified from the sample of annual audit letters has indicated the following distinct stakeholder groups for strategic risks in local authorities.

- Controlling Managers
- Staff
- Regulators
- Strategic Partners
- Service Users
- Local People
- The Media

The comparison of these to the groups suggested in the risk literature¹⁵⁸ presented in Figure 6.24 indicates that they are consistent with the literature. However, they also provide a fuller, context specific list and, as suggested in the literature review, indicate a need to explicitly consider service users and staff in the local authority risk context. In addition, strategic partners also emerge as a significant stakeholder group.

Figure 6.24: Comparison of Emerging Stakeholder Groups to Those Suggested in the Literature



¹⁵⁸ Section 2.5.2

The groups identified have been used in the later stages of the research to address Research Question Two in two ways:

- To inform the development of the risk data used in the risk assessment modelling; and
- To inform consideration of a betrayal of trust element to the consequence dimension of risk in the risk assessment modelling, that is to provide clarity as to whose trust should be considered as possibly having been betrayed.

6.4.6. News Values

Table 6.15 sets out the results of the analysis of the risks in the risk events database against the *News Values* in Harcup and O'Neill (2001). This is a key paper in the journalism literature setting out the key elements of a story that make it news worthy and so likely to appear in the general media.

The identified values of relevance to the media aspects of strategic risk in local authorities risk are:

1. Entertainment,
2. Surprise;
3. Bad News;
4. Magnitude;
5. Relevance;
6. Follow-Up; and
7. Newspaper Agenda.

The most difficult of these for risk analysis is the first. The second, third, fourth and fifth essentially follow expected impact / consequence measures. The sixth and seventh hint at issues of starting conditions from complexity theory. If a similar risk event has happened before, the starting conditions will be less favourable because of that previous event and those starting conditions will also be less favourable for issues of particular interest to the media simply because such a story is more likely to be published if it arises. There is an implication behind both of these that the media agenda could change quickly, adding further dynamic complications to the reflection of starting conditions in local authority risk assessments. The follow-up value seems to be a very powerful explanation of the escalation of some recent risks, e.g. losses of personal data¹⁵⁹.

The more challenging result is that of media interest arising from a story being entertaining. There are a number of items in the risk event database, for example Risk RED20, for which this entertainment motivation would seem to be a significant element of the decision to publish, supporting the results of the analysis in Table 6.15 and their relevance to Research Question Two. The implication is that a risk assessment model that considers reputation damage arising from adverse media coverage to be part of the construction of risk needs to be used in the light of the simple question as to whether a potential risk event might be judged by the media to have the

¹⁵⁹ Risk RED10, Table 6.12

potential to be sufficiently entertaining to be published. This in turn seems to raise the question of how much such a story would really matter: a question of ambiguity to be addressed in the definition of the risk assessment model.

The News Values about *Power Elite* and *Celebrity* seem to be inherent in the local authority context and indicators that the media are likely to be interested in stories about risk events in local authorities. The wealth of material collected to populate the risk event database would seem to bear this out.

Overall, the analysis has helped to develop the understanding of the motivations behind news reporting about local authorities, which in turn serves to deepen the understanding of issues of reputation damage and their treatment with a local authority strategic risk assessment.

Table 6.15: Analysis of the Risks in the Risk Events Database Using the News Values in Harcup and O'Neill (2001)

News Values ^{a)} (pp278 – 279 [direct quotes])	Meaning (pp 278 – 279 [direct quotes])	Are There Indications of this in the News Items ^{b)} Informing the Risk Event Database?	Relevance to Media Aspects of Risk
1. <i>The Power Elite</i>	<i>Stories concerning powerful individuals, organisations or institutions</i>	Yes, local authorities seem to fall into this category themselves and so are a source of interest to the media	Not per se as this appears to be a factor in all the stories due to the nature of local authorities
2. <i>Celebrity</i>	<i>Stories concerning people who are already famous</i>	No, other further stories about the same interest creating a familiarity to their names	No (But may be relevant due to other factors)
3. <i>Entertainment</i>	<i>Stories concerning sex, showbusiness, human interest, animals, an unfolding drama, or offering opportunities for humorous treatment, entertaining photographs or witty headlines</i>	Yes, bridge painted the wrong colour and school secretary also working in the sex industry	Yes
4. <i>Surprise</i>	<i>Stories that have an element of surprise and/or contrast</i>	Yes – this is a common theme	Yes
5. <i>Bad News</i>	<i>Stories with particularly negative overtones, such as conflict or tragedy</i>	Yes – this is a common theme	Yes
6. <i>Good News</i>	<i>Stories with particularly positive overtones such as rescues and cures</i>	No	No (Assuming a negative event sense of risk)
7. <i>Magnitude</i>	<i>Stories that are perceived as sufficiently significant either in the numbers of people involved or in potential impact</i>	Yes – this is a common theme	Yes
8. <i>Relevance</i>	<i>Stories about issues, groups and nations perceived to be relevant to the audience</i>	Yes – this is a common theme	Yes
9. <i>Follow-Up</i>	<i>Stories about subjects already in the news</i>	Yes – this is a common theme	Yes
10. <i>Newspaper Agenda</i>	<i>Stories that set or fit the news organisation's own agenda</i>	Perhaps – this might have been a greater if more stories had been sourced from the popular press	Yes

a) "Although there are exceptions to every rule, we have found that news stories must generally satisfy one or more of the following" p278

b) Excludes items in specialist press for professionals working in the sector, e.g. *Public Finance*, the now monthly journal of the Chartered Institute of Public Finance and Accountancy (CIPFA)

6.5 Conceptual Risk Modelling

The *Rocks and Pebbles* conceptual risk model has provided a number of new insights and reinforced insights from the literature and from the preceding research, as presented in Table 6.16 and their research relevance drawn out.

Table 6.16: Research Relevance of the Insights from the *Rocks and Pebbles* Conceptual Model

Insight from <i>Rocks and Pebbles</i>	Research Relevance of this Insight
a) A focus on the organisation's objectives, and perhaps also on stakeholders' expectations, is important in strategic risk management	This is essentially a matter of reinforcement and a source of confirmation
b) There is an important place in risk assessment for specialist knowledge and expertise	This is essentially a matter of reinforcement and a source of confirmation
a) The seriousness of strategic risk has an organisation-specific element	This is a refinement of the understanding from the literature and research of the context-dependence of risk.
b) Starting conditions are critical and can seriously affect risk outcomes	This is a soft confirmation of the research findings to date.
c) Risk assessment should focus on final outcomes and not intermediate measures	This is a soft confirmation of the research findings to date.
d) It is essential that the defining characteristics of a truly serious risk are fully understood and that it is clear how these characteristics differ from those of less serious risks	This provides a level of clarity not previously obtained from the research. There are parallels between this insight and the ALARP concept presented in ISO 31010.
e) Risks need to be understood as fully as is realistically possible	This is a soft confirmation of the research findings to date.
f) Risk assessment processes should not worry too much about the minor risks, as long as they truly are only minor risks	This provides a level of clarity not previously obtained from the research.
g) Truly serious risks require great care <ul style="list-style-type: none"> • The ability to cope with serious risks is affected by the number of such risks borne by the organisation, particularly if they are concentrated in one part of it; and • The possibility of a risk so large that it could sink the organisation on its own should always be borne in mind 	These provide a level of clarity not previously obtained from the research.
h) Controls are an essential aspect of risk and its assessment	This is a soft confirmation of the research findings to date.
i) Carrying some risk is a characteristic of a healthy organisation	This is a new insight.
j) Temporally, the model contrasts the transient nature of the set of risks facing an organisation at any one time (the specific cargo) with the underlying permanence of the constituent material (risk per se).	This is essentially a matter of reinforcement and a source of confirmation, allied to a reminder of the likely temporal variation in the risks facing an organisation.

The conclusion from the conceptual modelling that it might present the basis for a risk assessment model has been heeded and a *Rocks and Pebbles* model developed. The model and the findings from its use and evaluation are presented in Section 6.8 as part of the overall presentation and analysis of the risk modelling.

6.6 Case Study and Risk Data Set

6.6.1. The Case Study

The development and use of the local authority risk case study and its subsequent use as the context for the risk data set have made a significant contribution to the research. The production of the case and its subsequent use in teaching on four occasions¹⁶⁰ has helped to provide confirmation of the researcher's overall coherent understanding of the topic area and its context.

Feedback on the case from academic staff within Warwick Business School has been positive and has emphasised the apparent authenticity and credibility of the case. It is, however, acknowledged that none of the academics concerned had a background or research / teaching interest in local authorities.

Development of the case study has resulted in a sharpened awareness of the volume of information that is needed to describe a risk so as to inform a risk assessment, particularly around the level of control in place to identify the actual risk level, and the epistemic uncertainties of strategic risk in local authorities. Allied to the latter has been an increased appreciation of practitioners' difficulties in dealing with uncertainties as to the likelihood, as originally identified from the supplementary interview data¹⁶¹.

The case study has provided a powerful reminder of the extent to which risk is defined by a varying combination of linguistic variables¹⁶² – *“a variable whose values are not numbers, but words or sentences in natural or artificial languages”*¹⁶³ – and numeric variables. The extent of this variation is defined partially by the risk (e.g. *it will cost £100,000 if it goes wrong, the chances are about 50/50*) and partially by the risk assessor. In the latter case, an accountant, for example, could reasonably be assumed to provide a more numeric assessment of a risk than others with less quantitative professional backgrounds and aptitudes.

The discussion of the case study with students has provided a powerful reminder of the importance of context, the extent of the ambiguities associated with strategic risk in local authorities, and its socially constructed nature. The need for risk assessments to be well informed and evidence-based has been similarly reinforced, as have the practical implications of uncertainty and the resulting lack of information and the possibility for contradictions within the information and opinions that are available. This experience has also served to validate the research judgement that the consideration of the matters raised in Research Question Two required the matters raised in Research Question One to have been addressed previously, particularly that of a context-specific definition of risk so that there is a clear answer to the question of what it is that is sought to be assessed.

¹⁶⁰ Undergraduates at the University of Warwick in 2012, undergraduates and postgraduates at Aberystwyth University in 2013 and 2014

¹⁶¹ See Table 6.9

¹⁶² Linguistic variables form a key element of some fuzzy approaches to problem solving and analysis

¹⁶³ Namin et al 2012, p218

6.6.2. Risk Data Set

The risk data set was produced following the methodology set out in Section 5.4.4. The objective was for the data set to be meaningful, typical, well founded in current practice and the local authority context, and wide-ranging. The judgement of the two validation interviewees¹⁶⁴ was that this had been achieved.

In completing the data set, a need for clarity between starting conditions and controls quickly emerged, there being the potential to classify some items as either. Relevant guidance on this was not found in the literature, and two working definitions were arrived at for the research. A control was defined as something within the system put in place by the organisation to reduce the likelihood of a risk happening, to reduce its consequences, or to reduce both. A starting condition was defined as something outside the system which has relevance to the operation of the system. Once settled, these definitions were found to be useful ones.

During the process of developing the risk data set, a clear sense emerged of the complicated and often complex nature of strategic risk in local authorities. Closely linked to this was a practical appreciation of the basic definition of complex systems – those in which a small change in inputs can lead to a large change in outputs. In the context of the risk data set, a clear sense developed that quite small changes to the risk data may lead to large changes in the assessed level of risk. Whilst reassuring in as much as it seemed to provide soft confirmation of the relevant elements of the research findings for Research Question One, it also brought into sharp focus the potential for errors or gaps in the data collected for a risk assessment to lead to serious flaws in the assessment result: a strong imperative to ensuring the reliability of the data collection. This is also a cogent argument in support of Jablonowski's position on avoiding false precision and not seeking to deny the uncertainties of risk and risk assessments.

The review of the insights and influences from scenario planning¹⁶⁵ led to the definition of two of the risk cases as being the plausible best and worst cases, rather than the theoretical best and worst cases. This judgement was quickly reinforced during the creation of the risk data set. It became clear that the latter would be wholly unrealistic, tending to be little more than a matter of things working out satisfactorily in the end (absolute best case) and it all ending in disaster (theoretical worst case), with little differentiation between individual risks. However, the possibility of being too cautious or too optimistic in defining the plausible cases was identified and recognised as needing to be actively guarded against.

The creation of the risk data for the three cases added significantly to the time taken to create the risk data set but provided a coherence that would not have been present without this approach. The supplementary interview data (Code 17) indicated that managers can find it difficult to plot risks into an individual cell in a risk matrix. The three case approach to the risk data set has provided a good illustration of this. There is very clear potential for risks to be able to be assessed at significantly different levels as a result of different perspectives on them, as represented by the three risk cases

¹⁶⁴ See Section 5.5.5

¹⁶⁵ Section 6.4.3

adopted for the risk data set. The definition of these cases arrived at by drawing on scenario planning approaches was found to be a useful one.

The control confidence model developed for the research and proposed in Section 6.4.4 is explicitly recognised to be tentative, requiring further research that is beyond the scope of the current research into local authority strategic risk. The completion of the risk data set has both provided a soft indication that the model takes account of appropriate and relevant factors, and reinforced the sense that significant further research is necessary. The control information in the risk data set provides a clear indication of the complicated and often complex nature of local authority control systems and the difficulty and subtlety of the judgements involved in determining the overall level of confidence in the controls that relate to a specific risk.

A review of the risk data set provides a significant insight into the uncertainties of the risks: whether the risk will happen; the consequences if it does; the associated stakeholder issues; and the effectiveness of the controls.

The research presented so far has raised concerns about the completeness of local authorities' risks registers and the entries in them. The creation of the risk data set has further reinforced these concerns, the risk registers being found to be a poor source of information for the risk data set. Only one local authority, a County Council, was found to provide sufficient information to enable the risk data set template to be completed largely on the basis of the information recorded about a similar risk by a local authority.

6.7 Summary of the Significant Research Findings from the Pre-Modelling Stages of the Research to Address Research Question Two

The preceding stages of the research to address Research Question Two have, in part, been designed to inform the design and evaluation of appropriate risk assessment models for strategic risk in local authorities. The key findings at this stage are summarised below and set out in detail in Appendix 8. The subsequent research builds on these findings, following their identified significance as described in Appendix 8, providing an indication of the thoroughness of the research.

The critical aspects of strategic risk in local authorities and its assessment have been found to be as follows.

- It is context specific.
- It is important within the local authority sector that sector norms are followed and doing so tends to be prioritised over innovation.
- The core dimensions of strategic risk in local authorities are likelihood and impact / consequences and these are ubiquitously brought together and presented in a risk matrix, an approach supported by ISO 31010 and which has both significant strengths and weaknesses, and there is a difficult balance to be struck between them.
- There is a consistently followed approach of breaking impact down into constituent categories, e.g. financial loss and reputation damage. The categories used and the number used vary

but there is a core that is used in most cases. The research has found a set of seven impact categories, plus a residual other category, that fit local authority strategic risks.

- The calibration of risk matrices, and of subsidiary likelihood and impact / consequences assessments is an important and challenging issue.
- The over-arching aspects of risk that must be reflected in the assessment of local authority strategic risk assessments are:
 - Ambiguity;
 - Complexity;
 - Uncertainty; and
 - Controls.

These have been found to be treated unsatisfactorily in current practice.

- Stakeholder issues are an important aspect of strategic risk in local authorities and form part of the overall ambiguity, the extent to which they are taken into account in a risk assessment model is ultimately a matter for the construction of risk at each organisation.
- Risk assessment methodologies should be designed to be appropriate and robust from the outset, adjustments to poorly designed approaches tend to create further problems.
- The *Rocks and Pebbles* conceptual model provides a potential basis for a simple, alternative risk assessment model.
- Fuzzy approaches appear to present an approach to risk assessment which reflects and embraces the associated uncertainties and scenario planning approaches can help to define the basis of the fuzzy numbers and the related fuzzy sets.
- Increasing resource constraints in local authorities are leading to both an increased need for effective risk management and for the risk management process to be as efficient as possible.
- Risks assessments should be designed to provide information for decision-makers that goes beyond a mere ranking of risks.
- Risk assessment models should not be too complex, but there is a difficult balance to be drawn with the need to reflect and embrace the complexities of strategic risk in local authorities: a high level of accuracy is not required from risk assessment models.

The research findings have been used to inform the development of the template for the risk data set - the risk data used for the risk modelling – and the development of the evaluation criteria for the risk models.

6.8 Risk Assessment Models

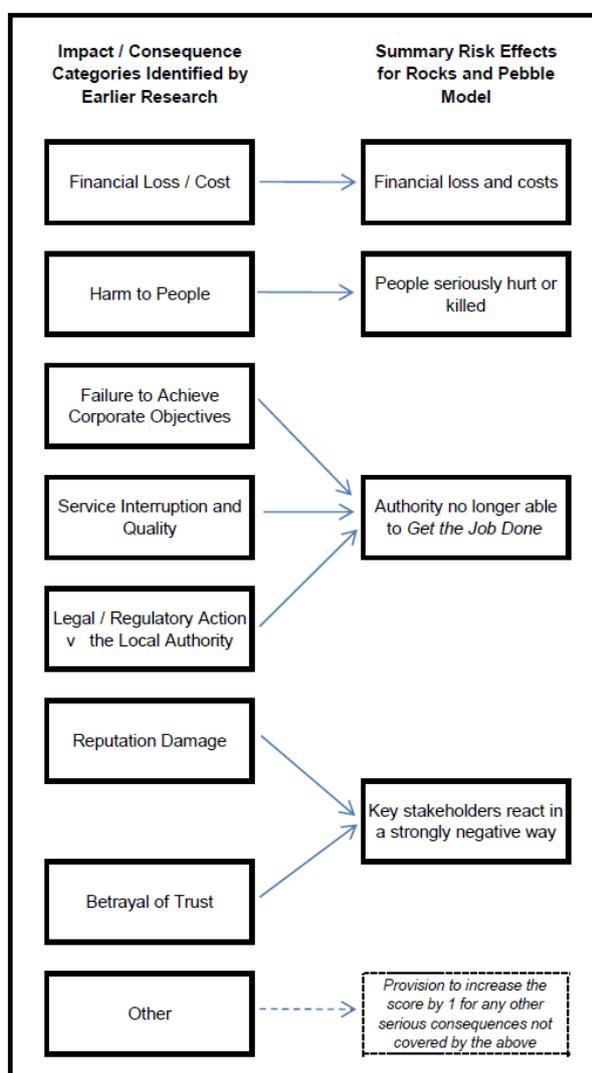
This section presents, analyses and reflects on the results of the risk assessment modelling.

6.8.1. The *Rocks and Pebbles* Model

Having developed the *Rocks and Pebbles* conceptual risk model as an aid to understanding strategic risk in local authorities, the question arose as to whether the model could also be used as the basis of a simple risk assessment model or whether this would be taking it too far.

The simplification of the impact / categories developed earlier in the research into a minimum set proved to be a simple matter and is summarised in Figure 6.25.

Figure 6.25: Simplification of Impact / Consequence Categories for the *Rocks and Pebbles* Model



The model sought to use the conceptual model to determine whether a risk was sufficiently large to be considered by management and to provide a ranking of those significant risks (the *rocks* in the conceptual model). The model therefore has just two elements, as shown in Figure 6.26: is there a real possibility that this could happen and, if so, is there a real possibility that it could have one or more serious impacts

Figure 6.26: The *Rocks and Pebbles Risk Assessment Model*

The Model:	
Is there a real possibility of this happening, given current controls and taking into account any weaknesses in the implementation and/or operation of those controls?	
If "No", this is not a serious risk	
If "Yes", continue (unless it is certain, in which case it is a problem or crisis not a risk)	
If this happens, is there a real possibility that:	
	Score
a) People will be seriously hurt or killed	1
b) The total financial losses and costs will exceed £1,000,000	1
c) The authority will no longer be able to "Get the Job Done"	1
e.g. A legal obligation will be breached	
A key corporate objective will not be achieved	
An important service will be seriously disrupted	
Morale and/or relationships will fail	
d) Key stakeholders and/or the media will react in a strongly negative way, perhaps perceiving a serious breach of trust, so as to undermine the authority's credibility and ability to function	1
Total Score	<input type="text"/>

The model very simply takes into account control effects and the level of confidence in them and assumes that starting conditions, uncertainty and ambiguity will be taken into account by the risk assessor. Judgemental adjustments to the assessment were assumed to be permitted, though proved not to be necessary in assessing the risk data set. The results of the modelling are presented in Table 6.17. A simple bar chart presentation of the risk assessment results is presented in Figure 6.27. The risk assessment is on the (plausible) worst case basis. The most likely case assessment¹⁶⁶ is presented for contrast and to support the subsequent analysis of the model. The risks are presented along the horizontal axis and the risk scores on the vertical axis. This presentation follows the simple bar chart in Emblemståg and Kjølstad (2002) shown in Figure 2.6.

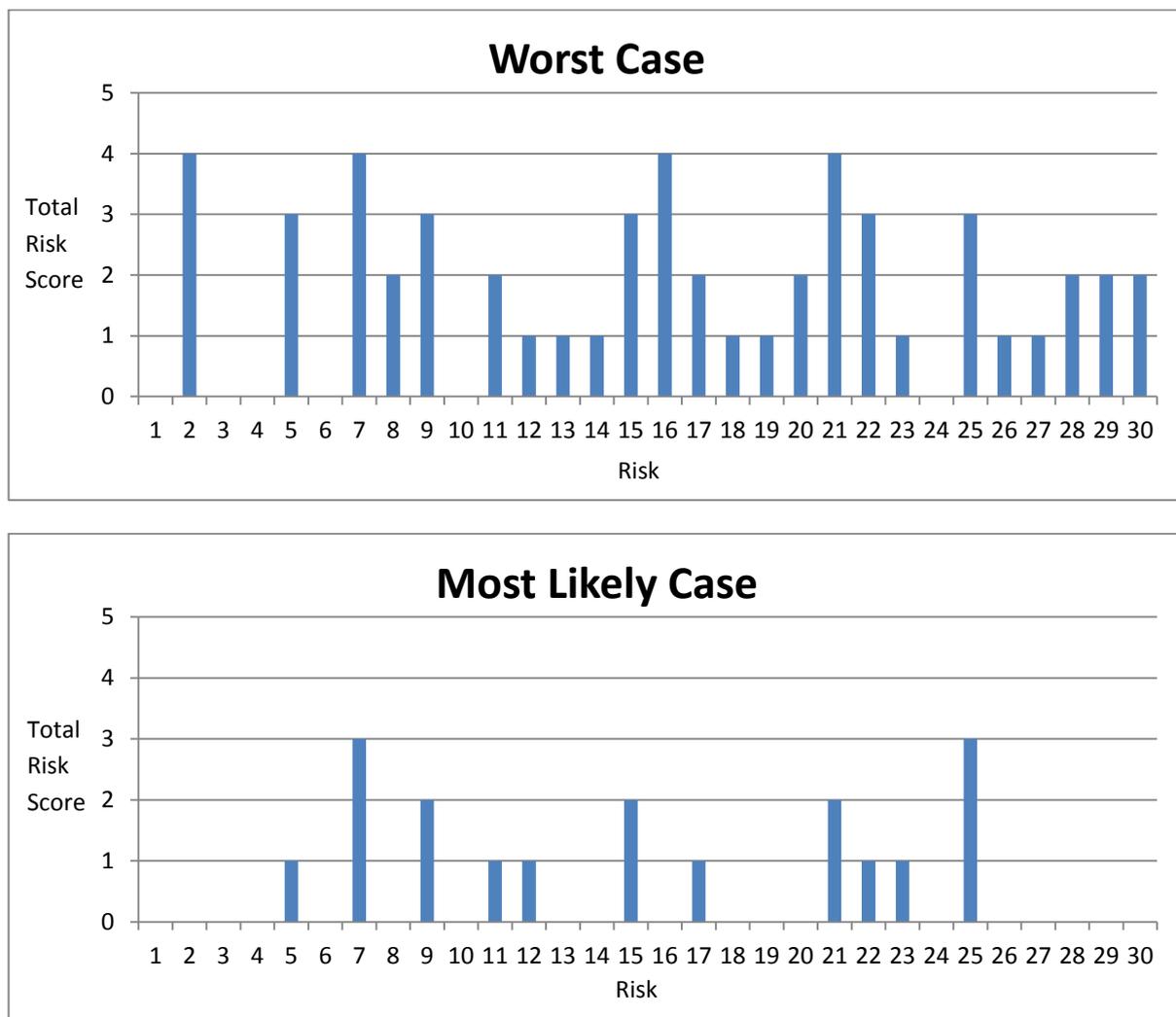
¹⁶⁶ The most likely case assessment was undertaken on the basis shown in Table 6.18 for the worst case assessment

Table 6.17: The Results of the *Rocks and Pebbles* Model

Risk	Risk Description	Risk Assessment						
		Real Possibility?	Death or Serious Injury	Large Financial Loss	Can't Get the Job Done	Strong Negative Stakeholder Reaction	Total Risk Score	Risk Ranking (Highest Score =1)
1	Over-reliance on a single IT provider for all key information systems	Y					0	25
2	Failure to implement corporate strategy	Y	1	1	1	1	4	1
3	Non-compliance with Disability Discrimination Act	Y					0	25
4	Office buildings flooded	Y					0	25
5	Member of staff suffers serious trip injury at work	Y	1		1	1	3	5
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	Y					0	25
7	Death or serious injury to vulnerable child / children in the local authority area	Y	1	1	1	1	4	1
8	Lack of private sector capacity for required level of residential and nursing home placements for older people	Y		1	1		2	10
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	Y	1	1	1		3	5
10	Housing rent arrears exceed specified performance requirements	Y					0	25
11	Senior manager abuses his position to obtain high value fraudulent payments from suppliers	Y		1		1	2	10
12	Laptop or other media containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises	Y				1	1	17
13	Breach of EU procurement directives on major procurement	Y		1			1	17
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	Y			1		1	17
15	Failure to effectively plan and prioritise for future capital investment requirements	Y		1	1	1	3	5
16	The risk management process fails to identify and reliably assess and bring to management the serious risks facing the local authority	Y	1	1	1	1	4	1
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	Y		1	1		2	10
18	Joint local and national elections run poorly	Y				1	1	17
19	Failure to respond to need for organisational change and performance improvement	Y			1		1	17
20	Changes to the economic environment make the Council economically unstable	Y			1	1	2	10
21	A series of individually largely minor problems leads to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn leads to an inability of the local authority to function effectively	Y	1	1	1	1	4	1
22	The relationship between the elected council and the chief executive breaks down	Y		1	1	1	3	5
23	Failure to achieve Corporate Objective CO3	Y			1		1	17
24	Large loss on investment	N		1		1	0	25
25	Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations	Y	1		1	1	3	5
26	The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption	Y		1			1	17
27	A contractor makes a minor mistake which is reported in the national media	Y				1	1	17
28	The implementation of the new payroll system fails	Y		1	1		2	10
29	Whistle-blowing case mishandled	Y		1		1	2	10
30	Administrative error causes inconvenience and small financial loss to large number of local people	Y		1		1	2	10

(Note: The score for Risk 24 is 0 because it fails the initial *Real Possibility* test and is assessed not to be a serious risk)

Figure 6.27: The *Rocks and Pebbles* Risk Assessment Results



Whilst easily understood superficially, the model was found to be difficult to use as a result of the lack of guidance, a criticism of many of the current practice models in Section 6.2.1.2. In addition, the harsh all or nothing assessment of each factor was found to be too crude. A refinement of the model allowing scores of ½ and 2 to be allocated as well as the base score of 1 was made, but this was found to add little other than unwelcome complications to a model whose rationale was based on a desire for simplicity. The refined scoring led to more difficult assessment decisions having to be made without guidance.

The model only takes account of the likelihood dimension of risk in the initial question. If there is a *real possibility* of the risk happening that is enough, and no further consideration of likelihood. This reduces the model to being one that is essentially a qualified precautionary one but, in impact / consequence terms, the risks are broader than the very narrow residual role for the precautionary principle described by Paté-Cornell (2002). An attempt to refine the model by scoring likelihoods above fifty percent were unsuccessful, there being no readily identified, satisfactory method to equate the additional likelihood with impacts. For example, should the extra likelihood score one point or some other value and would this not be too crude an approach?

The lack of guidance also created problems with consistency, even when being used by the researcher alone, to the extent that the researcher started to make and subsequently refer to notes

on previous interpretations to seek to ensure consistency. These notes extended to include issues of control effectiveness and confidence, as well as the impact / likelihood assessment. The effect of this was to depart from the aimed-for simplicity of the model. This problem would only be exacerbated in the hands of multiple assessors.

The two charts in Figure 6.27 show the extent of the difference between the two assessment cases. Risk 16, for example, is an equal most serious risk on a worst case base but does not appear to have any significance on a most likely case basis. It is the same risk in both cases.

The model makes a fundamental mistake. It implicitly equates uncertainty with vagueness and a lack of detail. To a degree, this mistake extends to issues of ambiguity and complexity. The experience of seeking to use the model reinforces Cox's (2008) view that judgements made in defining risk assessment models should be made explicit¹⁶⁷. The literature on not over-simplifying risk assessment models comes clearly to mind¹⁶⁸.

The *Rocks and Pebbles* model is clearly not a good one and a fuller analysis of it is unnecessary. It does, however, provide a useful indication of the limits of simple risk models and supports a conclusion that strategic risk in local authorities is too complicated and complex to be reliably and credibly represented by such a simple model. This is wholly consistent with the findings for Research Question One. A more sophisticated model is necessary. Despite this conclusion, the research value of the conceptual model as a source of insights into strategic risk in local authorities remains and is not invalidated by the conclusions about its extension into an assessment model.

Notwithstanding the above, the modelling identified no problems with the risk data set and it continued to seem well suited for use in the risk modelling. The ability of the risk data set to enable significant conclusions to be drawn on the fitness for purpose of the *Rocks and Pebbles* model was taken to be a further indication of the suitability of the data set for further use in the risk modelling.

6.8.2. Simple Risk Matrix

This model drew on the research findings that had emerged so far to explore a simple risk matrix. Figure 6.1 shows that a 3 x 3 risk matrix is used in 14% of the local authorities in the original sample and is the smallest identified in current practice. Central to this model is the objective of producing a risk assessment approach that is as simple as possible whilst addressing the issues identified by the research and which *follows sector norms* to maximise the likelihood of practitioner acceptance.

The impact / consequence assessment developed for this model is presented in Table 6.18 and the likelihood assessment in Table 6.19. The simple risk matrix is presented in Figure 6.28.

