Contexts, Leaders, and the Adoption of Management Practices: A Configurational Approach

by

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ABSTRACT

In the field of strategic management, scholars have constantly acknowledged the importance of the adoption of management practices with respect to firm outcomes. Still, evidence indicates that firms do not implement management practices ubiquitously. The factors that lead to such variations have only been explored to a limited extent. As a result, there is no unifying theory in this respect and empirical evidence is limited. In this thesis, I suggest that variations in management practices are likely to be associated with different firm contexts, different leader cognitions and behaviours. On the basis of these criteria, three papers have been developed. Due to the vast amount of management practices identified in research, the analysis in all three papers focuses specifically on the implementation of Human Resource Management (HRM) practices. In Paper 1 (Chapter 2), the theoretical and empirical issues associated with the relationship among contextual factors, management practices, and performance are discussed. Due to these issues, an inductive approach based on fuzzy-set analysis is adopted. Papers 2 and 3 (Chapters 3 and 4) aim to shed light on the connections between specific leader cognitions, behaviours, and management practices. Due to the general-level theoretical rationale and limited empirical evidence, Paper 2 has been developed as a review paper, and involves the development and application of a conceptual framework. The paper concludes with a research agenda proposing the adoption of fuzzy-set analysis to develop theoretical insights on the relationship between leadership and management practices. Based on the conceptual framework and research agenda proposed Paper 2, an empirical is undertaken in Paper 3. The analysis provides insights on the connections between specific leader cognitions, specific leader behaviours, and specific management practices. Findings from these papers shed light on variations in management practices across firms. All three papers lead to important theoretical implications with respect to the configurational perspective of HRM, aside from other specific theoretical implications associated with each individual paper. Moreover, practical implications for firm leaders and policy-makers on the adoption of management practices are outlined.

Key words: Management Practices, Leader Cognitions, Leader Behaviour, Contingency Factors, Configurational Approach, Fuzzy-Set Qualitative Comparative Analysis (fsQCA).

ABBREVIATIONS

ABV	Attention-Based View
AMO	Ability-, Motivation-, Opportunity-Enhancing Practices
APP	Performance Appraisal Practices
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Capital-Intensity
COMP	Competition
CR	Composite Reliability
df	Degrees of Freedom
ELT	Experiential Learning Theory
EU	European Union
EUR	Euro
fsQCA	Fuzzy-set Qualitative Comparative Analysis
HRM	Human Resource Management
IDBR	Interdepartmental Business Register
IFI	Incremental Fit Index
INV	Involvement Practices
KI	Knowledge-Intensity
Log	Logarithm
Max	Maximum
Min	Minimum
NFI	Normed Fit Index
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
QCA	Qualitative Comparative Analysis
R&D	Research and Development
RMR	(Standardized) Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
SE	Standard Error
SHRM	Strategic Human Resource Management
SIC	Standard Industrial Classification
SME	Small and Medium-Sized Enterprises
SPSS	Statistical Package for the Social Science
ST	Staffing Practices
Std. Dev.	Standard Deviation
STEM	Science, Technology, Engineering, and Mathematic
TLI	Tucker Lewis Index
TR	Training Practices
U.K.	United Kingdom
USA	United States of America
VPA	Variable Pay Practices

CHAPTER 1 - INTRODUCTION

1.01 Background

For decades scholars in the area of strategic management have been searching for factors that lead to enhanced firm performance. In this respect, an important stream of research has consistently shown that good management practices, broadly defined as monitoring practices, performance targeting practices, and people practices (Human Resource Management (HRM) practices, enhance firm performance (Bloom, Genakos, Sadun and Van Reenen, 2012; Bloom and Van Reenen, 2007). Supporting these arguments are findings from a joint study by the Centre for Economic Performance and McKinsey & Company, involving over 4,000 medium-sized manufacturing firms in Europe, the United States of America (USA) and Asia. The findings show that the implementation of good management practices enhances firm performance significantly (Bloom, Dorgan, Dowdy and Van Reenen, 2007).

Based on the consistent findings that such practices are likely to improve performance, assuming the economic-based argument of rationality would lead to the conclusion that firms are likely to converge in the implementation of management practices as a means to attain economic optimisation (Simon, 1993). Still, studies show that different firms are likely to opt for different levels and patterns of management practices, which could be a reason why firms vary in their performance levels (Bloom, Dorgan, Dowdy, Van Reenen and Rippin, 2005; Bloom *et al.*, 2012; Bloom and Van Reenen, 2007). Although variations in management practices among different industries may to some extent be expected because of the different structures and requirements involved, one would at least expect that firms within the same industry have some degree of uniformity in their approach of implementing management practices (Gooderham, Nordhaug and Ringdal, 1999). However, evidence throughout the years has shown that management practices are likely to vary across industries and countries, and within the same industries and countries (Arthur, 1994; Bloom and Van Reenen, 2007; Ichniowski, Shaw and Crandall, 1995).

Whilst variations in the levels and patterns of management practices have been acknowledged, literature does not provide a clear answer as to what factors cause such variations (Bloom *et al.*, 2012; Bloom and Van Reenen, 2007, 2010). It therefore follows

that a deeper understanding of what causes these variations is needed. This understanding is important not only because it will add value to present academic literature, but also because such knowledge may lead to important practical implications. Due to the positive connection between management practices and performance, a better understanding of the adoption of management practices is likely to impact individual firms and economies at large.

1.02 Research Gap

Despite the consistent findings that management practices are likely to lead to enhanced firm outcomes, an important gap remains in literature: the understanding of what constitutes variations in the levels and patterns of management practices. Studies that have attempted to explain variations in management practices have linked such variations to the different contextual situations firms operate in, such as product market competition, labour regulation, and the firm's human capital requirements (Bloom and Van Reenen, 2007, 2010). In addition to this research, on a general level, another stream of literature has argued that strategic decisions (which can also include management practices) within firms are a reflection of the cognitive characteristics and behaviours of their leaders (see: Bloom and Van Reenen, 2007; Hambrick and Mason, 1984; Zhu, Chew and Spangler, 2005). In this section I review what we know and what we don't know with respect to these associations, and outline the main research gaps addressed in this dissertation.

It is important to note that the research gap in this thesis is specifically focused on the understanding of variations in HRM practices rather than management practices in general. This is mainly based on the fact that research on HRM practices is much more extensive, compared to research related to the other management practices (e.g., performance targeting practices). This extensive amount of research has consistently shown that HRM practices are likely to lead to enhanced firm outcomes (e.g., Guthrie, 2001; Meuer, 2017). In addition, there is also ample research on how HRM practices can be measured in a valid and reliable way (Huselid and Becker, 2000; Wright and Gardner, 2000, 2003). Therefore, it makes sense to focus on the understanding of variations in the implementation of such practices.

Yet, as indicated in this section, despite the extensive amount of research in the field, literature is unclear on how contextual factors, HRM practices, and performance are related (see: Jackson, Schuler and Jiang, 2014). In addition, limited knowledge is available on how HRM practices and leadership factors interact (see: Leroy, Segers, Van Dierendonck, Den Hartog, 2018). These research gaps are explained further in the remaining part of this section.

1.02.1 Contexts and Variations in HRM Practices

The role of contextual factors in the adoption of management practices has been particularly acknowledged through the contingency approach within the field of Strategic Human Resource Management (SHRM) (e.g., Jackson *et al.*, 2014). Given the importance that scholars have given to this stream of literature, I build on it with the ultimate aim of shedding light on the association between management practices and contexts in general.

The contingency approach of SHRM, also known as the "best fit" approach, suggests that management practices are most effective when they are appropriately aligned to different internal and external contingent factors (Burke and Cooper, 2005; Chang and Huang, 2005; Jackson *et al.*, 2014). This approach is considered to be theoretically compelling as it takes into account the influence of the firm's environment on the HRM-performance relation, when such environment is to have an effect. Yet, empirical evidence tends to support the universalistic 'best practice' approach which posits that more is better across all situations (e.g., Becker and Huselid, 1998; Huselid, 1995).

When investigating studies involving the contingency approach, it can be noticed that the area of research is dominated by competing theoretical rationales and equivocal empirical outcomes. Due to these discrepancies, studies have not consistently identified how the influence of HRM practices on performance varies across different internal and external contexts (Jackson *et al.*, 2014). For example, when looking at the effects of firm size on the HRM-performance relation, some authors favour the human capital theory and suggest that, like large firms, small firms benefit from the implementation of HRM practices through enhanced efficiency and performance (e.g., Hayton, 2003). Others support the economic argument that, in a small firm context, higher expenses generated from HRM practices exceed the benefits and result in a negative impact on performance (e.g., Deshpande and Golhar, 1994). Despite these conflicting results, there are a small

number of contingencies whereby scholars seem to be consistent in their outcomes. For example, in line with various theories such as the resource-based view, different studies show a consistently positive effect of high-tech industries on the HRM-performance relation (e.g., Messersmith and Guthrie, 2010; Patel, Messersmith and Lepak, 2013). Similar findings are associated with contingency factors involving knowledge-based, innovation strategies (e.g., Chow, Teo and Chew, 2013; Youndt *et al*., 1996).

Through these findings it can be argued that by looking at combinations of contextual factors simultaneously, rather than individual factors, a better insight into the association between contextual factors, management practices and performance is likely to be achieved. While on the face of it, firms pursuing knowledge-based strategies consistently benefit from the implementation of HRM practices, there are cases where smaller firms may benefit from higher investments in HRM only when certain conditions are present. Based on this argument it is plausible to deduce that different interconnected contextual factors would probably require different combinations of HRM practices (Jackson *et al.*, 2014). In addition, based on previous evidence it would also be plausible to deduce that the implementation of HRM practices across firms is likely to be complex involving equifinality, multifinality, and causal asymmetry (Delery and Doty, 1996; Herzberg, Mausner and Snyderman, 1959; Kruglanski, Köpetz, Bélanger, Chun, Orehek and Fishbach, 2013). Equifinality refers to a situation whereby different variables are associated with a similar outcome, within the same context (Delery and Doty, 1996). Multifinality refers to similar variables associated with different outcomes (Kruglanski *et al.*, 2013). Causal asymmetry refers to the fact that variables associated with the low presence of an outcome of an outcome (e.g., low productivity) are not the exact inverse of variables associated with the high presence of the same outcome (e.g., high productivity) (Herzberg *et al.*, 1959). Thus, based on these complexities an analysis involving combinations of HRM practices and contextual factors would possibly limit the equivocal outcomes, enhance theoretical understanding, and shed light on how different HRM practices influence performance across different contexts.

The idea that contextual factors are likely to have an interconnected effect on firms has been previously discussed among scholars. The firm's environment is likely to vary across a wide range of factors. This calls for the need to explore complex interdependent relations among contextual factors and HRM practices (Meyer, Tsui and Hinings, 1993; Purcell, 1999). Still, to date, contextual factors and HRM practices have not been assessed

in combinations. This is mainly because literature in this area of research focused on econometric methods based on linearity and additive indices (e.g., Datta *et al.*, 2005; Delaney *et al.*, 1996; Harris *et al.*, 2001). These methods allow for the analysis of isolated, rather than combined, influence of contingencies on the HRM-performance relation. In addition, the use of additive methods does not allow for an analysis of combinations of HRM practices. These methods also fail to show any potential occurrence of complex associations such as equifinality, multifinality, or asymmetric associations (Alcázar, Fernández and Gardey, 2005; Delery, 1998). Therefore, through the use of such methods it is not possible to assess how the influence of different combinations of HRM practices on performance varies through different situations. In fact, these rather simplistic methods are likely to have encouraged universalistic findings which are considered limited in the practical and theoretical guidance they can offer, apart from 'more is better' in all situations (Kaufman, 2012; Kaufman, 2015a).

Based on these theoretical contradictions and equivocal outcomes identified in this section, part of the aim of the thesis is to assess whether clearer outcomes on the link between HRM practices, contingency factors, and performance emerge if one analyses different patterns of contingency factors and HRM practices, with respect to performance.