¹⁶⁷ Cox's conclusion was applied to risk matrices but must surely be applicable to all risk assessment approaches, there being no logical reason to restrict it to risk matrices

¹⁶⁸ For example Grassi et al (2009)

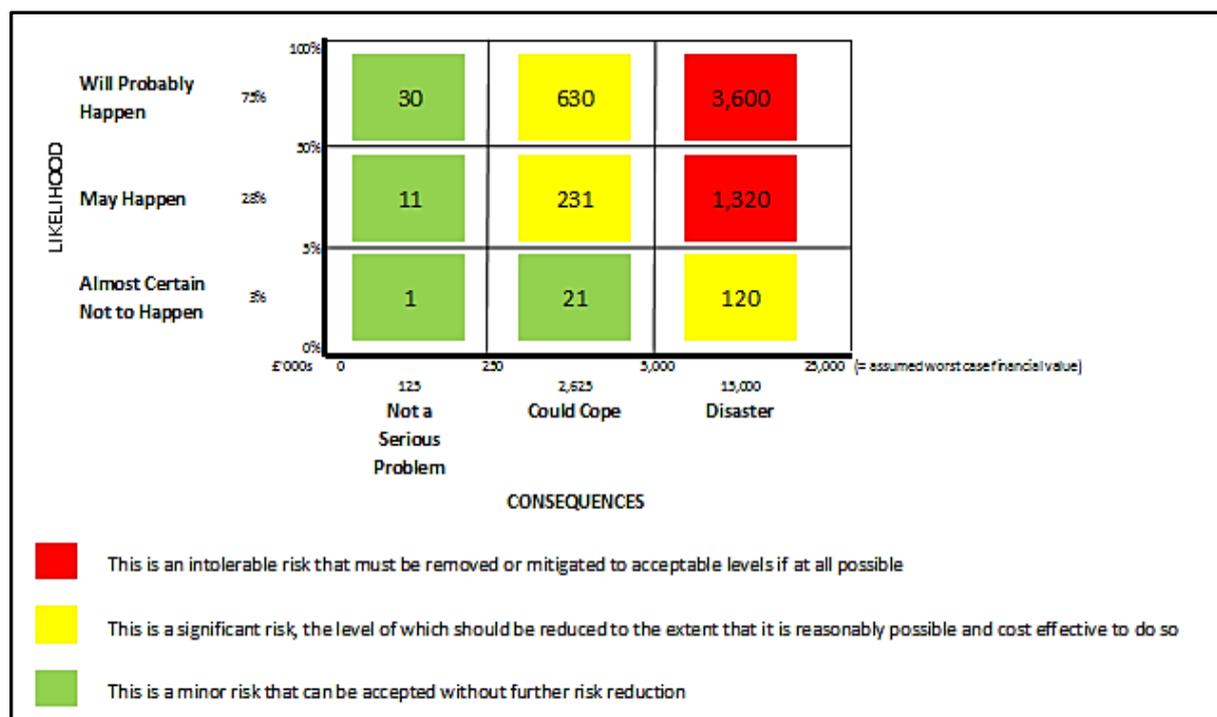
Table 6.18: Simple Risk Matrix Impact / Consequence Assessment

	Financial Loss / Cost	Harm to People	Achievement of Corporate Objectives	Service Interruption and Quality	Reputation Damage	Betrayal of Trust Vested in the Local Authority by Those Who Rely on it	Legal and Regulatory Intervention	Other
Not a Serious Problem	Loss / cost up to £250k	Minor injury	Subsidiary objectives or equivalent goal(s) not achieved or serious under-performance against a core objective	Non-critical services disrupted for up to a week with no serious long-term consequences	Criticism in local media	Substantial numbers of stakeholders would have a short-term sense of being "let down" by the council	Sanctions and/or public criticism for non-compliance with legal or regulatory requirements	As appropriate of equivalent severity and duration
Could Cope	Loss / cost £250k to £5m	Serious injury	One objective or equivalent goal(s) not achieved within the planning period	Critical services disrupted with serious long-term consequences	Criticism in national media	Some stakeholders would feel that the trust they have vested in the council had been destroyed and would question its legitimacy	Substantial sanctions imposed for serious non-compliance with legal or regulatory requirements	As appropriate of equivalent severity and duration
Disaster	Loss / cost over £5m	Death	Long-term failure to achieve multiple objectives	Critical services which affect many individuals' lives cease to be provided for a substantial period	-	Large numbers of stakeholders would feel that the trust they have vested in the council had been permanently destroyed to the extent of undermining its legitimacy and ability to function	The control of a key function is taken away from the local authority	As appropriate of equivalent severity and duration

Table 6.19: Simple Risk Matrix: Likelihood Assessment

Will Probably Happen in the Next Five Years	Over 50%
May Happen in the Next Five Years	5 – 50%
Almost Certain Not to Happen in the Next Five Years	Less than 5%

Figure 6.28: Simple Risk Matrix



This simple matrix displays the non-linearity that complexity theory and the Cynefin analysis indicate as relevant and which the literature and research have found to be an over-arching aspect of strategic risk in local authorities.

The impact / consequence assessment tool was developed to reflect the assumed construction of risk at the quasi-case study local authority in the context of which the risk modelled was undertaken. The approach lends itself to variations in that construction. For example, the reputation element could be left out or the definitions of the impact levels for harm to people or betrayal of trust changed to reflect differences in their seriousness with respect to other impacts. The model addresses multiple impacts on the basis of assessing the most serious impact and allowing for the assessed level of impact to be higher than any individual impact if there are a number of equally serious impacts which taken together could be significantly more serious as a whole. The simplicity of the model meant that this was not a significant issue and such an adjustment was only deemed necessary for Risk 15.

The traffic-lighting of the risk matrix followed the approach identified from ISO 31010 and the expected value calibration of the risk matrix within the research¹⁶⁹. The upper limit of the lowest likelihood band was set at five percent to reflect the highest level at which a risk with the potential for the highest level of impact / consequences was assumed to be tolerable. The risk score for the *May Happen / Disaster* cell was then taken to be the lowest value at which risks would be assessed to be intolerable. The appropriate treatment of the *Almost Certain Not to Happen / Disaster* cell was less clear. On the basis that this cell represented a potential for the highest level of impact, the final interpretation placed on it was that this would represent a risk that, whilst not intolerable, should be brought to senior management's attention¹⁷⁰ and so it was defined as being the lowest value of the intermediate yellow risk level. Using these values, the other risk matrix cells were easily calibrated on the basis of the three levels of risk.

¹⁶⁹ See Section 6.2.3.4

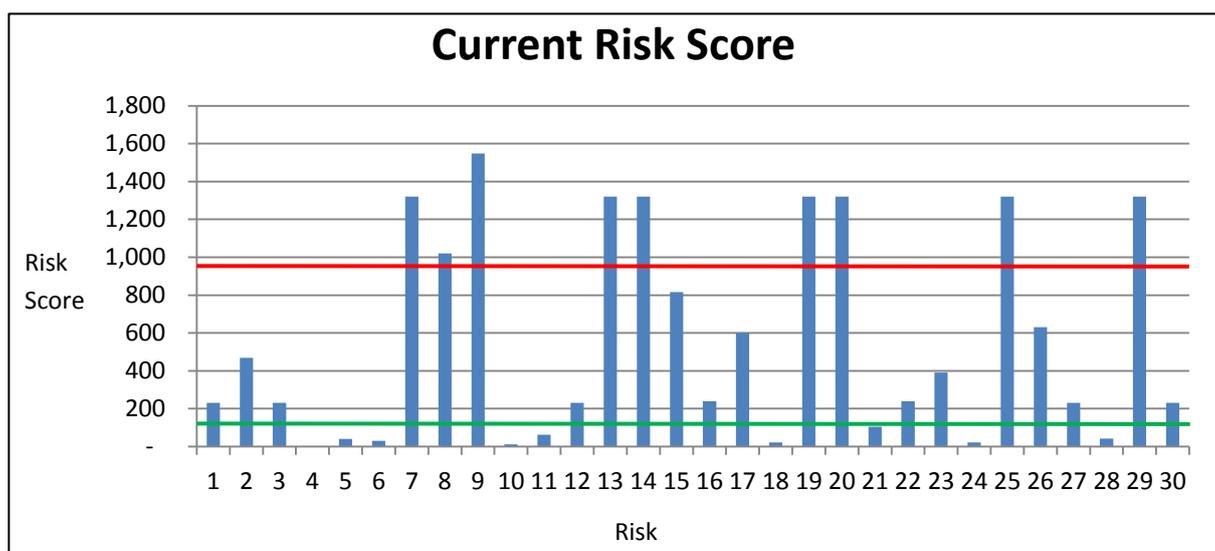
¹⁷⁰ This approach follows the identified objective of risk assessment processes to inform management, in this case to inform senior management of an identified potential, however remote, of the most serious level of impact

Table 6.20: Risk Assessment Results: Simple Risk Matrix

Risk	Risk Description	Inherent Worst Case Risk	Residual Worst Case Risk	Control Contribution	Level of Confidence that Controls are in Place & Operating Reliably						Current Risk Score	Rank
					None 0%	Weak 25%	Doubts 60%	Comforted 80%	Strong 90%	Assured 100%		
1	Over-reliance on a single IT provider for all key information systems	231	231	-				X			231	17
2	Failure to implement corporate strategy	3,600	120	3,480					X		468	13
3	Non-compliance with Disability Discrimination Act	231	231	-	X						231	17
4	Office buildings flooded	1	1	-					X		1	30
5	Member of staff suffers serious trip injury at work	120	21	99				X			41	25
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	30	30	-					X		30	26
7	Death or serious injury to vulnerable child / children in the local authority area	1,320	1,320	-				X			1,320	2
8	Lack of private sector capacity for required level of residential and nursing home placements for older people	1,320	120	1,200		X					1,020	9
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	3,600	1,320	2,280					X		1,548	1
10	Housing rent arrears exceed specified performance requirements	231	11	220						X	11	29
11	Senior manager abuses his position to obtain high value fraudulent payments from suppliers	231	21	210				X			63	23
12	Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises	231	231	-				X			231	17
13	Breach of EU procurement directives on major procurement	1,320	1,320	-						X	1,320	2
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	1,320	1,320	-		X					1,320	2
15	Failure to effectively plan and prioritise for future capital investment requirements	3,600	120	3,480				X			816	10
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	1,320	120	1,200					X		240	15
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	1,320	120	1,200			X				600	12
18	Joint local and national elections run poorly	231	21	210						X	21	27
19	Failure to respond to need for organisational change and performance improvement	1,320	1,320	-			X				1,320	2
20	Changes to the economic environment make the Council economically unstable	1,320	1,320	-			X				1,320	2
21	A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively	231	21	210			X				105	22
22	The relationship between the elected council and the chief executive breaks down	1,320	120	1,200					X		240	15
23	Failure to achieve Corporate Objective CO3	630	231	399			X				391	14
24	Large loss on investment	120	21	99						X	21	27
25	Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations	1,320	1,320	-					X		1,320	2
26	The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption	630	630	-			X				630	11
27	A contractor makes a minor mistake which is reported in the national media	231	231	-					X		231	17
28	The implementation of the new payroll system fails	231	21	210					X		42	24
29	Whistle-blowing case mishandled	1,320	1,320	-			X				1,320	2
30	Administrative error causes inconvenience and small financial loss to large number of local people	231	231	-		X					231	17

The risk assessment in Table 6.20 includes the use of the tentative control confidence model presented in Table 6.14 to position the current risk level between the inherent and residual worst case risk levels¹⁷¹. The resulting values could not be plotted in the risk matrix, as they no longer corresponded directly with individual matrix cells. A new approach was therefore needed. The simple bar chart presented by Emblemsvåg and Kjølstad (2002) and used for the *Rocks and Pebbles* model in Figure 6.27 was therefore adopted. The key threshold between the risks levels was based on that used for the risk matrix but needed to be refined to allow for risk values not corresponding to matrix cell values. The key red / yellow threshold was taken to be the mid-point between the highest yellow and lowest red values in the simple matrix: that is 975. It was, however, recognised that this was a matter of judgement and a reasonable case could be made for other values, for example taking the highest yellow value plus one on a precautionary basis. In Table 6.20 the Control Contribution Value is the difference between the inherent and residual risk values and so the potential risk reduction assessed to be achievable by the stated controls if they are fully effective and there is complete confidence in them. The simple nature of the risk model means that there is scope for substantial variation within each cell of the risk matrix and controls which do not given rise to different inherent and residual risk scores are indicated to have no control contribution. In these cases the control confidence assessment makes no difference to the risk assessment.

Figure 6.29: Current Risk Assessment Using Simple Risk Matrix



The review of documented current practice made a number of comments about the need for clear, unambiguous language in risk assessment methodologies to effectively support the assessment process. The preparation of the simple risk matrix and the subsidiary assessment tools has shown that achieving this is difficult. The impact assessment wording is the result of a number of refinements and changes but the ultimate sense that emerged from the process was a confirmation of the need for specialist support and advice to co-ordinate and support risk assessments within local authorities, as had been concluded to be the case from the earlier research.

Reflecting on the model, the probability assigned to the top of the lowest likelihood value is a source of sensitivity in the model, as identified with the theoretical analysis in Section 6.2.1.1 and Figure

¹⁷¹ The detailed control confidence assessments are shown in Appendix 9

6.7. As used in Figure 6.7, a lower value than five percent could be taken on precautionary grounds and the model readily allows for calibration on this basis. Modelling alternative values, for example 2.5%, shows that the key sensitivities are the *Will Probably Happen in the next five years / Could Cope* and *May Happen in the next five years / Could Cope* cells. The final judgements here would be a matter of organisations' risk appetites.

The modelling identified no problems with the risk data and it continued to seem well suited for use on the risk modelling. Indeed, the data raised a number of issues, for example the political questions of disclosure raised by Risk 22¹⁷², that had not been fully anticipated when the risk data set had been created. The emergence of such issues was an indication of the emerging utility of the model.

The simple risk matrix can be seen to be, at best, an incomplete solution. It has been found to have a combination of positive, negative and mixed aspects, as summarised below.

Positive Aspects

1. It is simple and accessible
2. The expected value approach to risk scoring has worked well
3. The defined time horizon was helpful in the risk assessment, particularly in the impact assessment in the case of potential ongoing financial losses and/or costs
4. The tentative control confidence model has been found to be practical and seems to work well
5. The model can be applied to different constructions of strategic risk in local authorities
6. The model *follows sector norms*, creating a reasonable expectation that it would be readily accepted by practitioners
7. The model demonstrates the successful use of a risk matrix as a risk scoring device within a more sophisticated overall risk assessment model
8. The bar chart risk assessment presentation is accessible and provides a clear sense of the relative size of risks and ranking of risks for decision-makers
9. The model includes consideration of starting conditions within the overall risk assessment

Negative Aspects

1. There is insufficient differentiation between impact and likelihood levels
2. The model poorly reflects the uncertainties underlying the inherent and residual risk assessments
3. The use of a single case risk assessment denies the inherent uncertainties of strategic risk in local authorities

¹⁷² This risk (*The relationship between the elected council and the chief executive breaks down*) has such political sensitivity that the focus on the strength of the controls brought by the assessment process, particularly the control confidence model, leads to a questioning of whether such a risk could be expected to be disclosed in a local authority's risk register. Similar risks were not seen in the risks registers accessed for the research.

4. The model appears to repeat the mistake of the *Rocks and Pebbles* model, equating uncertainty with vagueness: a mistake that appears to be unavoidable in so small a risk matrix and is closely linked to the insufficient differentiation between impact and likelihood levels
5. The likelihood band threshold at 50% probability proved to be problematic for risks with a sense that the likelihood of their happening was about even, creating a strong desire for a fourth band covering this middle sector of the overall likelihood range
6. Particularly given the research data that has emerged about scarce resources for risk management, it would appear helpful to establish an early decision rule to allow risks that are agreed to be trivial to be left out of further assessment on a de minimis basis

Mixed Aspects

1. The overall approach has started to demonstrate a potential to provide information to decision-makers beyond a simple ranking of risks but hints at a possibility to do more
2. The model presents a credible and coherent approach to defining the risk tolerance level of the organisation, the precise calibration of this level, however, needs further attention, or to be explicitly recognised to be necessarily imprecise due to the inherent uncertainties and ambiguities
3. The model presents an approach for dealing with multiple impacts but this relies heavily on assessor judgement, leading to concerns about the extent to which risk assessments are consistent and reliable given the predominance of multiple impacts for strategic risks in local authorities
4. The model provides a ranking of risks for decision makers and information on the level of confidence in the stated controls but does little more to inform risk management decisions

In summary, the simple risk matrix allied to the control confidence model has a significant range of positive aspects but the negatives indicate a need to develop it further. A larger risk matrix using fuzzy approaches to look at plausible best, most likely and plausible worst cases appears to offer the potential for substantial improvement. Neither a larger crisp matrix approach nor a fuzzy approach using the simple matrix appear to have the potential to achieve this and so are not worth exploring separately. The outstanding issue that this would not address is that of multiple impacts. Hence, before exploring the fuzzy application of a larger risk matrix the research needs to address a multiple impacts model and determine an appropriate way forward.

6.8.3. Refined Risk Matrix

This model is built on the simple risk matrix, seeking to maintain the identified strengths and address the identified weaknesses. Its development was in three stages: the development of the matrix and the supporting assessments; the exploration of its application to multiple impacts and its use as part of a fuzzy risk assessment approach.

The impact / consequence assessment for the refined model is presented in Table 6.21 and the likelihood assessment in Table 6.22. The refined risk matrix is presented in Figure 6.30.

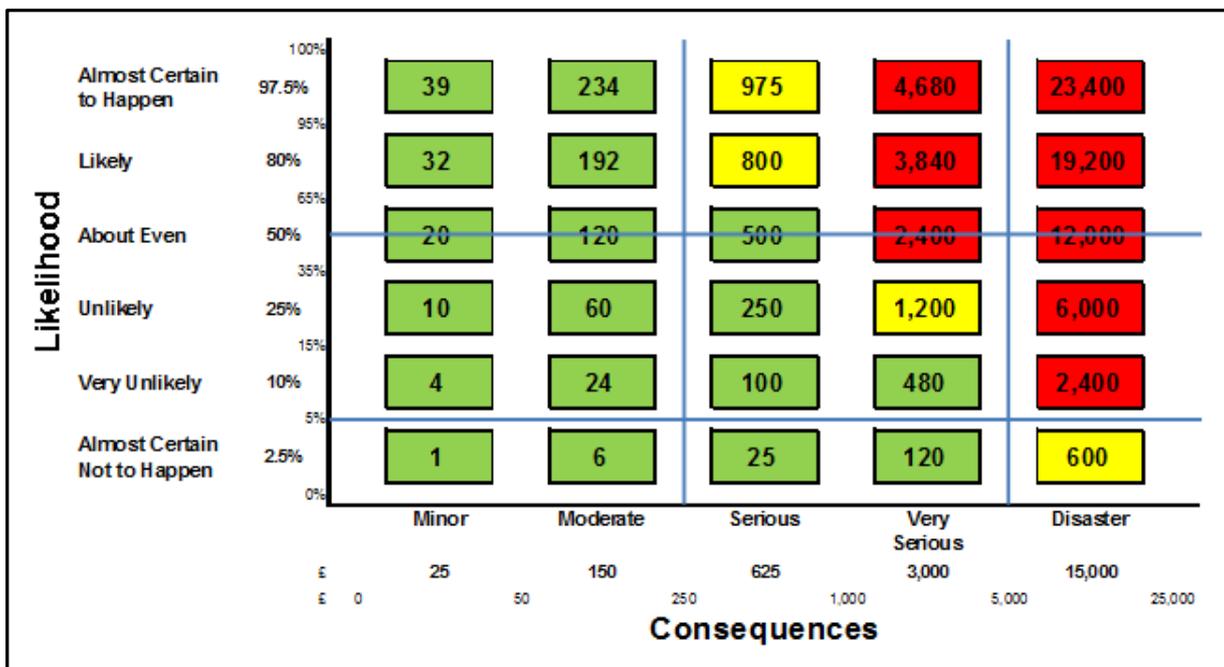
Table 6.21: Refined Risk Matrix Impact / Consequence Assessment

	Finance	Harm to People	Achievement of Corporate Objectives	Service Interruption and Quality	Reputation Damage	Betrayal of Trust Vested in the Local Authority by Those Who Rely on it	Legal and Regulatory Intervention	Other
Minor	Loss / cost up to £50k	None	One subsidiary objective or equivalent goal(s) not achieved	Non-critical services disrupted for a day or two with no serious long-term consequences	Minor criticism in local media only	Stakeholders would not perceive a significant breach of trust	No significant breach of the law or regulatory standards	As appropriate of equivalent severity and duration
Moderate	Loss / cost £50k to £250k	Minor injury requiring only First Aid at most	Subsidiary objectives or equivalent goals not achieved or serious underperformance against a core objective	Non-critical services disrupted for up to a week with no serious long-term consequences	Serious criticism in local media	Substantial numbers of stakeholders would have a short-term sense of being "let down" by the council	Sanctions and/or public criticism for non-compliance with legal or regulatory requirements	As appropriate of equivalent severity and duration
Serious	Loss / cost £250k to £1m	Temporary injury or illness lasting more than a week	One objective or equivalent goal(s) not achieved within the planning period	Critical services disrupted for more than a week but with no serious long-term consequences	Criticism in national media	Some stakeholders would feel that the trust they have vested in the council had been destroyed and would question its legitimacy	Substantial sanctions imposed for serious non-compliance with legal or regulatory requirements	As appropriate of equivalent severity and duration
Very Serious	Loss / cost £1m to £5m	Permanent, serious injury	One objective or equivalent goal(s) not achieved in the long-term	Critical services disrupted with serious long-term consequences	Ongoing criticism in national media including TV	Large numbers of stakeholders would feel that the trust they have vested in the council had been destroyed and would question its legitimacy	Substantial sanctions imposed for serious non-compliance with legal or regulatory requirements and resulting in significant direct intervention short of taking over the function	As appropriate of equivalent severity and duration
Disaster	Loss / cost over £5m	Death	Long-term failure to achieve multiple objectives	Critical services which affect many individuals' lives cease to be provided for a substantial period	-	Large numbers of stakeholders would feel that the trust they have vested in the council had been permanently destroyed to the extent of undermining its legitimacy and ability to function	The control of a key function is taken away from the LA	As appropriate of equivalent severity and duration

Table 6.22: Refined Risk Matrix: Likelihood Assessment

Almost Certain to Happen in the Next Five Years	More than 95%
Likely in the Next Five Years	65 – 95%
About Even in the Next Five Years	35 – 65%
Unlikely in the Next Five Years	15 – 35%
Very Unlikely in the Next Five Years	5 – 15%
Almost Certain Not to Happen in the Next Five Years	Less than 5%

Figure 6.30: Refined Risk Matrix



The superimposed blue gridlines show how the matrix cells correspond to those of the simple 3 x 3 from which it was developed. The approach to defining risk tolerance and traffic-lighting the risk matrix developed for the simple matrix has been used for the refined matrix. The indexed expected value approach to risk scoring using for the simple matrix has been used for the refined matrix.

The more likely and more serious, but not potentially disastrous, risks in the higher cells in the third and fourth columns of the matrix are clearly shown to be differentiated by the progression to a larger risk matrix. This prioritisation of risk assessment focus must logically be correct. The lower impact / consequence risks ultimately do not matter a great deal and a special focus has already been given to the most serious impact / consequence risks.

The refined model has been applied in two ways: taking only the most serious impact and allowing for judgemental adjustment, and assessing each impact separately and adding the results. In the latter case, the use of expected values to calculate cell values meant that this additive approach was mathematically valid. The additive approach allowed for and took account of any differences in likelihood between impacts within the risk data set.

Multiple Impacts / Consequences

This approach was quickly found to be unsatisfactory, primarily due to a strength of the current practice single assessment model that had not been previously recognised by the research. The risk data set indicates the potential for double counting risk impacts. For example, Risk 7¹⁷³ presents the potential for both the physical harm and the failure to achieve a clearly important corporate objective to *provide a safe environment in which all children and young people are able to learn and develop their full potential*. The additive multiple impacts models treated these as separate impacts. The process of assessing the risk data set on an additive multiple impacts basis clarified the fundamental flaw in the underlying approach. It assumes that the impacts are mutually exclusive, which they are clearly not. The complexities of such a risk could be reasonably assumed to frustrate any attempt to quantify the level of inter-relatedness of such impacts. Consequently, no meaningful way was ultimately found to assess the multiple impact risks on an additive basis¹⁷⁴. The previous model's simple approach of assessing each risk on the basis of the most serious potential impact and allowing for judgemental adjustment in individual cases was found to be more reliable and, of course, simpler. The research, therefore, found no cogent evidence to support the additional complication of an additive model, despite the logical case for doing so. Such an approach has also been found to have a level of dependence on the completeness of the risk data that does not arise for the single assessment approach.

To reinforce this conclusion, the additive model was found to be substantially more time consuming than the single assessment model, each assessment requiring a number of assessments to be undertaken and the results combined. This would clearly not endear such an approach to practitioners. The approach also generated concerns about false precision: when should the assessor stop adding the assessment value of further impacts? In turn, this came to be in conflict with the underlying epistemic uncertainty. Not all of the impacts that one might wish to include could be expected to be anticipated and included in the risk assessment. The simpler approach of seeking to anticipate only the key impacts and assess the risk on the basis of the worst of these is both more realistic a task and more consistent with the complex, uncertain nature of strategic risk in local authorities.

Beyond the point at which the conclusion as to the unsuitability of the additive model was reached, further potential problems were identified, for example the question of whether the control assessment should be undertaken separately for each impact on the basis that different controls might operate differently for each potential impact. The sense of these questions was to further reinforce the conclusion.

¹⁷³ Death or serious injury to vulnerable child / children in the local authority area

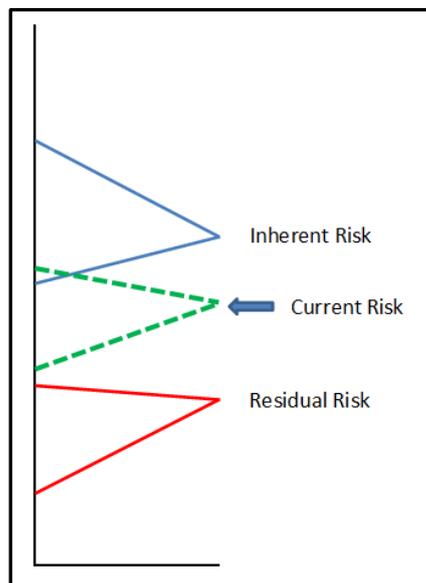
¹⁷⁴ Appendix 10 contains the additive assessment data as evidence of the research undertaken

6.8.4. Fuzzy Risk Assessment Model

This model brings together the previous risk modelling, applying a fuzzy approach to the refined risk matrix, assessing each risk on the basis of the worst impact / consequence identified and allowing for judgemental adjustments. Section 6.4.2 explored fuzzy approaches and established the triangular presentation as the most theoretically appropriate in the research context and the criticality of the ordering of the fuzzy number. Driven by the variability in the level of uncertainty between risks, it was also established that a fuzzy risk assessment model should not predefine the range of fuzziness.

Figure 6.21 shows the location of the actual, or current, risk position in the crisp risk case. This needed to be developed for the fuzzy assessment. The problem is illustrated in Figure 6.31.

Figure 6.31: Fuzzy Actual Risk Location Problem



The approach developed drew on: the core approach that emerged from the application of scenario planning; the tentative control confidence model; and the criticality of the ordering of the fuzzy numbers. The inherent and residual risk levels were assessed on the following basis:

(Plausible Best Case, Most Likely Case, Plausible Worst Case)

and the level of control confidence on the same basis using the tentative control confidence model. The actual risk level was then determined on the basis of the Plausible Best Case being the point between the Plausible Best Case inherent and residual risk levels indicated by the Plausible Best Case control confidence level and the corresponding values of the other two fuzzy cases. The over-riding logic is that illustrated in Figure 6.21.

Figure 6.32: Fuzzy Actual Risk Level Calculation

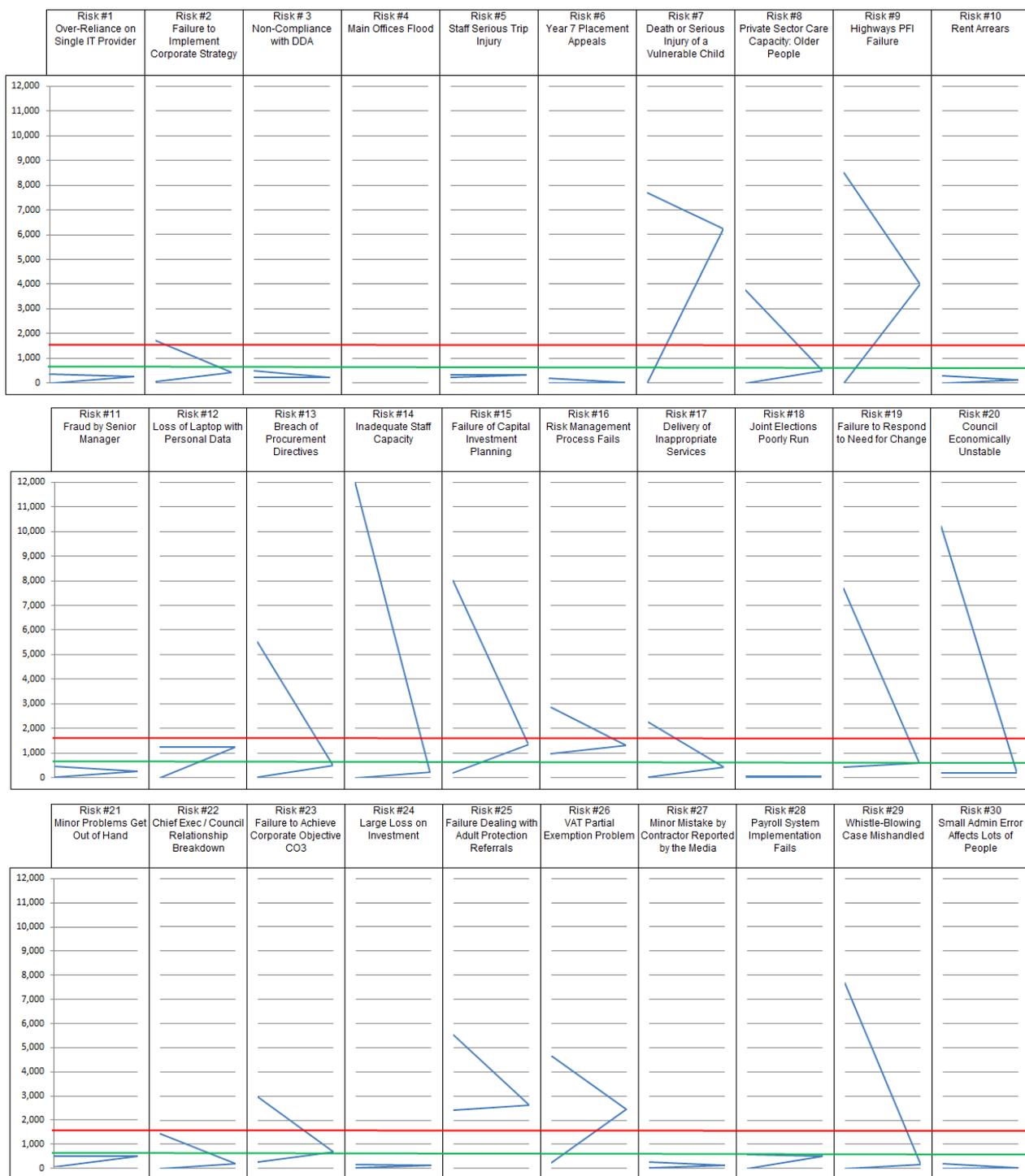
Inherent Risk	(250 , 1200 , 12000)
Residual Risk	(100 , 480 , 1200)
Control Confidence	(90% , 80% , 60%)
Actual Risk	(115 , 624 , 5520)

The individual risk assessment values are taken from the Refined Risk Matrix presented in Figure 6.31 and the control confidence values from the Tentative Control Confidence Model developed for the research and presented in Table 6.14.

This calculation was a simple one to automate within Excel. In undertaking the modelling, those risks for which the plausible worst case value, at either inherent or residual levels, was less than the most likely case value, the plausible worst case value was taken to be the most likely case value. These cases arose for risks which had a much lower likelihood for the plausible worst case than the most likely case but a proportionately smaller difference between the impact levels. The correction applied of course merely reflected the fact that, on the basis of the assessment model, the worst case was actually the most likely case. A cautious presumption that the plausible worst case control confidence level could not be 100% was developed and adopted.

The results of the fuzzy risk assessment are presented in Figure 6.33 and Table 6.23. The detailed assessment data are contained in Appendix 10.

Figure 6.33: Fuzzy Risk Assessments



As Figure 6.33 shows, the research developed a presentational approach which enabled a considerable number, in this case thirty, of risk assessments to be presented together, providing a means of simple and immediate comparison and the development of a sense of the overall level of risk. The interpretation of the assessments is supported and aided by the numeric data in Table 6.23, which enables the assessments to be considered selectively in more detail.

Table 6.23: Fuzzy Risk Assessment Data

Risk	Risk Description	Plausible Best Case	Most Likely Case	Plausible Worst Case
1	Over-reliance on a single IT provider for all key information systems	0	260	352
2	Failure to implement corporate strategy	55	446	1,740
3	Non-compliance with Disability Discrimination Act	234	234	500
4	Office buildings flooded	0	0	1
5	Member of staff suffers serious trip injury at work	230	320	320
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils	0	19	192
7	Death or serious injury to vulnerable child / children in the local authority area	0	6,240	7,680
8	Lack of private sector capacity for required level of residential and nursing home placements for older people	8	500	3,750
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	0	4,008	8,520
10	Housing rent arrears exceed specified performance requirements	0	120	283
11	Senior manager abuses his position to obtain high value fraudulent payments from suppliers	16	260	456
12	Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises	8	1,248	1,248
13	Breach of EU procurement directives on major procurement	32	500	5,520
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service	0	234	12,000
15	Failure to effectively plan and prioritise for future capital investment requirements	196	1,336	8,040
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	960	1,332	2,880
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery	10	440	2,280
18	Joint local and national elections run poorly	0	48	48
19	Failure to respond to need for organisational change and performance improvement	440	620	7,680
20	Changes to the economic environment make the Council economically unstable	192	192	10,200
21	A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively	48	500	500
22	The relationship between the elected council and the chief executive breaks down	0	200	1,440
23	Failure to achieve Corporate Objective CO3	256	690	2,976
24	Large loss on investment	25	120	168
25	Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations	2,400	2,628	5,520
26	The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption	234	2,457	4,680
27	A contractor makes a minor mistake which is reported in the national media	21	127	260
28	The implementation of the new payroll system fails	5	511	576
29	Whistle-blowing case mishandled	0	166	7,680
30	Administrative error causes inconvenience and small financial loss to large number of local people	0	37	200

The risk assessments could be accompanied by a simple narrative; an extract from such a narrative is contained in Table 6.24.