1.02.2 Leaders and Variations in HRM Practices

Different studies have consistently discussed the importance of firm decision-makers in determining strategic choices such as HRM practices (e.g., Klaas, Semadeni, Klimchak and Ward, 2012). In line with this research, I posit that leaders play an important role in determining variations in management practices. The influence of leaders is likely to involve two aspects. First, the behavioural theory of the firm has led to top-down approaches which posit that leaders, through their cognitions, influence strategic decisions. The leaders' different cognitions are likely to lead to variations in strategic choices such as management practices (e.g., Hambrick and Mason, 1984). Second, through the behavioural theories of leadership it can be suggested that different strategic choices are likely to be associated with different behaviours which reflect the individual characteristics they possess (Yukl, 1999; Zhu *et al.*, 2005). These arguments complement the view suggested by cognitive theories that the behaviours of leaders are likely to be preceded by their cognitions (Bandura, 1982; Wofford and Goodwin, 1994). Therefore,

when assessing leader-related factors as determinants of strategic choices, both cognitions and behaviours have to be incorporated in the analysis.

Theoretical arguments suggest that leader cognitions, behaviour, and management practices are connected. However, these explanations are fragmented and at a general level. Research on how specific cognitions are associated with specific behavioural approaches, or how these leader elements influence specific management practices is limited (see: Baron and Hannan, 2002; Klaas *et al.*, 2012; Zhu, Chew and Spangler, 2005). Moreover, empirical evidence on how all three constructs are connected is missing. Thus, while *"questions of how top managers can and should influence their firms are central to strategic management"* (Priem, Lyon and Dess, 1999; p. 935), the role of the leaders in influencing HRM practices has been largely ignored in extant literature.

In order to understand how specific leader criteria are associated with specific management practices, I suggest that different leaders are likely to be characterised by different patterns and levels of interrelated cognitions which leads to different behaviours and also different levels and patterns of HRM practices. As a result, in my thesis I suggest that the connection between leaders and HRM practices is likely to involve complex relations which include equifinality, multifinality, and asymmetric relations as indicated within the chapters of this dissertation (Cicchetti and Rogosch, 1996; Delery and Doty, 1996; Herzberg *et al.*, 1959). To this effect, through this thesis my aim is to bridge this gap with respect to the lack of knowledge on the relationship between leaders and HRM practices by providing empirical evidence and theoretical insights on these complex connections.

Based on the lacunae identified in this section, I address two important gaps within this thesis. First, the lack of consensus on the relation between contingent factors, HRM practices, and performance. Second, the lack of knowledge on the association between specific leader cognitions, behaviours, and HRM practices. To this effect, the thesis is based on two research questions outlined in the following section.

1.03 Research Questions and Thesis Overview

In view of the gaps identified in the previous section, in this study I aim to build on the work of Bloom *et al.* (2005), Bloom and Van Reenen (2007) and Bloom *et al.* (2012)

who acknowledge and discuss variations in management practices. In line with this work, I aim to address the following research questions:

How does the influence of different combinations of HRM practices on performance vary with different combined contextual factors?

How do leaders through their cognitions and behaviours influence variations in the level and patterns of HRM practices implemented within firms?

In order to address these research questions, through this dissertation I will pursue four important objectives. First, I will discuss theoretical and empirical issues associated with the current status of literature with regards to the relations among individual contextual factors, HRM practices, and performance. Second, based on the conflicting theoretical rationale and equivocal outcomes, I shall use an inductive approach to develop empirical outcomes and theoretical insights on the connection between combined contextual factors, combinations of management practices, and performance. Third, I dig deep into theoretical arguments related to the association between leader cognitions, behaviour, and management practices. Based on this review, I shall develop a conceptual framework and a research agenda that enable the assessment of the link between specific factors that fall under the three constructs. Fourth, due to the general level theory associated with the role of leaders in influencing management practices, an inductive approach shall be used to develop theoretical insights based on empirical findings on how specific leader cognitions, specific behaviours, and specific management practices are connected.

1.04 Intended Contribution

Overall, I aim to provide a better understanding of specific phenomena in the field of strategic management, related to variations in management practices. Due to the general/conflicting theoretical arguments, empirical limitations, and complexities identified in the implementation of management practices, through the thesis I provide insight towards the field of strategic management by recommending and adopting a different empirical method than the ones typically used in prior empirical research. Specifically, in all three papers I suggest that in order to attain a better understanding of variations in management practices a configurational method involving fuzzy-set Qualitative Comparative Analysis (fsQCA) is needed, rather than the traditional linear

regression method. The fsQCA method is a theory-building technique which allows for the analysis of multiple interacting effects and complex associations involving nonlinearity, equifinality, multifinality, and asymmetric relations. Analysis of these complex associations offers more detailed insight into variations in management practices. The adoption of fsQCA has become more widespread in the area of social sciences over the past few years. However, studies applying this method to understand management practices or leadership are limited, especially when compared to other approaches such as traditional linear methods (e.g., Meuer, 2017; Whittington *et al*., 2013).

Over the years, scholars have invested a lot in understanding the main implications of management practices on firm performance, and reached a consensus that such practices are likely to enhance firm performance. Still, while the benefits of such practices are widely recognised, they are not implemented ubiquitously across firms. Limited research is available on what drives variations in management practices among firms and how do they vary (Bloom *et al.*, 2007; Bloom *et al.*, 2005; Bloom *et al.*, 2012).The field of SHRM has been dominated by studies related to the universalistic view (best practice) approach, and to a lesser extent the contingency (best fit). The adoption of these approaches has led to uncertainty with regards to how HRM practices and performance are connected (Skarmeas, Saridakis and Leonidou, 2018). The contribution of this thesis is to apply a configurational approach within the field of SHRM in order to offer new evidence for the nature of the relationship between HRM practices and performance.

In addition I also provide insights with respect to the microfoundations of strategic management, by connecting individual-level factors to firm-level factors (Felin, Foss and Ployhart, 2015). The analysis of the relationship between leadership and HRM is very limited in research (Leroy *et al.*, 2018). Through the adoption of the configurational approach my study contributes to these streams of literature by deriving theoretical insights on how specific leader cognitions and behaviours are associated with specific management practices.

Therefore, overall the contribution of this thesis lies in the adoption of the configurational approach as a result of the limited theoretical rationale associated with the implementation of different patterns and levels HRM practices, and the complexities involved in implementing these practices. The configurational approach sheds light on the different theories associated with the two relations investigated within this analysis.

1.05 Overview of the Following Papers

The thesis includes three separate papers (Chapters 2-4), which are followed by a general discussion and conclusion (Chapter 5). Paper 1 (Chapter 2) focuses on the connection between contextual factors, management practices, and performance. The paper builds on existing SHRM theories, which are widely acknowledged among scholars, and thus focuses specifically on HRM practices. A literature review on the associations among contextual factors, HRM practices, and performance is presented. The analysis highlights competing theoretical arguments and equivocal (or even limited in the case of some contextual factors) empirical outcomes in present literature with respect to these associations. It is argued that these inconsistencies are a result of the empirical methods used, which make it impossible to address the complexities involved in the association between contextual factors, HRM practices, and performance. As a result, in this paper I suggest the adoption of the configurational approach involving fuzzy-set analysis, based on set-theory. Apart from addressing the empirical issues, the method also allows for the development of theoretical insights, which is especially important due to the limited theoretical rationale linking contextual factors, HRM practices, and performance.

Using a sample of 261 manufacturing firms, in Paper 1 I analyse configurations involving contextual factors and HRM practices with respect to high- and low productivity. In line with the findings of this paper, a number of theoretical, empirical, and practical contributions are highlighted. These are followed by suggestions for future research.

The connection between leaders and management practices is analysed in Papers 2 (Chapter 3) and 3 (Chapter 4). By drawing on the behavioural theory of the firm, I posit that firm strategic decisions, including management practices, are likely to be a result of leader cognitions. This is due to the fact that decisions are made under complex conditions and, due to bounded rationality, leaders are likely to make different decisions based on their cognitive characteristics. Based on these arguments, I suggest that different cognitions are likely to lead to variations in management practices. In line with these arguments, in both papers I also highlight another behavioural component as a determinant of management practices, involving leader behaviour. Leaders are likely to adopt different behaviours, based on their individual characteristics, leading to variations

in management practices. This complements cognitive theories which posit that cognitions precede behaviour (Bandura, 1982; Lazarus, 1991).

By investigating these connections, I find that present studies identify a connection between leader cognitions, behaviours, and management practices. However, theory and evidence with respect to these connections are fragmented and at a general level. Theoretical rationale on the link between leader specific cognitions, specific behaviour, and specific management practices (e.g., HRM practices) is limited. Moreover, empirical evidence linking the three constructs is missing. To this effect, in Paper 2 I proceed by developing a conceptual framework for the connections, based on a detailed literature review. The framework is operationalised and the potential connections between specific cognitions, behaviours and management practices are discussed. Due to the lack of theoretical arguments and the complexities identified among the relationships of the three factors, I refrain from proposing ex-ante hypotheses. To this effect, I propose a research agenda on how to empirically investigate these connections. Within the research agenda, an inductive, data-driven approach involving fuzzy-set analysis is recommended. This paper provides the foundations of how future research could assess the connection between leaders and management practices.

Building on the conceptual framework and the proposed research agenda outlined in Paper 2, in Paper 3 I provide an empirical analysis on the connections between specific leader cognitions, strategic behaviour, and management practices, by applying fuzzy-set analysis to a set of 348 owner-managed small and medium sized enterprises (SMEs). Based on the findings, various theoretical, empirical and practical contributions are outlined. Also, propositions for future research are discussed.

Detailed information with regards to the data sources and collection in relation to Papers 1 and 3 is provided in the Appendix section at the end of the document (Appendix A, Section A.1), together with the epistemological stance of the empirical studies (Appendix A, Section A.2). General results, key contributions, implications, and strengths and limitations of these three papers are outlined in the conclusion of this thesis. This section also offers several avenues for future research.

1.06 References

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CHAPTER 2 - CONTEXT, HUMAN RESOURCE MANAGEMENT, AND PRODUCTIVITY: A CONFIGURATIONAL ANALYSIS

2.01 Abstract

The important role of Human Resource Management (HRM) practices with respect to firm performance is widely acknowledged in literature. However, empirical support is not in line with theoretical expectations on how these two elements are connected. In this study, I argue that these discrepancies are a result of the empirical methods used. As a result of the lack of theoretical understanding, empirical inconsistencies, and complexities among the constructs, an inductive approach based on the configurational method involving fuzzy-set methodology is adopted. The approach is used to test different interconnected HRM practices and multiple interconnected contingent industry factors (knowledge-intensity, capital-intensity, and competition) simultaneously, with respect to high and low productivity. Results from an analysis of a sample of 261 small and medium-sized manufacturing enterprises shed light on the field of SHRM by showing that different configurations of HRM practices are associated with different configurations of contextual factors across high and low productive firms. This implies that the connection between HRM and performance is more nuanced than the more is better in all situations portrayed under the universalistic view. On the other hand, in line with the contingency view, the results show that contexts matter, however the relationship between HRM practices contextual factors, and performance is likely to be based on complex interactions, involving nonlinearity, multifinality, equifinality, and causal asymmetry. These complexities support the configurational approach of SHRM. Based on these findings and theoretical contributions, I provide a discussion on the practical implications.

2.02 Introduction

It is widely accepted that the presence of sophisticated Human Resource Management (HRM) practices leads to a positive influence on firm outcomes (e.g., Appelbaum, Bailey and Kalleberg, 2000; Arthur, 1992; Saridakis, Lai and Cooper, 2017), yet the causal mechanisms remain unclear (Boselie, Dietz and Boon, 2005; Delery and Roumpi, 2017; Guest, 2011; Guest, Michie, Conway and Sheehan, 2003). Theoretically, the contingent approach is the most compelling as it suggests that HRM practices should be tailored to the firm's internal and external environment if they are to have effect (see: Jackson,

Schuler and Jiang, 2014). It is therefore surprising that the universalistic approach has received much more empirical support. The universalistic approach contradicts the contingency approach by suggesting that regardless of context, the higher the level of HRM practices, the higher the performance (e.g., Becker *et al.,* 1998; Combs, Liu, Hall and Ketchen, 2006; Huselid, 1995; Saridakis *et al.,* 2017; Ivars and Martínez, 2015; Obeidat, Mitchell and Bray, 2016).

Support for the universalistic perspective may be a result of the dominant choice of the empirical method, involving traditional linear econometric modelling, whereby the computation of HRM systems is based on an additive index. Despite its widespread application on a number of studies, due to the additive method, the universalistic approach is criticised for not providing any information on whether there are interactions or synergies among practices (Alcázar *et al.*, 2005; Delery, 1998). The operational characteristics of the additive method obscure the possibility that there may be multiple configurations of practices which could be equally efficient in leading to high performance (equifinality) (Delery and Doty, 1996).