Table 6.24: Extract from Tentative Risk Assessment Narrative

Risk	Interpretation of the Risk Assessment
14	This is likely to be a minor risk. However the level of uncertainty is such that it has the potential to be the most serious risk faced by the authority. This concern is heightened by a serious lack of confidence in the relevant controls.
19	This risk has a high level of uncertainty. It is most likely to be just above the acceptable threshold and so needs some management attention. However, the plausible worst case is that this is a highly intolerable risk, indicating a need for greater attention and management action. The concern about the plausible worst case is exacerbated by a lack of confidence in the relevant controls.
25	This is a very serious risk that is intolerable to the organisation despite a high level of confidence in the current controls.
27	This is a simple risk with a low level of uncertainty and it is clearly acceptable to the organisation. As such, management need pay little attention to it.

Reference to the key elements of the risk, for example the potential impacts and consequences, could add further detail to this narrative.

Comparison of the assessments - for example Risks 12, 14, 16 and 19 – suggests that a simple ranking of risks may be too simplistic given the uncertainties embraced and reflected in the risk assessment. The above tentative narrative indicates that a fuller, but still simple and accessible, description of the key messages from the risk assessment could be a more informative and reliable replacement. The practitioners engaged in the validation interviews were able to quickly engage with and interpret the fuzzy risk assessments. Indeed, both were able to interpret them and start to develop a commentary similar to the narrative within a few minutes of being presented with the assessments and having their basis briefly explained. No prompts were given to the interpretation of the assessments at this stage. As both practitioners were risk specialists, it would be reasonable to assume that a commentary would be helpful for decision-makers, particularly busy ones. This was the view expressed by both interviewees.

The risk assessments presented have been found to provide significant information for decision-makers.

1. The risk assessment themselves and their positioning against the defined risk thresholds.
2. A simple comparison of the risks assessed.
3. An indication of the possible potential for improvement in the form of the plausible best case assessment, or at least a point of focus for initial questions on how improvements might be achieved.
4. The extent to which current controls reduce the level of risk and to which a lack of confidence in those controls impairs that risk reduction, in turn pointing to risks for which additional assurance is needed and potentially informing the planning of the work of the local authority's internal auditors.

5. A representation of the overall uncertainty of each assessment in the form of the triangular representation of each risk assessment.

The Validation Interviews

Having in mind the data from the supplementary interviews about avoiding approaches that were *too academic*¹⁷⁵, the model was presented as being one of triangular risk representations. The term fuzzy was not used in either interview.

The ideas underpinning the fuzzy model, most critically uncertainty and the desire to recognise different risk views of each risk in a risk assessment, were explained to the interviewees. The validity of these issues was confirmed by both interviewees with no indication of disagreement or reservation.

Both interviewees saw the model as a good tool for specialist risk analysts and operational managers. They differed on whether it would be suitable for senior managers and both considered that there would be a demand for a simplified summary for elected councillors. One would have wanted this to also be provided to senior managers, the other would not.

The interviewees were clear that the proposed model would require effective co-ordination and training. They had both identified this need for co-ordination of risk assessment processes in the earlier supplementary interviews. The expectation at the District Council was that managers would drift away from the authority's assessment model if risk assessment were not supported and moderated by the in-house risk specialist.

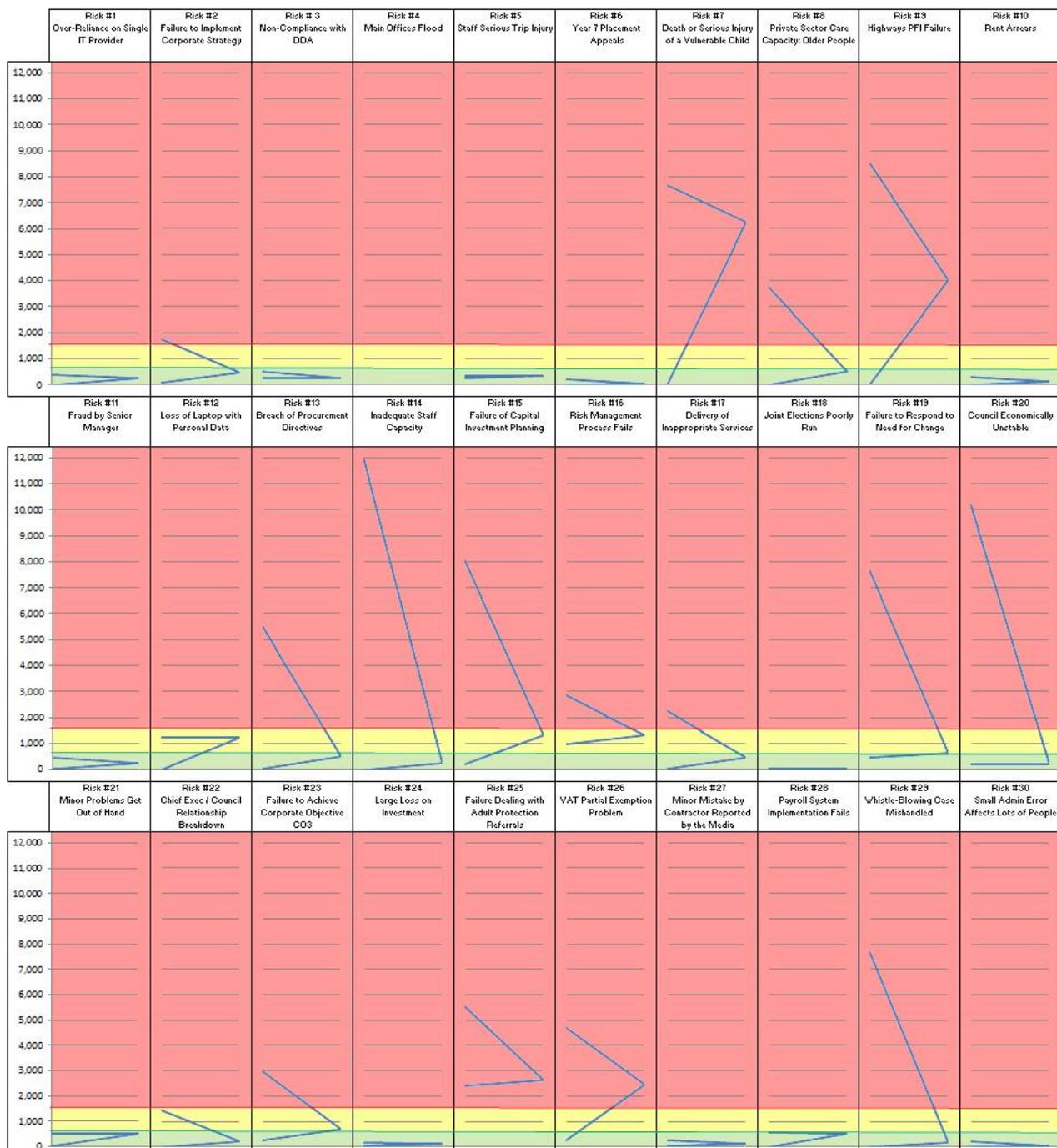
The interviews reinforced the locally constructed nature of strategic risk in local authorities: one, for example, being very clear that the established view at that local authority was that the impact assessment should not include harm to people other than to the extent that such issues were provided for with defined corporate objectives.

The refined risk matrix which formed a key element of the fuzzy risk assessment model treated stakeholder issues as an important element of risk and assessed them as an element of impact, primarily betrayal of trust. The interviewees supported this approach and the interviewee from a district council strongly expressed a view that the direct engagement of stakeholders in the risk assessment process would be inappropriate. The local authority has established processes for community engagement to capture community priorities and views, which are then reflected in the corporate objectives and in the formulation of operational plans. The view expressed was that these should input to the risk assessment without process duplication. As a result of these views, the interviewee endorsed the approach in the proposed model.

Both interviewees suggested that the risk appetite thresholds should be made clearer in triangular presentations and the appetite zones colour-coded. This suggestion is implemented in Figure 6.34.

¹⁷⁵ Code 19, Table 6.10

Figure 6.34: Amended Fuzzy Presentation Suggested by Local Authority Risk Managers



This presentation has greater immediacy than the original in Figure 6.33.

Defuzzification

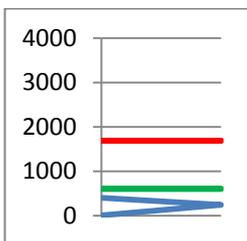
As a result of the interview data concerning the potential need for a simplified presentation to be provided to senior decision-makers to support the fuzzy risk assessments, the issue of defuzzification was revisited and the provisional conclusion drawn in Section 6.4.2 that this would not be appropriate was questioned.

Inspection of the risk model and its outputs for the risk data set identified six provisional risk levels based on the positioning of the three risk cases. These are summarised and illustrated below.

Defuzzified Risk Levels

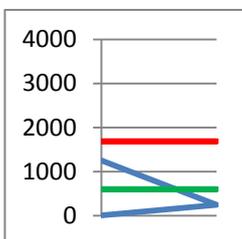
Minor Risk

In this case there are no identified cases in which the risk could be significant, i.e. all cases are green.



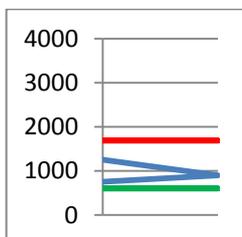
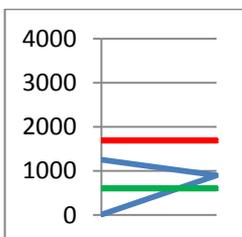
A Risk that Needs Attention

In this case the plausible worst case is that the risk could be significant, i.e. amber, but the other cases are green.



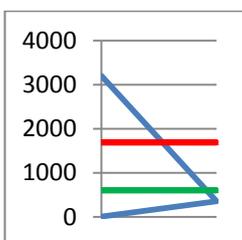
Significant Risk

In this case the risk is likely to be significant, i.e. amber. On cautionary grounds, the plausible best case is unimportant and can be green or amber.



Serious Risk

In this case, the risk has a plausible potential to be a serious problem, i.e. in red, but the likely position is that it is not significant, i.e. most likely and plausible best cases green.



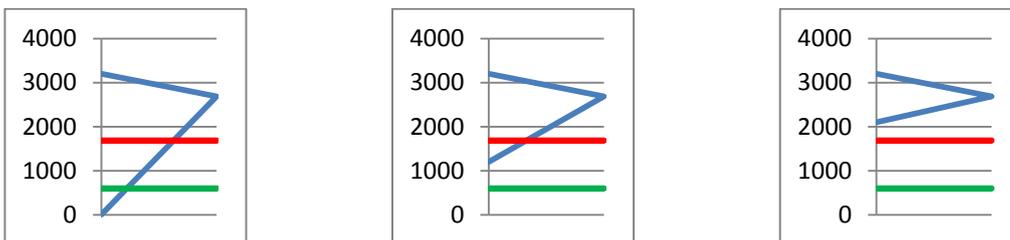
Very Serious Risk

In this case the risk is likely to be significant and plausibly could be a serious problem, i.e. plausible worst case red and most likely case amber.



Catastrophic Risk

In this case the risk is likely to be a serious problem, i.e. plausible worst case red and most likely case amber.



In developing these risk levels, the view has been reached that the level of risk is essentially defined by the plausible worst and most likely cases. The plausible best case remains important as a source of context for the other two cases and as a source of questions and indicators of risk reduction ideas for decision-makers. Taking Risk 26 as an example, the fuzzy presentation immediately invites questions about why the plausible best case is so much better than the most likely and plausible worst cases and what could be done to make the plausible best case the most likely case. The sense of each risk level and the progression between them is summarised in Table 6.25.

Table 6.25: Sense and Progression of Defuzzified Risk Levels

Minor	This is clearly a minor risk
Needs Attention	As a precaution, have a look at this as it might just be a problem
Significant	This looks like a problem but does not have the potential to be a catastrophe
Serious	As a precaution, have a look at this as it might just be a catastrophe
Very Serious	This might just be a catastrophe and looks like at least a problem
Catastrophic	This is likely to be a catastrophe

These decision rules have been easily converted into sequenced nested *if, then, else* formulae in Excel. The resulting defuzzified risk assessments are contained in Table 6.26. In Section 6.4.2 established approaches to defuzzification were discussed and concluded to be a poor fit to the current research. The tentative approach presented above avoids the problems identified with other approaches that rely on unjustified assumptions about the distributions within the overall fuzzy number, and meets the objective identified of providing a new approach to ranking risks for management decision-making. It also addresses the issue raised by practitioners in the validation

interviews of having a simpler presentation than that proposed in Figures 6.34 and 6.35. However, it is this simplicity that gives rise to a discomfort with the approach.

The research to address Research Question One has concluded inter alia that strategic risk in local authorities is complicated, often complex and inherently uncertain. The triangular fuzzy presentations embrace this, whereas the defuzzification loses much of this detail. Risks 2 and 14 provide a powerful example. Both have been assessed to have plausible best and most likely cases at the lowest level of risk and a plausible worst case at the highest level of risk. Hence they have both been defuzzified to be Serious risks, as shown in Table 6.26. A quick glance at the fuzzy presentations in Figures 6.34 and 6.35 shows that this is an over-simplification. Risk 14 has the plausible potential to have the highest impact of any of the risks in the risk data set. The management response to the defuzzified assessments would reasonably be to address these risks with equal priority; the response to the fuzzy assessment would be to prioritise 14 over 2. Hence, the research conclusion is to prefer the fuzzy presentation. It could be argued that the defuzzified presentation could be used as a summary to be supported by the fuzzy presentation but concerns about the possibility of decisions being made just on the basis of the defuzzified assessment are a powerful argument against doing so. In fuzzy risk assessment terms, there is clearly a plausible worst case that, for example, Risk 14 would not be prioritised over Risk 2. This conclusion is considered to be an inherent weakness of defuzzification in this context and not specific to the defuzzification strategy developed by the research.

Table 6.26: Defuzzified Risk Assessments

Risk	Risk Description	Defuzzified Risk Assessment Results					
		Catastrophic	Very Serious	Serious	Significant	Needs Attention	Minor
1	Over-reliance on a single IT provider for all key information systems						
2	Failure to implement corporate strategy						
3	Non-compliance with Disability Discrimination Act						
4	Office buildings flooded						
5	Member of staff suffers serious trip injury at work						
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils						
7	Death or serious injury to vulnerable child / children in the local authority area						
8	Lack of private sector capacity for required level of residential and nursing home placements for older people						
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure						
10	Housing rent arrears exceed specified performance requirements						
11	Senior manager abuses his position to obtain high value fraudulent payments from suppliers						
12	Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises						
13	Breach of EU procurement directives on major procurement						
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service						
15	Failure to effectively plan and prioritise for future capital investment requirements						
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority						
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery						
18	Joint local and national elections run poorly						
19	Failure to respond to need for organisational change and performance improvement						
20	Changes to the economic environment make the Council economically unstable						
21	A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively						
22	The relationship between the elected council and the chief executive breaks down						
23	Failure to achieve Corporate Objective CO3						
24	Large loss on investment						
25	Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations						
26	The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption						
27	A contractor makes a minor mistake which is reported in the national media						
28	The implementation of the new payroll system fails						
29	Whistle-blowing case mishandled						
30	Administrative error causes inconvenience and small financial loss to large number of local people						

6.8.5. The Charity Commission Risk Model

The final risk model is derived from the adjusted model proposed by the Charity Commission¹⁷⁶ using an adjusted risk matrix weighted to take additional account of the impact dimension over the likelihood dimension.

The starting point was the simple formula

$$\text{Risk} = (\text{Likelihood} \times \text{Impact}) + (\text{Positive Constant} \times \text{Impact}).$$

The impact and likelihood values were simple ordinal values applied to the refined risk matrix. Constants of 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 and 4.0 were applied and the model was found to become increasingly a precautionary one as the value increased. The earlier research findings in Sections 6.2.1 and 6.2.2 that highlighted the consequential problems that can be caused by judgemental changes to the core impact / likelihood matrix approach were again reinforced by the modelling, and the need for good risk assessment design from the outset was reinforced. To retain the simplicity of the model, the approach to controls taken was to reduce the tentative control confidence model to one with just two levels of confidence, a higher one at which risks were assessed at the residual risk level and a lower one at which risks were assessed at the inherent risk level.

The approach did not address the weaknesses of current practice, doing nothing to reflect the inherent uncertainties of strategic risk in local authorities, and no credible basis could be found for the constant. A value of 2.0 seemed to work well but this was ultimately only on the basis of the apparent credibility of the results. Re-evaluation of the methodology however indicated that this had been achieved by fitting the value to the risk data set and no credible objective rationale for the value in preference to others could be found. In addition, the approach to defining risk tolerance developed from ISO 31010 was found to be problematic in its application to this model, particularly for the more likely / intermediate impact seriousness levels of risk. This was due to the ordinal nature of the numbers used to calculate the risk score and the consequent false equalities and false relativities of the resulting cell values. The approach has, therefore, been concluded to be unsuitable for application in the local authority context.

¹⁷⁶ See Section 6.2.3.5

6.8.6. Final Evaluation of the Fuzzy Risk Assessment Model

The final, core research output is the fuzzy risk assessment model, which brings together the research findings. The alternative models have been found not to be able to do this.

The most apparent departure from current practice and previous research is the fuzzy approach which enables the risk assessment to embrace and communicate the inherent uncertainty of each risk as part of the risk assessment and not seek to deny it. Also addressed by the model are research-led answers to:

- The possible inclusion of stakeholder concerns and issues of trust and its betrayal in risk assessments;
- The need for a realistic reflection of the effects of controls in risk assessments;
- The appropriate application of complexity theory to inform risk assessments; and
- How to embrace expected values whilst respecting their limitations.

The final evaluation of the fuzzy model is presented in Table 6.27.

Table 6.27: Summary Evaluation of the Fuzzy Risk Assessment Model

Evaluation Criteria ¹⁷⁷	Evaluation
1. The extent to which the model's outputs reflect the nature of strategic risk in local authorities	<p>The model reflects the nature of strategic risk as identified by the research to address Research Question One. It further reflects the more detailed manifestations of that nature as indicated by the results of the pre-modelling stages of the research to address Research Question Two. Overall, it reflects:</p> <ul style="list-style-type: none"> • The context specificity; • The technical and societal aspects; • The varying degrees of complexity, complications and simplicity; • The inherent uncertainties; • The ability to capture and reflect the ambiguities; and • The core dimensions of likelihood and impact / consequences.
2. The presence of identified flaws and impediments to practical implementation	<p>The model has been designed to follow current practice in the use of a risk register and to be easily defined and operated within Excel. Practitioners at the validation interviews quickly assimilated the underlying principles and expressed no negative comments</p>
3. The ability of the approach to be tailored to each local authority's individual construction of risk and to subsequently be changed as that construction changes	<p>The most significant need identified from the research is the ability to vary the impact assessment criteria and their relative values. The model has been found to be able to be varied to embrace these ambiguities.</p>
4. The ability to produce meaningful and accessible risk assessment information that supports effective decision-making and increases understanding of the risks assessed	<p>The model has been demonstrated to be able to go beyond the current practice approach's ability to rank risks for decision-making to provide significant support for, and insights into, the decisions to be made.</p> <p>This conclusion has been supported by practitioners in the validation interviews.</p>
5. Suitability for practical implementation at a local authority and the achievement of Cepiku's (2011) research ambition of <i>"carrying out academic research to produce conceptual systems for public managers to use to guide their actions"</i> ¹⁷⁸	<p>The validation interviews indicate that the model provides a tool that public managers would actually be able to use.</p> <p>The model has been developed beyond the conceptual stage and provides the basis for live implementation after fitting to a local authority's specific context. The only apparent outstanding issue at this level is that of whether the approach to defuzzification developed in response to validation interview data indicates a possible need for an additional, simplified presentation for elected members.</p>
6. The ability to reflect the uncertainty that is inherent in strategic risk	<p>The model uses the assessed level of uncertainty to define the form of the presented risk assessment, the key element being the displacement between the plausible best and plausible worst cases as an indicator of the overall extent of the uncertainty.</p> <p>The validation interviews have indicated that practitioners are able to recognise and interpret this form of risk presentation.</p>
7. The added complexity over simpler models is justified by the added-value over those simpler models	<p>This conclusion has been confirmed by practitioners in the validation interviews, subject to the issue of a possible additional, simpler presentation for elected members above.</p>
8. The model works as intended, for example to capture <i>Black Swans</i> and achieve the core design objectives as summarised in Table 5.5 and Figure 5.5.	<p>No failures to work as intended have been identified.</p> <p>The combination of the use of expected values in the risk scoring matrix and the triangular presentation serve to highlight <i>Black Swans</i>. The designed-in need to assess all risks at the plausible worst case further contributes to this, reducing the opportunity for undue optimism to suppress <i>Black Swans</i>.</p>
9. Overall compliance with Pidd's <i>Six Modelling Principles</i>	<p>These were followed in the model design, as shown in Table 5.6. Adherence to the principles has served to strengthen the risk modelling and the models that have emerged from it, for example following Principle 5 and ensuring that the models are not fitted to the specific data used.</p>

¹⁷⁷ See Table 5.7 for the source(s) of these criteria

¹⁷⁸ *ibid* pp 131 - 132

The final fuzzy risk assessment model meets the defined assessment criteria and has demonstrated the ability to inform decision-making beyond a simple ranking of risks and the validation interviewees have demonstrated, albeit on a small scale, the ability of practitioners to assimilate that wider management information and recognise its potential contribution to improved risk management in local authorities.

The core of the model is its definition and use of the triangular presentation as the overall assessment of the risk with all of the associated plausible uncertainty. The risk assessment is the triangle as a whole; it is not merely three points joined together for clarity. The subsequent exploration of defuzzification proved to be interesting but ultimately was found to detract from the quality of the risk assessment substantially more than it added in simplicity.

6.9 Summary of the Results and Analysis for Research Question Two

This chapter has presented and analysed the findings of the research to address Research Question Two.

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

The key dimensions of strategic risk in local authorities have been found to be likelihood and impact / consequences and the key (over-arching) aspects have been found to be uncertainty, the effects of controls, complexity and ambiguity. Current practice in the UK and beyond reflects these dimensions and the controls aspect of risk, although the latter has been found to be rather naïve. It does not fully reflect the uncertainty and complexity, or recognise the ambiguity. The review of relevant standards and guidelines has found greater, though still limited, recognition of these aspects of risk but these provide little in the way of practical guidance and examples to support the development of risk assessment approaches which take account of them. The research has, however, found evidence to confirm the presence and significance of these four aspects of strategic risk in local authorities. The ambiguity is evidenced in the construction of the impact / consequences assessment, which in turn builds on the context-specific social construction of risk at each local authority. The two dimensions, uncertainty, complexity and the effects of controls can be directly reflected in the assessment methodology and constructed so as to take account of relevant stakeholder issues.

The research has found that current practice ubiquitously takes a risk matrix approach to risk assessment, supported by the relevant standards and guidance. Using the risk data set developed for the research, such approaches have been found to have a part to play in the assessment of strategic risk in local authorities. When defined on the basis of indexed expected values they can provide a suitable basis for assessing individual risk scenarios. However, the fundamental uncertainty of strategic risk in local authorities is such that risk

cannot be assessed on the basis of individual scenarios. The research has shown that fuzzy approaches can be used to combine individual plausible best, most likely and plausible worst case assessments to assess risk in a way that embraces the full plausible uncertainties of each risk and provides a risk assessment output for decision-makers that provides a rich diagnostic tool to support effective risk management.

The research has also found that risk assessment approaches which confuse robust and carefully designed methodologies to embrace the complexity and uncertainty of risk with vagueness and a lack of detail do not stand up to scrutiny and are not appropriate. A meaningful assessment of strategic risk in local authorities has been found to need a sophisticated methodology.

The gaps in knowledge with respect to the Research Question Two have been addressed and the findings are summarised in Table 6.28 and cross-referenced to the key relevant sections of this chapter.

Table 6.28: Summary of the Contribution of the Research to the Gaps in Knowledge With Respect to Research Question Two

Gap in Knowledge		Contribution from the Research to Address Research Question Two
1	<u>What is Risk?</u> b) There is little literature on the ... management of strategic risk in local authorities (Section 2.2.4).	The research as a whole has contributed to this gap in knowledge (All Sections).
2	<u>The Risk Management Process</u> a) The potential for risk assessment approaches to go beyond just ranking risks for management attention by providing information to inform their decision-making is currently just an unfulfilled aspiration in the literature (Sections 2.3.1. and 2.3.2)	The published standards and guidelines restate this potential but do not suggest solutions. The research has established and demonstrated a tentative control confidence model that could provide decision-makers with additional information on issues of control reliability and a fuzzy risk assessment model that has been demonstrated to have substantial diagnostic potential to inform decision-makers (Sections 6.2.3, 6.4.2, 6.4.4, 6.8.4).
3	b) Risk assessment processes are highly dependent upon the available resources. The level of resources available in local authorities needs to be established to inform the research into appropriate assessment approaches (Section 2.3.1). The case may also need to be made for increased resources so that risk assessment processes are treated as a management priority and given the attention and resources to fulfil their potential (Section 2.3.2).	The availability of resources has been established to be a key constraint on risk management activities, providing an additional driver for a simple and accessible risk assessment approach in local authorities. In times of austerity it would seem unrealistic to seek additional resources for risk management. However, a significant improvement in the quality of risk management might provide a cogent case for doing so (Sections 6.2.1.2, 6.8.4).

Gap in Knowledge		Contribution from the Research to Address Research Question Two
	<u>Models of Risk</u>	
4	a) The literature suggests but does not establish a residual role for the precautionary principle in local authority risk assessments (Section 2.4.1).	The research has found that the precautionary principle applied to the most serious risk impacts that have a genuine possibility of arising has a key role to play in the calibration of risk matrices and is closely allied to the concept of <i>Black Swans</i> and their reliable identification (Sections 6.2.1.2, 6.2.3.4, 6.5, 6.8.1 – 6.8.5).
5	b) It is not clear how the underlying uncertainty, ambiguity and potential complexity should be treated in the assessment of strategic risk in local authorities as the literature does not address these issues (Section 2.4.3).	<p>Uncertainty is central to strategic risk in local authorities. Risk assessment models that assess on the basis of a single scenario, or risk case, have been found to deal poorly with uncertainty. The research has demonstrated the potential ability of a simple fuzzy risk assessment model to embrace the range of plausible uncertainty (All Sections).</p> <p>Ambiguity is a matter of underlying value judgements. The research has indicated the extent of the ambiguity in current practice and found that it can be recognised and incorporated in the detailed design and implementation of a risk assessment model at a local authority (Sections 6.2, 6.8).</p> <p>The complexity of some local authority strategic risk has been found to need to be reflected in the design of risk assessment approaches, to need to be taken into account in the data collected for and considered in risk assessments (starting conditions) and to be a key source of the wider, inherent uncertainty (Sections 6.2, 6.4.1, 6.5, 6.6, 6.8)</p>
6	c) Further gaps in public sector-specific risk knowledge relate to the treatment of stakeholder issues in public sector risk assessments and the construction of the impact dimension of strategic risk in local authorities (Section 2.4.3).	The research has identified and presented current practice, and developed and demonstrated a refined approach that draws on current practice. This has included a mechanism for constructing strategic risk in local authorities on a basis that incorporates issues of the betrayal of stakeholders' trust as an element of risk impact (Sections 6.2, 6.3, 6.4.5, 6.4.6, 6.6, 6.8).
	<u>Stakeholders and Perceptions</u>	
7	a) There are gaps in public sector-specific risk knowledge that relate to the incorporation and treatment of stakeholder issues in public sector risk assessments (Section 2.5).	The contribution to Gap in Knowledge 6 directly applies.

Gap in Knowledge		Contribution from the Research to Address Research Question Two
8	b) It is unclear where the balance lies between consulting stakeholders and seeking alternative ways of taking into account their views and priorities in local authority risk assessments (Section 2.5.3).	No evidence of direct engagement of external stakeholders in local risk assessments has been identified. Data has been collected indicating that established local authority stakeholder engagement processes and their use to inform the development of corporate objectives and the formulation of operational plans should be drawn on to inform risk assessments in preference to direct engagement (Sections 6.2.1.2, 6.4.5, 6.8.4).
9	c) An appropriate basis for taking issues of trust into account in local authority strategic risk assessments needs to be established, although the initial sense is that there seems to be no reason to prescriptively define the elements of trust, and very good reason not to seek to do so (Sections 2.5.4 and 2.5.5).	The research has developed and demonstrated an approach to incorporating the betrayal of stakeholder trust as an element of risk impact. Issues of ambiguity and inter-authority variations on the construction of risk mean that this is not proposed as approach to be prescriptively adopted by all local authorities (Sections 6.2, 6.3, 6.4.5, 6.4.6, 6.6, 6.8).
<u>Over-Arching Aspects of Risk</u>		
10	a) Whilst it is clear that uncertainty is central to risk, there is no generally accepted method for modelling uncertainty in risk. Consequently, it is not clear from the literature how to reflect it in the assessment of strategic risk in a local authority (Section 2.6.1.).	The research has confirmed the potential contribution of fuzzy approaches to embracing the inherent uncertainty of risk within a risk assessment approach. It has developed and demonstrated a risk assessment model which does so, and offers a potential contribution to risk management not available from current practice approaches or from simple, crisp refinements of them, for example in the provision of information to support and inform decision-makers (Sections 6.2, 6.4.2, 6.8)
11	b) Fuzzy approaches appear to have much to offer in the assessment of risk, particularly as regards a more meaningful reflection of uncertainty in risk assessments but the form and extent of this contribution need to be established (Section 2.6.1).	
12	d) The research needs to address issues of control confidence and its quantification within a risk assessment model (Section 2.6.3).	A tentative control confidence model has been developed and used as a key component of risk assessment models. The results of doing so have been concluded to be promising and it is recognised that further research is needed to refine the model (Section 6.4.4, 6.8).
13	e) The literature review suggests that ambiguity should be taken into account in the value judgements in the risk assessment model and as an additional need for providing decision-makers with information about the risks assessed that goes beyond prioritisation for decision-making (Section 2.6.4).	The contributions to Gaps in Knowledge 2 and 5 apply.

Gap in Knowledge		Contribution from the Research to Address Research Question Two
	<u>Measuring Strategic Risk</u>	
14	b) If risk assessment processes are to recognise qualitative issues whilst remaining consistent, reliable, credible and trusted, attention clearly needs to be paid to the mechanisms which will maximise the achievement of these objectives (Section 2.7.1).	Drawing on the well-established current practice approach of impact assessment tables combining various categories of impact, the research has developed and demonstrated a refined approach to impact assessment that is able to be varied to fully reflect individual local authorities' constructions of risk. To ensure consistency, some reliance has been assumed to be placed on the identified current practice solution of using in-house risk management specialists to support managers carrying out risk assessments (Sections 6.2, 6.3, 6.8).
15	c) The literature indicates that there is a role for probabilities and expected values in risk assessments but that they do not tell the whole story. There is a significant gap in knowledge as regards how to incorporate them whilst reflecting the rest of the story in a risk assessment (Section 2.7.2). Closely allied to this is the need to address Black Swans (rare / catastrophic risks) in the same context (Sections 2.7.2 and 2.7.3).	The research has found significant use of reference probabilities as an aid to risk assessment, and interview data to indicate that managers can find it difficult to understand issues of probability and likelihood. An alternative approach in current practice is that of using linguistic variables as descriptors of likelihood levels. These have also been found to be problematic. A composite approach has been used with some reliance placed on the identified current practice solution of using in-house risk management specialists to support managers carrying out risk assessments. The research has highlighted the importance of assessing likelihood, and risk as a whole, with reference to a defined time horizon. Expected Values have been found to make a significant contribution to improving current practice and helping to ensure that <i>Black Swans</i> are identified and highlighted for management attention (Sections 6.2, 6.3, 6.4, 6.5, 6.6, 6.8).
16	e) The literature suggests a number of bases for risk assessment, e.g. worst and most likely cases. The research needs to address the most appropriate case for assessing strategic risk in local authorities. Fuzzy approaches and the scenario literature may provide a useful contribution to this, for example by enabling multiple bases of assessment (Section 2.7.4).	Drawing on scenario approaches, the research has established three key cases – plausible best case, most likely case and plausible worst case. Risk assessment models which cannot reflect these have been found to be fundamentally flawed. A fuzzy model which incorporates them has been developed and demonstrated to be able to do so effectively (Section 6.4.2, 6.4.3, 6.8).