Similar to the universalistic approach, the majority of empirical findings involving the contingency approach have implemented econometric methods based on linearity and additive indices (e.g., Datta, Guthrie and Wright, 2005; Delaney and Huselid, 1996; Harris and Ogbonna, 2001). On top of the limitations arising from the use of the additive index, such methods also limit the outcomes as they focus on the contribution of an individual contingency variable, keeping other contingency variables constant. Therefore, rather than assessing how different contingency factors integrate to produce an outcome, such factors have been assumed to be competing with one another (Fiss, 2007).

In reality, the HRM-performance relation is likely to involve complex inter-relationships, with contingency factors simultaneously influencing the association between HRM and performance (Meyer *et al.*, 1993; Purcell, 1999). That is, a firm's environment may vary in important ways across a wide-range of factors, which therefore lead to the need to explore complex interdependencies in contingent relationships. Thus, it is conceivable that different combinations of contextual factors will require different levels and patterns of HRM practices. In addition, existing studies argue that equifinal solutions with respect to HRM may take place in the presence of similar contingencies and outcomes (e.g., Delery *et al.*, 1996; Fiss, 2007). However, the limitations in present analytical approaches do not cater for such complexities which may explain why there is

little consistent support with regards to how contingency variables influence the relation between HRM and performance. Based on these inconsistencies in literature, my aim for this study is to address the following question: *How does the simultaneous analysis of combinations of HRM practices and combinations of contingency variables provide a better insight on the role of HRM practices within firms?*

In this study I address this question by focusing on industry-related factors as contingency variables involving knowledge-intensity, capital-intensity, and competition. All three variables have been recognised in previous studies for their potential influence on the HRM-performance relation (e.g., Datta, Guthrie and Wright, 2003; Kaufman, 2015b; Laursen, 2002). By analysing research in this area, I find competing theoretical rationales and conflicting empirical results on how these contingency variables influence the relation between HRM and performance. The analysis of such complex relations can only be achieved if one moves away from traditional linear modelling, toward configurational analysis whereby a configuration is defined as a Gestalt, based on elements that are interrelated (Meyer *et al.*, 1993). Therefore, the contingency factors and HRM practices shall be treated as configurations or gestalts of strongly interdependent, rather than independent factors.

In order to assess these relations, I adopt a configurational approach, based on Qualitative Comparative Analysis (QCA), involving fuzzy-set analysis based on set-theoretic methods. The method is considered to be the most appropriate configurational method to date, enabling researchers to deal with complex relations beyond the two- and three-way interaction terms typically used in HRM studies (Meuer, 2017; Ragin, 2000). The method is also ideal to assess the potential presence of complex causal relations involving nonlinearity, equifinality and causal asymmetry. The set-theoretic method is an advanced theory-building technique that helps in defining combinations involving HRM practices and contingency factors, related to both high and low performance (refer to Fiss, 2011; Ragin, 2008).

In this paper I contribute to extant theory by digging deeper in the association between HRM practices and productivity as a determinant of firm performance. Specifically, I contribute to research on Strategic Human Resource Management (SHRM) by drawing on the contingency and configurational theories to further understand how different contextual factors integrate with different combinations of sophisticated HRM practices, in high and low productive firms. In this sense, my aim is to extend theoretical insight

with regards to SHRM literature by showing that the relationship between HRM practices, contingent factors, and productivity is complex involving nonlinearity, multi-finality, equifinality, and causal asymmetry. I also contribute to the SHRM literature by developing theoretical insights into the role of knowledge-intensity, capital-intensity, and competition as contingent factors for the HRM and performance relationship, and how such contingencies influence the level and patterns of HRM practices with respect to the two performance outcomes. Such factors have not been given their due importance, being mainly used as control variables in previous studies (e.g., Huselid, Jackson and Schuler, 1997; Boselie, Paauwe and Jansen, 2001; Bello-Pintado, 2015; Way, 2002).

The findings offer important practical implications. Given that HRM practices are an important component for firm performance, a better understanding of such practices has an important impact on individual firms and economies at large. The empirical method adopted here creates more precise insights with respect to the configurations, or profiles, of HRM practices that relate to productivity under different external conditions. In this sense, one can go beyond the 'more is better' arguments that were the predominant advice derived from prior research (Kaufman, 2015).

As my approach is inductive in nature, I begin by outlining what is known from literature to date on the relationship between key contingent factors and HRM practices. Next, I present the methods and results of the study. In the results section I identify and explain the different profiles of HRM practices in high and low performing manufacturing firms across industry contexts. In doing so, I seek to generate new theoretical insights into the question of how the performance impact of HRM practices vary within and across the different contexts. Finally, I conclude and tease out the practical implications of my work and outline suggestions for future research.

2.03 HRM-Performance Relationship: Shifting to Configurational Models

The HRM-performance relationship has been mainly investigated through the universalistic and contingency approaches of SHRM. The former approach posits that the higher the implementation of sophisticated HRM practices, the higher the impact on organisational performance, irrespective of the contextual situation the firm operates in (Delery and Doty, 1996). The universalistic approach has received consistent empirical

support. Yet, it can be argued that this approach is restricted with regards to the theoretical and practical guidance it can offer, by limiting itself to 'more HRM is better' in all situations (Kaufman, 2012; Kaufman, 2015a). The logic of the universalistic model can be challenged in two main ways. First, given the costs involved in the implementation of HRM systems, firms should continue investing in such practices only up to the point where their marginal revenue associated with the implementation of HRM practices is equal to their marginal cost (Kaufman, 2015a; Sels, De Winne, Maes, Delmotte, Faems and Forrier, 2006). Second, the approach discounts the potential role of the organisational context on the relationship between HRM practices and performance. As a result, the potential variations in the relationship between the adoption of HRM practices and performance is overlooked (Jackson *et al.*, 2014; Purcell, 1999; Truss, 2001).

A more practical, and theoretically more compelling, view within the field of SHRM involves the contingency approach. The contingency perspective is more complex than the universalistic perspective, stating that the effect of HRM practices on performance is contingent upon other factors (Delery and Doty, 1996). Over the years various scholars have shown that a wide range of internal and external contingency factors are likely to influence the HRM-performance relation. Internal contingency factors have included firm size, business lifecycle, and business strategy, amongst others. External contingent factors have included industry characteristics, labour market conditions, trade unions, and legal, social and political environments, amongst others (Jackson and Schuler, 1995). Despite the fact that the contingency view is more compelling from a theoretical perspective when compared to the universalistic view, studies show competing theoretical arguments and equivocal empirical findings in relation to this approach.

As a result of the inconsistencies related to the contingency approach, I proceed by inductively exploring the connection between contingency factors, HRM practices, and performance. I argue that a better insight may emerge if the implications of the contingency factors on the HRM-performance relation are assessed simultaneously (Purcell, 1999). This may generate complexities in assessing the relation between contextual factors, HRM factors, and performance empirically which leads to the suggestion that present empirical methods used, based on linearity and additive indices, may not be adequate to address such complexities (e.g., Datta *et al.*, 2005; Delaney *et al.*, 1996; Harris *et al.,* 2001). Thus, in this section I discuss an alternative approach to empirically assess the connection between contingency factors, HRM practices and

performance, and propose a method which is different to the methods typically used until today.

2.03.1 The Associations between Industry Factors, HRM Practices, and Firm Performance

In this study I focus on three aspects of industry context that have previously been identified as influential on the adoption of HRM practices, or their association with firm performance. These include knowledge-intensity (e.g., Hayton and Kelley, 2006; Laursen and Foss, 2003); capital-intensity (e.g., Datta, Guthrie and Wright, 2003); and competition (e.g., Kaufman, 2015a).

The choice of these three dimensions of context is based on three main reasons. First, despite their theoretical significance (e.g., Beer, 1984; Katz and Darbishire, 2000), industry-related factors have been infrequently studied as contextual factors influencing the HRM-performance relationship. This is due to the fact that literature has mainly focused on firm strategy and structure as key contingencies (e.g., Boselie *et al.*, 2005; Guest, 1997). In fact, most empirical studies use industry factors as control variables rather than focal variables (e.g., Huselid *et al.*, 1997; Boselie *et al.*, 2001; Bello-Pintado, 2015; Way, 2002). Second, industry-related contextual factors complement present contingency studies as such factors are highly relevant to other contingency variables such as internal contingencies (e.g., Chandler, 1993; Youndt *et al.*, 1996). This implies that the inconsistencies in present research that mainly focused on internal contingencies such as strategy could be a result of the fact that they have not been assessed within a particular industry context. Third, contrary to extant literature, I develop a framework that allows the analysis of these contextual factors simultaneously rather than independently of one another. By focusing on industry-related factors, I chose factors that are likely to be closely related. Given the limited knowledge on the potential interconnections among contextual factors, it would be more difficult to justify and examine the interdependence of relatively distant contextual factors such as, for example, ownership and competition.

Knowledge-intensity. Knowledge-intensity refers to the amount of knowledge required for a firm to be able to compete within the industry. The higher the knowledge required, the higher the level of knowledge-intensity (e.g., Hayton, 2003; 2005). As per Eurostat (2017) knowledge-intensity reflects the share of persons employed in an industry

or sector holding a tertiary degree, and the percentage of revenues spent on Research and Development (R&D) (>5%). Sectors typically include high-tech and/or highly creative industries (Bakhshi, Davies, Freeman and Higgs, 2015). Various studies, based on different theories such as the resource-based view and human capital theory, have shown the importance of HRM practices in a knowledge-intensive environment (Chen and Huang, 2009; Collins and Clark, 2003; Collins and Smith, 2006; Collins, Smith and Stevens, 2001; Foss, Minbaeva, Pedersen and Reinholt, 2009; Nielsen, Rasmussen, Fong, Ooi, Tan, Lee and Yee-Loong Chong, 2011). Therefore, the evidence for an association between knowledge-intensity and the deployment of an investment-oriented approach to human resources is consistently supported. This is mainly because human capital is the most important resource in knowledge-intensive firms and, therefore, performance in such firms relies heavily on the efficiency and quality of their human capital (Arthur, 1994; Chen and Huang, 2009; Collins and Smith, 2006; Guthrie, 2001).

Capital-intensity. Capital-intensity refers to how much capital is needed to produce a unit of output (O'brien, 2003). There are two conflicting arguments related to the adoption and influence of HRM practices in capital-intensive environments (Milkman, 1997). On the one hand, some scholars argue that capital-intensity is a barrier to entry for firms in the market, as it is generally characterised by high investment costs. Such firms, therefore, tend to take the low-road strategy and stress cost-cutting measures as a result of the high input costs (Datta and Rajagopalan, 1998; Hambrick and Lei, 1985). This suggests that expensive, high-road strategies involving investment in HRM practices are less likely to take place in firms operating in highly capital-intensive sectors (Datta *et al.*, 2005). On the other hand, various authors including Arthur (1994), Colombo, Delmastro and Rabbiosi (2007), Ichniowski, Shaw and Prennushi (1997), Richard and Johnson (2001), and Snell and Dean (1992) put forth high-road arguments for capital-intensive firms after finding that capital-intensive firms which adopted HRM practices such as incentive pay, training, and employee participation, registered higher levels of productivity and lower employee turnover. The main argument justifying the introduction of HRM practices in manufacturing industries is that control-based systems involve rules and procedures, which make it costly for such firms to adapt to changes in consumer demand, or other changes in the operating environment. High-road HRM practices enable firms to enhance their flexibility and adapt to any potential changes (Youndt *et al.*, 1996).

Despite the conflicting arguments, it is possible that more clarity emerges if one looks at the effect of the two contingency variables together. For example, there may be an interaction between knowledge- and capital-intensity with respect to HRM practices. Scholars investigating capital-intensive firms have either explicitly or implicitly invoked knowledge-based arguments whereby high-road HRM practices help build and leverage the knowledge necessary for innovation and flexibility under increasingly complex conditions in manufacturing (e.g., Arthur, 1994; Ichniowski *et al.*, 1997). This highlights the difficulty of discriminating among the impact of different aspects of the organizational environment. Manufacturing jobs may involve the use of complex machinery and thus some degree of knowledge is needed (Combs *et al.*, 2006). In the case of the steel industry analysed by Arthur (1994), and in other situations of advanced manufacturing, the desire to maximise efficiency and quality while minimizing system downtime, points to the need to generate knowledge from employees (see: Ichniowski *et al.*, 1997). It is likely, therefore, that manufacturing firms that are both capital- and knowledge-intensive would invest in HRM practices that enhance the abilities of employees (e.g., training, staffing) and their role within the company (e.g., employee involvement), depending on the degree of knowledge acquisition required. In addition, practices directly aimed at enhancing the motivation of employees (e.g., variable pay, performance appraisal) are also likely to be implemented in order to make sure that employees use the acquired knowledge in line with the firm's strategic direction (Wright and Snell, 1991). This implies that knowledge-intensity moderates the possibly negative effects of capital-intensity on investment in human capital. The conflicting results for capital-intensity currently reported in the literature, therefore, may be explained by the fact that knowledge-intensity is not considered simultaneously (e.g., Messersmith *et al.*, 2010).

Competition. Although scholars have acknowledged the role that market competition plays in the relationship between HRM and performance (e.g., Bloom and Van Reenen, 2007), empirical attention on the role of competition has been very limited (Kaufman, 2015b). Theoretically, there are two conflicting arguments with regards to the role of market competition. One argument is that the higher the level of competition in the industry, the higher will be the positive effect of HRM on firm performance. Competitive pressures push firms to innovate products and processes, enhance quality and productivity, and improve overall competitive performance. This can be achieved through the implementation of HRM practices as they motivate employees to perform better

(Bloom and Van Reenen, 2007; Ichniowski *et al.*, 1997; Patel and Cardon, 2010). Conversely, Kaufman (2015b), uses an economics-based model to argue that higher competition increases the likelihood of lower profits and bankruptcy, and thus such firms continuously try to be more efficient whilst adopting low-cost measures for the production of goods and services. As a result, Kaufman suggests that firms are likely to implement less HRM practices under competitive conditions.

Due to these conflicting arguments, it is possible that more clarity may emerge if one looks at the effect of the more than one contingency variables together, rather than in isolation as shown above. For example, there is potential interdependence in the effects of knowledge-intensity and competition, with respect to HRM practices. HRM practices help in retaining the best employees and motivate them to perform at their best. This is an important element for highly competitive industries, especially those performing in knowledge-intensive sectors where employees are difficult to substitute due to their unique knowledge (e.g., Arthur, 1994), and therefore the cost of losing an employee is significant (Guthrie, 2001). Given that competition in such firms depends on the knowledge generated, practices that enhance the abilities of employees (e.g., training) ensure that the right competencies are in place, while practices targeted at enhancing employee motivation (e.g., variable pay) ensure that such competencies are utilized in line with the firm's needs (Wright and Snell, 1991). Other practices aimed at involving employees in the firm's strategic decisions may also be relevant in such situations as these practices ensure that employees are given more space to use their knowledge and express their ideas based on their skills (e.g., Youndt *et al.*, 1996). Therefore, the effects of knowledge-intensity may moderate any possible negative effects of high competition on investment in human resources. This implies that the conflicting results for competition currently reported in the literature may be explained by the fact that knowledge-intensity is not considered simultaneously.

There are also potential interaction effects for capital-intensity and competition, with respect to HRM practices. Youndt *et al.* (1996) suggest that, in cases of high level of capital-intensity and competition, firms are likely to implement different HRM practices depending on the type of competition that they are facing. For example, in cases where traditional manufacturing firms are competing to keep costs low, firms are likely to invest in output-based practices such as results-based appraisal and incentive pay. If competition is based on quality, employee skills are important as firms aim to produce a superior

product and, therefore, it is likely that practices aimed at enhancing employee abilities take place to make sure that employees are equipped with the required competencies while motivation-enhancing practices are implemented to encourage employees to use their skills effectively (Wright and Snell, 1991). Alternatively, it could be argued that cost pressures arising from increased competition and investment in fixed assets may discourage such firms to invest in HRM practices, and thus they may keep such practices at a minimum (Kaufman, 2015b). This implies that capital-intensity and competition are likely to have an interdependent effect on the relationship between HRM practices and performance.

The above analysis shows that, by looking at the individual contingency factors, one cannot clearly identify the level and patterns of HRM practices associated with performance. The analysis also highlights the importance of interdependencies between knowledge-intensity, capital-intensity, and competition. These interdependencies, and the contradicting views involved, point towards the fact that by analysing contextual factors in isolation, it is possible to overstate or understate the influence of any one factor on the HRM-performance relation (Purcell, 1999). Therefore, it is important to measure the implications of these contingency factors concurrently. This is likely to enhance the complexity in empirically assessing and interpreting results.

Complexity is exacerbated when taking into consideration that different combinations of contextual factors are likely to require different combinations of HRM practices. As a result of these potential multiple combinations, one cannot exclude the possibility of equifinal solutions, that is, the likelihood that firms operating in identical industry contexts adopt different combinations of HRM practices in reaching high performance. The possibility of equifinality among HRM practices has been discussed in previous literature (Arthur and Boyles, 2007; Boxall, Ang and Bartram, 2011; Delery and Doty, 1996).

In addition, when distinguishing between high and low performing firms to get a more detailed insight of the associations, it makes sense to assume that configurations of HRM practices and contextual factors can exhibit causal asymmetry. This implies that combinations leading to low productivity are not necessarily the exact inverse of those related to high productivity. Assuming symmetric effects places unnecessary, and possibly unrealistic restrictions, on the nature of associations. Evidence in other contexts for 'hygiene effects', whose presence ensures a given outcome but does not improve

performance without limit, suggests that asymmetries are not uncommon (Herzberg *et al.*, 1959). In the next section I propose that a configuration-analytic approach can facilitate the evaluation of such potentially complex causal interactions among HRM practices and contextual factors with respect to firm performance.

2.03.2 A Configurational Approach for Industry Factors, HRM Practices, and Performance

The method used for modelling contingent interrelationships between the firm's external environment, HRM practices, and performance has to be able to cater for potentially complex interrelationships between the variables including the interdependencies, together with the possibility of equifinal outcomes and causal asymmetry. Complex relations cannot be assessed using typical linear econometric methods such as multilevel models as adopted in previous studies (e.g., Youndt *et al.*, 1996). As stated by Fiss (2007) *"a correlational approach has difficulty treating cases as configurations and examining combinations of variables"* (p. 1181).

Linear regression models focus on the impact of a single variable, keeping the other variables in the equation constant. In this study, however, it is important that to accommodate the interdependencies, between HRM practices and the external contingencies when modelling firm performance. Linear regression models are ill-suited to address the theoretical concern presented in this study as they are less adequate in explaining the explicit situation under which a variable is relevant for an outcome (Fiss, 2007). In addition, regression models promote the use of the additive index to calculate the effect of the combined HRM practices. The index fails to provide any information on whether there are complementary or substitutive effects among HRM practices, or whether there are any equifinal outcomes (Delery, 1998; Delery and Doty, 1996; Jackson *et al.*, 2014). Thus, such an approach is unlikely to help in analysing in detail how HRM practices combine in different industry contexts.

One could argue that the limitations imposed by linear regression methods can be mitigated by employing interaction effects, however, such an approach constrains researchers to use three variables. Interactions that exceed three-way effects are deemed difficult to explain when using this method. Even if it were possible to interpret interactions beyond three variables, such methods are unable to provide any potential

evidence of equifinality and causal asymmetry. These methods assume that an interaction is symmetric and applicable under all situations (Fiss, 2007). Excluding the possibility of examining equifinal solutions and causal asymmetry imposes unrealistic constraints and limits the plausibility and utility of the results.

In order to avoid all the limitations associated with regression analysis, in this study I employ a configurational approach. Configurational methods are better at unpacking relations compared to regression methods which tend to look at the overall picture. The configurational method proposed in this study is based on set-theory, using Qualitative Comparative Analysis (QCA). QCA is considered to be the most appropriate method presently available in dealing with complex causal patterns (see: Fiss, 2007, 2011; Schneider and Wagemann, 2010). A number of studies in the field of social science are now using this approach to analyse configurations, proving that it is the most effective approach presently available in dealing with complex causal problems (e.g., Curado, Muñoz-Pascual and Galende, 2018; Ho, Plewa and Lu, 2016; Skarmeas, Saridakis and Leonidou, 2018; Tóth, Thiesbrummel, Henneberg and Naudé, 2015). Yet, to date research has only seen limited application in the field of HRM literature (De Vos and Cambre, 2016; Meuer, 2017). The method is well suited to investigate the relations between contextual factors, HRM practices, and performance as explained below.

As a configurational tool, set-theoretic methods allow for non-linearity and for the simultaneous investigation of synergistic multiple interactions. Nonlinearity implies that variables can be positively related in one configuration, and negatively related or unrelated in another. The synergistic assessment of multiple interactions implies that the combined rather than individual implications of variables are assessed with respect to the outcomes. These two elements combined together allow for a detailed assessment of the interdependent contingent factors and HRM practices. Also, the potential complementary or substitutive relations of different practices under different contingent situations can be assessed (Meuer, 2017). In addition, such methods also cater for equifinality and causal asymmetry. Equifinality shows the potential occurrence of different HRM practices associated with a similar context with respect to an outcome. The analysis of asymmetric relations is also important for the analysis given that in the analysis the study differentiates between high and low productive firms. Through causal asymmetry, such methods acknowledge the fact that the factors that lead to high productivity will not necessarily be the exact inverse of those that lead to low productivity (Fiss, 2007, 2011).

Thus, set-theoretic methods give the possibility to assess complex combinations of different interdependent contingent factors and HRM practices. To this effect, Fiss (2007) states that this attractiveness is based on two main reasons *"First, such methods allow the researcher to examine extensive numbers of different combinations of elements and detect the underlying commonalities of configurations that lead to a certain outcome. Second, set-theoretic methods allow a detailed assessment of causality, enabling the researcher to strip away elements that are not causally involved with the outcome"* (Fiss, 2007, p.1188). In addition, through 'coverage,' set-theoretic methods allow the researcher to assess in detail different configurations. Coverage highlights *"the proportion of instances of the outcome that exhibit a certain causal combination or path"* (Fiss, 2007, p.1188). Coverage is somewhat analogous to an R^2 statistic in that it conveys the extent to which the model (or sub-elements) explains variation in the outcome variable. These criteria give us confidence that interdependent complex issues can be analysed in a robust way.

Finally, set-theoretic methods are important because they allow for detailed inductive reasoning. Set-theoretic methods allow for the analysis of sufficient and necessary conditions, which give researchers the possibility to assess the outcomes in detail through a causal logic way (Longest and Vaisey, 2008). Necessary conditions are super-set conditions which appear in all combinations leading to an outcome. A sufficient condition is one where the cause is relevant in producing an outcome, but it is not the only cause (Ragin, 2000). Allied to the possibility of investigating the complex interrelationships between HRM practices, external contingencies, and firm performance, being able to distinguish between necessary and sufficiency conditions is important because such conditions lead to a causal logic that enables us to conduct deep inductive investigations. To this effect, Fiss (2007) states that *"since necessity and sufficiency are two of the basic building blocks of causal relationships, by incorporating them into theory building presents a step toward building theories that can account for complex causal relationships"* (p. 1190).

Set-theoretic methods conceptualise firm-related variables as cases, which form part of pre-defined sets. In the study, each firm will have a membership score for each of the contingent and HRM factors. Therefore, each firm is part of different sets, which form a configuration of interrelated elements that are aligned toward reaching a particular objective. There are two main ways to set up the cases in QCA, crisp-sets and fuzzy-sets. Crisp-sets simply explain whether a variable is "in" or "out" of the set, through the use of

binary values. Fuzzy-sets allow the researcher to apply ordinal and continuous variables (Fiss, 2011; Ragin, 2000, 2006a; Ragin and Pennings, 2005; Schneider and Wagemann, 2012). Thus, fuzzy-sets are likely to lead to a more nuanced analysis through the quantification of the degree to which a variable is a member of the set (De Vos and Cambre, 2016; Fiss, Cambré and Marx, 2013). This implies that fuzzy-sets can include variables that have partial membership (Smithson and Verkuilen, 2006).