Gap in Knowledge		Contribution from the Research to Address Research Question Two
17	f) The literature says little about alternatives to risk matrices, which may be particularly relevant if the research leads to more complex models of the risk than the two-dimensional impact / likelihood model of risk (Section 2.7.5).	The risk matrix has been found to be ubiquitous in current practice in a sector that has been found to value adherence to sector norms over innovation, creating a practical imperative to the retention of risk matrices. An alternative has been modelled and found to be unsuitable. The extension of risk models to include the consideration of, and subsequently to reflect, the reliability of controls in risk assessments has maintained the use of risk matrices as a simple risk scoring tool but moved away from their use as a presentational tool (Section 6.2, 6.8).
18	g) The potential value of an additive approach needs to be explored as part of the research (Section 2.7.7).	The inherent uncertainty and complexities of strategic risk in local authorities, the need for a high degree of completeness in the data for additive risk assessments, and issues of double counting and inter-relatedness between impacts have been found to militate against an additive approach (Section 6.8.3).

Chapter 7

Conclusions

7.1. Introduction

The research concerned strategic risk in the UK public sector, taking English local authorities as its specific context. It has sought to understand such risk and how it is constructed and then to explore its assessment.

The positioning of the research has been to recognise strategic risk in local authorities as a social construction subject to contextual and temporal change: a social construction that can be defined for a specific local authority at a point in time. Risk assessment has been taken to be a process of estimating risk against the parameters of its social construction and not an objective process of measurement against a fixed and absolute scale.

The research has been practitioner orientated, embracing Cepiku's¹⁷⁹ view that the core objective of public management research is to "[carry] out academic research to produce conceptual systems for public managers to use to guide their actions".

This chapter finalises the thesis. It starts with a restatement of the research questions and a brief summary of the current literature. The key research findings and outputs are then presented and a final metaphor to encapsulate the key research output suggested. It then recognises the limitations of the research and the scope for further research, and finishes by identifying the contributions to knowledge made by the research.

7.2. Summary of the Research Questions

The research was designed to address the two research questions that emerged from the literature review.

Research Question One

What is the nature of strategic risk in English local authorities?

Research Question Two

What are the key dimensions and aspects of strategic risk facing local authorities and how can risk be assessed on the basis of these to provide a meaningful indicator of total risk to effectively inform decision making?

The methodology and results of each stage are presented in Chapters 3 and 4 and Chapters 5 and 6 respectively.

¹⁷⁹ 2011, p131-132

7.3. A Brief Summary of the Results of the Literature Review

The current literature has been found to provide a contrast between being a rich general source on risk which emphasises the criticality of context and contextual-fit whilst offering very little that is specific to the public sector context of the research beyond a clear sense that risk and our reactions to it are different in the public sector and clear indications that threats to a public sector organisation's reputation may be of particular importance¹⁸⁰.

The literature provided the first indications of the dilemma that emerged at the heart of the research: we want risk to be easy and simple to understand and assess, but it is not. This developed into the over-riding challenge of the research. Klinke and Renn's (2002) three challenges of risk (uncertainty, complexity and ambiguity) have come to be endorsed by the research but are ultimately subsumed by this over-riding challenge. Of the three challenges that the research indicates should now be seen as subsidiary to the over-riding challenge, uncertainty has clearly emerged as the most important. Other priorities also emerge from the literature:

- The importance of reliably identifying and responding to Taleb's (2007) "*Black Swans*";
- The relevance and treatment of stakeholder concerns;
- Risk being neither wholly quantitative nor qualitative;
- Probabilities and expected values having a contribution to make to risk assessments but not telling the whole story; and
- The potential to assess risk at different levels, for example on a plausible worst case basis, and the further potential to provide a richer, more informative risk assessment by combining three complementary cases in an overall risk assessment.

These form further elements of the over-riding challenge and the sheer number of them only serves to reinforce the case for recognising it.

The initially implicit recognition of the over-riding challenge was fundamentally important in the research design, leading to a methodology that had both breadth and depth, drawing on multiple sources and embracing multiple lines of theoretical enquiry, namely:

- The analysis of knowledge and the identification and differentiation between the simple, the complex and any appropriate intermediate positions;
- The relevance and application of complexity theory;
- The extent of the uncertainties of strategic risk and their reflection in risk assessments;
- The relevance and application of fuzzy approaches;

¹⁸⁰ This scarcity of public sector risk literature is summarised by Osborne and Brown's (2011) conclusion that there is little literature on risk in the public sector and that what there is is unsatisfactory

- Insights available from scenario planning;
- The operation of, and reflections on, the effects of controls within risk assessments and the associated further uncertainties;
- The understanding and treatment of stakeholder concerns within risk assessment; and
- Seeking to understand and maximise the contribution to the overall management of risk that can be made by risk assessment.

7.4. Summary of the Research Findings and Outputs

7.4.1. Research Question One

The core rationale for the first research question followed the literature and the previously identified need to properly understand risk and to do so in the context in which it arises. The literature indicated a number of contrasting and, at times, potentially contradictory characteristics. The nature of strategic risk in local authorities needed to be understood before the question of its assessment could be addressed. If assessment models were to be reliable, Pidd's (2003) third modelling principle¹⁸¹ indicated a need to develop this understanding and then to extend it into the dimensions and key aspects of risk so as to be able to develop sound and appropriate risk assessment models from the components of risk.

An original and independently validated application of Snowden (2002) and Snowden and Boone's (2007) Cynefin model proved to be a pivotal stage in the research. The nature of strategic risk in local authorities was found to vary and to depend on the details of each risk. It could be simple, it could be complicated and it could be complex. There was a clear tendency for the more serious risks to be complicated and for the most serious to be complex. All risks were found to have some complicated characteristics. Complex characteristics were found to be common and some chaotic characteristics were also identified in the most serious risks. Clearly, the research needed to prioritise serious risks and focus on issues of complexity. This recognition was, in itself, critical and reinforced the sense of the over-riding challenge. The research needed to explore the effects of this complexity and the later stages of the research to address Research Question Two needed to fully embrace it. The literature that takes a probabilistic approach¹⁸² to risk assessment and so requires identifiable cause and effect relationships has, for example, failed to recognise this complexity or was, perhaps, located in risk contexts in which it does not arise.

¹⁸¹ See Table 5.6

¹⁸² For example Bayesian approaches

A definition of strategic risk in local authorities has been established by the research, namely:

A risk is a concern for the future about something that is uncertain and that matters to the local authority and its stakeholders.

The uncertainty may be about whether the subject of the concern will happen and/or about the extent and nature of the consequences of it doing so.

Potential sources of concern include: whether the local authority will achieve its objectives and plans for the future; things that may go wrong; and the delivery and quality of services.

The development of this definition has taken account of general risk definitions in the literature, current practice, and published standards and guidelines but does not directly follow any of them. The definition embraces the three senses of risk discerned in current practice and leaves up to local emphasis the extent to which stakeholder concerns are relevant to the construction of strategic risk in local authorities whilst eschewing Knight (1921) and any sense that it is merely a matter of insurance. The question of upside risk, or *opportunities*, was a little more difficult. This appeared to be an element of the construction of risk in slightly over a quarter of local authorities but the data from further research led to a conclusion that such an approach did not work in this context. Instead, such issues could be reflected at the decision-making stage and key priorities could readily be incorporated as objectives of the local authority, the failure to achieve these objectives being a potentially significant concern and so an element of risk within the definition.

Additional key outputs from the research to address Research Question One comprise:

1. A detailed analysis and presentation of current practice and the insights provided into the nature of strategic risk in local authorities;
2. An extensive analysis of current practice beyond the UK and the relevant standards and guidelines, with the key finding that there is little variation in the sense of strategic risk in local authorities and analogous sub-national governmental bodies in other, primarily English-speaking, jurisdictions beyond a focus on insurable risk in the US;
3. Insights into the nature of strategic risk elicited by the analysis of reported risk events, brought together in a risk event database; and
4. Further insights into the nature of strategic risk elicited by the analysis of risks perceived and reported by local authorities' external auditors.

7.4.2. Research Question Two

The research has concluded that strategic risk in local authorities has two dimensions: likelihood and impact/consequences. There is a substantial stakeholder component that is more appropriately and more easily treated as an element of impact / consequences than as a separate dimension. The three challenges from Klinke and Renn (2002) of uncertainty,

complexity and ambiguity have been found to be three of the four over-arching aspects of risk; the fourth being the effects of controls. This fourth over-arching aspect is one that the literature has failed to accord sufficient importance.

The risk assessment modelling explored a number of approaches. The most promising of these was the fuzzy approach using an expected value based risk matrix as a scoring tool and incorporating issues of control confidence to locate risks between the inherent and residual risk levels.

The research has not found an explicit residual role for the precautionary principle in local authorities, contrary perhaps to Paté-Cornell's (2002) indications. However, the close identification of the principle with Taleb's (2007) *Black Swans* and the adopted approach to the calibration of risk matrices mean that the underlying concept is of value to ensure the reliable identification of those risks with the most serious potential allied to a genuine possibility of them happening. It has consequently been adopted to achieve this and has been found to be of critical importance both theoretically and practically, providing a means to bring together aspects of risk assessment and risk management decision support that have previously had insufficient attention and been problematic to practitioners.

The key outputs from the research to address Research Question Two comprise:

1. A detailed analysis and presentation of the current practice of risk assessment in English local authorities;
2. An analysis of current practice beyond the UK and the relevant standards and guidelines, with the key finding that the former had little to contribute and the latter was a rich source of ideas that the research embraced;
3. A risk data set of thirty extensively-researched local authority strategic risks, defined in detail and forming a coherent, representative data set where none previously existed;
4. Insights into the dimensions and key aspects of local authority strategic risk elicited from the risk dataset;
5. Further insights into the dimensions and key aspects of local authority strategic risks elicited by the analysis of risks perceived and reported by local authorities' external auditors;
6. An analysis and application of relevant aspects of complexity theory and scenario planning approaches to the understanding of risk and the development of risk assessment models;
7. An analysis and application of relevant aspects of fuzzy approaches to risk assessment, addressing the identified limitations of the few previous studies in different risk contexts;
8. An analysis of the nature and relevance of controls to strategic risk in local authorities and the appropriate reflection of their relevance and effects in the assessment of such risk,

culminating in the development, presentation and use of a tentative control confidence assessment model and its incorporation into wider risk assessment models;

9. A risk management case study used to contextualise the risk data set and subsequently used for undergraduate and postgraduate teaching at Warwick and Aberystwyth Universities and which now forms part of the teaching case studies set at Warwick Business School;
10. A conceptual *Rocks and Pebbles* risk model used to test and develop the emergent understanding of local authority strategic risk and its assessment;
11. A progressive development, presentation, application and analysis of risk assessment models, culminating in an accessible fuzzy model which fits the nature of strategic risk in local authorities, as identified by the research to address Research Question One, and offers diagnostic and decision support potential substantially beyond any identified in current practice or suggested in the literature or relevant standards and guidelines; and
12. Substantial insights into the information about strategic risks in local authorities that needs to be, and can be identified and collected at the risk elicitation stage to inform the reliable assessment of those risks, as summarised and presented in the risk data set template.

7.4.3. Contextual Insights

The research has been contained within a specific context, that of English local authorities, and has sought to understand the practice, implications and needs of this context as regards the nature, construction and assessment of strategic risk.

An early research finding was the lack of diversity in current practice and the subsequent resonance with the data from the supplementary interviews about following sector norms, it being normative in the sector to do as other local authorities do rather than innovate and risk being exposed to criticism. This is perhaps an indicator of the importance found to be attached by most local authorities to avoiding reputation damage. The international comparisons seemed to extend this conformity even further. Documented risk management approaches in Australia and New Zealand, for example, were found to be very similar to those in England. As a result, less was learned from the international comparisons than had been hoped. The message that new approaches to risk assessment would face less resistance if they were recognisable from current practice was heeded but not allowed to undermine innovation in the research.

The construction of impact / consequence assessments grids was found to be the primary manifestation of ambiguity in documented current practice, providing a statement of what impacts / consequences were deemed by the local authority to matter and how much they were deemed to matter relative to each other. The research analysis of these was perhaps most significant, and certainly most intriguing, as a statement of the importance attached to issues of

reputation damage. Firstly, most local authorities were found to attach considerable importance to reputation damage, for example equating adverse comment in national media with “*extensive or multiple injuries*” or “*major permanent harm*”¹⁸³. Secondly, a small number of local authorities defined the most serious level of reputation damage being that someone in a very senior position in the local authority would be forced to resign, raising challenging questions about whose exposure to risk is actually being assessed. In those local authorities is the ultimate focus on protecting those who run the organisation and not on either the local authority itself or the local authority and its key stakeholders? Such questions remind us of Munro’s (2009) conclusions that local authority practice in child protection is primarily designed to protect the local authority and not the children.

The research coincided with a period of substantial austerity-driven reductions in local authority funding. This simultaneously had the effects of reducing local authorities’ ability to implement and/or maintain management processes, of which risk management is of course one, whilst also reducing local authorities’ resilience, increasing the need for effective risk management.

7.5. The Final Metaphor

Assessing strategic risk in local authorities is like trying to grab hold of smoke: smoke that may very well be unpleasant and that could be toxic, perhaps lethally so. As a result, we have to find a way to photograph each risk so that we capture an image of its essence: a clear, authentic image that we can analyse so as to understand its make-up and inform and support those whose job it is to decide what to do about it.

The fuzzy risk assessment model is that photograph. The research has shown that we can produce a good quality, two-dimensional image and has given us the analytical tools to discern its essence and so to inform and support senior managers when they come to decide which risks need to be addressed, in which order and how they might do so. This is illustrated in Figure 7.1 for the risk of failure of a major project (Project XYZ).

¹⁸³ See Table 6.8

The research identified serious concerns about the completeness of local authorities' risk registers. The consequent limitations to the use of these as a source of data for the research was acknowledged at an early stage and alternative sources were identified and used. The reasons for the identified lack of completeness were outside of the scope of the research and were not addressed. However, the research data suggest a number of possible explanations, for example:

- Resourcing, both as regards the process of identification and as regards the capacity to address issues raised by the risk management process;
- Approaches in which only a defined number of risks were sought to be identified, for example as a list of the *Top Twenty* risks;
- A management approach that does not attach significant importance to risk management beyond the satisfaction of key stakeholders' expectations, for example those of the external auditor, that a process can be seen to be in place and apparently operating; and
- Different attitudes to bad news, some local authorities and some strategic leaders not wanting to admit to the existence of political or other highly sensitive risks and/or risks to which sufficiently effective responses cannot be identified and implemented.

Given the critical importance of the risk identification stage of the risk management process¹⁸⁴, there is a clear need for further research to explore the scale and reasons for the apparent under-identification of strategic risks in local authorities.

Access to interviewees proved to be more difficult than expected and interviewees were keen to emphasise issues of confidentiality and anonymity as regards themselves and the local authority. This experience is an interesting additional context for the discussion of risk register completeness, raising as it does questions about risk management resources and transparency.

An element of the answer to Research Question Two has been found to be the effect of controls in reducing the level of risk. The common current practice approach of assessing risk at inherent and residual risk levels has been concluded to be naïve, a conclusion supported by the supplementary interview data. The identified solution has been to seek to locate the current or actual level of risk between these two levels on the basis of the degree of confidence in the effective operation of the identified controls. The greater the degree of confidence, the closer to the residual risk level the current level of risk is located. The research has provisionally identified the key factors that are relevant to determining this level of confidence and it has proposed a control confidence model and demonstrated its use as a key component in the overall risk assessment approach. The control confidence model proposed has been found to be easy to use and fits control assessment language of the form found to be used in local

¹⁸⁴ "It is a risk management truth that you cannot treat an exposure that you have not identified." (Corbett, 2004)

authorities, for example in internal audit reports expressing opinions on the strength of local authorities' systems of internal control. The experience of applying the model to the risk data set has also provided soft validation of the approach. However, the issue of the robust calibration of the model is recognised to be largely outstanding and a matter for significant further research. Issues of complexity theory suggest that this would be a challenging but very interesting piece of research.

7.7. The Contributions to Knowledge

7.7.1. Adding to Previously Very Limited Literature on Public Sector Risk – Philosophy, Practice and Solutions

Lewens (2007) described the philosophy of risk as a “*sparse populated field*”. Whilst the research is practically orientated and not primarily focussed on the philosophy of risk, it is embedded in consideration of the nature of risk in the public sector and provides a theoretical contribution to the discussion of the philosophy of risk within the risk literature, offering a highly pragmatic social constructionist view of risk and emphasising the criticality of context.

Osborne and Brown (2011) concluded that there is little literature on risk in the public sector and that what there is, is unsatisfactory. The research directly addresses this gap in the public management and risk literature by: both describing and analysing current practice in local authorities, a substantial part of the UK public sector; providing an analysis of strategic risk in local authorities and offering a sector-specific definition of such risk which fits its nature, as identified by the research; and by offering an assessment of alternative approaches to the assessment of that risk and a sector-specific evaluation and emergent fuzzy model.

7.7.2. An Innovative Conceptual Risk Model

As a further theoretical contribution, a conceptual risk model (“*Rocks and Pebbles*”) has been developed as part of the research and provides a simple, holistic risk model which, despite its simplicity, embraces the research findings concerning the nature of strategic risk in the public sector and relevant aspects of complexity theory. No such model has been presented in the literature.

7.7.3. An Accessible, Coherent and Independently Validated Fuzzy Approach and a Wider Contribution to Accessible Fuzzy Approaches

The research has seized the challenge of fuzzy approaches and has contributed to the risk literature on the use of fuzzy approaches in strategic risk assessments, taking forward the discussion started by Grassi et al (2009), raising and offering answers to a number of key questions. These are a combination of questions addressed by Grassi et al and further questions not addressed in their work. Key elements of this contribution include an analysis of the appropriateness of, and a new approach to, defuzzification, presentation of fuzzy risk

assessments and an alternative treatment of the effects of controls within risk assessments. Of particular significance is the evidence of accessibility to practitioners collected from the validation interviews: a sharp contrast to the largely inaccessible, intensely mathematical approaches in the literature, Grassi et al (2009) being a rare but otherwise flawed exception.

More widely, it is hoped that the research will make a contribution to starting a conversation around the application of fuzzy approaches to other management problems in which uncertainty is a critical component. The research has eschewed intense reference to the underlying mathematics as this is assumed to constitute a significant barrier to the approach's accessibility to a wider audience. Indeed, the research provides a window on fuzzy analysis to seek to demonstrate the underlying simplicity and hint at its wider applicability.

7.7.4. Further Contributions

The research also contributes to knowledge in a number of areas at a more detailed level, providing and/or proposing:

- a) A contextual application of Snowden (2002) and Snowden and Boone's (2007) work on Cynefin and an algorithm for locating knowledge within the overall Cynefin space;
- b) A solution to the view that expected values are part of the picture as regards the assessment of risk, but not the whole picture – the research ultimately proposing an approach which uses expected values within a methodology that uses a fuzzy approach to capture uncertainties beyond those that can be reflected by expected values;
- c) An approach to risk assessment that effectively brings together issues of risk scoring, a residual role for the precautionary principle¹⁸⁵ and Taleb's (2007) *Black Swans* with overall risk matrix design and calibration to reflect risk tolerance levels and enable holistic risk assessment model design;
- d) An example of risk research based on reported risk events and practitioners' and specialist advisors' reports and guidance on current and recent sector-specific risks, for example using local authorities' annual audit letters as a source of risk data;
- e) A clear refutation of the quantitative / qualitative dichotomy of risk presented in elements of the risk literature, the research clearly establishing that local authority strategic risk has both qualitative and quantitative elements and for the balance between them to vary between risks;
- f) A coherent approach to risk assessment that fully provides for stakeholder concerns and issues of trust and its betrayal to be included in the construction of risk and a risk assessment model that avoids the potential difficulties of balancing multiple factors within a traditional multi-criteria approach;

¹⁸⁵ This was identified from the interview data as a priority in current practice

- g) An approach to the incorporation of control effectiveness in risk assessments which goes beyond the current approaches which either ignore controls as a key factor in risk assessments or naively assume that all controls are in place and operating wholly reliably - the internal audit profession is predicated on the fallacy of this assumption; and
- h) An application of complexity theory to the assessment of risk, highlighting both the critical relevance of starting conditions as a key factor in assessing the level of risk and a data collection format and assessment approach.

The risk data set, the approach to its development and the data template constitute a substantial contribution to knowledge in themselves, there being nothing similar in the literature, and are offered to other researchers to use in their academic research.

Appendices and Data

Supplementary Interview Questions

The following questions were prepared and used as prompts in semi-structured interviews.

1. What does “risk” mean at this authority?
Should it just be about bad things or should there be an upside?
2. What are the key things that I should know to understand risk management at this authority, e.g. differences from other authorities or specific problems?
3. Is the defined risk management policy / strategy the only approach in place in the authority?
Does practice comply with that documented / specified?
If compliance is weak – why / how could it be improved?
4. Do managers use their own informal approach(es), e.g. a vague sense of the precautionary principle?
5. How does the risk assessment methodology correlate to that used for internal audit planning?
If they are different, why?
6. Are risks that, if known externally, might be damaging to the authority left off the risk register?
Are any difficult to manage risks left off?
7. Is the risk register complete?
 - a. How do you know?
or
 - b. What has been left out and why?
 - c. Are the key risks as you see them included in the risk register?
8. How reliable is the current risk assessment methodology and practice / is the “size” of a risk reliably indicated?
Does the risk assessment give an appropriate sense of the associated uncertainties?
9. Is there a place in the risk assessment process for reputation issues?
10. What are the strengths and weaknesses of the current approach?
11. What should be included in a strategic risk assessment?
Are there any significant omissions?
What level of precision is needed, appropriate or possible?
Are controls appropriately and reliably treated in the risk assessment approach?
12. How could risk management and, particularly, the core risk assessment, at this authority be improved?
13. Is there anything else that you would like to discuss or explain?

Notes:

- The short interviews used only questions 3, 7, 8 (excluding the supplementary question), 9, 10, 12
- Question 5 was only used in the two interviews with Internal Audit Managers, being specific to their roles
- Additional questions specific to each authority’s documented approach were also asked in each of the long interviews

**Sub-National Government Bodies Whose Risk Management Documents were Accessed
Online for the Research**

Australia

Bayside City Council
Derwent Valley Council
Gold Coast City Council
Pompuraaw Aboriginal Shire Council
Victorian State Government (Public Sector Risk Management Framework)

Canada

Province of British Columbia (Guidance for the Public Sector)

France

Commune of St Gervais Les Bains

Ireland

Dublin City Council
(Also sector-wide guidance produced by Irish Public Bodies Mutual Insurance Ltd)

New Zealand

Far North District Council
Wellington City Council

South Africa

Nongoma Municipality
Overstrand Municipality
uMtshezi Local Municipality

United States

Franklin County Ohio
State of Alaska
State of Oregon (Handbook for Local Government)

Supplementary Interview Data and Initial Analysis of Their Relevance to Research Question One

Code	Data	Research Relevance for Research Question One
Culture and Context		
2	<p>Potential exposure of those managing the risk assessment and associated processes</p> <ul style="list-style-type: none"> • It may be embarrassing for senior managers to admit to a risk by writing it down • A history of negative senior management reactions and instructions to remove these risks from the risk register has led staff to be less inclined to <i>“put their head above the parapet and raise risks”</i>. • There is a bigger picture here of risk management at this authority ... being used by staff almost like a whistle-blowing process • Beware of the political implications of admitting to some risks and to admitting that we don't have a solution to others. 	<p>These data provide a useful reminder about the importance of reliable and complete risk identification and some of the reasons why this may be incomplete. This issue is ultimately outside the scope of the research.</p> <p>The interviewees' insistence on confidentiality and anonymity seems to provide further evidence of the perceived seriousness of the personal and organisational exposure concerns (Links to Code 15)</p>
15	<p>Political and senior managerial involvement and intervention</p> <ul style="list-style-type: none"> • The risk team are <i>“diplomatic”</i> about risks with a political element. Such risks are acknowledged and so are not avoided by leaving them off the risk register, though this was the case under the previous CEO (who insisted that some risks be taken off the risk register). However, such risks are sometimes given reduced <i>“prominence”</i>, i.e. they are reported as having been assessed to be less serious than they are. • A history of negative senior management reactions and instructions to remove risks from the risk register has led staff to be less inclined to <i>“put their head above the parapet and raise risks”</i>. • The openness of risk management has improved since the new CEO started • The Chief Exec has a policy of openness and things are not left off the risk register • Risk management is not about avoiding hard decisions. • The risk team are well aware that risks do not go away or become less serious just because their seriousness is understated and indicated frustration at the political pressures to reduce the <i>“prominence”</i> of political risks. • There have been no instructions to leave any risks off the risk register or to adjust any assessments. • Identified risks are filtered before being recorded in the risk register – those that are politically sensitive and those for which mitigations cannot or have not been identified are left out. A risk that had been identified around lack of political leadership was cited as one that had been left out. • The risk management process is valuable but incomplete and is not given sufficient importance – it tends to be treated as a box ticking exercise. 	<p>It is clear from the data that the chief executive and, in some cases members, set the tone for risk management – they can make it or break it by their attitude and actions (Supports analysis of Code 14).</p> <p>There is evidence of very different behaviours by senior staff in the interview notes: insisting risks are left off the risk register; insisting that they are given less prominence (i.e. assessed as less serious than they are) v accepting that risks exist and the assessment of them, however challenging that might be, and allowing them to be recorded as such</p> <p>Overall, the data suggests that some local authorities have unreliable or incomplete risk management processes: these problems are not attributable to process weaknesses and so may not be soluble by process improvements alone</p> <p>These data reinforce the issues of context-dependence from the literature (e.g. Macgill and Siu, 2004)</p>
33	<p>Following the sector norms</p> <ul style="list-style-type: none"> • The method of risk assessment used was adopted because other local authorities had used it – the method was not actually thought to be a credible one but the culture of the sector was to do as others do rather than to innovate 	<p>This is an interesting additional facet of the contextual-dependence of risk. It also hints at a possible resistance to research findings that point towards a need to depart from current practice</p>

Code		Data	Research Relevance for Research Question One
35	Throw away phrase	<ul style="list-style-type: none"> The phrase “<i>Do a risk assessment</i>” is common currency and is not always backed up by real substance 	This is an interesting contextual issue and resonates with the literature on multiple risk definitions (e.g. Macgill and Siu, 2004)
Risk and What it Means			
6	The real purpose of risk assessments	<ul style="list-style-type: none"> It is about anticipating really serious future problems and heading them off, or at least mitigating them The risk approach turns on the avoidance of future problems, some of which are certain and some uncertain Risk management is not about avoiding hard decisions. 	<p>These data suggest that risk management is really about concerns for the future.</p> <p>The construction of certain events as risks appears to be contrary to the literature that sees uncertainty as being central to risk. However, it may be enough that the outcome is uncertain, even if the occurrence is certain.</p>
18	What is risk about?	<ul style="list-style-type: none"> Risk is about what the LA is trying to achieve, there is very little focus on left-field stuff unless it has been turned into an objective, e.g. safeguarding children and protecting personal data. The “<i>Strategic Risk List</i>” of eleven contains only “<i>failure to ...</i>” items and current problems (e.g. “<i>Funding programme from central government</i>”). There are no left field items at all. A risk is essentially a concern The strategic risks are all about failing to achieve specific objectives (“<i>opportunities</i>”) and not bad things that could happen. In two cases – safeguarding of children and loss of personal data – the avoidance of potential bad things has been defined as “<i>opportunities</i>” and brought into the risk management process on that basis. They are not addressed as risks per se. The key question about risk is: “<i>What are the key things that we do not want to go wrong?</i>” Risk is about stopping the delivery of services Risk is seen to be an exposure to financial loss and reputation damage 	<p>The data as a whole support the different constructions of risk seen in the documented approaches.</p> <p>The three constructions in the data are:</p> <ul style="list-style-type: none"> not achieving objectives, “<i>things that we do not want to go wrong</i>” stopping the delivery of services <p>There is also a wider construction of risk as a concern, which can embrace any and all of the above three</p> <p>The intra-sector variation is to be noted and reinforces the specificity of the context-dependence of risk: risk model needs to provide for all of these, or at least not exclude any of them, so that any of these constructions can be adopted</p>

Code	Data	Research Relevance for Research Question One
The Detail of the Risk Assessment Method and Process		
22	<p>Opportunities and upside risk</p> <ul style="list-style-type: none"> • Risk is the things that will prevent us from achieving our opportunities • “<i>Opportunities</i>” is the term used for strategic / corporate objectives. Objectives are seen and phrased as opportunities, e.g. the people of the local authority area having access to life-long learning. • As part of the Opportunity Risk Management Strategy, the Risk Manager tried listing the opportunities but this did not get buy-in and so the strategy has just been applied to [down-side] risks with the opportunities side only being used to inform decision-making. • The strategic risks are all failing to achieve specific objectives (“<i>opportunities</i>”) and not bad things that could happen. In two cases – safeguarding of children and loss of personal data – the avoidance of potential bad things has been defined as “<i>opportunities</i>” and brought into the risk management process on that basis. They are not addressed as risks per se. • An opportunities aspect to risk was explored but this failed and was abandoned as inappropriate 	<p>The term “<i>opportunities</i>” is used in risk management at some local authorities. Its meaning varies. It can be an alternative term for corporate objectives and it can refer to positive changes, which are better treated as objectives which might not be achieved.</p> <p>Incorporating “<i>opportunities</i>” as a form of upside risk directly into local authorities’ risks assessments has been tried and found not to work. The terminology may be about making the concept of risk less negative and so more acceptable.</p> <p>The data answer a question raised by the analysis of documented practice</p>
Making the Risk Assessment Process Work and Compliance Issues		
14	<p>Championing risk from the top</p> <ul style="list-style-type: none"> • Push from the top (CEO and members) very important to get managers to take risk seriously • Training is critically important to strategic risk management. Managers and members have received risk management training. There is a “Lead Member” for risk management and each strategic risk. It is recognised that decision-makers need to understand risk and the risk management process. • The CEO defines the local authority as a “<i>Risk Led Council</i>” and seeks to ensure that risk, as defined at the authority, is a factor in all strategic decision-making. • There is a strong commitment to effective risk management as a key part of management, this is championed by the Chief Exec 	<p>It is clear from the data that the chief executive and, in some cases members, set the tone for risk management – they can make it or break it by their attitude and actions (Supports analysis of Code 15).</p>
23	<p>Description of risks</p> <ul style="list-style-type: none"> • The approach of defining risks as “<i>financial risks</i>”, “<i>people risks</i>” etc. has been used and discarded as it was found to lead to narrow thinking and to lead to risks being defined that were not specific to the authority and which lacked detail. 	<p>This supports the conclusions on risk categorisation from the literature review (Section 2.6.5)</p>
30	<p>Compliance with the risk management approach</p> <ul style="list-style-type: none"> • The documented approach is followed • Compliance is partial due to the strategy having been approved in the last year resulting in it not having been fully implemented yet, and there is some resistance • Senior managers amend the results of the risk assessment where they think that they know better – explanations for the changes made are not given to risk management staff (Research access to senior managers to explore these issues was requested but politely refused) 	<p>There is overall assurance of compliance but with indications that this is not complete in all cases</p> <p>The decision-making stage of the overall risk management process may include some filtering and reinterpretation by senior managers of the risks assessed</p>

Full Risk Data Set

Risk No. 1 Over-reliance on a single IT provider for all key information systems			
Relevant Starting Conditions	<ul style="list-style-type: none"> • The local authority is highly dependent on IT systems • Current systems are largely considered to be fit for purpose • The current contract extends beyond 5 year time-horizon for risk assessment 		
Inherent Risk Position			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very unlikely (10 – 25%)	Unlikely but not a surprise (25 – 45%)	Very unlikely (10 – 25%)
Consequences Description	<ul style="list-style-type: none"> • There would be few real problems, staff would cope 	<ul style="list-style-type: none"> • Key services would be significantly impaired for a few weeks • Financial errors would be made – very difficult to estimate, say £25k, at 50% of event likelihood • Costs of perhaps £40k to remedy problems and retender 	<ul style="list-style-type: none"> • Key services would be seriously impaired for a few months • Financial errors would be made – very difficult to estimate, say £100k, at 50% of event likelihood • Annual accounts qualified • Costs of perhaps £100k to remedy problems and retender • Adverse local media comment
Controls			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. The in-house IT staff are committed, well trained and able to cope with most problems until an alternative provider is found		<ul style="list-style-type: none"> • IT Manager, previous minor problems have been addressed effectively 	High
2. Financial checks carried out on the provider – criteria for financial strengths satisfied		<ul style="list-style-type: none"> • Finance Manager • Recent Internal Audit Report has confirmed control in place and operating reliably 	Very high
3. Contract tendered and evaluated on basis of quality (as well as price)		<ul style="list-style-type: none"> • Recent Internal Audit Report has confirmed control in place and operating reliably but there are some concerns about the bias towards price 	Moderate
4. Escrow third-party deposit arrangements in place and contract permits use of software if provider fails		<ul style="list-style-type: none"> • Provided for in contract but not verified and the completeness of any deposit, e.g. whether the accompanying documentation is up to date, is not known 	Low
5. IT Manager monitors the market and looks for signs of provider being in difficulty		<ul style="list-style-type: none"> • IT Manager 	High
6. Compensating manual controls would prevent financial errors		<ul style="list-style-type: none"> • Finance Manager and Internal Audit 	High
7. Instructions to staff and IT security arrangements would prevent data loss		<ul style="list-style-type: none"> • IT Manager • Recent Internal Audit Report has confirmed control in place and operating reliably 	High
Residual Risk			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Almost none (< 5%)	Very unlikely (20 – 35%)	Unlikely (10 – 25%)
Consequences Description	<ul style="list-style-type: none"> • There would be few real problems, staff would cope 	<ul style="list-style-type: none"> • Key services would be significantly impaired for a few weeks • Costs of perhaps £40k to remedy problems and retender 	<ul style="list-style-type: none"> • Key services would be seriously impaired for a few weeks • Costs of perhaps £75k to remedy problems and retender • Adverse local media comment
Other Factors, e.g. stakeholder concerns	There is a mix of issues about software quality, data loss support, effects on services and remediation costs here Consequences cannot be assumed to all have the same likelihoods		
Stakeholders		<u>Affected by the Risk</u>	<u>Power / Influence Over the Risk</u>
This has the potential to significantly affect the LA's ability to do business in the short-term, impacting on staff and service users		Service Users Staff	Strategic Partners (the IT provider)