Therefore, as a result of the criteria outlined in this section, it can be argued that set-theoretic methods involving fuzzy-set analysis is more consistent with the nature of the phenomenon of interest: configurations of HRM practices and the industry context, which are nearly all continuous in nature, and which interact in complex ways. Such complexity tends to be lost in more traditional linear approaches which presently dominate contingency theory in SHRM literature. To this effect, in the following sections, I proceed by applying fuzzy-set analysis to examine the relationship between contextual factors, HRM practices and firm outcomes. The outcomes of this analysis are discussed in detail in the discussion section.

2.04 Method and Analysis

2.04.1 Sample and Data Collection

I have based the study on a sample of 261 manufacturing small and medium-sized enterprises (SMEs), based in the United Kingdom (UK). The sample was attained after removing cases that had less than 20 employees (57 observations) and missing data, through list-wise deletion (134 observations). The sample size is sufficient to provide robust results with regards to the configurations involving contextual factors and HRM systems (Fiss, 2011). SMEs are firms which employ less than 250 employees, have an annual turnover of not more than 50 million euro (EUR), and/or an annual balance sheet total of not more than EUR 43 million (Commission, 2003). The size of the firms in the sample ranges from 20 to 249 employees. The focus on SMEs has a practical importance. SMEs generate the majority of economic activity in the European Union (EU) (Commission, 2014) and the United States of America (USA) (Grover and Suominen, 2014), representing more than 99% of the total enterprises. This implies that the potential stylized facts attained through such studies are likely to represent an important source of knowledge for policy-makers.

The choice of the manufacturing sector is based on the fact that the sector involves variations in all three contextual variables of interest, unlike other sectors that might be low on capital-intensity in particular such as service-based firms. Firms with multi-site units with a total of more than 249 employees have been excluded together with subsidiaries of larger firms. Survey respondents were the senior managers of these manufacturing companies.

Questionnaire responses were collected through telephone surveys and merged with data from the Interdepartmental Business Register (IDBR) compiled by the Government of the United Kingdom (U.K.). Additional data regarding industry concentration was obtained from the U.K. National Statistics Office (Mahajan, 2007).

Next, I describe the measures of the variables and the calibration process which enables the use of fuzzy-set analysis.

2.04.2 Measures

The measures used for the empirical analysis are highlighted in this section. As previously indicated, the analysis will assess configurations of HRM practices and contextual factors (knowledge-intensity, capital-intensity, and competition) with respect to firm outcomes. The outcome in this study is labour productivity. An explanation of these measures is provided hereunder.

Labour Productivity. Labour productivity refers to how much output is derived per unit of human capital input. It is measured by dividing total output (turnover) by human capital inputs (number of employees). The higher the output per employee, the more efficient and productive a firm is. Productivity on its own may not always guarantee financial performance, particularly in the long-term. However, it is one of the most important elements for enhanced performance (Guthrie, 2001). In fact, productivity has been widely used in SHRM literature as a dependent variable (e.g., Combs *et al.*, 2006; Ichniowski and Shaw, 1999; Koch and McGrath, 1996; Patel *et al.*, 2010). Given its non-normal distributional properties, in line with previous research, the logarithm of productivity is used (e.g., Guthrie, 2001; Huselid, 1995; Patel and Conklin, 2012; Iverson and Zatzick, 2011). The "low" productivity is analysed using the inverse of this measure.

Knowledge-intensity. Knowledge-intensive (high-tech) manufacturing industries have been operationalised based on the work of Bakhshi *et al.* (2015), who

defined them as *"industries which have a STEM (Science, Technology, Engineering, and Mathematics) occupation intensity in excess of a threshold of 15 per cent, subject to passing the 4,000 employment robustness test (in our baseline classification)"* (p. 74). The classification of high-tech manufacturing industries classified by the authors is based on the Eurostat and the Organisation for Economic Co-operation and Development (OECD) classification. High-tech manufacturing industries have been identified by Standard Industrial Classification (SIC) code, enabling the data categorisation. Firms operating in high-tech industries have been coded one (1). Firms not operating in high-tech industries were coded zero (0).

Capital-intensity. Capital-intensity refers to the extent of capital employed per unit of production. It is measured using the assets to sales ratio, in line with previous research (e.g., Berman, Wicks, Kotha and Jones, 1999; Chari, Devaraj and David, 2008; Harris, 1988, 1994; Lecraw, 1984; Miller and Bromiley, 1990; O'brien, 2003). Given its non-normal distributional properties, in line with previous research, the logarithm of capital-intensity was used (e.g., Huselid *et al.*, 1997). Figures related to the measure were collected through secondary data.

Competition. Competition involves the concentration of market share. Following prior work (e.g., Karuna, 2007; Sakakibara, 2002; Huselid *et al.*, 1997) competition is indicated by the concentration ratio, defined as the ratio of the sum of gross value added for the largest 5% of businesses in the industry to the total gross value added for the industry. The concentration ratios by industry have been compiled from a document published by the National Statistics Office titled *"United Kingdom Input-Output Analyses"* (Mahajan, 2007). When the concentration ratio is low, competition is high, and *vice versa*.

Human Resource Management (HRM) Practices. The questions asked in relation to these practices have been adapted from Messersmith and Guthrie (2010) based on the work of Guthrie (2001) and Huselid (1995) (Appendix B, Table B.1). These are two widely acknowledged studies in the field of HRM and the measures developed in these studies have been used in other important studies (e.g., Datta *et al.*, 2005). The practices involved in this study include training, staffing, variable pay, performance appraisal, and employee involvement. The choice of variables is based on the fact that the practices cover the widely used categorisation of ability-, motivation-, and opportunity-enhancing practices developed by Appelbaum *et al.* (2000), whereby training and staffing are related

to ability-enhancing practices, variable pay and appraisal are related to motivation-enhancing practices, and employee involvement is related to opportunity-enhancing practices.

2.04.3 Calibrations

All measures, whether they are continuous or ordinal have to be calibrated and take on a value from 0 to 1, in order to conduct an analysis using fuzzy-sets. Based on theoretical knowledge and/or the statistical distribution of the sample, it is necessary to determine the value for full-membership, non-membership, and the cross-over point (neither in nor out) (Campbell, Sirmon and Schijven, 2016; Ragin, 2000, 2006a; Schneider and Wagemann, 2012). This is known as the direct method of calibrations, in contrast to the indirect method which uses regression techniques to estimate the fuzzy relations. Given that either method yields precise calibrations, for the purpose of the study the direct method has been adopted given that it is the method which has been mostly used in social sciences literature. To this effect, the fuzzy scores are calculated through the following formula (Ragin, 2008a):

$$Degree\ of\ membership = \frac{e^{\log\left(\frac{p}{1-p}\right)}}{1-e^{\log\left(\frac{p}{1-p}\right)}} \qquad \text{(Equation 2.1)}$$

Therefore, the degree of membership in a set is the exponential log odds divided by unity plus the exponential log odds. The rescaled measures range from 0 to 1 and are tied to their respective membership thresholds and crossover points.

The calibrations (Table 2.1) for this study are based on the statistical distributions integrated with theoretical and substantive knowledge linked to the measures. That is, after examining the distribution of the data, the meaning of the construct has been considered in order to determine what should be considered as high (score of 1), low (score of 0), and cross-over (score of 0.5). This approach has been recommended in literature (Campbell *et al.*, 2016; Schneider and Wagemann, 2012). Table 2.1 shows the descriptive statistics (maximum, mean, minimum, standard deviation) and the calibration values for each variable. It is important to note that knowledge-intensity values did not need any calibration process as they involve binary values. Before confirming the calibrations, different options have been analysed using variations in calibrations for each variable in order to ensure that the solutions are robust.

Table 2. 1: Descriptive Statistics and Calibrations

Variable	Statistical Distributions				Calibration		
	Max.	**Mean**	**Min.**	**Std. Dev.**	**Full-Membership**	**Cross-Over**	**Non-Membership**
Labour Productivity (log)	2.665	1.886	0.642	0.254	2.3	1.7	1
Capital-Intensity (log)	1.282	-0.625	-2.638	0.575	0.6	-0.7	-1.9
Competition	81	19.192	4	16.378	47	13.8	4
Training	100	43.556	0	30.684	100	53	0
Performance Appraisal	100	58.874	0	43.317	100	50	0
Staffing	100	42.130	0	35.623	100	46.8	0
Variable Pay	100	24.551	0	37.856	100	25.6	0
Involvement	100	38.519	0	34.702	100	37.7	0

2.04.4 Data Analysis

The first part of the analysis includes traditional linear regression modelling using the Ordinary Least Squares method with the Statistical Package for the Social Sciences (SPSS). The aim behind this exercise is to show whether the current dominant approach in HRM literature has been obscuring the role of HRM systems in high performing firms. This is followed by the main analyses for this study involving configurations where fuzzy-set Qualitative Comparative Analysis (fsQCA) 2.0 is used (Ragin, 2006b). After all measures are calibrated, the analysis proceeds with the sufficiency analysis and the necessity analysis, described below (Schneider and Wagemann, 2012). These two forms of analysis have been conducted for both high and low productivity outcomes.

The sufficiency analysis involves the analysis of sufficient conditions whereby a cause may be relevant in producing an outcome, but it is not the only cause (Ragin, 2000). This analysis involves various steps. First, the development of a truth table which is a tabular illustration of the sufficient causal combinations. Each row of the matrix shows a specific combination of attributes. The truth table is constructed with 2^k rows, where k is the number of causal conditions used in the analysis (in total seven). Second, the analysis of the subset relations. Given that fuzzy-sets range between 0 and 1, the analysis of the extent of membership of a set is not a straightforward conditional probability as in the case of crisp-set analysis. Instead of conditional probability, the consistency value is assessed. Consistency measures show the extent to which the individual or overall

solution differs from being a perfect subset of the outcome, that is, it shows how consistent the solution is in leading to the outcome (Ragin, 2000, 2006a). For example, if consistency is 90% it implies that there is a 90% probability that the solution leads to the outcome. Low consistency implies that a configuration is minimally related to the outcome, while a high consistency implies that the configuration almost always leads to the outcome. The consistency coefficient is estimated using:

$$I_{XY} = \sum \min(x_i, y_i) \,/\, \sum x_i \qquad \text{(Equation 2.2)}$$

Where x_i stands for each case's membership in the configuration *X* and y_i stands for each case's membership in the set *Y* (Ragin, 2006). The minimum recommended consistency threshold is 75% (Ragin, 2000, 2008b).

Third, logically reducing the matrix rows to simplified combinations. This involves implementation of Quine-McCluskey algorithm whereby Boolean algebra is employed (Ragin, 2008a). Every solution can be assessed through its coverage. Coverage is a measure showing empirical importance, indicating the extent by which the outcome is explained by a causal condition, it is synonymous to the R^2 in linear regression (Fiss, 2007). Coverage is computed as follows:

$$C_{XY} = \sum \min(x_i, y_i) \,/\, \sum y_i \qquad \text{(Equation 2.3)}$$

Fourth, based on the fact that the study involves an inductive approach, the complex solution is assessed. This is the minimal solution derived without any logical remainders (i.e. counterfactual analysis - configurations not actually observed - is excluded). Unless there is a theoretical justification that supports the use of logical remainders, the complex solution is deemed to be the best solution (Cooper and Glaesser, 2011). Through the availability of a large sample, in the next section I highlight a number of possible configurations within a complex solution.

Fifth, the assessment of causal conditions. The analysis involves 7 conditions, resulting in 128 (2^7) potential combinations. The frequency threshold set was 1 for both high and low performing outcomes, that is, results include at least one case per configuration, allowing the analysis to perform on 99% of the total sample for both outcomes, exceeding the 80% threshold (Ragin, 2008a; Rihoux and Ragin, 2009). The consistency cut-off value was set at 0.992 for high performing outcomes and 0.891 for

low performing outcomes, higher than the 0.750 threshold (Campbell *et al.*, 2016). The different cut-off points are due to the fact that these are two separate analyses, based on different outcomes.