Risk No. 2 Failure to implement corporate strategy			
Relevant Starting Conditions	<ul style="list-style-type: none"> • A corporate strategy has been drawn up and approved by the full Council • The stated objectives largely reflect what the LA is seeking and legally required to achieve anyway 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	About Even (40 – 60%)	Very Likely (70 – 95%)	About Even (40 – 60%)
Consequences Description	<ul style="list-style-type: none"> • Subsidiary elements of a number of objectives not achieved 	<ul style="list-style-type: none"> • 1 or 2 objectives not achieved • Subsidiary elements of others missed - greater likelihood, perhaps 80% 	<ul style="list-style-type: none"> • Total failure to achieve corporate objectives
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Chief Offices Management Team monitors progress quarterly	<ul style="list-style-type: none"> • The corporate performance management system provides for relevant controls • The system has not been audited recently but is overseen by the Senior Policy and Performance Manager 	High	
2. Each objective has been allocated to a lead Chief Officer who is responsible for implementation			
3. Relevant performance measures and metrics have been defined and data is collected monthly			
4. Chief Officers have established monitoring and reporting arrangements which report to them monthly			
5. Strategic Objectives set to be challenging but achievable, not least for political and reputation reasons	<ul style="list-style-type: none"> • This practice has been followed for a number of years and has been successful with a high achievement rate for the core objectives 	High	
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 - 20%)	Very Unlikely (10 - 25%)	Almost Certain not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> • Subsidiary elements of a single objective not achieved 	<ul style="list-style-type: none"> • Subsidiary elements of a number of objectives not achieved 	<ul style="list-style-type: none"> • Total failure to achieve corporate objectives
Other Factors, e.g. stakeholder concerns	Failure to implement and achieve corporate objectives would mean: serious service failure, and so harm to dependent service users; waste of resources and possible legal breach		
<u>Stakeholders</u>	<u>Affected by the Risk</u>	<u>Power / Influence Over the Risk</u>	
Failure to implement and achieve corporate objectives would mean serious service failure, and so harm to dependent service users and failure to satisfy key stakeholders' expectations	<ul style="list-style-type: none"> Community Service Users Staff Strategic Partners 	Staff	

Risk No. 3 Non-compliance with Disability Discrimination Act (DDA)			
Relevant Starting Conditions	<ul style="list-style-type: none"> The main potential area of non-compliance is building access There are about ten specific cases of possible non-compliance for which the LA would seek to argue that they would not constitute 'reasonable adjustments' on cost grounds There could also be issues about recruitment procedures – this is considered to be unlikely but has not been reviewed and assessed 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 – 40%)	About even (40 – 60%)	Unlikely / Almost Even (35 – 49%)
Consequences Description	<ul style="list-style-type: none"> No action would be taken about the technical breaches of the DDA A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) 	<ul style="list-style-type: none"> Adverse local media comment initiated by campaigning local charity A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) 	<ul style="list-style-type: none"> Legal action taken – fine up to £5k per breach and legal costs of perhaps £40k A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) Failure to treat people with disabilities fairly in recruitment and legal action taken with compensation and legal costs of perhaps £50k and adverse local media comment (25% of event likelihood)
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. An "Access Audit" has been carried out – this was the source of the now known non-compliance issues		<ul style="list-style-type: none"> Audit has been completed and findings reported, the in-house legal team were involved in the audit 	Very High
2. Attempts have been made to work with local charities to identify low-cost solutions		<ul style="list-style-type: none"> These provide little confidence as they have achieved very little 	Very Low / None
3. HR staff seek to ensure compliance during recruitment of new staff		<ul style="list-style-type: none"> HR Manager This is recognised not to be a systematic control 	Low
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 – 40%)	About even (40 – 60%)	Unlikely / Almost Even (35 – 49%)
Consequences Description	<ul style="list-style-type: none"> No action would be taken about the technical breaches of the DDA A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) 	<ul style="list-style-type: none"> Adverse local media comment initiated by campaigning local charity A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) 	<ul style="list-style-type: none"> Legal action taken – fine up to £5k per breach and legal costs of perhaps £40k A small number of disabled service users inconvenienced by lack of access provision (this is certain as the problems are known to exist) Failure to treat people with disabilities fairly in recruitment and legal action taken with compensation and legal costs of perhaps £50k and adverse local media comment (10% of event likelihood)
Other Factors, e.g. stakeholder concerns	This is not considered to be a major problem, the serious access problems were addressed some years ago and the remaining ones do not affect many service users and are in older buildings that would be expensive to adapt. The legislation is 'anticipatory' and so having no disabled customers provides no legal protection.		
<u>Stakeholders</u>		<u>Affected by the Risk Staff</u>	<u>Power / Influence Over the Risk Staff</u>
10 to 20 disabled service users may be affected by the access issues and could be used as a <i>cause célèbre</i> by a campaigning charity		Strategic Partners Service Users	Strategic Partners

Risk No. 4 The main office buildings flood			
Relevant Starting Conditions	<ul style="list-style-type: none"> The LA's main offices are in three connected, two storey buildings Each building has a basement and is used by a wide range of staff providing both back office and direct service functions The buildings have not flooded since they were built in 1969, other than a very minor flood caused by a burst pipe in a very cold winter 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 – 10%)	Very Unlikely (10 - 40%)	Almost Certain Not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> The water from a burst pipe will be able to be mopped up with no significant consequences 	<ul style="list-style-type: none"> The water from a burst pipe will flood the basements to a depth of 2-3ft overnight, damaging all furniture and equipment at that level 	<ul style="list-style-type: none"> Unprecedented rainfall will run off the car park and flood the basements, damaging all furniture and equipment contained therein, requiring a clean-up with total replacement and other costs of up to £50,000
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Pipes insulated		<ul style="list-style-type: none"> Inspection confirms 	High
2. Instructions have been issued that only material which is of no value or which would not be damaged in a flood is to be kept in the basements		<ul style="list-style-type: none"> Instruction confirmed to have been issued but compliance has not been checked 	Reasonable
3. Security staff instructed to inspect basement overnight when there is a heavy frost to provide early warning of burst pipe		<ul style="list-style-type: none"> Instruction confirmed to have been issued but compliance has not been checked 	Reasonable
4. Drains around car park regularly cleared of leaves and other debris		<ul style="list-style-type: none"> Inspection confirms 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Almost Certain Not to Happen (< 5%)	Extremely Unlikely (5 – 19%)	Almost Certain Not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> The water from a burst pipe will be able to be mopped up with no significant consequences 	<ul style="list-style-type: none"> The water from a burst pipe will flood the basements to a depth of a few inches with no significant consequences beyond extra work for the maintenance staff 	<ul style="list-style-type: none"> Unprecedented rainfall will run off the car park and flood the basements, requiring a clean-up costing a few thousand pounds
Other Factors, e.g. stakeholder concerns	None		
<u>Stakeholders</u>		<u>Affected by the Risk</u>	<u>Power / Influence Over the Risk</u>
This is unlikely to be a significant issue for stakeholders other than the staff who would have to sort it out		Staff Service Users	Staff

Risk No. 5 Member of staff suffers serious trip injury at work			
Relevant Starting Conditions	<ul style="list-style-type: none"> • There have been no reportable incidents in the last six years • A positive and co-operative arrangement is in place with the unions on health & safety matters 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	About Even (40 – 60%)	Likely (55 – 75%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> • A member of staff suffers an injury which requires a few weeks off work • Colleagues are able to cover with no knock-on effects or costs • No legal action or Health & Safety Executive intervention occurs 	<ul style="list-style-type: none"> • A member of staff suffers an injury which requires a few months off work • Colleagues are largely able to cover but there is a slight diminution in service quality • The authority is formally criticised by the Health & Safety Executive • No legal intervention occurs • Adverse local media comment 	<ul style="list-style-type: none"> • A fatal injury is sustained • Legal action taken for corporate manslaughter • Serious penalties for breach of Health and Safety legislation • Compensation and legal costs of perhaps £500k • Service quality reduced for a few months due to loss of a key member of staff • Injury seen by staff as serious betrayal of trust • Adverse national media comment
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Full health and safety risk assessments are carried out as legally required and in accordance with HSE guidance		<ul style="list-style-type: none"> • Recent HSE inspection found no problems 	Very High
2. An experienced, specialist Health and Safety Manager is in post and co-ordinates Health and Safety arrangement across the LA		<ul style="list-style-type: none"> • There is clear evidence of her experience and satisfaction at her effectiveness 	High
3. All cable runs are in ducting and warning signs are put in place for temporary cables, e.g. for floor cleaning outside office hours		<ul style="list-style-type: none"> • Regular inspections carried out by Health and Safety Manager have not found any problems 	High
4. All staff trained in health and safety matters and aware of personal responsibilities		<ul style="list-style-type: none"> • Human Resources procedures and records record all new staff attending the course, some long-serving members of staff have not been trained 	Moderate / Low
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 - 15%)	(Very) Unlikely (20 – 30%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> • A member of staff suffers an injury which requires a few weeks off work • Colleagues are able to cover with no knock-on effects or costs • No legal action or Health & Safety Executive intervention occurs 	<ul style="list-style-type: none"> • A member of staff suffers an injury which requires a few weeks off work • Colleagues are largely able to cover but there is a slight diminution in service quality • The authority is investigated by the Health & Safety Executive and found not to be at fault • No legal intervention occurs • Adverse local media comment 	<ul style="list-style-type: none"> • A permanent injury is sustained • Penalties for breach of Health and Safety legislation • Compensation and legal costs of perhaps £250k • Service quality in one area is reduced for a few months due to the loss of a key member of staff • Injury seen by staff as betrayal of trust • Adverse local media comment
Other Factors, e.g. stakeholder concerns	This is generally not thought to be a cause for particular concern		
<u>Stakeholders</u>		<u>Affected by the Risk</u>	<u>Power / Influence Over the Risk</u>
Injuries at work are of obvious concern to those suffering them and to the Health & Safety Executive		Service Users Staff	Regulatory body (HSE) Staff (and Unions)

Risk No. 6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils		
Relevant Starting Conditions	<ul style="list-style-type: none"> All local authority secondary schools are comprehensive The popularity, reputation and examination performance of these schools varies greatly with two schools being over-subscribed nearly every year There are three academies, i.e. secondary schools that are not controlled by the local authority, in the local authority's area A legal challenge (Judicial Review) can only be made on the basis of the process followed in making that decision, and not the decision itself 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (75 - 90%)	Very Likely (75 - 95%)	Very Likely (75 - 90%)
Consequences Description	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and no undue problems arise beyond additional work for staff etc. 	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and no undue problems arise beyond additional work for staff etc. There is a series of negative articles and editorials in the local press suggesting a lack of competence 	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and additional costs of perhaps £15k are incurred There is a series of negative articles and editorials in the local press suggesting a lack of competence A legal challenge arises resulting in costs of £150k, perhaps 10% likelihood due to deterrent effect of the legal costs
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Parents' evenings at primary schools to inform parents of the procedures and written guidance sent to all parents whilst children are in Year 5		<ul style="list-style-type: none"> Procedures seen to be operating 	High
2. Procedures comply with the <i>School Admissions Code</i> - published by the Department for Education.		<ul style="list-style-type: none"> An in-house working party has recently reviewed procedures at the local authority and all LA secondary schools and found them to be compliant Level of appeals is below the national average 	High
3. Appeals process clearly defined and great efforts are made to ensure that the process is, and appears to be, fair and lawful		<ul style="list-style-type: none"> The procedures are thought to be sound There have been no legal challenges since the current procedures were introduced 	Medium (There is little independent assurance)
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (75 - 90%)	Very Likely (75 - 95%)	Very Likely (75 - 90%)
Consequences Description	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and no undue problems arise beyond additional work for staff etc. 	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and no undue problems arise beyond additional work for staff etc. 	<ul style="list-style-type: none"> The cases that arise are dealt with within the defined appeals process and additional costs of perhaps £5k are incurred There is a series of negative articles and editorials in the local press suggesting a lack of competence
Other Factors, e.g. stakeholder concerns	The uncertainty about this risk primarily concerns the consequences and not likelihood		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
The choice of secondary school is an important decision for children and their parents		Service Users Staff	Staff Regulators

Risk No. 7 Death or serious injury to vulnerable child / children in the local authority area			
Relevant Starting Conditions	<ul style="list-style-type: none"> There have been no such serious cases within the authority but national cases, e.g. Baby P, indicate the extreme sensitivity to such cases and dread 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (20 – 40%)	About Even (40 – 60%)	Almost Even (40 – 49%)
Consequences Description	<ul style="list-style-type: none"> A serious injury arises in circumstances that are not deemed to be the responsibility of the local authority and with no abuse 	<ul style="list-style-type: none"> One death of a vulnerable children following abuse Serious national media criticism Failure to achieve CO1 Regulatory intervention and possible loss of control of Children's Services possible but unlikely (say 40% of event likelihood) 	<ul style="list-style-type: none"> A number of deaths of vulnerable children following abuse Serious national media criticism Failure to achieve CO1 Regulatory intervention and loss of control of Children's Services Legal action with legal costs and damages award, say £1m Senior staff forced to resign Disciplinary action taken against social workers and their managers
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Best practice procedures followed		<ul style="list-style-type: none"> Recent inspection has confirmed controls appropriate and operating reliably 	High
2. Inter-agency working and intelligence sharing, including NHS bodies and Police		<ul style="list-style-type: none"> Arrangement seen to be working but there are concerns that there are gaps in the information flow, a number having come to light in recent months 	Medium
3. Strong supervision of field social workers and Children's Services Managers		<ul style="list-style-type: none"> Considered to operate but there is little independent assurance as to the completeness and thoroughness of the supervision, particularly in the context of the recent reductions in funding 	Medium
4. Oversight and challenge from local safeguarding children board		<ul style="list-style-type: none"> Meets regularly and considered to perform its role well 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (5 - 20%)	(Very) Unlikely (15 - 35%)	Very Unlikely (5 - 20%)
Consequences Description	<ul style="list-style-type: none"> A serious injury arises in circumstances that turn-out not to be deemed to be the responsibility of the local authority and with no abuse 	<ul style="list-style-type: none"> One death of a vulnerable children following abuse Serious national media criticism Failure to achieve CO1 Regulatory intervention and possible loss of control of Children's Services possible but unlikely (say 20% of event likelihood) 	<ul style="list-style-type: none"> A number of deaths of vulnerable children following abuse Serious national media criticism Failure to achieve CO1 Regulatory intervention and loss of control of Children's Services Legal action with legal costs and damages award, say £1m Senior staff forced to resign Disciplinary action taken against social workers and their managers
Other Factors, e.g. stakeholder concerns	Recent cases show that the stakeholder and public concern around a case like this can be extremely high Such an event may be seen by some as the most serious risk event for a local authority		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This event would be seen as a very serious betrayal of trust, particularly after earlier cases in the UK, e.g. "Baby P"		Community Service Users Staff Strategic Partners	Staff Strategic Partners Regulators

Risk No. 8		Lack of private sector capacity for required level of residential & nursing home placements for older people	
Relevant Starting Conditions	<ul style="list-style-type: none"> It is assumed that 450 placements of older people in private sector residential and nursing homes will be made each year The sector has complained that current funding levels threaten the viability of some providers 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 – 30%)	About Even (40 – 60%)	Extremely Unlikely (5 – 20%)
Consequences Description	<ul style="list-style-type: none"> There would be warning of problems and staff could cope without significant additional resources or effects on service users beyond a little uncertainty and some reduction in placement choice 	<ul style="list-style-type: none"> The amounts needed to be paid for about 90 placements would need to rise by £30 per week (£140k in total per year) Some service users would have to be placed further afield in areas that they would not prefer Failure to achieve subsidiary elements of CO4 	<ul style="list-style-type: none"> There would be large scale inability to place clients in the local authority area or where they would wish to be Out-of-area placements and other alternatives would increase costs by about £2m per year Failure to achieve subsidiary elements of CO4 A provider closing with no notice, requiring emergency provision to be found for up to 25 residents with high levels of distress caused to them
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. The authority works with the representative groups for the sector to seek to build capacity		<ul style="list-style-type: none"> Regular meetings take place but progress is slow and little has been achieved so far 	Low
2. Monitoring visits carried out at providers and any indications of financial difficulty reported to senior managers		<ul style="list-style-type: none"> These take place annually and are fully recorded and monitored by a senior manager; the frequency of the visits means that they have little early-warning value 	Low
3. A contingency plan is in place to cope with a provider closing at short notice		<ul style="list-style-type: none"> This is documented but has never been tested 	Low / Medium
4. Two local authority owned and run homes are maintained with limited capacity for short-term emergency provision if needed		<ul style="list-style-type: none"> Homes exist but spare capacity is rarely more than five places in total and gender restrictions may limit the use of these 	Low
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 - 25%)	Slightly Less than Even (40 – 49%)	Almost Certain not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> There would be warning of problems and staff could cope without significant additional resources or effects on service users beyond a little uncertainty and some reduction in placement choice 	<ul style="list-style-type: none"> The amounts needed to be paid for about 90 placements would need to rise by £30 per week (£140k in total per year) Some service users would have to be placed further afield in areas that they would not prefer Failure to achieve subsidiary elements of CO4 	<ul style="list-style-type: none"> There would be large scale inability to place clients in the local authority area or where they would wish to be Out-of-area placements and other alternatives would increase costs by up to £1m per year Failure to achieve subsidiary elements of CO4 A provider closing with no notice, requiring emergency arrangements to be used for up to 25 residents with high levels of distress caused to them
Other Factors, e.g. stakeholder concerns	Certainty and proximity to friends and family are important factors		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
Reported cases suggest that being moved from residential homes can be very distressing for older people and their families		Community Service Users Staff	Staff

Risk No. 9		Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure	
Relevant Starting Conditions		<ul style="list-style-type: none"> This is the Authority's first PFI project There is intense media and political scrutiny of PFI projects, which could be seen as a desire for failure and evidence and examples of failure to use for national political purposes 	
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	This is a complex matter, in the absence of sound controls failure is almost certain (>95%)	This is a complex matter, in the absence of sound controls failure is almost certain (>95%)	This is a complex matter, in the absence of sound controls failure is almost certain (>95%)
Consequences Description	<ul style="list-style-type: none"> The decision is made at an early stage that the project should not go ahead No injuries or deaths are attributable to the project cancellation 	<ul style="list-style-type: none"> Regeneration targets not met / new employers not attracted due to poor infrastructure – CO3 not met Failure to achieve Corporate Objective CO5 Potentially avoidable injuries Adverse local media coverage Serious waste of resources (£1m+) 	<ul style="list-style-type: none"> Regeneration targets not met / new employers not attracted due to poor infrastructure – CO3 not met Failure to achieve Corporate Objectives CO5 and CO6 Potentially avoidable deaths and injuries Adverse national media coverage Serious waste of resources (£3m+)
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Project Board established and oversees the project and includes in-house solicitor with previous PFI experience		<ul style="list-style-type: none"> Meets regularly Minutes taken, etc. 	High
2. All activities follow PRINCE2 standard		<ul style="list-style-type: none"> This has been stated to be the case by the PFI Manager A compliance review has not been undertaken 	Medium
3. PFI Manager in post and PRINCE2 qualified		<ul style="list-style-type: none"> This is clearly established to be the case Qualifications checked at interview last year 	Very High
4. Project risk register drawn up and regularly reviewed and updated		<ul style="list-style-type: none"> This is clearly established to be the case 	High
5. Business Case to be prepared (does not currently exist)		<ul style="list-style-type: none"> Instructions issued by Project Board 	Very Low as Business Case not yet written
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 – 40%)	Likely (65 – 90%)	Very / Extremely Unlikely (10 – 30%)
Consequences Description	<ul style="list-style-type: none"> The decision is made at an early stage that the project should not go ahead No injuries or deaths are attributable to the project cancellation 	<ul style="list-style-type: none"> Regeneration targets not met / new employers not attracted due to poor infrastructure – CO3 not met Failure to achieve Corporate Objective CO5 Potentially avoidable injuries Serious waste of resources (£½m) 	<ul style="list-style-type: none"> Regeneration targets not met / new employers not attracted due to poor infrastructure – CO3 not met Failure to achieve Corporate Objectives CO5 and CO6 Potentially avoidable deaths and injuries Adverse national media coverage Serious waste of resources (£2m+)
Other Factors, e.g. stakeholder concerns	There is a general public concern to see improvements in key roads but little appetite for a PFI solution		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
The key stakeholders are road users, PFI contractors and commercial organisations using the road network		Community Staff Strategic Partners	Staff Strategic Partners

Risk No. 10 Housing rent arrears exceed specified performance requirements			
Relevant Starting Conditions		<ul style="list-style-type: none"> • Arrears have been within target levels for the last five years • Total gross annual rent £7m 	
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Likely (50 – 70%)	Extremely Likely (80 – 95%)	Unlikely (30 - 45%)
Consequences Description	<ul style="list-style-type: none"> • Arrears slightly above target levels but position recovered by effective recovery action with no loss of income 	<ul style="list-style-type: none"> • Arrears significantly above target with additional recovery costs and income losses of 10% (£700k) 	<ul style="list-style-type: none"> • Arrears greatly above target with additional recovery costs and income losses of 25% (£1.75m) • Adverse comment by the external auditor and regulators
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Rents collected by direct debit or direct payment of Housing Benefit to the fullest extent possible		<ul style="list-style-type: none"> • There is a very high take up 	High
2. Range of controls within the housing rents system to ensure the completeness and accuracy of posting to tenants' rent accounts and so of outstanding arrears balance, if any		<ul style="list-style-type: none"> • A recent internal audit report has reviewed the system and found it to be "sound" 	High
3. All arrears over 4 weeks reported to specialist Recovery Team and addressed		<ul style="list-style-type: none"> • A recent internal audit report has reviewed the system and found it to be "sound" 	High
4. Monthly performance targets track arrears levels, Area Housing Managers required to explain and justify levels in excess of target		<ul style="list-style-type: none"> • A recent internal audit report has reviewed the system and found it to be "sound" 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (20 - 35%)	Unlikely (30 – 40%)	Very Unlikely (20 - 35%)
Consequences Description	<ul style="list-style-type: none"> • Arrears slightly above target levels but position recovered by effective recovery action with no loss of income 	<ul style="list-style-type: none"> • Arrears slightly above target with additional recovery costs and income losses of 1% (£70k) 	<ul style="list-style-type: none"> • Arrears above target with additional recovery costs and income losses of 2.5% (£175k) • Adverse comment by the external auditor
Other Factors, e.g. stakeholder concerns	This risk is unlikely to be a major concern for stakeholders other than perhaps those who might prefer to avoid paying their rent when it is due		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is primarily a matter between the local authority and individual tenants, though regulator and the external auditor may comment on excessive arrears levels		Service Users (Tenants) Staff	Staff

Risk No. 11 Senior manager abuses his position to obtain high value fraudulent payments from supplier(s)			
Relevant Starting Conditions	<ul style="list-style-type: none"> • A serious internal fraud is not known to have taken place in the last 10 years • It is thought that the impact of the recession may have made an internal fraud more likely 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very unlikely (10 - 25%)	Unlikely (20 - 45%)	Very unlikely (10 - 25%)
Consequences Description	<ul style="list-style-type: none"> • Loss of about £50k • Full confession received, resulting in minimal investigation and legal costs 	<ul style="list-style-type: none"> • Loss of about £100k • Investigation and legal costs of £50k • Brief adverse local media criticism • Serious loss of trust in the authority • Serious criticism from the external auditor 	<ul style="list-style-type: none"> • On-going losses of £500k per year due to fraud not being identified
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Standing Orders (Contracts) and Procurement Code specify appropriate controls and registers of hospitality, gifts, etc.		<ul style="list-style-type: none"> • All staff trained in these requirements • Annual refresher training carried out (Caveat re control #2 applies) 	High
2. All negotiations and other contact with suppliers required to be undertaken by staff in pairs		<ul style="list-style-type: none"> • This is clearly defined and appears to be understood by all staff (The control does not prevent additional meetings with suppliers being arranged which are not known to the local authority, but any such meetings would be treated as a serious disciplinary offence if brought to the attention of senior management) 	Medium (Due to stated gap)
3. Separation of duties in payment request, authorisation and processing All payments of £35k subject to additional approval requirements due to their size		<ul style="list-style-type: none"> • Recent internal audit work and report has found payments system to be satisfactory with only very occasional (1 out of 20 in test sample) failures to provide an adequate separation of duties 	High
4. Whistle-blowing procedures in place and all staff have been trained in its scope, procedures and safeguards		<ul style="list-style-type: none"> • The existence of the policy appears to be well known but it has been very little used – it is difficult to say whether this is due to their being little to report or staff simply not using the procedures 	Medium
5. Anti-fraud policy in place and all staff have been trained in its scope and application.		<ul style="list-style-type: none"> • It is clearly understood that all cases will be fully investigated and prosecuted 	High
6. References taken up for all new staff covering previous 5 years' employment and explicit questions about disciplinary record asked		<ul style="list-style-type: none"> • Assurances have been obtained from HR that this is done in all cases 	High
7. The fidelity guarantee insurance policy would cover losses above £50,000		<ul style="list-style-type: none"> • Insurance policy verified by Finance Manager (Only applies if the policy conditions had been fully satisfied at the time of the fraud) 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Almost Certain Not to Happen (<5%)	Very Unlikely (5 - 15%)	Extremely Unlikely (<5%)
Consequences Description	<ul style="list-style-type: none"> • Loss of about £10k • Full confession received, resulting in minimal investigation and legal costs 	<ul style="list-style-type: none"> • Loss of about £100k (£50k after insurance recovery) • Investigation and legal costs of £50k • Brief adverse local media criticism • Serious loss of trust in the authority • Serious criticism from the external auditor 	<ul style="list-style-type: none"> • On-going losses of £500k per year due to fraud not being identified (No insurance recovery would be possible for unidentified losses – Control #7 does not apply in this case)
Other Factors, e.g. stakeholder concerns	This risk poses a serious dilemma – is it worse to have a fraud go undetected and continue to take place, or to know about it and be subject to the resulting scrutiny and adverse comment? The former has been assumed to be worse for the purposes of this research.		
<u>Stakeholders</u>		<u>Affected by the Risk</u>	<u>Power / Influence Over the Risk</u>
This would be expected to be perceived as a serious failure and betrayal of trust by key stakeholders, if the fraud is detected		Community Staff Strategic Partners	Staff Strategic Partners

Risk No. 12		Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises	
Relevant Starting Conditions	<ul style="list-style-type: none"> • There was a minor data loss two years ago involving the loss of a list of names, addresses and dates of birth for ten members of staff at a local authority area office • The previous data loss was reported to the Information Commissioners' Office, which acknowledged receipt of the report and decided not to investigate on that occasion given assurances provided by the local authority 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 – 10%)	Unlikely (40 – 49%)	Very Unlikely (10 – 25%)
Consequences Description	<ul style="list-style-type: none"> • Breach of Data Protection Act • The data lost is not sensitive and is recovered in a short time • The ICO takes no action • The media does not report the case • Staff are concerned but do not see the case as a betrayal of trust 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £100k imposed by ICO • Adverse national media coverage • Betrayal of trust • Further costs of £10k 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £500k imposed by ICO • Adverse national media coverage • Betrayal of trust • Members of staff become victims of identity theft and subsequent fraudulent financial loss for which the authority is deemed responsible • Further costs of £100k
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
5. Strict instructions have been issued to all staff on the removal and security of all data storage media taken out of the office for any reason		<ul style="list-style-type: none"> • This has been seen to be clearly the case but little is done to check that staff are not acting in breach of these instructions 	Low / Medium
6. Data Protection policy in place and available to all staff. The policy is explained during inductions for new staff and many, but not all, members of staff have had training to explain it		<ul style="list-style-type: none"> • This has been seen to be clearly the case but work pressures may mean that staff have not read and understood it fully 	Medium
7. All laptops, memory sticks and other data storage media encrypted and staff explicitly forbidden from using personal or external items on local authority systems or to store its data		<ul style="list-style-type: none"> • A recent review by the external auditor has confirmed the reliable operation of this control and the appropriateness of the encryption software used 	High
8. All systems password protected with effective access controls and all breaches of security are reported to the Data Protection Officer for investigation		<ul style="list-style-type: none"> • A recent review by the external auditor has confirmed the reliable operation of appropriate access controls 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 – 10%)	Extremely Unlikely (5 – 15%)	Extremely Unlikely (5 – 10%)
Consequences Description	<ul style="list-style-type: none"> • Breach of Data Protection Act • The data lost is not sensitive and is recovered in a short time • The ICO takes no action • The media does not report the case • The data encryption prevents the data being read • Staff are concerned but do not see the case as a betrayal of trust 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £100k imposed by ICO • Adverse national media coverage • Betrayal of trust • Further costs of £10k 	<ul style="list-style-type: none"> • Breach of Data Protection Act • Penalty of £250k imposed by ICO • Adverse national media coverage • Betrayal of trust • Members of staff become victims of identity theft and subsequent fraudulent financial loss for which the authority is deemed responsible • Further costs of £100k
Other Factors, e.g. stakeholder concerns	Pressure of work for many members of staff may result in convenience and wanting to get the job done causing data protection arrangements to be ignored or not complied with fully.		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
Such a data loss would be seen as a serious breach of trust and would be expected to be taken very seriously by the ICO, leading to potentially severe sanctions being imposed and reputation damage		Staff	Staff Regulator (ICO)

Risk No. 13 Breach of EU procurement directives on major procurement			
Relevant Starting Conditions	<ul style="list-style-type: none"> The authority has had a few complaints by unsuccessful tenderers but has never been taken to court or had to settle out of court for breach of the EU procurement directives There are a number of qualifying procurement processes each year The directives are complex and likely to be breached in the absence of substantial specialist advice and control procedures but it is quite rare for a case to be taken to court 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (75 - 95%)	Almost Certain (>95%)	(Very) Unlikely (20 - 40%)
Consequences Description	<ul style="list-style-type: none"> Breach of EU procurement law No further consequences beyond professional embarrassment 	<ul style="list-style-type: none"> Breach of EU procurement law Additional costs incurred remedying problems and obtained necessary advice, say £300k Local media criticism suggesting lack of competence 	<ul style="list-style-type: none"> Breach of EU procurement law Case taken to court which finds against the authority Legal, compensation and other costs, say £5m National media criticism
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Experienced Procurement Manager and team		<ul style="list-style-type: none"> Recent external audit report concluded that "the system of internal control for procurement is sound". EU compliance was stated to be within the scope of the audit. This appears to be the case No contrary evidence 	Very High
2. An in-house solicitor has a particular interest in procurement and meets the Procurement Manager regularly to discuss progress and provide advice		<ul style="list-style-type: none"> Clearly established that the meetings take place 	Medium
3. Procurement Code in place, all relevant staff have been trained in its use and receive annual updates		<ul style="list-style-type: none"> The external audit report and conclusion Code was based on national best practice guidance 	High
4. Separation of duties and independent review of all procurement processes and files by a Procurement Officer or the Procurement Manager		<ul style="list-style-type: none"> The external audit report and conclusion The operation of this control is clearly documented on each occasion 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (20 - 35%)	Unlikely (30 - 45%)	Extremely Unlikely (5 - 10%)
Consequences Description	<ul style="list-style-type: none"> Breach of EU procurement law No further consequences beyond professional embarrassment 	<ul style="list-style-type: none"> Breach of EU procurement law Additional costs incurred remedying problems and obtained necessary advice, say £300k Local media criticism suggesting lack of competence 	<ul style="list-style-type: none"> Breach of EU procurement law Case taken to court which finds against the authority Legal, compensation and other costs, say £5m National media criticism
Other Factors, e.g. stakeholder concerns	The key stakeholder concerns are likely to be an apparent lack of competence and the waste of resources involved in remedying a breach of the directives		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
A key issue in the consequences of a breach is the extent to which contractors and those who tender for major contracts, or are interested in doing so, are motivated and able to take legal action		Contractors and those who tender for major contracts, or are interested in doing so Staff	Staff Contractors and those who tender for major contracts, or are interested in doing so EU