It is important to note that in order to ensure a better interpretation for the inductive approach, it is essential to keep the number of variables as low as possible as otherwise the interpretation of the outcome of the truth table will be very complex. Therefore, using different case combinations, I ran the model various times in order to find the most parsimonious combination, whilst ensuring that the chosen combination is robust through a high level of consistency. In doing so, I sought to reduce the number of variables by running the model with the contextual factors but different HRM combinations based on their substitutive or complementary nature, using fuzzyor (maximum fuzzy-score of two or more sets) and fuzzyand (minimum fuzzy-score of two or more sets), respectively. The variables have been treated in the same way whereby all possible logical substitutes and complements were considered. I then used fsQCA to run different variable combinations (21 different combinations as illustrated in the Appendix B, Table B.2) to identify the best solution possible, by examining each truth table. The chosen combination (that is, the combination with the lowest possible variables and highest level of consistency) comprises of 4 variables representing ability-, motivation-, and opportunity-enhancing HRM practices, as categorised by Appelbaum *et al.* (2000). Ability-enhancing practices are reflected through a variable comprised of the substitution for training and staffing. Staffing and training have the same aim, that is, to ensure the right skills are engaged within a company. Given that small firms have limited resources, they are likely to choose between these variables. To this effect, it is likely that when knowledge-intensity is low, jobs can be easily defined and staffing practices are likely to be applied, whilst when knowledge-intensity is high, it is difficult to define job characteristics and therefore firms opt for training as a skill-enhancing practice (Snell, Lepak, Dean Jr and Youndt, 2000). Motivation-enhancing practices involve performance appraisal practices, and variable pay practices. Opportunity-enhancing practices include involvement practices. Furthermore, as described in the calibration section, in order to continue to ensure that the chosen model is robust, I ran the chosen model using different calibrations for each variable and there was no real change in the end result, meaning the model is robust.

Following these steps, the measures are then checked in terms of necessity. Necessary conditions are super-set conditions which appear in all combinations leading to an

outcome (Ragin, 2000). That is, the specific condition alone can lead to the outcome. The analysis tests whether the presence (or absence) of specific HRM practices and contextual factors are always present (necessary) for either high productivity or low productivity. Under this process, all options have to be reviewed in order to assess in what ways the variables become necessary to the output (Fiss, 2007). For a condition to be called necessary, there has to be a consistency of at least 0.9 (Equation 2.2), and a coverage of at least 0.8 (Equation 2.3) (Ragin, 2006a).

2.05 Results

Before examining the results of the fsQCA, a simple linear regression is conducted to ensure our data is consistent with previous studies in terms of the HRM-performance relation. Table 2.2 shows the descriptive statistics including the means, standard deviations (Std. Dev.) of the variables used in the linear regression, together with the zero-order correlations. The regression results in Table 2.3 show the log of productivity as the dependent variable, and an index of HRM practices created from the average value of all practices (Appendix B, Table B.1). The model was run with control variables only (employment, firm age and sales growth), before including the HRM variable. Results show that HRM is significantly related to productivity (β=.13, ρ<.05); adjusted $R^{2=}$ .039, ρ<.05). This result is consistent with previous findings (e.g., Huselid, 1995).

Table 2. 2: Means and Correlation Coefficients

Variable	Mean	Std.Dev.	1	2	3	4
1. Productivity[a]	1.886	0.254				
2. Employment[b]	1.689	0.252	0.126*			
3. Firm age[c]	3.143	0.601	0.064	-0.001		
4. Sales growth	1.428	4.012	-0.066	0.013	-0.131*	
5. HRM	41.457	22.000	0.12*	0.071	-0.039	0.166**

N=261;**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed);
[a]Natural logarithm of productivity; [b]Natural logarithm of employment; [c]Natural logarithm of firm growth.

Table 2. 3: The Linear Regression Analysis

Variable	
Employment	0.118
Firm age	0.059
Sales growth	-0.081
HRM	0.127**
Adjusted R^2	0.024
F-Value	2.607**
Change in R^2	0.039
F-Value for change in R^2	3.172**

*p<0.01;**p<0.05;+p<0.1.

In essence, the above analysis demonstrates the limitations of using an additive-based method. This form of analysis fails to show whether there is complementarity between practices in reaching the outcome. It also fails to provide potential equifinal solutions. It would be interesting to assess the combinations that are effective in different situations. Regression analysis also has limitations when it comes to analysing higher-order interactions and, therefore, such questions are answered through fsQCA, which provides a more refined insight of the connection between HRM practices and productivity (Fiss, 2011). To this effect, the rest of this section is divided in two parts consistent with other presentations of Qualitative Comparative Analysis (QCA) results (Schneider and Wagemann, 2010). Table 2.4 summarizes the descriptive statistics and correlations, for the uncalibrated values of the variables examined in the remaining analysis.

Table 2. 4: Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Productivity (log)	1.886	0.254								
2. KI[a]	0.096	0.295	0.105							
3. CI[b]	-0.625	0.575	-0.047	0.100						
4. Competition	19.192	16.378	-0.026	0.034	-0.074					
5. Training	43.556	30.684	0.008	-0.013	-0.080	-0.088				
6. Appraisal	58.874	43.317	0.090	0.069	0.025	-0.054	0.279**			
7. Staffing	42.130	35.623	0.134*	-0.060	-0.059	0.002	0.205**	0.329		
8. Variable Pay	24.551	37.856	0.088	0.125*	-0.070	-0.021	0.136*	0.046	0.108**	
9. Involvement	38.519	34.702	0.054	0.096	-0.020	0.036	0.265**	0.257**	0.231**	0.274**

Notes: The descriptive statistics and correlations as based on uncalibrated measures. [a]KI=Knowledge-Intensity; [b]CI=Natural Logarithm of Capital-Intensity. *Correlation is significant at the 0.05 level. ** Correlation is significant at the 0.01 level.

2.05.1 Necessity Conditions Results

Table 2.5 shows the necessity analysis with the calibrated measures, for high and low (~) productivity (log) outcomes. Consistency values show the degree to which the causal conditions are present in cases with high productivity. When the consistency value is 1, it implies that the causal condition is present in all cases of a given outcome. As specified by Ragin (2006a), a condition is necessary if the consistency and coverage are at least 0.9 and 0.8 respectively. Given that none of the conditions tested meet the criteria for consistency and coverage, as shown in Table 2.5, the analysis proceeds to the examination of the sufficiency solutions.

Table 2. 5: Necessity Analysis

	High Productivity		**Low Productivity**	
Condition tested	*Consistency*	*Coverage*	*Consistency*	*Coverage*
High Capital-Intensity	0.69	0.87	0.83	0.49
Low Capital-Intensity	0.59	0.88	0.78	0.54
High Knowledge-Intensity	0.10	0.75	0.08	0.25
Low Knowledge-Intensity	0.89	0.68	0.92	0.32
High Competition	0.65	0.83	0.75	0.45
Low Competition	0.57	0.84	0.74	0.5
High Performance Appraisal	0.64	0.76	0.66	0.37
Low Performance Appraisal	0.46	0.74	0.58	0.44
High Variable Pay	0.36	0.82	0.42	0.44
Low Variable Pay	0.75	0.74	0.83	0.38
High Involvement	0.53	0.83	0.61	0.44
Low Involvement	0.65	0.78	0.78	0.43
High Skill-development	0.70	0.81	0.79	0.43
Low Skill-development	0.51	0.84	0.66	0.51

2.05.2 Sufficiency Conditions Results

Table 2. 6: Configurations of Contextual Factors and HRM Practices with respect to High and Low Performance in Manufacturing Firms

	High Performance (Productivity)									**Low Performance (Productivity)**				
Label	*Labour-Intensive Manufacturing Firms*		*Traditional Manufacturing Firms*			*Knowledge-Intensive (High-Tech) Manufacturing Firms*				*Labour-Intensive Manufacturing Firms*		*Traditional Manufacturing Firms*		*Knowledge-Intensive (High-Tech) Manufacturing Firms*
Permutation	1	2	3a	3b	4	5	6	7	8	9	10	11	12	13
Context														
Knowledge-Intensity	⊗	⊗	⊗	⊗		●	●	●	●	⊗	⊗	⊗	⊗	●
Capital-Intensity	⊗	⊗	●	●	●	⊗	⊗	●	●	⊗	⊗	●	●	●
Competition	●	⊗	●	●	⊗	⊗	●	⊗	●	●	⊗	⊗	●	⊗
HRM Practices														
Performance Appraisal (M)	⊗	⊗		⊗	⊗	●	⊗	●	●	⊗	⊗	●	●	⊗
Variable Pay (M)	●	●	●	●	●		●	⊗	●	●	●	●	●	⊗
Involvement (O)		●	●		●	●	⊗	●	⊗		⊗	●	⊗	●
Training/Staffing (A)	⊗		⊗	●	⊗	●	●	⊗	●	⊗		⊗	⊗	●
Consistency	0.993	0.971	0.998	0.995	0.998	0.998	0.998	0.998	0.997	0.858	0.874	0.893	0.939	0.971
Raw Coverage	0.105	0.097	0.108	0.112	0.103	0.03	0.011	0.0118	0.015	0.195	0.195	0.169	0.170	0.024
Unique Coverage	0.012	0.007	0.021	0.016	0.008	0.015	0.003	0.004	0.002	0.016	0.015	0.012	0.011	0.024
Overall Solution Consistency	**0.995**									**0.817**				
Overall Solution Coverage	**0.214**									**0.275**				

N*otes:* Black circles ("●") indicate that the presence of the condition is high, and open circles ("⊗") indicate that the presence of the condition is low. Blank spaces indicate irrelevance of the condition to the solution. O is Opportunity-enhancing practices; A is Ability-enhancing practices; M is Motivation-enhancing practices.

Table 2.6 illustrates the solutions for those firms in the sample defined as exhibiting high and low productivity. Following Fiss (2011), notations for the symbols in the Table are as follows - "●" illustrates the high presence of a condition, and "⊗" illustrates the low presence. In addition, the blank spaces show the specific condition is not causally related to the outcome. The analysis shows nine configurations for high productivity and five configurations for low productivity. The solutions for high productivity highlighted in Table 2.6 are especially relevant because they cover all possible combinations of the three contextual variables.

The sufficiency analysis provides measures of consistency and coverage. The results reported below exceed the consistency criterion as our overall solution consistency stands at 99% for high performing firms and 82% for low performing firms. This implies that it is highly likely that each of the configurations outlined in the next section lead to the outcome specified (Campbell, Sirmon and Schijven, 2013).

In contrast to the necessity analysis, coverage under this analysis can be either raw or unique. Raw coverage shows the proportion of cases in the outcome that are "fully in" the present conditions of a particular solution, while unique coverage show the proportion of cases in the outcomes that are only covered by a particular solution (memberships that are not covered by other solution terms) (Schneider *et al*., 2012). Both raw and unique coverage are calculated through Equation 2.3.

All solutions, including the overall solution, exhibit acceptable consistency levels (Ragin, 2006b) with perfect consistency being 1. The levels of coverage are somewhat low. The number of cases per configuration for highly productive firms range from 1 to 5, and in low productive firms they range from 1 to 3. However, this does not limit us from proceeding with our analysis. The levels of coverage are not necessarily associated with empirical importance, similar to the R^2 in linear regression (Ragin, 2006b). In linear regression, the coefficient of variables can be statistically significant, but the model can have a low R^2. This reasoning is especially true when theoretical advancement is the aim of the study, *"a given path may be relatively rare from an empirical standpoint (i.e., have low unique coverage), yet still advance theory"* (Campbell *et al*., 2013; p. 174). Theoretical advancement is important when one looks at different combinations linked to an outcome and extract general patterns (Skarmeas, Saridakis and Leonidou, 2018).

The solutions illustrate different paths of achieving high and low performance, in terms of productivity, in the manufacturing sector. Results for both high and low labour productivity show three types of manufacturing firms - labour-intensive, traditional, and knowledge-intensive (high-tech) manufacturing firms. Labour-intensive manufacturing firms involve low knowledge- and capital-intensity. Given the low level of knowledge and the absence of complex machinery involved, production is likely to be dependent on low-skilled employees working on a piece-rate system with products that are highly imitable. Traditional manufacturing firms involve high levels of capital-intensity (e.g., machinery) which need little or no investment in knowledge within the company. Knowledge-intensive manufacturing firms are firms which produce products based on knowledge-intensity, using highly-skilled employees. The results are explained in Table 2.7.