Risk No. 14 Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service			
Relevant Starting Conditions	<ul style="list-style-type: none"> Historically spending on training has been quite high but this was a quick source of savings in the early days of reduced funding in 2010 Staff turnover levels remain low, other than for trainee and recently qualified professional staff New modes of service delivery are expected to require significant retraining for frontline staff Funding reductions have reduced staffing levels substantially since 2009 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 - 40%)	Almost Certain (>95%)	Unlikely (25 - 40%)
Consequences Description	<ul style="list-style-type: none"> Managers and staff will rise to the challenge and solutions will be found, leading to no significant adverse consequences The economic crisis will substantially reduce staff mobility, aiding retention 	<ul style="list-style-type: none"> There will be a general reduction in service quality but managerial input and staff commitment will avoid critical failures Subsidiary elements of Corporate Objectives will not be achieved Critical letters appears from time to time in the local media 	<ul style="list-style-type: none"> There will be a serious service failure involving harm to service users and unavoidable associated costs of, perhaps, £½m Corporate Objectives not achieved On-going criticism in the local media Breach of legal obligations
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. HR Strategy in place and recently reviewed and updated		<ul style="list-style-type: none"> Compliance is variable 	Low
2. Staff appraisals for all staff every six months include review of training needs linked to achievement of corporate and team objectives		<ul style="list-style-type: none"> There is clear evidence of strong compliance, but funding to meet the identified training needs is very limited 	Low / Medium
3. There is a policy that essential knowledge and expertise should not be vested in just one member of staff and this should be taken into account in all restructuring decisions		<ul style="list-style-type: none"> Recent cuts have meant that these policies are not complied with on all occasions 	Low
4. Repeated attempts have been made to undertake a skills need survey and use this to drive training and recruitment processes		<ul style="list-style-type: none"> There remains only limited assurance that skills available and skills needed are inline 	Low
5. Investors in People (IiP) accreditation achieved in 1998 and has been maintained ever since Procedures include annual staff survey and consideration of its results		<ul style="list-style-type: none"> Two-yearly reviews undertaken, the most recent was earlier this year Next staff survey currently due to be carried out 	Medium
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 - 40%)	Almost Certain (>95%)	Extremely / Very Unlikely (5 - 20%)
Consequences Description	<ul style="list-style-type: none"> Managers and staff will rise to the challenge and solutions will be found, leading to no significant adverse consequences The economic crisis will substantially reduce staff mobility, aiding retention 	<ul style="list-style-type: none"> There will be a general reduction in service quality but managerial input and staff commitment will avoid critical failures Subsidiary elements of Corporate Objectives will not be achieved Critical letters appears from time to time in the local media 	<ul style="list-style-type: none"> There will be a serious service failure involving harm to service users and unavoidable associated costs of, perhaps, £½m Corporate Objectives not achieved On-going criticism in the local media Breach of legal obligations
Other Factors, e.g. stakeholder concerns	This could potentially impact all that the authority does		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
All stakeholder groups could be affected by failures arising from insufficient staffing and staff training		<ul style="list-style-type: none"> Community Service Users Staff Strategic Partners 	Staff

Risk No. 15		Failure to effectively plan and prioritise for future capital investment requirements	
Relevant Starting Conditions	<ul style="list-style-type: none"> An average of four major capital investment projects are planned for each of the next five years with a value of between £1m and £15m for each scheme Any borrowing arrangements for capital schemes are considered as separate risks 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (10 – 25%)	Almost Certain (>95%)	Likely (50 – 75%)
Consequences Description	<ul style="list-style-type: none"> Managers muddle through, limiting adverse consequences to minor reductions and interruptions in service quality and minor value for money issues, perhaps up to £500k 	<ul style="list-style-type: none"> Poor value for money obtained, perhaps up to £2m (partial failure to achieve CO7) Significant reductions in service quality and delivery Adverse local media comment Failure to achieve elements of any or all of CO1 - 6 	<ul style="list-style-type: none"> Poor value for money obtained, perhaps up to £10m (failure to achieve CO7) Projects fail, are delayed or do not happen Failure to achieve associated Corporate Objectives, potentially any or all of CO1 – 6 Serious damage to reputation with key stake-holders, e.g. regulators, strategic partners Possible betrayal of trust issues around failure to invest in current seriously flawed services Adverse local media comment
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Assistant Director of Finance oversees all aspects of the long-term planning for major projects		<ul style="list-style-type: none"> This is clearly established to be the case 	High
2. Capital projects planning integrated with overall strategic planning and long-term financial strategy		<ul style="list-style-type: none"> The external auditor has recently reviewed the authority's financial and strategic planning and concluded that it is satisfactory but with some scope for improvement 	Medium
3. Inter-departmental demand forecasting process for all services is linked to Corporate Objectives		<ul style="list-style-type: none"> This is clearly established to be in operation but of only partial relevance 	Low / Medium
4. Capital rationing scoring model to determine priorities		<ul style="list-style-type: none"> This is clearly established to be in operation, though there is some tension between the model and political priorities 	Medium
5. Accumulated management and professional expertise		<ul style="list-style-type: none"> Individuals concerned are well respected and there is no evidence of any significant recent planning failures in this area 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 – 25%)	Unlikely (35 – 49%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> Managers muddle through, limiting adverse consequences to minor reductions and interruptions in service quality and minor value for money issues, perhaps up to £250k 	<ul style="list-style-type: none"> Poor value for money obtained, perhaps up to £1m (partial failure to achieve CO7) Significant reductions in service quality and delivery Adverse local media comment Failure to achieve elements of any or all of CO1 - 6 	<ul style="list-style-type: none"> Poor value for money obtained, perhaps up to £4m (failure to achieve CO7) Projects fail, are delayed or do not happen Failure to achieve associated Corporate Objectives, potentially any or all of CO1 – 6 Serious damage to reputation with key stake-holders, e.g. regulators, strategic partners Possible betrayal of trust issues around failure to invest in current seriously flawed services Adverse local media comment
Other Factors, e.g. stakeholder concerns	This has the potential to affect all service users and to be a concern to a range of powerful stakeholders		
<u>Stakeholders</u>	<u>Affected by</u>	<u>Power / Influence Over</u>	
Key stakeholders are staff, strategic partners, regulators and service users	Service Users Staff Strategic Partners	Staff Strategic Partners & Regulators	

Risk No. 16		The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority	
Relevant Starting Conditions	<ul style="list-style-type: none"> This is a complex organisation that faces a range of varyingly serious risks This risk relates to strategic risk and is independent of health & safety concerns 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely / Very Unlikely (5 – 20%)	Almost Certain (>95%)	Very Unlikely / Unlikely (10 – 40%)
Consequences Description	<ul style="list-style-type: none"> The authority will cope with minor adverse effects to service and the achievement of service objectives Additional expenditure of perhaps £5m over 5 years will be needed to cope with foreseeable and avoidable problems 	<ul style="list-style-type: none"> There will be an on-going series of problems that could have been foreseen and, at least partially, avoided or their effects mitigated <p>Assume non-critical consequences on all categories</p>	<ul style="list-style-type: none"> There will be an on-going series of very serious problems that could have been foreseen and, at least partially, avoided or their effects mitigated <p>Assume critical consequences on all categories</p>
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. A Risk Management Strategy and Policy have been drawn up and are in place		<ul style="list-style-type: none"> This is clearly the case (There is a lack of assurance as regards the quality and appropriateness of the approach taken) 	Medium
2. A specialist Risk Manager is in post and co-ordinates risk management across the authority		<ul style="list-style-type: none"> This can be seen to be the case The Risk Manager is well thought of and considered to be highly competent 	High
3. An authority-wide risk management group meets regularly and is chaired by the Risk Manager		<ul style="list-style-type: none"> This can be seen to be the case The process helps ensure that risk management is embedded across the authority 	High
4. A risk register is in place, reviewed annually and reported to the Audit & Risk Committee, with quarterly progress reports to the Chief Exec and updates on the most serious risks		<ul style="list-style-type: none"> This can be seen to be the case The external auditor has recently praised the high level of senior “buy-in” to risk management 	High
5. Managers and members trained in risk management		<ul style="list-style-type: none"> Training has been delivered by the Risk Manager (Take up is about 80% for managers and 50% for members) 	Medium / High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 – 25%)	Very Unlikely (10 – 30%)	Almost Certain Not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> The authority will cope with minor adverse effects to service and the achievement of service objectives Additional expenditure of perhaps £5m over 5 years will be needed to cope with foreseeable and avoidable problems 	<ul style="list-style-type: none"> There will be an on-going series of problems that could have been foreseen and, at least partially, avoided or their effects mitigated <p>Assume non-critical consequences on all categories</p>	<ul style="list-style-type: none"> There will be an on-going series of very serious problems that could have been foreseen and, at least partially, avoided or their effects mitigated <p>Assume critical consequences on all categories</p>
Other Factors, e.g. stakeholder concerns	Professional stakeholders, such as regulators and the external auditor would be concerned about poor risk management and lay stakeholders, such as service users, would be concerned about its effects		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is an issue for all stakeholder groups, though perspectives would vary		<p>Community</p> <p>Service Users</p> <p>Staff</p> <p>Strategic Partners</p>	<p>Community</p> <p>Service Users</p> <p>Staff</p> <p>Strategic Partners</p>

Risk No. 17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery		
Relevant Starting Conditions	<ul style="list-style-type: none"> • With a local community of nearly 100,000 it is not considered possible or appropriate to consult all stakeholders on all issues • Local elections are considered to provide a key voice for local people • The services provided have largely been provided for a considerable number of years 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	(Very) Unlikely (20 - 40%)	Very / Extremely Likely (70 – 90%)	Very Unlikely (10 - 25%)
Consequences Description	<ul style="list-style-type: none"> • Services are mildly inappropriate to service users' needs 	<ul style="list-style-type: none"> • Services are significantly inappropriate to service users' needs • Failure to achieve subsidiary elements of CO1,2 and 4 • Poor value for money obtained (partial failure to achieve CO7), perhaps up to £1m 	<ul style="list-style-type: none"> • Services are wholly inappropriate to service users' needs • Failure to achieve CO1, 2 and 4 • Extremely poor value for money obtained (partial failure to achieve CO7), perhaps up to £3m • Adverse local media comment
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Community engagement framework drawn up and implemented		<ul style="list-style-type: none"> • There is clear evidence that this is in place and operating reliably 	High
2. Citizens' Panels set up and consulted half-yearly		<ul style="list-style-type: none"> • Panels have not met this year due to lack of interest 	None
3. Consultation guidance and policy drawn up and followed		<ul style="list-style-type: none"> • There is clear evidence that this is in place and operating reliably 	High
4. Service managers seek informal feedback from service users and suggestion schemes are in operation in a number of service areas		<ul style="list-style-type: none"> • This control operates inconsistently across the authority 	Low
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	(Very) Unlikely (20 - 30%)	Unlikely (15 – 35%)	Almost Certain Not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> • Services are mildly inappropriate to service users' needs 	<ul style="list-style-type: none"> • Services are significantly inappropriate to service users' needs • Failure to achieve subsidiary elements of CO1,2 and 4 • Poor value for money obtained (partial failure to achieve CO7) 	<ul style="list-style-type: none"> • Services are wholly inappropriate to service users' needs • Failure to achieve CO1, 2 and 4 • Extremely poor value for money obtained (partial failure to achieve CO7) • Adverse local media comment
Other Factors, e.g. stakeholder concerns	This is of clear concern to service users and to staff and strategic partners as service providers		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
Stakeholders are service users, staff and strategic partners		Service Users Staff Strategic Partners	(Service Users) Staff Strategic Partners

Risk No. 18 Joint local and national elections run poorly			
Relevant Starting Conditions	<ul style="list-style-type: none"> The administration of elections is a legal responsibility (Two joint elections are expected in the five year time horizon) 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Likely (75-90%)	Very Likely (80-95%)	Extremely Unlikely (5 – 20%)
Consequences Description	<ul style="list-style-type: none"> The problems will be minor ones that will go unnoticed other than by staff who will be able to sort them out as they arise 	<ul style="list-style-type: none"> The problems will be minor ones that will go largely unnoticed other than by staff who will be able to sort them out as they arise Adverse comment in the local media and minor embarrassment for the authority (say 50% of risk likelihood) 	<ul style="list-style-type: none"> A nationally embarrassing failure to run elections in accordance with electoral law Legal and other costs of perhaps £100k to remedy the problems and re-run the elections
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	
Level of Confidence in these Controls			
1. Trained, specialist, experienced staff	<ul style="list-style-type: none"> Know the staff Previous joint elections run by the same members of staff have gone well 	Very High	
2. There are clear written procedures which are followed	<ul style="list-style-type: none"> Previous joint elections run by the same members of staff have gone well Staff have a review day before each election to ensure that procedures are known and understood 	High	
3. The polling stations have all been used before and staff are familiar with them	<ul style="list-style-type: none"> Previous joint elections using these polling stations have gone well 	High	
4. The Deputy CEO oversees elections on the day and addresses any unexpected problems that arise	<ul style="list-style-type: none"> This has worked well for the last 15 years 	Very High	
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (20 – 30%)	Unlikely (20 – 30%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> The problems will be minor ones that will go unnoticed other than by staff who will be able to sort them out as they arise 	<ul style="list-style-type: none"> The problems will be minor ones that will go largely unnoticed other than by staff who will be able to sort them out as they arise Adverse comment in the local media and minor embarrassment for the authority (say 25% of risk likelihood) 	<ul style="list-style-type: none"> A nationally embarrassing failure to run elections in accordance with electoral law Legal and other costs of perhaps £100k to remedy the problems and re-run the elections
Other Factors, e.g. stakeholder concerns	None beyond a little extra work for staff		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is a matter for staff but would affect confidence in the local authority		Staff	Staff

Risk No. 19 Failure to respond to need for organisational change and performance improvement			
Relevant Starting Conditions	<ul style="list-style-type: none"> The authority has performed satisfactorily in recent performance assessments but there is concern that funding cuts will seriously impair future performance and the capacity for change and improvement Demand for many services has increased significantly in recent years 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (20 – 35%)	Very Likely (70 - 90%)	Unlikely (20 – 40%)
Consequences Description	<ul style="list-style-type: none"> Diminishing service quality and relevance 	<ul style="list-style-type: none"> Diminishing service quality and relevance Failure to achieve elements of corporate objectives 	<ul style="list-style-type: none"> Serious service failures Failure to achieve key corporate objectives
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Project Board established and oversees the Transformation Project		<ul style="list-style-type: none"> Clearly established to be in place but the Board's effectiveness has not yet been demonstrated 	Low / Medium
2. Project Plan agreed by the full council and based on extensive internal and external consultation		<ul style="list-style-type: none"> The project plan was enthusiastically endorsed by the full council The consultations provide a strong element of validation of the proposals contained in the plan 	High
3. Internal performance review undertaken and used to inform the Project Plan, and draws on external reviews over the last three years		<ul style="list-style-type: none"> Clearly documented process but there are substantial gaps, e.g. Trading Standards, Libraries and Planning 	Low
4. Service plans in place and include the relevant risks and associated mitigations and contingencies		<ul style="list-style-type: none"> These have not been reviewed or validated as originally planned (It is now intended that this will be done on a sample basis by Internal Audit) 	Low
5. The Performance Management System is aligned to the Strategic Plan and reports are produced and reviewed regularly		<ul style="list-style-type: none"> Clearly established to be in place and considered to be reliable 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 - 30%)	Unlikely (25 – 40%)	Very Unlikely (10 - 25%)
Consequences Description	<ul style="list-style-type: none"> Diminishing service quality and relevance 	<ul style="list-style-type: none"> Diminishing service quality and relevance Failure to achieve elements of corporate objectives 	<ul style="list-style-type: none"> Serious service failures Failure to achieve key corporate objectives
Other Factors, e.g. stakeholder concerns	This has the potential to fundamentally affect the local authority, the services that it provides and all that it seeks to achieve		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is an important concern for all stakeholders		Community Service Users Staff Strategic Partners	Community Service Users Staff Strategic Partners

Risk No. 20		Changes to the economic environment make the Council economically unstable	
Relevant Starting Conditions	<ul style="list-style-type: none"> The authority has experienced severe funding cuts since 2010 and restrictions on its ability to raise additional funding through the Council Tax system The economic crisis has also reduced staff turnover levels and the ability to make savings without redundancies and the associated additional costs Demand for many services has increased significantly over the same period Local authorities have a well-established track record of coping in difficult circumstances but there is a fear that the current economic crisis may demand too much for it to be able to do so 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (70 - 95%)	Very Likely (70 - 95%)	Very Unlikely (20 - 40%)
Consequences Description	<ul style="list-style-type: none"> The local authority muddles through and copes with reductions in staff morale, services and service quality and partial failures to achieve corporate objectives 	<ul style="list-style-type: none"> The local authority muddles through and copes with reductions in staff morale, services and service quality and partial failures to achieve corporate objectives 	<ul style="list-style-type: none"> Decreasing service quality and reliability to unacceptable levels Corporate Objectives not achieved Adverse local publicity Legal action for non-performance of legal duties (say 50% of risk likelihood)
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1.	Director of Finance closely monitors economic circumstances and their implications	<ul style="list-style-type: none"> This is considered to be very thorough but is only a matter of early warning 	Low
2.	Long-term financial strategy in place and reviewed and revised half-yearly Strategy informs medium to long term financial planning	<ul style="list-style-type: none"> The external auditor has recently reviewed the authority's financial and strategic planning and concluded that it is satisfactory but with some scope for improvement 	Medium
3.	Active participation in Regional Working Party to co-ordinate responses and maximise effectiveness regionally	<ul style="list-style-type: none"> This is felt to concentrate on interests of the larger local authorities for the main urban conurbations in the region rather than this Authority 	Low
4.	An organisational architecture is being designed that will enable it to respond to environmental and economic changes	<ul style="list-style-type: none"> This is currently being developed and is not in place yet 	None (Not yet in place)
5.	Lobbying Government in the interests of the local authority	<ul style="list-style-type: none"> There is considerable scope to improve the effectiveness of lobbying 	Low
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (65 - 85%)	Very Likely (65 - 85%)	Extremely Unlikely (5 - 20%)
Consequences Description	<ul style="list-style-type: none"> The local authority muddles through and copes with reductions in staff morale, services and service quality and partial failures to achieve corporate objectives 	<ul style="list-style-type: none"> The local authority muddles through and copes with reductions in staff morale, services and service quality and partial failures to achieve corporate objectives 	<ul style="list-style-type: none"> Decreasing service quality and reliability to unacceptable levels Corporate Objectives not achieved Adverse local publicity Legal action for non-performance of legal duties (say 50% of risk likelihood)
Other Factors, e.g. stakeholder concerns	This has the potential to fundamentally affect the local authority, the services that it provides and all that it seeks to achieve		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is an important concern for all stakeholders		Community Service Users Staff Strategic Partners	(Community) (Service Users) Staff Strategic Partners

Risk No. 21		A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively	
Relevant Starting Conditions	<ul style="list-style-type: none"> There is little to suggest that the authority's standing is any greater, or less, than its peers A local authority's standing with national politicians, particularly those in government, and powerful stakeholders has a considerable bearing on its ability to function effectively 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 – 20%)	About Even (40 – 60%)	Extremely Unlikely (5 – 20%)
Consequences Description	<ul style="list-style-type: none"> The local authority muddles through and copes Key staff are able to recover the position with only short term effects on services Minor, temporary damage to the local authority's reputation and adverse comment in local media during this short period of time 	<ul style="list-style-type: none"> Failure to deliver full quality services and achieve corporate objectives for a number of months On-going local media criticism Minor regulatory intervention, Poor use of resources – perhaps about £500k effectively wasted Serious reputation damage lasting for one or two years 	<ul style="list-style-type: none"> Failure to deliver full quality services and achieve subsidiary corporate objectives for more than a year Repeated national media criticism On-going regulatory intervention Poor use of resources – perhaps £2m to £4m, or more, effectively wasted Possible serious harm to service users due to adverse effects on services Serious reputation damage lasting for a number of years
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. On-going corporate management, including horizon scanning, problem escalation and problem solving, and informal contingency plans		<ul style="list-style-type: none"> This is believed to be effective but has not been tested in the risk scenario The plans are not fully developed and would primarily form the basis of coping strategies 	Medium
2. Established PR function with experienced PR Manager with a sound network of contacts and industry credibility		<ul style="list-style-type: none"> This is believed to be effective 	High
3. Relationship management with key powerful stakeholder groups is allocated to individual senior managers as a key priority and a key focus in their annual appraisals		<ul style="list-style-type: none"> This is in place and relationships are thought to be sound but have an unavoidable element of fragility resulting from the need to protect positions and independence on the part of those stakeholders 	Medium
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Unlikely (10 - 30%)	Unlikely (25 – 40%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> The local authority muddles through and copes Key staff are able to recover the position with only short term effects on services Minor, temporary damage to the local authority's reputation and adverse comment in local media during this short period of time 	<ul style="list-style-type: none"> Failure to deliver full quality services and achieve corporate objectives for a number of months On-going local media criticism Minor regulatory intervention, Poor use of resources – perhaps about £500k effectively wasted Serious reputation damage lasting for one or two years 	<ul style="list-style-type: none"> Failure to deliver full quality services and achieve subsidiary corporate objectives for more than a year Repeated national media criticism On-going regulatory intervention Poor use of resources – perhaps £2m to £4m or more, effectively wasted Possible serious harm to service users due to adverse effects on services Serious reputation damage lasting for a number of years
Other Factors, e.g. stakeholder concerns	This would be of grave concern to all stakeholders - It has been assumed that the greatly increased scrutiny and criticism following the perceived loss of legitimacy will lead to a varyingly serious diminution of management and organisational effectiveness		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This would affect all stakeholders and all stakeholder groups could have some influence on the extent of the perception of lost legitimacy		Community Service Users Staff Strategic Partners	Community Service Users Staff Strategic Partners

Risk No. 22 The relationship between the elected council and the chief executive breaks down			
Relevant Starting Conditions	<ul style="list-style-type: none"> It is recognised that the effectiveness of this relationship is critical to the effectiveness of the local authority The relationship is currently considered to be a sound one, but this could change at the next local elections or with a new chief executive: the current relationship could deteriorate 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 - 10%)	Very Unlikely (10 – 25%)	Extremely Unlikely (5 - 10%)
Consequences Description	<ul style="list-style-type: none"> The parties concerned are able to remedy the problems without significant disruptive effects 	<ul style="list-style-type: none"> The parties concerned are able to remedy the problems without serious disruptive effects The local authority underperforms for 3 – 12 months whilst the situation is remedied 	<ul style="list-style-type: none"> Failure to achieve Corporate Objectives Poor service quality Waste of resources, perhaps £2m to £5m Poor staff morale and recruitment & retention problems Adverse local and national media coverage Serious reputation and career damage to the individuals concerned Chief Executive forced to resign (50% of risk likelihood)
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. The maintenance of effective relationships with members is a key priority and focus for the Chief Executive		<ul style="list-style-type: none"> This is recognised to be the case 	High
2. All concerned are aware of the importance of the relationship and seek to ensure that it is an effective one		<ul style="list-style-type: none"> This is widely stated to be the case 	Medium / High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (5 - 10%)	Extremely Unlikely (5 – 20%)	Almost Certain Not to Happen (< 5%)
Consequences Description	<ul style="list-style-type: none"> The parties concerned are able to remedy the problems without significant disruptive effects 	<ul style="list-style-type: none"> The parties concerned are able to remedy the problems without serious disruptive effects The local authority underperforms for 3 – 12 months whilst the situation is remedied 	<ul style="list-style-type: none"> Failure to achieve Corporate Objectives Poor service quality Waste of resources of about £1m Poor staff morale and recruitment & retention problems Adverse local and national media coverage Serious reputation and career damage to the individuals concerned Chief Executive forced to resign (50% of risk likelihood)
Other Factors, e.g. stakeholder concerns	It is not realistic to expect a critical and frank assessment of the relationship to be made by members of the council or the chief executive to be formally recorded in a risk assessment. There may be a very marked resistance to recognising the existence of such a risk. It might be perceived that admitting to the possibility of the risk would damage reputations and relationships.		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
The risk is dependent on the Chief Executive and Members and could affect all stakeholders		Community Service Users Staff Strategic Partners	Chief Executive and Members

Risk No. 23		Failure to achieve Corporate Objective CO3 to develop and support a sustainable and economically thriving community		
Relevant Starting Conditions	<ul style="list-style-type: none"> The local authority serves a rural area with income levels about 10% below the national average The local economy has suffered a number of blows during the “double dip” recession and wider economic crisis due to the loss of manufacturing and retail jobs in the smaller towns The local authority has sought to increase economic development activity since the abolition of the Regional Development Agency on 31st March 2012 			
<u>Inherent Risk Position</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Very Likely (75 – 95%)	Almost Certain (>95%)	Likely (50 – 70%)	
Consequences Description	<ul style="list-style-type: none"> By definition from the risk – Corporate Objective CO3 not achieved 	<ul style="list-style-type: none"> By definition from the risk – Corporate Objective CO3 not achieved Issues raised about the trustworthiness of the authority to deliver on its promises and to serve the local community 	<ul style="list-style-type: none"> By definition from the risk – Corporate Objective CO3 not achieved Issues raised about the trustworthiness of the authority to deliver on its promises and to serve the local community A few hundred jobs lost that the local authority could be deemed to have been able to protect Criticism in the local media 	
<u>Controls</u>				
Description of Key Controls		Sources of Control Confidence		Level of Confidence in these Controls
1. Head of Economic Development personally accountable for achievement of CO3		<ul style="list-style-type: none"> Has to report quarterly on performance and half-yearly reports produced and presented to Cabinet 		High
2. Economic Performance Indicators (EPIs) set and reported on quarterly		<ul style="list-style-type: none"> Reports widely scrutinised but there is some concern that the EPIs are superficial, measuring what is easy rather than providing a meaningful indicator 		Low / Medium
3. Service plans derived from the Corporate Objectives and delivery monitored at regular staff appraisals		<ul style="list-style-type: none"> This is clearly established to be the case 		High
4. The Economic Development function is arranged around achievement of this objective		<ul style="list-style-type: none"> The structure is considered to be appropriate but there are no independent sources of assurance that the structure supports effective achievement of CO3 		Medium / High
<u>Residual Risk</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Unlikely (25 - 45%)	Slightly Less than Even (40 – 49%)	Unlikely (25 - 45%)	
Consequences Description	<ul style="list-style-type: none"> Subsidiary elements of Corporate Objective CO3 not achieved 	<ul style="list-style-type: none"> By definition from the risk – Corporate Objective CO3 not achieved Issues raised about the trustworthiness of the authority to deliver on its promises and to serve the local community 	<ul style="list-style-type: none"> By definition from the risk – Corporate Objective CO3 not achieved Issues raised about the trustworthiness of the authority to deliver on its promises and to serve the local community Criticism in the local media 	
Other Factors, e.g. stakeholder concerns	The consequences of this risk may be dependent on the extent to which the local authority is considered to be able to influence local economic events and hence to have any responsibility for local difficulties in difficult economic times			
<u>Stakeholders</u>		<u>Affected by</u>		<u>Power / Influence Over</u>
The key stakeholders are the local business and wider communities		Community (inc local business community) Staff Strategic Partners		Staff Strategic Partners

Risk No. 24		Large loss on investment		
Relevant Starting Conditions	<ul style="list-style-type: none"> Short-term investment balances are up to £12m and are usually made in blocks of £½m The authority does not administer the pension fund and so does not manage pension fund investments Local Authorities are not legally allowed to borrow money to invest, i.e. speculate on the money markets and only a narrow range of investments are permitted 			
<u>Inherent Risk Position</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Unlikely (25 - 40%)	Unlikely (35 – 49%)	Almost Certain Not to Happen (<5%)	
Consequences Description	<ul style="list-style-type: none"> £½m loss Adverse external auditor comment Serious damage to trust and confidence in the local authority's financial management 	<ul style="list-style-type: none"> £2m loss with perhaps 50% recovered after a few years Adverse local media and external auditor comment Serious damage to trust and confidence in the local authority's financial management 	<ul style="list-style-type: none"> £12m loss Adverse national media and external auditor comment Extremely serious damage to trust and confidence in the local authority's financial management 	
<u>Controls</u>				
Description of Key Controls		Sources of Control Confidence		Level of Confidence in these Controls
1. Treasury Management Policy drawn up and followed		Recent internal and external audit reviewed have both found the treasury management system to be strong		High
2. Separation of duties between cash flow management & investment, payment authorisation, payment processing and bank reconciliation functions				High
3. Investments only made with a small number of pre-approved highly rated UK financial institutions				High
4. Maximum permitted investment of £2m with any one financial institution, other than the Bank of England				High
5. The Director of Finance as s151 Officer takes a particular interest in treasury management and provides additional supervisory oversight and scrutiny of these activities				High
<u>Residual Risk</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Almost Certain Not to Happen (<5%)	Almost Certain Not to Happen (<5%)	Almost Certain Not to Happen (<5%)	
Consequences Description	<ul style="list-style-type: none"> £½m loss Adverse external auditor comment Serious damage to trust and confidence in the local authority's financial management 	<ul style="list-style-type: none"> £2m loss with perhaps 50% recovered after a few years Adverse local media and external auditor comment Serious damage to trust and confidence in the local authority's financial management 	<ul style="list-style-type: none"> £2m loss Adverse national media and external auditor comment Extremely serious damage to trust and confidence in the local authority's financial management 	
Other Factors, e.g. stakeholder concerns	All three cases are considered to be almost certain not to happen with likelihoods of perhaps 1%, 2% and 1% at most, as long as the controls are in place and operating reliably The assessment assumes that were a large loss to arise, major system changes would follow and so multiple loss are not anticipated			
<u>Stakeholders</u>		<u>Affected by</u>		<u>Power / Influence Over</u>
This would be an essentially technical matter but a loss would seriously undermine confidence in the financial management of the local authority and reduce the resources available for the provision of services and the achievement of objectives		Staff		Staff Strategic Partners

Risk No. 25		Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations	
Relevant Starting Conditions	<ul style="list-style-type: none"> The protection of vulnerable adults has recently become a high profile issue for both local authorities and the NHS and relates to adults with learning difficulties and older people 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	About Even (40 – 60%)	Almost Certain (>95%)	Unlikely (20 – 40%)
Consequences Description	<ul style="list-style-type: none"> Poor use of resources Cases of non-fatal abuse not identified and addressed but staff able to mitigate the effects to some extent Betrayal of trust Failure to achieve CO4 	<ul style="list-style-type: none"> Poor use of resources Cases of non-fatal abuse not identified and addressed Betrayal of trust Failure to achieve CO4 	<ul style="list-style-type: none"> Case of fatal abuse not avoided National media criticism Regulatory intervention Legal and other costs of perhaps £250k Serious betrayal of trust Failure to achieve CO4
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1. Adult Protection Quality Standards and Quality Standards for Care Professionals		<ul style="list-style-type: none"> Confirmed by managers to be in place, operating reliably and fit for purpose 	High
2. Supervision processes		<ul style="list-style-type: none"> Confirmed by managers to be in place, operating reliably and fit for purpose 	High
3. Multi-Agency Strategy for carers		<ul style="list-style-type: none"> Confirmed by managers to be in place, operating reliably and fit for purpose 	High
4. Performance management system and the associated management information system		<ul style="list-style-type: none"> Confirmed by managers to be in place, operating reliably and fit for purpose 	High
5. Clear focus provided by Corporate Objective CO4		<ul style="list-style-type: none"> This is clearly the case and is supported by the wider corporate management systems 	High
6. Independent reviews of care homes by the Care Quality Commission		<ul style="list-style-type: none"> These are regularly seen to take place and are considered to be a sound control reducing the number of referrals, but not how they are addressed 	High (But slightly tangential to the risk)
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (25 – 45%)	About Even (40 - 60%)	Extremely Unlikely (5 – 10%)
Consequences Description	<ul style="list-style-type: none"> Poor use of resources Cases of non-fatal abuse not identified and addressed but staff able to mitigate the effects to some extent Betrayal of trust Failure to achieve CO4 	<ul style="list-style-type: none"> Poor use of resources Cases of non-fatal abuse not identified and addressed Betrayal of trust Failure to achieve CO4 	<ul style="list-style-type: none"> Case of fatal abuse not avoided National media criticism Regulatory intervention Legal and other costs of perhaps £250k Serious betrayal of trust Failure to achieve CO4
Other Factors, e.g. stakeholder concerns	The key concern is the funding and commitment of partners and not the authority's own internal arrangements Hence, whilst controls are sound they are considered to be substantially incomplete		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
The key stakeholders are those receiving care, their families, the care providers and regulators		Community Service Users	Staff Strategic Partners