Table 2. 7: Description of the Configurations

Productivity Level	Manufacturing Category	Generic Context	Configuration	Description
High Productivity	**Labour-Intensive Manufacturing Firms**	*Low capital- and knowledge -intensity*	Configuration 1	When competition is high, extensive development of variable pay is sufficient for high productivity.
			Configuration 2	When competition is low, extensive development of variable pay and involvement is sufficient for high productivity.
	Traditional Manufacturing Firms	*High capital-intensity; Low knowledge -intensity*	Configuration 3a	When competition is high, extensive development of variable pay and involvement is sufficient for high productivity.
			Configuration 3b	When competition is high, extensive development of variable pay and staffing/training is

				sufficient for high productivity.
			Configuration 4	When competition is low, extensive development of variable pay and involvement is sufficient for high productivity.
	Knowledge-Intensive (High-Tech) Manufacturing Firms	*High knowledge -intensity*	Configuration 5	When capital-intensity and competition are low, extensive development of performance appraisal, involvement, and training/staffing is sufficient for high productivity.
			Configuration 6	When capital-intensity is low and competition is high, extensive development of variable pay and training/staffing is sufficient for high productivity.
			Configuration 7	When capital-intensity is high and competition is low, extensive development of performance appraisal and involvement is sufficient for high productivity.
			Configuration 8	When capital-intensity and competition are high, extensive development of variable pay, performance appraisal, and training/staffing is sufficient for high productivity.
Low Productivity	**Labour-Intensive Manufacturing Firms**	*Low capital- and*	Configuration 9	When competition is high, extensive development of variable pay is

		knowledge -intensity		sufficient for low productivity.
			Configuration 10	When competition is low, extensive development of variable pay is sufficient for low productivity.
	Traditional Manufacturing Firms	*High capital-intensity; Low knowledge -intensity*	Configuration 11	When competition is low, extensive development of performance appraisal, variable pay, and involvement is sufficient for low productivity.
			Configuration 12	When competition is high, extensive development of variable pay and performance appraisal is sufficient for low productivity.
	Knowledge-Intensive (High-Tech) Manufacturing Firms	*High knowledge -intensity*	Configuration 13	When capital-intensity is high and competition is low, extensive development of involvement, and staffing/training is sufficient for low productivity.

To examine the robustness of the fsQCA outcomes, further analysis was conducted by varying the calibrations of the variables. The results are robust toward these changes, and the interpretation of the findings remained unchanged.

The descriptions of the results in the above table show that there are diverse configurations of HRM practices that appear to vary systematically in association with different environmental configurations, to achieve high productivity in the manufacturing sector. Furthermore, the configurations show clear signs of complex causal relations based on nonlinearity, equifinality, multifinality, and causal asymmetry.

Relationships among the individual conditions vary from one configuration to another, showing clear evidence on nonlinearity. In one case, alternative configurations

of HRM practices are present for high productivity firms under the same environmental configuration (3a and 3b). This offers clear evidence of equifinality – different combinations of HRM practices may be associated with high productivity under similar external conditions. In line with equifinality, the sufficiency analysis shows signs of multifinality, that is, similar configurations associated with different outcomes (configurations 1 and 9). The results also demonstrate clearly that the configurations associated with low productivity are not simply the inverse of those that lead to high productivity. In some cases, it appears that adding more HRM practices is associated with lower, rather than higher, productivity in some instances, indicating complex patterns and causal asymmetry. These complex relations are further examined and interpreted against theoretical expectations in the next section.

2.06 Discussion

This study is motivated by the fact that SHRM research is still not clear on how HRM and performance are connected. The universalistic approach has received consistent empirical support, encouraged by the use of regression-based techniques. The fact that the universalistic approach dominates is perplexing given that much theory points to the importance of contingency in modelling the effect of HRM practices on performance.

As a result, in order to address these limitations, I implement configurational analysis which allows a thorough empirical analysis of complex associations between contingency factors, HRM practices, and firm performance. A large sample is used, which enables the implementation of the fsQCA inductive method. The results of the configurational analysis show that different contextual combinations are associated with different combinations of HRM practices in high and low performing firms. These configurations show clear evidence for nonlinearity, equifinality, multifinality, and causal asymmetry. Together, these results provide support for arguments of complex causal relations between the contextual factors, HRM practices and productivity.

Equifinal HRM patterns are shown through configurations 3a and 3b, whereby different HRM configurations are associated with a similar context (low knowledge-intensity, high capital-intensity, and high competition) and outcome. Both configurations involve motivation-enhancing practices through variable pay. Such practices are coupled

with opportunity-enhancing practices in configuration 3a, and ability-enhancing practices in configuration 3b. This is likely to reflect alternative strategies used to attain high productivity within similar contexts. These findings are in line with various other studies which have suggested that the implementation of HRM practices is likely to involve equifinality (e.g., De Vos *et al*., 2016; Meuer, 2017; Sgobbi and Cainarca, 2015).

Multifinality is shown in configurations 1 and 9. The two identical configurations are associated with high and low productivity. This may imply that motivation-enhancing practices alone, or at least variable pay alone, are not sufficient to enhance productivity. This is consistent with findings which show that low HRM levels are unlikely to lead to enhanced firm outcomes (Becker and Huselid, 2006). However, the observation of multifinality also indicates that the implementation of variable pay does not explain differential performance in labour-intensive manufacturing firms.

Causal asymmetry is observed when comparing high and low productivity outcomes. Results show that HRM practices in low performing firms are not the exact inverse of HRM practices in high performing firms, when comparing similar situations. Three patterns emerge when comparing similar contexts in high and low productive firms. First, when comparing configurations 4 and 11, it could be deduced that low productivity may be a result of over-investment in the adoption of HRM practices. Over-investment in HRM practices may lead to increased costs (monetary and time element) associated with the implementation of management practices, which could deter productivity. Second, when comparing configurations 2 and 10, it seems that low productivity firms may also be a result of under-investment in the adoption of HRM practices. Lack of investment in practices may lead to dissatisfaction at work, lower commitment, and absenteeism which in turn may lead to lower productivity (Boselie, 2010; Boxall and Macky, 2009; Cox, Zagelmeyer and Marchington, 2006; Guthrie, 2001). Third, low productivity may be a result of investment in the wrong profile of practices compared to high productivity firms (configurations 3a,3b and 12; configurations 7 and 13). These patterns imply that not all HRM configurations are equally good in terms of productivity (e.g., Bloom, Genakos, Sadun and Van Reenen, 2012) and, equally, more HRM is not always better.

Based on these observations, it can be deduced that complex causal associations imply that the relationship between these factors is likely to be more nuanced than 'more

is better' irrespective of the situation, promoted under the universalistic view. Firms associated with high productivity are likely to implement a diverse constellation of configurations, based on motivation- and ability- and/or opportunity-enhancing practices. Results clearly show that firms do not need to adopt ability-, motivation-, and opportunity-enhancing practices altogether in order to achieve high productivity. Such findings are in line with research which shows that, in reality, different firms are likely to adopt different management practices (e.g., Arthur, 1994).

Sustaining these arguments is the presence of causal asymmetry. A universalistic argument means that the adoption of a broad range of HRM practices is associated with high productivity, and low adoption of HRM practices is associated with low productivity. In contrast, the results of this study show that levels of HRM practices in low performing firms can be the same in similar situations (e.g., configurations 7 and 13 where knowledge-intensity and capital-intensity are high and competition is low), or even higher (e.g., 4 and 11 where capital-intensity is high and competition is low) than in high-performing firms. This is consistent with the argument that the strong empirical support for a universalist perspective may in fact be the result of methodological artefacts. To this effect, Becker, Huselid, Pickus and Spratt (1997) note that organisational HRM systems *"are highly idiosyncratic and must be carefully tailored to each firm's individual situation to achieve optimum results"* (p. 2).

Moreover, the complex causal associations that emerge from the sufficiency analysis sustain the suggestion put forth in the present paper – complex causal associations are obscured if an HRM index is assumed. For example, if one looks at configurations 7 and 13, it can be noticed that both configurations operate in a similar context, however the HRM practices associated with the two configurations are different. The HRM practices in configuration 7 are associated with high productivity, whilst those in configuration 13 are associated with low productivity. This implies that some combinations are likely to be more crucial than others to attain high productivity in certain contexts.

Overall, the configurations for high-performing firms show that at least one of the motivation-enhancing practices is present under all contextual situations. Such practices are co-present with opportunity-enhancing practices and/or ability-enhancing practices (except for the special case of configuration 1). The importance of combined (rather than

individual) HRM practices is sustained through the necessity analysis. This analysis shows that no condition on its own, whether it is a contextual factor or HRM practice, is necessary under high and low productivity. The outcome supports previous studies which state that HRM practices are more effective when combined in systems, rather than individually (Combs, Liu, Hall and Ketchen, 2006; Huselid, 1995). Based on the outcomes of the necessary analysis, a similar logic can be extended to the individual contingency factors. Different combined contextual factors are likely to be associated with different configurations of HRM practices. Still, even when the contextual factors are assessed in isolation, the analysis shows that the role of HRM practices in firms is more nuanced than 'more is better' irrespective of the situation, promoted under the universalistic perspective.

To this effect, in the next section I analyse in detail patterns of HRM practices with respect to the individual industry-related contextual factors in order to understand better why and how the universalistic approach is unlikely to provide clear outcomes. This is followed by an analysis of how patterns of motivation-, ability-, and opportunity-enhancing practices occur across different contexts. The analysis continues to show that the effectiveness of HRM practices in firms is more nuanced than that proposed under the universalistic perspective.

2.06.1 Industry-Related Contingency Factors and the Presence of HRM Practices

Through this section, I provide an analysis of the HRM patterns that emerge through the individual industry-related contextual factors. This will shed light on the complexity involved in the adoption of management practices, even when assessing these factors in isolation.

Knowledge-intensity. When comparing configurations involving high and low levels of knowledge-intensity in highly productive firms, the sufficiency solution shows that the highest levels of HRM practices implemented are present when knowledge-intensity is high (configurations 5 and 8). All highly productive firms with a low level of knowledge-intensity (labour-intensive manufacturing firms and traditional manufacturing firms) have a maximum of two practices (configurations 1 to 4), unlike highly productive knowledge-intensive firms which have a maximum of three HRM practices (configurations 5 and 8). It should also be noted that, unlike low knowledge-

intensive firms, high knowledge-intensive firms that are highly productive are more likely to adopt all categories of ability-, motivation-, and opportunity-enhancing practices concurrently (configuration 5). These findings are consistent with previous studies which show that such practices lead to enhanced performance in these specific industry contexts (Collins and Clark, 2003; Collins and Smith, 2006).

This outcome is supported by the fact that, in cases where knowledge-intensity is low and a high level of HRM practices is implemented, firms are likely to have low productivity due to the consequences of overinvestment in HRM practices discussed previously (configuration 11).

Capital-Intensity. As discussed in the previous section, different studies highlight two conflicting outcomes in relation to the adoption and influence of HRM practices in capital-intensive firms. On the one hand, some studies suggest HRM practices are likely to hinder performance in capital-intensive firms. This is mainly due to the high fixed costs capital-intensive firms are likely to have, combined with specific strategic paths they tend to adopt based on low-road strategies (e.g., Datta *et al.*, 2005). On the other hand, other studies suggest that HRM practices are likely to enhance performance in capital-intensive firms through improvements of human capital which is also important for such firms to be able to compete (e.g., Arthur, 1994).

The configurations for high productivity show that the presence of capital-intensity is likely to be associated with the enhanced implementation of HRM practices, in cases where competition is high. For example, when comparing configurations 1 with 3a and 3b, and configurations 6 with 8, it seems that in the presence of high competition, highly productive capital-intensive firms are likely to adopt a higher level of HRM practices, compared to situations of low capital-intensity. This outcome is in line with the labour economic-based argument that investments in physical and human capital complement one another in attaining high levels of productivity (e.g., Ichniowski *et al.*, 1997).

However, the patterns for high productivity also show that when competition levels are low, the presence of capital-intensity is unlikely to be associated with the enhanced implementation of HRM practices. For example, when comparing configurations 2 and 4, one could infer that the level of capital-intensity is unlikely to influence the level of HRM practices adopted. In addition, when comparing configurations 5 and 7, it could be deduced that capital-intensity is likely to reduce the level of HRM practices adopted. The

latter result supports arguments that the presence of capital-intensity is likely to dampen the presence of HRM practices in high performing firms (e.g., Hambrick and Lei, 1985).