Risk No. 26		The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption		
Relevant Starting Conditions	<ul style="list-style-type: none"> Recent changes have meant that the authority will not be able to recover all of the VAT on expenditure that it was previously able to recover 			
<u>Inherent Risk Position</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Certain – This has just Happened (100%)	Certain – This has just Happened (100%)	Certain – This has just Happened (100%)	
Consequences Description	<ul style="list-style-type: none"> The current problem will be able to be resolved in a few months with a loss and further costs totalling about £50k incurred in the interim 	<ul style="list-style-type: none"> There will be an on-going loss of about £200k per year, with additional one-off costs of about £50k 	<ul style="list-style-type: none"> There will be an on-going loss of about £450k per year, with additional one-off costs of about £100k 	
<u>Controls</u>				
Description of Key Controls		Sources of Control Confidence		Level of Confidence in these Controls
1.	The Finance Manager is a VAT specialist and has been tasked with resolving this problem	<ul style="list-style-type: none"> The Director of Finance has confirmed that the Finance Manager is now working on this as a key priority 		High
2.	Specialist advice is being obtained from one of the "Big 4" accounting firms and they will be asked to lead any negotiations with HMRC	<ul style="list-style-type: none"> The Director of Finance has confirmed that the firm has been engaged and is now working with the Finance Manager 		High
3.	Other avenues and sources of advice, e.g. CIPFA, are being explored	<ul style="list-style-type: none"> The Director of Finance has confirmed that this is being done but is not confident that there will be any positive results 		Low
<u>Residual Risk</u>				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Certain – This has just Happened (100%)	Certain – This has just Happened (100%)	Certain – This has just Happened (100%)	
Consequences Description	<ul style="list-style-type: none"> The current problem will be able to be resolved in a few months with a loss and further costs totalling about £50k incurred in the interim 	<ul style="list-style-type: none"> There will be an on-going loss of about £100k per year, with additional one-off costs of about £80k 	<ul style="list-style-type: none"> There will be an on-going loss of about £250k per year, with additional one-off costs of about £150k 	
Other Factors, e.g. stakeholder concerns	This issue may compromise HMRC's confidence and trust in the local authority, otherwise stakeholders' concerns are likely to be limited to concern about the consequent financial loss			
<u>Stakeholders</u>		<u>Affected by</u>		<u>Power / Influence Over</u>
The key stakeholders are staff, advisors and HMRC		Staff Regulator (HMRC)		Staff Strategic Partners (Tax Advisors) Regulator (HMRC)

Risk No. 27 A contractor makes a minor mistake which is reported in the national media			
Relevant Starting Conditions	<ul style="list-style-type: none"> Little about the authority has been reported in the national media in the last two years 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Likely (60 - 80%)	Likely (60 - 80%)	Unlikely (30 - 45%)
Consequences Description	<ul style="list-style-type: none"> The mistake will hit the press, cause some comment and be quickly forgotten about No cost or other implications beyond requiring the contractor to remedy the mistake at its own expense 	<ul style="list-style-type: none"> The mistake will hit the press, cause some comment and be quickly forgotten about No cost or other implications beyond requiring the contractor to remedy the mistake at its own expense 	<ul style="list-style-type: none"> There will be a number of such mistakes and national media stories resulting in the creation of a perception that the authority is error prone / lacks competency, creating adverse starting conditions for other risks that may be of interest to the media if they occur No cost or other implications beyond requiring the contractors to remedy the mistake at their own expense
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1.	Clear contract specifications, contractor selection and contract monitoring procedures seek to avoid errors being made	<ul style="list-style-type: none"> These seem to be sound but it is not possible to eliminate all errors 	Medium
2.	The PR Manager seeks to minimise adverse press coverage and to co-ordinate an effective response to any stories that do arise	<ul style="list-style-type: none"> These seem to be sound but it is not possible to eliminate all errors 	High
3.	Established PR function with experienced PR Manager with a sound network of contacts and industry credibility	<ul style="list-style-type: none"> This is believed to be effective 	High
4.	The PR policy requires all media contact to be co-ordinated by the PR Manager; only the PR Manager, Chief Exec and Members are allowed to talk directly to the media	<ul style="list-style-type: none"> Managers are regularly reminded of these requirements and the policy is included in the induction of all new managers 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (30 - 45%)	Unlikely (30 - 45%)	Very / Extremely Unlikely (10 - 25%)
Consequences Description	<ul style="list-style-type: none"> The mistake will hit the press, cause some comment and be quickly forgotten about No cost or other implications beyond requiring the contractor to remedy the mistake at its own expense 	<ul style="list-style-type: none"> The mistake will hit the press, cause some comment and be quickly forgotten about No cost or other implications beyond requiring the contractor to remedy the mistake at its own expense 	<ul style="list-style-type: none"> There will be a number of such mistakes and national media storied resulting in the creation of a perception that the authority is error prone / lacks competency, creating adverse starting conditions for other risks that may be of interest to the media if they occur No cost or other implications beyond requiring the contractors to remedy the mistake at their own expense
Other Factors, e.g. stakeholder concerns	Unless there are a number of such events, this is unlikely to be of any real concern to stakeholders		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This is of marginal interest to all stakeholders		None significantly	Staff Strategic Partners (Contractors)

Risk No. 28		The implementation of the new payroll system fails	
Relevant Starting Conditions	<ul style="list-style-type: none"> Staff expect to be paid the correct amount on the right day and many are likely to have little patience for any failures to do so - the personal finances of some are likely to be sufficiently tight to give them little capacity to cope with such errors 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Unlikely (10 – 25%)	Almost Certain, due to Complexity (>95%)	Unlikely (20 – 45%)
Consequences Description	<ul style="list-style-type: none"> The consequences would be able to be remedied by engaging external specialists at a cost of about £100k 	<ul style="list-style-type: none"> There will be an on-going loss of about £100k per year, with additional one-off costs of about £50k Staff morale and relationships will be seriously damaged by on-going payroll errors 	<ul style="list-style-type: none"> Large numbers of staff are not paid when they are entitled to be paid and are compensated for the consequences of this failure Serious labour disputes arise Serious adverse effects on morale with serious adverse effects for service delivery and achievement of objectives Non-compliance with HMRC requirements resulting in substantial penalties > £1m
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1.	Experienced Implementation Team created and taken off routine tasks to enable them to concentrate on the new system for six months prior to planned go-live date	<ul style="list-style-type: none"> This is clearly established to be the case Reports from the project manager indicate good progress is being made 	High
2.	Implementation project being managed in accordance with PRINCE2 and PRINCE2 processes and structures in place	<ul style="list-style-type: none"> Reports from the project manager indicate compliance Key structure seen to be in place 	Medium (Limited independent assurance available)
3.	New system selected by tender process against a well thought out specification and tender evaluation was based on mix of financial and non-financial criteria	<ul style="list-style-type: none"> This is clearly established to be the case Internal Audit have reviewed the tender process and found it to have been sound 	High
4.	The new and old systems will be parallel run for up to three months and the new system will not fully go live until it has been established to be reliable	<ul style="list-style-type: none"> This is the clearly established plan and preparations are being made for the parallel running (some details unresolved) 	Medium
5.	Project risk register in place, regularly reviewed and updated and appropriate detailed controls identified and implemented	<ul style="list-style-type: none"> Reports from the project manager indicate compliance Project Board reviews the risk register each month 	High
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Extremely Unlikely (1 - 10%)	Extremely / Very Unlikely (1 - 20%)	Almost Certain Not to Happen (<5%)
Consequences Description	<ul style="list-style-type: none"> The Implementation Team will be able to resolve minor problems that arise with no on-going consequences 	<ul style="list-style-type: none"> There will be an on-going loss of about £50k per year Staff morale and relationships will be weakened by on-going payroll errors There will be other problems that the Implementation Team will be able to resolve 	<ul style="list-style-type: none"> Large numbers of staff are not paid when they are entitled to be paid and are compensated for the consequences of this failure Serious labour disputes arise Serious adverse effects on morale with serious adverse effects for service delivery and achievement of objectives Non-compliance with HMRC requirements resulting in substantial penalties > £1m
Other Factors, e.g. stakeholder concerns	The key concerns are staff not getting paid and HMRC non-compliance		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
The key stakeholders are staff, advisors and HMRC		Staff Regulator (HMRC)	Staff Strategic Partners (Tax Advisors) Regulator (HMRC)

Risk No. 29		Whistle-blowing case mishandled		
Relevant Starting Conditions	<ul style="list-style-type: none"> A whistle-blowing policy is in place to cover circumstances in which members of staff or others associated with the Council are aware of, or suspect, misconduct or illegal activity which they feel unable to report through established management channels 			
Inherent Risk Position				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Extremely Unlikely (1 – 10%)	Almost Certain to Happen (>95%)	Unlikely (20 – 40%)	
Consequences Description	<ul style="list-style-type: none"> No concerns that might be raised under the policy will arise 	<ul style="list-style-type: none"> Staff who feel unable to raise concerns with their managers will either not do so, leaving the possible underlying problems to continue, or raise them as best they can through other channels with significant adverse consequences, but staff will raise the most serious concerns 	<ul style="list-style-type: none"> Serious problems involving fraud, legal breaches or health & safety issues will arise but not be brought to management's attention The serious problems will continue leading to very serious consequences and betrayal of trust The consequences, and perhaps their timing, will be far more serious than would have been the case had the concern been raised at an early stage 	
Controls				
Description of Key Controls		Sources of Control Confidence		Level of Confidence in these Controls
<p>1. Whistle-blowing policy in place and brought to the attention of all members of staff</p> <p>The policy clearly defines procedures for dealing with cases of whistle-blowing and the procedures for protecting whistle-blowers who act in good faith</p>		<ul style="list-style-type: none"> Unions involved in drafting the policy The policy is covered in the new staff induction and copies are available to all members of staff Two recent cases of misconduct came to light as a result of the staff following the procedures set down in the policy Informal testing by HR staff suggests that there may be some reluctance to speak out for fear of career damage etc. 		Medium (Staff knowing about the policy does not mean they will use it)
<p>2. All HR and Internal Audit staff who are likely to investigate allegations arising from cases of whistle-blowing have been trained in the requirements of the policy</p>		<ul style="list-style-type: none"> This is clearly established to have been done The HR and Internal Audit Managers worked together to design and deliver the training and identify all appropriate attendees Attendance was 95%(18 out of 19 due to illness) 		High
Residual Risk				
	Best Case	Most Likely Case	Worst Case	
Likelihood Description (within 5 years)	Extremely Unlikely (1 – 10%)	Likely (55 – 75%)	Very Unlikely (10 – 30%)	
Consequences Description	<ul style="list-style-type: none"> No concerns that might be raised under the policy will arise 	<ul style="list-style-type: none"> Staff who feel unable to raise concerns with their managers will either not do so, leaving the possible underlying problems to continue, or raise them as best they can through other channels with significant adverse consequences, but staff will raise the most serious concerns 	<ul style="list-style-type: none"> Serious problems involving fraud, legal breaches or health & safety issues will arise but not be brought to management's attention The serious problems will continue leading to very serious consequences and betrayal of trust The consequences, and perhaps their timing, will be far more serious than would have been the case had the concern been raised at an early stage 	
Other Factors, e.g. stakeholder concerns	<p>This is of potential concern to all stakeholder groups but primarily concerns staff</p> <p>The inherent risk position assumes that the policy is in place but no steps have been taken to ensure compliance or proper implementation</p>			
Stakeholders		<u>Affected by</u>	<u>Power / Influence Over</u>	
This could affect all stakeholders		<p>Community</p> <p>Service Users</p> <p>Staff</p> <p>Strategic Partners</p> <p>Regulators</p>	<p>Staff</p> <p>Strategic Partners</p>	

Risk No. 30		Administrative error causes inconvenience and small financial loss to large number of local people	
Relevant Starting Conditions	<ul style="list-style-type: none"> Recent changes to reduce costs have resulted in the reduction of low level internal controls and the numbers of administrative staff and as a result the risk of minor errors has increased 		
<u>Inherent Risk Position</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	Very Likely (60 - 95%)	Almost Certain to Happen (>95%)	Very Unlikely (10 - 30%)
Consequences Description	<ul style="list-style-type: none"> There will be minor errors in a considerable number of areas but managers and staff will muddle through and avoid any significant consequences 	<ul style="list-style-type: none"> There will be minor errors in a considerable number of areas but managers and staff will muddle through and avoid any significant direct consequences Perhaps £25k per year will need to be spent remedying minor problems Local perceptions will be that the authority is inefficient and provides a poor quality service 	<ul style="list-style-type: none"> Minor errors develop into or combine to create serious adverse consequences in terms of financial loss, service interruption and/or achievement of subsidiary objectives Perceptions and local media comment will imply a limited betrayal of trust
<u>Controls</u>			
Description of Key Controls		Sources of Control Confidence	Level of Confidence in these Controls
1.	Managers have been told to monitor staff and key systems to ensure that they are aware of any developing significant problems	<ul style="list-style-type: none"> Pressures on managers with reducing support staff are increasing, making additional monitoring difficult 	(Very) Low
2.	Staff remain motivated to do a good job	<ul style="list-style-type: none"> This appears to be the case but may be very fragile 	Low
3.	Exception reporting systems have been strengthened for some areas of serious failure	<ul style="list-style-type: none"> Limited assurance on this is available 	Low
4.	Other controls remain in place	<ul style="list-style-type: none"> Internal Audit reports appear to suggest that internal control as a whole has not diminished significantly 	Medium
<u>Residual Risk</u>			
	Best Case	Most Likely Case	Worst Case
Likelihood Description (within 5 years)	About Even (40 - 60%)	Likely (50 – 70%)	Extremely Unlikely (5 - 20%)
Consequences Description	<ul style="list-style-type: none"> There will be minor errors in a considerable number of areas but managers and staff will muddle through and avoid any significant consequences 	<ul style="list-style-type: none"> There will be minor errors in a considerable number of areas but managers and staff will muddle through and avoid any significant direct consequences Perhaps £10k per year will need to be spent remedying minor problems Local perceptions will be that the authority is inefficient and provides a poor quality service 	<ul style="list-style-type: none"> Minor errors develop into or combine to create serious adverse consequences in terms of financial loss, service interruption and/or achievement of subsidiary objectives Perceptions and local media comment will imply a limited betrayal of trust
Other Factors, e.g. stakeholder concerns	This is of potential concern to all stakeholder groups		
<u>Stakeholders</u>		<u>Affected by</u>	<u>Power / Influence Over</u>
This could affect all stakeholders		Community Service Users Staff Strategic Partners Regulators	Staff

Consequences / Impacts Deemed to be Equivalent to a Permanent Disability

Local Authority Type	Financial Loss	Reputation Damage / Publicity	Other	Definition of Harm to People Assumed to Embrace the Permanent Disability and Notes
District	£150,000 - £700,000	Adverse national media attention National newspaper report	<ul style="list-style-type: none"> Loss of a service or delay to a project for six months or more Objectives of the Department /Directorate are not met Breakdown of confidence between the Council and partners 	<i>Permanent injury to an employee or member of the public</i>
District	£200k - £1m £1m - £10m	Adverse national publicity <i>Remembered for years!</i>	<ul style="list-style-type: none"> Industrial action Staff leaving / unable to attract staff 	<i>Major illness</i> <i>Large scale major illness</i>
District	31 - 60% of budget	Adverse local and national media / member's /senior staff position threatened	<ul style="list-style-type: none"> 31 - 60% delay in schedule with significant reputation/legal implications and cost to recover Industrial action in the short term / staff leaving 	<i>Sustained or major illness for one or more people</i>
District	£50k - £100k	Reputation damage occurs with key stakeholders	<ul style="list-style-type: none"> Service quality cannot be maintained such that there is a need to reassess corporate priorities 	<i>Serious injury occurring</i>
District	Council revenue or capital budget impact of 5% or more Less than 1% of budget, but more than £30k	National adverse coverage Damage to reputation with the government Localised adverse media coverage	<ul style="list-style-type: none"> Permanent and significant environmental damage Destruction of building(s) Temporary environmental damage 	<i>Serious injury due to Council actions or inactions</i> <i>Serious injury despite appropriate Council actions</i>
District	£200k - £2m £2m plus	Adverse national publicity <i>Remembered for years!</i>	<ul style="list-style-type: none"> Industrial action Staff leaving / Unable to attract staff 	<i>Major illness</i> <i>Large scale major illness</i>
District	Up to 25% of budget	National public or press aware	<ul style="list-style-type: none"> Litigation, claims or fines - £10k to £50k Many individual personal details compromised /or revealed 	<i>Major injury to an individual or several people</i>
District	£100k - £1m	Adverse national or regional media attention / National newspaper report	<ul style="list-style-type: none"> Non- statutory duties are not achieved 	<i>Permanent injury</i>
District	£250k - £1m	Adverse national publicity	<ul style="list-style-type: none"> Service taken over temporarily 	<i>Major illness</i> (Category also covers loss of life)
District	> £250,000	Loss of credibility and public confidence in the service / Council of interest to the national press	<ul style="list-style-type: none"> Failure to meet key project deadlines or project fails to meet needs of proportion of stakeholders Significant impact on employee motivation generally – possibly leading to poor quality service in particular service(s) 	<i>Possibility of serious injury or fatality to individuals</i>
District	£500k - £1m	Coverage in national press or low national TV coverage	<ul style="list-style-type: none"> Key deadlines missed Formal investigatory investigation Loss of a key partner or other partners 	<i>Extensive or multiple injuries</i>
District	Over £150k	Sustained negative national media attention	<ul style="list-style-type: none"> Serious service failure directly affecting vulnerable groups Intervention by Management Team/Members 	<i>Foreseeable long-term injury, illness or fatality</i>
District	£5k - £10k	Negative local media but not widespread	<ul style="list-style-type: none"> Service failure impacts on property or non-vulnerable groups Expected impact but manageable within contingency plans 	<i>Extensive, permanent / long term injury or long-term sick</i>
District	No financial element to impact assessment	Local and national press coverage Extensive media coverage	<ul style="list-style-type: none"> Loss of service - 48hrs to 7 days Loss of service more than 7 days 	<i>Serious injury</i> <i>Serious injury</i> (The same description is used for the two impact levels)

Local Authority Type	Financial Loss	Reputation Damage / Publicity	Other	Definition of Harm to People Assumed to Embrace the Permanent Disability and Notes
District	£500k - £1m	Coverage in national press and/or low national TV coverage	<ul style="list-style-type: none"> Requires resignation of Head of Service/Director Major damage to local environment Longer-term damage to reputation 	<i>Extensive/multiple injuries</i>
Unitary	Impact descriptions are very generalised and only H&S references are "minor employee accidents" and "Death of a child in care" (which is not in the highest impact category)			
Unitary	£250k - £1m in a year	Coverage in the national press and/or low coverage on national TV	<ul style="list-style-type: none"> Major disruption to important service 	<i>Extensive multiple injuries</i>
Unitary	£1m - £2m	Sustained adverse regional story	<ul style="list-style-type: none"> Temporary withdrawal of a lesser service 	<i>HSE defined major injury or dangerous occurrence</i>
County	£1m - £10m	Coverage in national broadsheet press and/or low level national TV reporting	<ul style="list-style-type: none"> Major disruption Serious damage to authority's ability to service customers (loss of service between 2 and 7 days) Major damage to local environment 	<i>Extensive multiple injuries</i>
County	No financial impact categories defined	Adverse national / local publicity	<ul style="list-style-type: none"> Breaches of the law punishable by fines only Short-term loss of service capability Up to 50 people involved 	<i>Extensive, permanent injuries, long-term sick</i>
County	£1m - £3m	Coverage in national press	<ul style="list-style-type: none"> Major damage to local environment 	<i>Extensive or multiple injuries</i>
London Borough	£2.5m - £5m	Adverse publicity in professional / municipal press, affecting standing in professional / local government community	<ul style="list-style-type: none"> Major loss of an important service area Service Disruption: 3-5 Days Service Resource Diversion: Up to 60% 	<i>Severe injury to an individual or several people, requiring immediate hospitalisation</i>
London Borough	£25k - £50k	Adverse local publicity / local public opinion aware	<ul style="list-style-type: none"> Substantial effect to an important service for a short period Disruption to service delivery from one or more Directorates for up to 1 mth 	<i>Reportable major injury to an individual</i>
Metropolitan	£100k - £2m	Coverage in national (broadsheet) press and/or low national TV reporting	<ul style="list-style-type: none"> Major disruption to The Council - serious damage to organisation's ability to service customers (loss of service for more than 48 hours but less than seven days) 	<i>Extensive / multiple injuries</i>
Metropolitan	Financial impact manageable within existing budget i.e. £20k - £100k	Negative local publicity, some loss of confidence, needs careful public relations	<ul style="list-style-type: none"> Service failure impacts on property or non-vulnerable groups Legal action expected Recoverable damage to 'priority', or loss of 'non-priority', environmental / historic resources 	<i>Extensive, permanent / long term injury or long term sick</i>
Unitary	Financial impact manageable within existing budget i.e. £500k-£1m	Negative national publicity	<ul style="list-style-type: none"> Loss of service 3 to 5 days Possible impact to small numbers of vulnerable people, definite impacts on property or non-vulnerable groups Affects most directorates 	<i>Extensive, permanent / long term injury or long term sick</i>
Unitary	Major financial loss	Major adverse local publicity Major loss of confidence	<ul style="list-style-type: none"> Significant impact on service objectives Short – medium term impairment to service capability 	<i>Extensive injuries, major permanent harm, long term sick</i>
Unitary	Major financial loss which will have a major impact on the Council's financial plan	Major adverse local publicity, major loss of confidence	<ul style="list-style-type: none"> Risks which can have a major effect on the operation of the Council or service. 	<i>Extensive injuries, major permanent harm, long term sick</i>

Financial Consequences / Impacts Deemed to be Equivalent to Breaking the Law

Local Authority Type	Stated Position as Regards Breaking the Law	Financial Equivalence
District	<i>Medium or High impact if Serious or Huge impact on reputation (No further detail or explanation provided)</i>	Major or Huge financial loss (No further detail or explanation provided)
District	Breaches of law punishable by fine only	£150k - £700k
	Breaches of Law punishable by imprisonment	>£700k
District	Spread across full impact range based on whether there would be non-compliance and a fine or other penalty: assessed as <i>minor, significant or major</i> - terms that are not defined	-
District	Reference is made to <i>legal implications</i> but these are very difficult to interpret	Meaningful comparison cannot be made due to lack of clarity
District	<i>Unconscious failure to comply with legislation</i>	1% – 5% of budget [Approx. £200k - £1m]
	<i>Conscious failure to comply with legislation</i>	>5% of budget [Approx. £1m+]
District	<i>Minor - Litigation, claims or fines</i>	<£5k
	<i>Significant - Litigation, claims or fines</i>	£5k - £10k
	<i>Serious - Litigation, claims or fines</i>	£10k - £50k
	<i>Major - Litigation, claims or fines</i>	>£50k
District	<i>Breaches of law punishable by fine</i>	Financial loss £100k - £1m
	<i>Breaches of law punishable by imprisonment</i>	Financial loss > £1m
District	Serious legal/regulatory impact leading to sanctions or legal action with significant consequences	>£250k (but less than undefined <i>Severe</i> financial impact which is in the <i>Disastrous</i> impact category)
	Major legal/regulatory impact leading to sanctions or legal action with substantial financial or other consequences	More than the above
District	<i>High risk of successful legal challenge with serious implications</i>	£500k - £1m
	<i>Serious risk of legal challenge with substantial implications</i>	>£1m
District	Crosses all four impact levels	-
District	<i>Legal action expected / Non-compliance with law resulting in fines</i>	£5k - £10k
	<i>Legal action almost certain and difficult to defend</i>	> £10k
District	<i>High risk of successful legal challenge with serious implications</i>	£500k - £1m
	<i>Very serious risk of successful legal challenge with substantial implications</i>	>£1m
Unitary	The focus is on attracting the attention of legislative / regulatory bodies as an element of reputation damage, not to breaking the law per se	-
County	<i>Breaches of law punishable by fine only</i>	Financial loss not directly recognised as an impact
	<i>Breaches of law punishable by imprisonment</i>	
London Borough	Graduated across the full impact range	-
Metro-politan	<i>Non-compliance with law resulting in fines</i>	£20k - £100k
	<i>Non-compliance with law resulting in imprisonment</i>	>£100k
Unitary	<i>Legal action expected / Significant breach of duty resulting in fines/disciplinary action</i>	£500k - £1m
	<i>Legal action almost certain and difficult to defend / Catastrophic breach of duty resulting in imprisonment</i>	>£1m
Unitary	Spreads across impact range bases on the likelihood of litigation and the ability to defend the case - consequences / sanctions are not considered to be relevant	-
Unitary	<i>Litigation likely and may be difficult to defend / Breaches of law punishable by fines or possible imprisonment</i>	<i>Major financial loss which will have a major impact on the Council's financial plan</i>
	<i>Litigation certain and difficult to defend / Breaches of law punishable by imprisonment</i>	<i>Severe financial loss which will have a catastrophic impact on the Council's financial plan and resources are unlikely to be available</i>

Supplementary Interview Data and Analysis of Their Relevance to Research Question Two

Code	Data	Research Relevance for Research Question Two
Culture and Context		
3	Service standards and the consequences of risk <ul style="list-style-type: none"> • Service failures can be very serious for those individuals who only get one chance to use that service, e.g. primary education • Austerity is forcing a focus on avoiding the provision of poor services rather than the focus on providing excellent ones that existed in the recent past 	These are relevant to the calibration of impact assessment tables and a stakeholder dimension of risk: perhaps not taking minor quality reductions too seriously but taking major reductions very seriously
33	Following the sector norms <ul style="list-style-type: none"> • The method of risk assessment used was adopted because other local authorities used it – the method was not actually thought to be a credible one but the culture of the sector was to do as others do rather than to innovate 	This is an interesting additional facet of the contextual-dependence of risk. It also hints at a possible resistance to research findings that point towards a need to depart from current practice
Why Risk Management Matters		
34	The importance of risk management <ul style="list-style-type: none"> • There seems to be no dispute that it matters • There are clear indications that some managers do not see what is happening in their local authority as being good risk management for reasons of tokenism and interference (Links to Code 15) 	Do it but get it right. The culture also needs to be right and that is more difficult (from Codes 1,2 and 15 particularly)
The Detail of the Risk Assessment Method and Process		
4	Scrutiny and reputation <ul style="list-style-type: none"> • Adverse media comment that causes other problems is agreed to be serious • The seriousness of adverse media comment per se is disputed – for some it is serious in itself, for others there is a “so what?” question that also has to be asked before the seriousness is established • Adverse publicity can cause political harm to councillors – it “<i>means votes</i>” • Current approaches do not consider reputation damage that can be caused by social media • The power to comment publically give the media and external auditors significant power, the potential to exercise this gives them “<i>negative power</i>” and substantial influence, creating a desire and behaviours that seek to avoid giving them cause or opportunities to exercise that power to the detriment of the local authority • Methodologies need to be brought up to date to reflect reputation issues through comment in social media. This may be problematic if the authority seeks honest feedback and so invites criticism that its risk model indicates to be a significant impact 	Risk assessment models need to be credible and to form part of a credible risk management process It seems reasonable to assume that this is an element of the construction of risk The equalities between different impacts appear to vary considerably between local authorities, providing an example of inter-authority ambiguity The balance seems to lean towards seeing it as a problem per se but with some filtering of trivia to avoid overstating the significance of minor criticism The risk assessment model needs to be able to reflect reputation damage from all sources, if such damage is considered to be a part of strategic risk in local authorities The political issue is a reminder of the political nature of local authorities as organisations led by elected councillors: this is indicated by the data to be of considerable importance

Code		Data	Research Relevance for Research Question Two
5	Multiple risks	<ul style="list-style-type: none"> The impact of multiple risks can be more than the sum of the parts and can be more complex than any of the constituent risks 	Risk assessment models need to consider the cumulative effects of multiple consequences / impacts
8	The relevance of likelihood	<ul style="list-style-type: none"> The likelihood dimension is problematic in practice Some approaches approximate to the precautionary principle – if it could happen that is enough Managers can struggle to estimate probabilities even if it is just within widely drawn bands 	This is a real challenge and suggests that the most serious impact category should be driven by the precautionary principle – these are the risks that would be so bad that the local authority cannot live with any significant likelihood of them happening: this would follow the precautionary route, provides a sharp focus on the really serious risks and reduce the need to cope with probabilities
9	Risk matrices and overall risk scoring	<ul style="list-style-type: none"> Risk matrices are ubiquitous in the sector The critical question is whether a risk is above or below the tolerance level There seems to be an instinctive desire to calculate cell values and a recognition that the current methods do not work very well <p>(There is a link to Code 29 here)</p>	<p>There is a clear acceptance of matrix approaches – both an expression of confidence in them and a pointer towards retaining the approach as an aid to gaining recognition and acceptance: that is, unless there is a compelling case for doing otherwise, but the change may be hard to sell due to the unfamiliarity of a non-matrix approach (Code 33 is very relevant here)</p> <p>The tolerance issue links closely to Codes 6 and 8 and suggests a need for a sound methodology for defining the tolerance level – if it is wrong, the whole assessment is fundamentally compromised</p> <p>Calculate cells value but do it in a way that is meaningful, accessible and reliable, or make sure they cannot be calculated – the mixed and alpha and numeric cell referencing approach does this, for example</p>
10	Controls to reduce the level of risk	<ul style="list-style-type: none"> It is recognised that controls are not always in place, appropriate and working wholly reliably – it is a “<i>gross over-simplification</i>” to assume otherwise Internal Audit have a key role in verifying and testing stated controls Controls are a critical aspect of risk and can be seen as one of the two critical ones (with impact), and as being more important than likelihood The control judgements are for managers and internal audit, not the risk team 	<p>There is absolutely clear support for controls being critically important in risk assessments and for this to need to include taking account of the reality that they are not always in place, appropriate and operating wholly reliably</p> <p>The controls issue has been closely links to Code 8 in the data – this can be reconciled by the posited precautionary approach to the most serious risk: if there is a real chance of a very serious risk happening, it appears that it is really about impact and controls</p> <p>The risk assessment model needs to define how to assess control effectiveness but it is for managers and internal audit to make the judgements within that framework, it is not a matter for the risk team beyond providing, explaining and supporting the use of the framework</p>

Code		Data	Research Relevance for Research Question Two
16	Emotional problems with risk assessment processes	<ul style="list-style-type: none"> • It helps to have in-house risk specialists who can bring an element of emotional detachment to risk assessments • Having a very serious, emotionally resonant impact in the assessment table, e.g. death of a child, can distort perspectives on the rest of the impacts as it can become the key reference point for all risk assessments 	<p>Recognise the contextual issue of in-house support, which is the norm (no exceptions seen)</p> <p>Need to reflect on the content of the impact assessment</p>
21	The relevance of uncertainty	<ul style="list-style-type: none"> • The interviewees equated uncertainty with likelihood and did not explicitly recognise wider uncertainties of risk • In one case, the worst risks were seen to be the events that were certain 	<p>There is a need to very clear about the position and treatment of certain events in risk assessments and the treatment of overall uncertainty in those risk assessments</p>
24	Risk registers	<ul style="list-style-type: none"> • These are a standard element of the risk management process but some are not used to record minor risks and work pressures can impact on their quality and completeness • Format varies considerably, some record “triggers”, some assess the target level of risk after implementing stated “next steps”, and some do not • There are some issues of <i>form over substance</i> – they are expected to have a risk management process (See Code 33 about compliance with sector norms), but that does not mean it is actually much good or is used as an important management tool • Some approaches have lower level departmental / service level risk registers with procedures for escalation to the corporate risk register 	<p>This is really just process description material but there are also further pointers to process credibility and resource pressures here</p>

Code		Data	Research Relevance for Research Question Two
25	Determining impact	<ul style="list-style-type: none"> • The consistently raised key elements of impact are financial loss and the effect on the provision of services and, with slightly less consistency, reputation damage • There is a difference of view about reputation damage – some see it as serious per se, others question the extent to which specific instances of negative media comment will actually matter • Austerity has led to some recalibration of risk models with increased emphasis on financial loss as resources are now much scarcer and, in some cases, reputation damage • Primarily it is impact on the local authority that is deemed to matter, not impact on stakeholders • The best / worst case and other assessment point distinctions have not been considered in most cases. There are some implicit assumptions that it is on a worst case basis • A key priority is actually making a risk assessment decision (Code 17) and this can come before concern about the reliability of the decision • Impact tables can never be exhaustive – there always needs to be space for discretion and provision for managers to make the final decision on the basis of their knowledge and judgement 	<p>The core of the impact / consequence dimension is financial damage, the effect on services and reputation damage, though views on the latter vary, with different positions being taken on the significance of negative comment in the media which does not lead to further adverse consequences for the local authority</p> <p>The usual construction of risk is that it is risk to the local authority and not a wider stakeholder construction of risk</p> <p>The interview data provide no guidance for the most appropriate cases for risk assessment – best case, most likely case, etc.</p> <p>There are indications that the robustness of the assessment is not always the first priority. Making a decision, even a poor one, is sometimes prioritized at some local authorities</p> <p>There always needs to be provision for managers' discretion in assessments: not every potential scenario can be provided for and assessment models should not seek to do so. A discretionary catch-all consequences / impact category may be the best solution.</p> <p>There are clear links to Code 4 here</p>
27	Risk appetite and tolerance	<ul style="list-style-type: none"> • The critical issue is whether a risk is above or below the tolerance / appetite level • Local authorities find identifying the appropriate level difficult and emotions make it even harder when issues of harm to people arise • The calibration needs to take account of the full range of impacts deemed to be relevant, i.e. all those included in the impact assessment • When the documented approach seems to give a wrong answer, the provision is interpreted as "<i>should</i>" rather than "<i>must</i>" so as to allow judgemental adjustments to avoid a poor risk assessment decision 	<p>There is a clear need for a methodology here and for it to be reliable and linked into the overall assessment model</p> <p>A residual need for judgemental adjustments may always be necessary, however good the risk assessment model appears to be</p>
28	Road safety risk	<ul style="list-style-type: none"> • The limited evidence suggest that road deaths are not typically considered in strategic risk assessments for highways authorities 	<p>The evidence is limited and this is essentially just a reminder about the scope for variation in risk perspective and the construction of risk</p>

Code		Data	Research Relevance for Research Question Two
29	Calculating risk seriousness	<ul style="list-style-type: none"> Staff varyingly use the descriptors / category headings and the detailed analysis to assess impact and likelihood levels 	It is important to ensure that both are soundly based and consistent: poorly thought out descriptors could seriously undermine an otherwise well thought out risk assessment model if the users just look at the descriptors, which it should be assumed they may do
37	The final say	<ul style="list-style-type: none"> The final say is with formally members, though the CEO s/he controls what members are told and hence what decisions they are asked to make 	This is a matter of context rather than assessment methodology
38	Time horizon	<ul style="list-style-type: none"> There is little evidence that this has been clearly thought about 	This needs to be considered and the time-horizon appropriately specified in risk assessment models
Making the Risk Assessment Process Work and Compliance Issues			
1	Barriers to effective risk assessment	<ul style="list-style-type: none"> Opinions varied on the impact of the Freedom of Information Act on openness but some saw it as a serious barrier to honest and open risk identification, assessment and recording An assessment model needs to resonate quickly with users for them to want to use it and should avoid seeming to be unnecessarily complex 	<p>This is perhaps about culture and context, rather than assessment methodology.</p> <p>This is good general advice and an important assessment criterion for assessment models</p>
11	Quality control and the need for consistency in the risk assessment process	<ul style="list-style-type: none"> Risk assessments need to be consistent In-house risk experts and senior management reviews can help to ensure consistency Training in the assessment methodology is essential for managers Clarity of impact and likelihood category definitions helps to ensure consistency, but be careful about probabilities as managers struggle to understand and apply them 	<p>Make sure the assessment model is clear and easily followed by managers to maximise consistency</p> <p>It is probably better to lean towards over specification than to leave too much to individual interpretation</p> <p>The concerns about managers' ability to cope with probabilities essentially emphasizes and repeats Code 8</p>
13	Need for in-house risk expert(s)	<ul style="list-style-type: none"> Having in-house experts supporting and advising the risk assessment process means that the process can be more complex than it could otherwise be Risk assessments should be undertaken by managers' and staff for their services, not risk specialists centrally The in-house team is able to provide a challenge to managers' assessments, though the extent to which this happens varies 	<p>Supportive in-house specialists are important and can provide a useful source of challenge to managers' risk assessments</p> <p>The process should be one of managers and their staff doing the risk assessments, not a central risk specialist doing it for them (with far less relevant knowledge and service specific expertise)</p>

Code		Data	Research Relevance for Research Question Two
20	Resource constraints on the risk management process	<ul style="list-style-type: none"> This has become a major issue and key constraint on the risk management process: both on resourcing the risk management function and on resourcing the management of risk, e.g. the implementation of appropriate controls. It also makes risk management even more important as local authorities are less able to cope with financial losses One local authority indicated that risks that could not be managed have previously not been recorded to avoid being seen to be unable to do anything about them 	<p>This is both a key contextual issue and an essential evaluation criterion for risk assessment models: namely, could and would the LA resource this approach and would it change to it?</p> <p>Codes 12 and 33 are relevant here.</p>
30	Compliance with the risk management approach	<ul style="list-style-type: none"> Compliance is claimed to be generally good but does vary, for example one authority at which it is only partial due to the risk strategy having been approved in the last year and not having been fully implemented and there being some resistance to it Senior managers amend the results of the risk assessment where they think that they know better – explanations for the changes made are not given to risk management staff (Research access to senior managers to explore these issues was requested but politely refused) 	<p>There is overall assurance of compliance but with indications that this is not complete in all cases</p> <p>The decision-making stage of the overall risk management process may include some filtering and reinterpretation by senior managers of the risks assessed, raising some issues about process reliability and credibility which are within the scope of the research and some of management culture which are not</p>
36	Need to improve the risk assessment process	<ul style="list-style-type: none"> Some current approaches are recognised not to be good enough and there is a desire to improve them. However, the staff do not know how to make those improvements 	<p>This recognition of a need to improve contrasts with the sector culture (Code 33) and the data re Code 26. The reasonable conclusion is that the quality and internal perception of risk assessment processes varies between local authorities - it may be that some of these judgements are better informed than others and/or some interviewees have been more open than others</p>
Process Comparisons			
26	Inter-authority comparisons of risk management	<ul style="list-style-type: none"> The Risk Team consider that they are good at what they do and that networking at professional gatherings confirms this. They believe that other local authorities are at a similar level or a little behind the authority's practice The risk assessment in use was adopted because another local authority was using it and so "<i>it must be good</i>" 	<p>It is important to remember that the data indicate that the sector culture militates against doing things differently if there is an established way of working, even if it may not be a good one</p> <p>Code 33 is relevant here</p>
31	The internal audit needs assessment	<ul style="list-style-type: none"> The basis and purpose of the internal audit needs assessment and the local authority's risk assessment are different and the methodologies are similarly different, though there may be scope to integrate them to some extent 	<p>The internal audit needs assessment must be assumed not to be a useful data source for the research</p>

Code	Data	Research Relevance for Research Question Two	
Process Credibility, Accessibility and User Appeal			
12	Added-on and alternative risk assessment processes that are in operation	<ul style="list-style-type: none"> When the documented system does not provide the required, expected or credible results, managers seek to adjust the results by implying additional provisions and qualifications, e.g. guidance is “<i>should</i>” rather than “<i>must</i>” giving permission to depart from it, or bolt on additional processes, e.g. a top level filter of the most serious risks There is often filtering of the results for resource and/or local authority reputation and/or personal reputation / career protection reasons 	Try and ensure the maximum relevance, reliability and credibility of the model but accept that there are wider cultural issues (e.g. Codes 1 & 2) that may also get in the way and that no model can be perfect
17	Ease of use versus reliability	<ul style="list-style-type: none"> Managers have difficulty plotting risks into specific risk matrix cells Managers can struggle to make risk decisions on the basis of probabilities In the absence of a strong case to do otherwise, simple risk models are to be preferred 	<p>This is a key indicator that managers recognise the uncertainty of risk and find it difficult to assume greater precision than they believe to be justified</p> <p>The approach of plotting risks into one cell of a risk matrix may be seriously flawed in this context and alternatives need to be explored</p> <p>Tentatively, the data also suggest that managers may have a more sophisticated grasp of risk than current assessment models assume</p> <p>It is important to assume that a risk model should be as simple as possible, but also that it may still need to be sophisticated to reliably reflect the nature of strategic risk in local authorities</p> <p>Risk models should not rely solely on probabilities as indicators of likelihood: providing alternative guidance for managers who have difficulty understanding and interpreting probabilities</p>
19	Don't make it too academic	<ul style="list-style-type: none"> Risk assessment models should not be too academic as this would create barriers to their acceptance, however good the model 	Practitioner evaluation and comment on risk assessment models needs to be a key element of the evaluation of those models
Management Decisions Following the Risk Assessment			
7	Risk treatment	<ul style="list-style-type: none"> Terminating the underlying activity is rarely, if ever, an option in local authorities 	This suggests a need for a particular emphasis on controls in the risk assessment, the assessment of residual risk and the ability to carry out robust assessments of alternative risk mitigation strategies
Public Disclosure of the Risk Data			
32	External disclosure	<ul style="list-style-type: none"> The Freedom of Information Act is considered by some local authorities to create a strong incentive not to perform risk assessments in very sensitive contexts as the recorded assessment may subsequently be required to be disclosed externally 	This should be treated as part of the context of the research and not as a barrier or impediment to it

Pre-Modelling Research Findings for Research Question Two

Research Finding	Section	Significance for Risk Assessment Modelling
1. Risk is context-specific. The corporate plan is a key driver of that context for local authorities.	6.2.2 6.2.3.4 6.4.1 6.5 6.6.1	The risk assessment models have been developed specifically for the local authority context and include consideration of the effects on the achievement of corporate objectives.
2. Although terminology varies, there is a ubiquitous likelihood / impact model of risk in local authorities. The approach includes using a risk matrix to present and assess the seriousness of risks. There is a strong tendency to follow sector norms rather than to innovate and not follow those norms.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.2 6.2.3.4	One modelling approach has been based on the ubiquitous current practice model to maximise resonance with practitioners and the likelihood of acceptance by those practitioners and to explore the scope for improvement from the base of current practice.
3. ISO 31010 indicates the relevance of a risk matrix approach to local authority strategic risk in preference to thirty other risk assessment methods set out in the standard.	6.2.3.4	The models include risk matrix based approaches.
4. The current practice approach is easily understand and accessible as regards both its operation and the results that it produces.	6.2.1.1 6.2.1.3	The model based on current practice seeks to maintain this ease of understanding and accessibility.
5. Current practice is to have a simple table or grid to support the assessment of the impact and likelihood of each risk. These tend to become less clear and usable when engaged with at a practical level, with particular difficulties arising with the more qualitative and uncertain impacts, e.g. breaking the law and the effects of doing so	6.2.1.1 6.2.1.2 6.2.1.3	The core approach has been adopted and attempts made to address the identified weaknesses.
6. Current practice uses descriptors, such as <i>High</i> or <i>Major</i> , as a varyingly large part of the impact and likelihood assessment tools, assigning one such term to each level of impact and likelihood. There is evidence that managers place significant reliance in these when carrying out a risk assessment but the research has found them to be inconsistently applied and potentially confusing. Their use has been determined to be problematic.	6.2.1.1 6.2.1.2 6.2.1.3 6.6.1	The use of descriptors has been adopted whilst seeking to avoid the identified problems with their use in current practice. Unproblematic terms from current practice, e.g. Almost Certain, have been adopted where they are appropriate and useful.
7. There is a consistently followed approach of breaking impact down into constituent categories, e.g. financial loss and reputation damage. The categories used and the number used vary but there is a core that is used in most cases. The research has found a set of seven impact categories, plus a residual <i>other</i> category, that fit local authority strategic risks.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.2 6.3.2 6.3.3	The overall approach and set of impact categories have been used for the risk modelling
8. Current practice assessment tables for impact / consequences have been found to be easier to apply for some forms of impact, e.g. financial loss, than others, e.g. breaking the law and the associated outcomes. These difficulties increase with the greater qualitative nature of the impact.	6.2.1.1 6.2.1.2	The models seek to provide greater clarity to support the impact / consequences assessment.
9. Strategic risks in local authorities have multiple impacts but there is very little explicit recognition of this in documented current practice. The potential for multiple impacts / consequences is clearly stated in ISO 31010.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.4 6.6.2	The models include one which specifically assesses each significant potential impact / consequence and all models provide for the recognition and treatment of multiple impacts / consequences.

Research Finding	Section	Significance for Risk Assessment Modelling
<p>10. There is significant evidence that practitioners find likelihood and probabilities difficult and that there are a number of associated problems with current practice risk assessment models:</p> <ul style="list-style-type: none"> ➤ Problems of understating and estimation; ➤ Inconsistencies in the use of probabilities and the association of them with likelihood descriptors and narrative descriptions of likelihood; ➤ The lack of a defined time horizon within which the probability or likelihood is estimated; and ➤ Some confusion between likelihood in the future and past frequency of occurrence, with particular problems arising for risks that have not happened before and implicit assumptions that future events will replicate those in the past. <p>The need to assess risk with reference to a defined time horizon also applies to the impact / consequence dimension and the effects of controls.</p>	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.4 6.4.1 6.4.3 6.4.4 6.6.1	<p>The models explore different approaches to the likelihood assessment to reflect these difficulties.</p> <p>In developing the models particular care has been taken to ensure consistency and to ensure that a clear time horizon has been specified.</p>
<p>11. Current practice lacks clarity about whether judgemental adjustments to risk assessments are appropriate and/or permitted. The research indicates that the complexities and uncertainties of strategic risk mean that adjustments are necessary in some cases.</p>	6.2.1.1 6.2.1.2 6.6.2	<p>Judgemental adjustments have been explicitly provided for in the risk assessment models.</p>
<p>12. The value judgements in local authorities' impact / consequence assessment tables are, in part, a representation of the associated ambiguities. The research has found that these judgements vary between local authorities, though it is unclear to what extent they have been carefully thought out and explicitly defined.</p>	6.2.1.1 6.2.1.2 6.2.3.2	<p>The risk models allow for variations in these judgements as part of the implementation process at each local authority.</p>
<p>13. Most local authorities consider reputation damage to be a relevant impact / consequence of strategic risks to be taken into account in the risk assessment, and assign a high value to it, seeing adverse media publicity as damaging to the local authority's reputation.</p>	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.2 6.3.2 6.4.1 6.4.6	<p>The risk models provide for this construction of risk within the wider recognition and provision of ambiguity.</p>
<p>14. The use of risk matrices in local authorities has been found to present a trade-off between accessibility, achieving sufficient differentiation between different levels of likelihood and impact, and the level of precision that is actually achievable given the uncertainties of strategic risk.</p> <p>The research indicates that a matrix with between four and six levels in each dimension provides a reasonable balance between the competing factors.</p>	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.2 6.2.3.3	<p>The overall position has been accepted and the indicative matrix size accepted as a starting point to be departed from only if a strong need to do so emerges.</p>
<p>15. Current practice scoring of risk matrix cells follows one of three methods, each of which has significant weaknesses.</p> <p>Expected Values appear to offer a partial solution and improve on current practice approaches.</p>	6.2.1.1 6.2.1.2 6.2.1.3	<p>Expected Values form a key element of a number of the risk models.</p>
<p>16. Current practice does not consistently recognise and identify <i>Black Swans</i>.</p> <p>Expected Values have been found to help achieve this recognition.</p>	6.2.1.1 6.2.1.3 6.2.3.3	<p>This need has been designed into the risk models.</p>
<p>17. The simple <i>traffic-lighting</i> of risk matrices is an effective and accessible tool for presenting the level of seriousness that has been assigned to each cell.</p>	6.2.1.1 6.2.1.2 6.2.3.3	<p>The risk models which use risk matrices have included <i>traffic-lighting</i>.</p>

Research Finding	Section	Significance for Risk Assessment Modelling
18. No clear, robust methodologies for defining risk appetite / tolerance levels have been identified in current practice. Practitioners find determining an organisation's risk tolerance level to be difficult. The ongoing ability of the local authority to function may be a significant factor.	6.2.1.1 6.2.1.2 6.2.1.3 6.3.2 6.5	The risk models incorporate such methodologies.
19. The ALARP concept presented in ISO 31010 has much to offer as an approach to defining levels of risk but the definition of the most serious risk level on the basis of stopping the underlying activity is not appropriate for some local authority risks for which the activity cannot be stopped.	6.2.1.2 6.2.3.4	ALARP has been considered and taken into account in the model development.
20. ISO 31010 provides an approach to the calibration of an impact / likelihood risk matrix. The standard suggests that the upper limit of the lowest likelihood band should be set at the level at which a risk in the highest impact category would start to be intolerable. It should be defined as the level of likelihood at which risks cease to be <i>Black Swans</i> .	6.2.3.4	This has formed a key element of the design of the risk matrix based models.
21. The assessment of risk at inherent and residual levels is well established in current practice. Controls are a key aspect of risk, albeit one that is treated naively in current practice which fails to reflect the associated uncertainties, e.g. whether the specified controls are actually in place and the extent to which they operate reliably. Published standards and guidelines are clearer on the importance of controls but provide little advice on how to reflect them in risk assessments. The effects of controls are stated to be difficult to understand in complex systems, and hence for a good proportion of strategic risks in local authorities.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.2 6.2.3.4 6.3.1 6.4.4 6.5 6.6.2	A tentative control confidence model has been developed to be used in the risk modelling. The models explore different ways of reflecting control confidence.
22. Current practice is very rarely explicit about the risk assessment case, e.g. is risk to be assessed at the worst or most likely case? There is the potential for a more sophisticated risk assessment model which assesses risk on the basis of more than one such case.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.3.4 6.6.2	This is explicitly addressed in the models and forms a key element of the rationale of the fuzzy models.
23. The <i>Rocks and Pebbles</i> conceptual model provides a potential basis for a simple, alternative risk assessment model.	6.5	This approach is included in the risk modelling.
24. The Charity Commission guidance provides a challenging, simple adjustment to the well-established impact / likelihood risk matrix with ordinal scoring of each dimension which offers an attractively simple solution for some of the problems of current practice.	6.3.5	This approach is included in the risk modelling. The cautions below about adjusting flawed approaches and unintended consequences have been carefully considered in doing so.
25. Adjusting risk assessment models that have been found to be flawed tends to result in further problems. There is clear evidence to support a need to ensure that risk models are carefully and holistically designed from the outset.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.2	This approach has been fundamental to the risk modelling.
26. Current practice understates the level of uncertainty in strategic risk in local authorities, particularly the uncertainties associated with impact / consequences and controls. Understanding the associated uncertainties is essential for reliable risk assessment and as an element of the risk information communicated to decision-makers.	6.2.1.1 6.2.1.2 6.2.1.3 6.2.2 6.2.3.4 6.4.1 6.4.2 6.4.3 6.6.1 6.6.2	This is explicitly addressed in the models and forms a key element of the rationale of the fuzzy models.

Research Finding	Section	Significance for Risk Assessment Modelling
27. In-house risk specialists can provide a key element of the risk assessment process, providing a source of advice to managers, and co-ordination and consistency across the local authority. They also allow for risk assessment models to be more sophisticated than could be the case in the absence of such specialists. The research has found that local authorities do have such specialists.	6.2.1.2 6.2.1.3 6.5	The risk models assume that their implementation and use will be supported by in-house specialists.
28. Increasing resource constraints in local authorities are leading to both an increased need for effective risk management and for the risk management process to be as efficient as possible. The risk assessment approach needs to fit the available level of resources. The <i>preliminary analysis</i> (ISO 31010) nature of the risk assessment task is a fortunate good fit to the tight resourcing, and further informs the design of appropriate risk assessment models.	6.2.1.2 6.2.3.4	The risk models seek to be as time efficient as possible whilst reflecting the complexities of the risk assessment task. Two models are explicitly designed to explore simple approaches to risk assessment.
29. In current practice, particular emphasis is placed on making a decision and arriving at a risk assessment in preference to ensuring the reliability of that assessment.	6.2.1.2	The models seek to ensure that reliable assessment decisions can be made and the barriers to managers' use of current practice risk assessment models avoided.
30. There is some recognition in local authorities that the current practice of risk assessment needs to be improved but practitioners are unsure as to how to do so. There is some evidence of add-on processes having been implemented as a result of this need.	6.2.1.2 6.2.1.3	The risk models are intended to explore and ultimately meet this need and to avoid the need for the add-on processes.
31. Risk assessments should be informed by as full as possible an understanding of the risks assessed and of the limitations of the information available.	6.2.3.4 6.5 6.6.1 6.6.2	The more sophisticated models have been designed to achieve this objective.
32. The assumptions made in a risk assessment should be documented and the assessments evidence-based where possible.	6.2.2 6.2.3.4 6.3.2 6.6.2	This would form part of the guidance to practitioners and a constant element of the use of each model.
33. Complexity theory is critically relevant to strategic risks in local authorities. The key issues that have a significant bearing on risk assessment are: ➤ The inappropriateness of cause and effect models; ➤ The need to understand and take account of the effects of starting conditions; ➤ Reinforcement of the relevance of context; ➤ The need to focus on outcomes and not intermediate interactions, which are too complex and too numerous for it to be possible to do so.	6.4.1 6.5 6.6.1 6.6.2	These factors have been taken into account in the model design and the specification of the risk data set template.
34. Fuzzy approaches appear to present an approach to risk assessment which reflects and embraces the associated uncertainties. The research to date has provisionally addressed the most appropriate presentation of fuzzy numbers and the associated mathematical operations. Closely allied to this, scenario planning approaches can help to define the basis of the fuzzy numbers and the related fuzzy sets.	6.4.2 6.4.3 6.6.2	A fuzzy model has been developed which follows the provisional approach.

Research Finding	Section	Significance for Risk Assessment Modelling
<p>35. Stakeholder issues are an important aspect of strategic risk in local authorities and form part of the overall ambiguity. The extent to which they are taken into account in a risk assessment model is ultimately a matter for the construction of risk at each organisation. The research indicates that stakeholder issues can be taken into account as part of the impact / consequences dimension of risk (e.g. Betrayal of Trust) and that, as a result, they do not need to be treated as a separate dimension with the associated additional complications of doing so.</p>	<p>6.2.2 6.2.3.2 6.2.3.4 6.2.3.5 6.3.2 6.4.5 6.6.2</p>	<p>These factors have been taken into account in the model design and the specification of the risk data set template.</p> <p>The research has developed a simple set of stakeholder groupings to use in risk modelling.</p>
<p>36. Risks assessments are presented as having an objective to provide information for decision-makers that goes beyond a mere ranking of risks.</p>	<p>6.2.2 6.5 6.6.1 6.6.2</p>	<p>The more sophisticated models have been designed to achieve this objective.</p>
<p>37. Risk assessment models should not be too complex, but there is a difficult balance to be drawn with the need to reflect and embrace the complexities of strategic risk in local authorities.</p> <p>A high level of accuracy is not required from risk assessment models.</p>	<p>6.2.1.2 6.2.3.2 6.2.3.4 6.5 6.6.1 6.6.2</p>	<p>The models have been designed in part to explore this balance, being varyingly complex. The cautions from the research and the literature about false precision have been carefully heeded.</p>
<p>38. There are cultural and political factors within local authorities that affect the operation, integrity and openness of risk assessment process.</p> <p>These factors are potentially serious barriers to effective risk assessment and risk management as a whole.</p>	<p>6.2.1.2 6.4.3</p>	<p>Whilst these factors have been acknowledged, they are largely beyond the scope of the research. However, it is anticipated that a new risk assessment which addresses the weaknesses in current practice will be more credible and so resistance to its use may at least be reduced. It would be unrealistic to see a new risk assessment model, however good it might be, as being able to overcome these cultural and political factors.</p>

Detailed Control Confidence Assessments Using Tentative Control Confidence Model

Risk	Risk Description	Control Confidence Level						Reason(s)
		None 0%	Weak 25%	Doubts 60%	Comforted 80%	Strong 90%	Assured 100%	
1	Over-reliance on a single IT provider for all key information systems				X			Some doubts but IA assurance and lack of recent problems
2	Failure to implement corporate strategy					X		Confident but lacking full assurance
3	Non-compliance with Disability Discrimination Act	X						There are substantial doubts and cases of possible non-compliance
4	Office buildings flooded					X		Confident but lacking full assurance
5	Member of staff suffers serious trip injury at work				X			There are a few doubts but there is also meaningful assurance
6	There is a high level of appeals against the authority's secondary school placement decisions for new Year 7 pupils					X		Confident but lacking full assurance
7	Death or serious injury to vulnerable child / children in the local authority area				X			The overall position is one of reasonable, assured confidence
8	Lack of private sector capacity for required level of residential and nursing home placements for older people		X					There are substantial doubts and very limited confidence
9	Failure of the Highways PFI process, directly impacting on the ability of the Council to maintain a safe Highway infrastructure					X		Overall confidence is high but there is a lack of full assurance
10	Housing rent arrears exceed specified performance requirements						X	There is a high level of confidence with assurance from Internal Audit
11	Senior manager abuses his position to obtain high value fraudulent payments from suppliers				X			There is substantial confidence and reasonable assurance
12	Laptop, or other media, containing payroll data for a large number of members of staff lost or stolen whilst out of the office / off local authority premises				X			There is substantial confidence and assurance
13	Breach of EU procurement directives on major procurement						X	There is a high level of confidence with assurance from External Audit
14	Staff capacity and/or skills are inadequate to support and deliver the agreed levels of service		X					Confidence is very limited

Risk	Risk Description	Control Confidence Level						Reason(s)
		None 0%	Weak 25%	Doubts 60%	Comforted 80%	Strong 90%	Assured 100%	
15	Failure to effectively plan and prioritise for future capital investment requirements				X			There are a few doubts but there is also meaningful assurance
16	The risk management process fails to identify and reliably assess and bring into management the serious risks facing the local authority					X		Confident but lacking full assurance
17	Delivery of inappropriate services due to a failure to effectively and appropriately consult with stakeholders on service priorities and modes of delivery			X				There is a mix of confidence with some doubtful / untested controls
18	Joint local and national elections run poorly						X	There is a high level of confidence with assurance from a strong track record
19	Failure to respond to need for organisational change and performance improvement			X				There is a mix of confidence with some doubtful / untested controls
20	Changes to the economic environment make the Council economically unstable			X				There are substantial doubts but with some assurance from the External Auditor
21	A series of individually largely minor problems lead to a critical loss of legitimacy for the local authority in a changing and challenging political environment and in turn lead to an inability for the local authority to function effectively			X				There are significant doubts, partly due to untested controls
22	The relationship between the elected council and the chief executive breaks down					X		The key parties are confident but full assurance is lacking
23	Failure to achieve Corporate Objective CO3			X				There is some, limited confidence
24	Large loss on investment						X	There is a high level of confidence with two independent sources of strong assurance
25	Failure to adequately deal with an increasing number of Adult Protection referrals due to resource implications and difficulty accessing the Central Referral Unit (Police) to hold strategy discussions regarding the investigations					X		Confident but lacking full assurance
26	The authority's ability to recover VAT on expenditure is reduced due to changes in its partial exemption			X				There is some confidence but significant doubts arise about whether the controls will achieve much
27	A contractor makes a minor mistake which is reported in the national media					X		Confident but lacking full assurance
28	The implementation of the new payroll system fails					X		Confident but lacking full assurance
29	Whistle-blowing case mishandled			X				There is some confidence but significant doubts arise about staff compliance
30	Administrative error causes inconvenience and small financial loss to large number of local people		X					There is substantial doubt

Full Fuzzy Risk Assessment Data

Risk	Type of Assessment	Plausible Best Case		Most Likely Case		Plausible Worst Case		Controls			Raw Fuzzy Values*		
		Inherent	Residual	Inherent	Residual	Inherent	Residual	Best	Most Likely	Worst	Best	Most Likely	Worst
1	Single	0	0	500	200	960	200	90%	80%	80%	0	260	352
	Additive	0	0	640	256	1352	304				0	333	514
2	Single	120	48	4032	48	12000	600	90%	90%	90%	55	446	1740
	Additive	120	48	3840	48	12000	600				55	427	1740
3	Single	234	234	234	234	500	500	25%	0%	0%	234	234	500
	Additive	234	234	354	354	854	854				234	354	854
4	Single	0	0	1	0	1	1	90%	90%	60%	0	0	1
	Additive	0	0	1	0	1	1				0	0	1
5	Single	500	200	800	200	600	120	90%	80%	80%	230	320	216
	Additive	500	200	1209	448	1010	687				230	600	752
6	Single	0	0	192	0	192	192	90%	90%	80%	0	19	192
	Additive	0	0	192	0	272	224				0	19	234
7	Single	0	0	12000	4800	12000	4800	80%	80%	60%	0	6240	7680
	Additive	0	0	31200	12528	36000	14400				0	16262	23040
8	Single	8	8	500	500	4800	600	25%	25%	25%	8	500	3750
	Additive	8	8	620	620	6768	732				8	620	5259
9	Single	0	0	4680	3840	23400	4800	90%	80%	80%	0	4008	8520
	Additive	0	0	10335	5440	52455	7880				0	6419	16795
10	Single	0	0	800	120	2400	48	100%	100%	90%	0	120	283
	Additive	0	0	800	120	2520	96				0	120	338
11	Single	48	8	500	200	960	120	80%	80%	60%	16	260	456
	Additive	48	8	1132	344	960	120				16	502	456
12	Single	8	8	2400	960	960	960	80%	80%	60%	8	1248	960
	Additive	8	8	3520	1408	4800	4800				8	1830	4800
13	Single	32	32	975	500	12000	4800	100%	100%	90%	32	500	5520
	Additive	32	32	1248	640	14900	5960				32	640	6854
14	Single	0	0	234	234	12000	4800	25%	25%	0%	0	234	12000
	Additive	0	0	702	702	13120	5248				0	702	13120
15	Single	500	120	4680	500	19200	600	80%	80%	60%	196	1336	8040
	Additive	620	240	6864	1620	43232	966				316	2669	17872
16	Single	960	960	4680	960	12000	600	90%	90%	80%	960	1332	2880
	Additive	976	976	32760	6720	84000	4200				976	9324	20160
17	Single	20	8	800	200	4800	600	80%	60%	60%	10	440	2280
	Additive	20	8	2400	600	10608	1326				10	1320	5039
18	Single	0	0	120	48	200	25	100%	100%	90%	0	48	43
	Additive	0	0	120	48	248	31				0	48	53
19	Single	200	500	800	500	12000	4800	80%	60%	60%	440	620	7680
	Additive	200	500	992	620	14400	5760				440	769	9216
20	Single	192	192	192	192	12000	4800	60%	60%	25%	192	192	10200
	Additive	384	384	384	384	12820	5073				384	384	10883
21	Single	48	48	500	500	960	120	80%	60%	60%	48	500	456
	Additive	96	96	2240	2240	4848	606				96	2240	2303
22	Single	0	0	200	200	4800	600	90%	90%	80%	0	200	1440
	Additive	0	0	200	200	6920	865				0	200	2076
23	Single	800	120	975	500	3840	2400	80%	60%	60%	256	690	2976
	Additive	800	120	1209	620	5632	3020				256	856	4065
24	Single	500	25	2400	120	600	120	100%	100%	90%	25	120	168
	Additive	1120	56	3020	151	840	170				56	151	237
25	Single	2400	2400	4680	2400	12000	4800	100%	90%	90%	2400	2628	5520
	Additive	5800	5800	11310	5800	22100	8840				5800	6351	10166
26	Single	234	234	4680	975	4680	4680	60%	60%	60%	234	2457	4680
	Additive	234	234	4680	975	4680	4680				234	2457	4680
27	Single	32	20	192	120	500	200	90%	90%	80%	21	127	260
	Additive	32	20	192	120	500	200				21	127	260
28	Single	48	0	4680	48	2400	120	90%	90%	80%	5	511	576
	Additive	48	0	4680	48	7200	360				5	511	1728
29	Single	0	0	234	120	12000	4800	80%	60%	60%	0	166	7680
	Additive	0	0	1170	600	36480	16320				0	828	24384
30	Single	0	0	39	32	200	200	60%	25%	25%	0	37	200
	Additive	0	0	78	64	608	608				0	75	608

* These are the raw fuzzy values, i.e. the fuzzy risk assessment values before adjusting the plausible worst case value to equal the most likely case value for those risks for which the plausible worst case gave a lower value than the most likely case

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