Therefore, in highly productive firms, a high level of capital-intensity is associated with higher investments in HRM practices, only when there is a high level of competition present. In such cases motivation-enhancing practices are likely to be combined with ability- or opportunity-enhancing practices. Capital-intensity has dampening effects on the adoption of HRM practices when competition levels are low. The configurations also show that irrespective of the level of capital-intensity, the level of knowledge-intensity justifies a higher level of practices implemented in highly-productive firms (configurations 5 and 8). These results show that one has to look at all three contextual factors simultaneously in order to get an enhanced understanding regarding the adoption of HRM practices.

Competition. Similar to capital-intensity, scholars are divided on the role of competition with respect to the adoption of management practices. Some sustain the economic-based argument which implies that competition is likely to dampen HRM investments as a result of cost and efficiency pressures from the industry (e.g., Kaufman, 2015). Others argue that competitive pressures push firms to invest in HRM practices in order to achieve better outcomes through higher quality of human capital (e.g., Ichniowski *et al.*, 1997).

In line with these contradictions, the results show that, in highly productive firms, the level of competition does not influence the level of HRM practices adopted in traditional manufacturing firms (configuration 3a and 3b vs configuration 4). However, the results also show that competition is influential in other contexts. For example, where both knowledge- and capital- intensity are high, the presence of competition is likely to be associated with the adoption of higher HRM practices in highly productive firms (configuration 8), compared to similar situations where competition is low (configuration 7). On the other hand, in highly productive firms where knowledge-intensity is high and capital-intensity is low, the presence of competition is likely to lead to the adoption of lower HRM practices (configuration 6), compared to similar situations whereby the level of competition is low (configuration 5). Similar outcomes emerge when comparing configurations 1 and 2 when both knowledge- and capital-intensity are low.

These results show that the influence of competition depends on the level of knowledge- and capital-intensity. Competition appears to have dampening effects on the

level of HRM practices adopted when knowledge-intensity is high and capital-intensity is low, or when both knowledge- and capital-intensity are low. On the other hand, results show that the dampening effects of competition are overcome when both knowledge- and capital-intensity are high. Overall, these results show that when analysing the contextual factors concurrently, a better understanding of the implementation of HRM practices is likely to be attained.

The analysis of the individual contexts has shown that contingent factors matter and, in reality, the implementation of HRM practices is more complex than that proposed under the universalistic view. The results also show that, in order to get more clear outcomes, the analysis of contingent factors needs to be combined as otherwise one is likely to attain conflicting results, as also shown through past research when the contingency view was tested through linear regression methods.

2.06.2 The Adoption of Ability-, Motivation-, Opportunity-Enhancing Practices across different Contexts and Outcomes

In this section I examine individually ability-, motivation- and opportunity-enhancing practices and provide an analysis of the patterns that emerge from the results. This will help in substantiating previous arguments related to the issues involved when assuming a universalistic perspective with respect to the adoption of HRM practices.

The ability-motivation-opportunity (AMO) HRM framework proposed by Appelbaum, Bailey and Kalleberg (2000) has been widely acknowledged among scholars as a means of understanding how these categories of HRM practices influence firm performance through enhanced employee behaviour (e.g., Batt, 2002; Chuang *et al.*, 2016; Combs, Liu, Hall and Ketchen, 2006). The outcomes from the sufficiency analysis allow for an understanding how combinations of ability-, motivation-, and opportunity-enhancing practices are effective in situations of high productivity.

With regards to motivation-enhancing practices, results show that firms exhibiting high productivity are likely to implement such practices irrespective of the context they operate in. However, motivation-enhancing practices are also present in all except one (configuration 13) of the configurations representing low productivity firms. This implies that while the presence of motivation-enhancing practices is sufficient for high performing firms, it is not necessary. Still, they are sufficient in a ubiquitous way for high performance which could imply that the absence of such practices may deter productivity.

While motivation-enhancing practices are likely to be present in situations of high productivity, the implementation of such practices alone is unlikely to lead to enhanced outcomes. Their benefits with respect to productivity are likely to emerge when such practices are complemented with ability- and/or opportunity-enhancing practices. In fact, the results show that two of three situations in which such practices are implemented alone are related to low productivity. The only case where motivation-enhancing practices alone are associated with high productivity is configuration 1, which configuration is also present under low productivity through configuration 9. As previously discussed, these configurations represent a multifinal situation which lead us to confirm that motivation-enhancing practices based on variable pay alone are not sufficient for high productivity. This outcome is consistent with previous findings which show that low HRM levels are unlikely to lead to high productivity (Becker and Huselid, 2006).

Highly productive firms operating under different industry contexts vary with respect to the type of motivation-enhancing practice they implement. Results show that in highly productive firms that are knowledge-intensive, motivation-enhancing practices involving performance appraisal are present in three out of four configurations (configurations 5,7,8). This contrasts with highly productive firms with low knowledge-intensity whereby this specific HRM practice is absent (configurations 1-4). The co-presence of high knowledge-intensity and performance appraisal in highly productive firms is justified on the basis that this practice may be used to enhance motivation through the promotion of employee development and thus creating a sense of achievement among employees whilst they are challenged to achieve more innovation results (Chen and Huang, 2009; Collins and Smith, 2006). Performance appraisal in highly productive knowledge-based industries may reflect the necessity to motivate through focusing on inputs rather than on more difficult to observe, or more uncertain, outputs. Conversely, in highly productive firms with low knowledge-intensity (labour-intensive and capital-intensive manufacturing firms), performance appraisal is likely to be replaced by variable pay, whereby this HRM practice is ubiquitously present (configurations 1-4). Performance appraisal may not be effective for productivity in situations of low knowledge-intensity (labour-intensive and traditional manufacturing firms), as output is more likely to be observable, reducing the purpose of performance appraisal (see: Ouchi, 1977). In such situations, cheaper and more time-effective HRM practices, such as variable pay, can be used to attain the firm's goals.

These results are reinforced when looking at low performing firms. Compared to highly productive firms, low knowledge-intensity firms that invest in performance appraisal are likely to be associated with low productivity (configurations 11 and 12). Moreover, high knowledge-intensive firms that fail to implement performance appraisal are also likely to be associated with low productivity (configuration 13).

The presence of variable pay in high performing firms is ubiquitous in situations where knowledge-intensity is low but also in high performing firms that operate in highly competitive environments (configurations 6 and 8). In high levels of competition, time is an important resource and therefore practices that provide a quick response would be preferred. To this effect, the quick response, together with the low cost involved and easiness of implementation of variable pay, makes it a viable practice to enhance motivation and influence employee behaviour in the right direction (Bailey, Berg and Sandy, 2001; Lazear, 1996). Variable pay is also present in highly competitive firms associated with low productivity, implying that these practices are not necessary for high productivity. However, such practices are sufficient in a consistent way for high performing firms operating in high competitions, which could imply that the absence of such practices may deter productivity.

Therefore, the overall conclusion with respect to motivation-enhancing practices is that in highly productive firms the choice of practices depends on the level of knowledge-intensity, capital-intensity, and competition. This contrasts with the universalistic view that more is better irrespective of the situation. In addition, motivation-enhancing practices in highly productive firms tend to be complemented with opportunity-, and/or ability-enhancing practices Low-productivity is likely to be a result of a mismatch between the implementation of HRM practices and the context, or absence, of specific practices.

Patterns associated with opportunity-enhancing practices show that the presence of such practices is likely to depend on competition. Opportunity-enhancing practices in highly productive firms are ubiquitously present when competition is low (configurations 2,4,5,7). This may be due to the time element. Practices such as employee participation programs generate increased costs as more people are involved in decision-making, requiring more time to make decisions and higher levels of communication (Sels, De Winne, Maes, Delmotte, Faems and Forrier, 2006). This implies that such systems are

more likely to be implemented when competition is low, rather than high, and time is a crucial competitive factor. In addition, top management is more likely to share strategic information with employees for their feedback when competition is low rather than when competition is high as every small piece of information under high competition can be strategically sensitive (Schuler and Jackson, 1987). Therefore, in this case, there might be support for the arguments about competition dampening the adoption of certain HR practices (see: Kaufman, 2015b).

Opportunity-enhancing practices occur in two out of three configurations with low competition associated with low productivity. This result implies that such practice within this specific context is not necessary for high productivity. However, opportunity-enhancing practices are sufficient in a ubiquitous way for high performing firms with low competition which could imply that the absence of such practices may negatively affect productivity.

Results show that the role of ability-enhancing practices is less clear compared to the other practices. Ability-enhancing practices are more frequent in highly productive firms, compared to low productive firms. Although it should be noted that in highly productive firms such practices are only present in four from nine configurations (configurations 3b,5,6,8). Three out of these four configurations are associated with a high level of knowledge-intensity (configurations 5,6,8). Firms operating in high knowledge-intensive environments compete by constantly attracting and investing in their intellectual and human capital. Therefore, staffing practices are likely to be implemented in order to ensure that the most talented employees are engaged. In addition, training practices are important to keep employees up to date with any product development and firm-specific skills, whilst enhancing employee commitment and motivation (Lepak and Snell, 1999; Zhou and Li, 2012).

Still, ability-enhancing practices are also present in low performing firms with high knowledge-intensity (configuration 13). These findings show that by looking at the individual HRM practices within a specific contextual condition, one is likely to achieve inconclusive results. A better insight is provided when comparing configurations "best" HRM practices (according to the results in this study) in a specific context, with low productive firms within the same context. In fact, when comparing configurations 7 and 13 it seems that there is a mismatch between the choice of practices and the industry context. While it could be that ability-enhancing practices in that specific context are not

likely to enhance productivity, it is more likely that the exclusion of motivation-enhancing practices is deterring productivity, given the ubiquitous presence of such practices in high-performing firms.

The analysis of AMO Practices has substantiated the previous argument that contingent factors matter and thus, in reality, the implementation of HRM practices is more complex than that proposed under the contingency view. The results in this section also confirm that a better understanding of the implementation of HRM practices is achieved if configurations of such practices are assessed together with combined contextual factors.

Through this study, I contribute to SHRM literature by showing that, in reality, the implementation of HRM practices is likely to be more nuanced than the universalistic 'best practice' perspective suggests. High and low performing firms involve different combinations of HRM practices that are present in different combined contextual situations, comprising of knowledge-intensity, capital-intensity, and competition. Through this finding, I extend on the contingency view. It is clear that in order to attain a better theoretical insight on the connections between contingency factors, HRM practices, and performance, one has to assess them from a configurational perspective, across different outcomes, rather than through traditional linear regression models based on additive indices. The latter approach is likely to lead to unclear outcomes as shown in the analysis of the individual contextual factors. This is mainly due to presence of the complex causal associations involved between HRM practices, contextual factors, and performance.

2.07 Practical Implications

Through this study, I provide direct implications for firm decision-makers. Whilst in most cases studies have argued that the higher the implementation of HRM practices, the better the implications on performance, the findings of this study show that HRM practices are generally effective to reach high performance when implemented in a sensible and structured manner, in line with the firm's industry context. The findings also highlight the fact that over- and/or under-investment in HRM practices could deter productivity. Therefore, when choosing the adequate HRM practices for their company, decision-makers need to look closely at the environment they operate in. Previous

successful experiences with a specific practice (e.g., training) may not necessarily result in successful outcome when operating under a new contextual situation. The practices implemented need to complement the contextual environment, they also need to be implemented in a way that they complement one another in order to achieve the best results possible.

The findings also provide important implications for SMEs, given that the data set specifically involved such firms. Literature on SMEs is still divided as to whether such practices lead to enhanced performance. Some scholars suggest that they do (Hayton, 2003; Messersmith and Guthrie, 2010), others suggest that they do not due to costs involved and financial limitations small firms face (Agarwal, Green, Brown, Tan and Randhawa, 2013; Kotey and Slade, 2005). Our findings clearly show that SMEs do benefit from the implementation of HRM practices when implemented prudently. Such information is particularly important given that these firms represent 99% of all firms in the EU. Moreover, such firms employ more than 60% of total employment in the EU, and more than 50% of the total gross value added in the EU (Muller, Caliandro, Peycheva, Gagliardi, Marzocchi, Ramlogan and Cox, 2014).

The detailed insights that configurational analysis provides with respect to the adoption of management practices across firm contexts has the potential to influence firms and economies at large. If knowledge on how best to combine HRM practices across different contexts is provided, firms would be able to enhance their performance and generate higher economic growth.

2.08 Limitations and Future Research

Similar to all other studies, the present study has a number of limitations that should be highlighted, but it also gives rise to gaps that can be addressed in the future. The first limitation is that the study is based on cross-sectional data, which limits our ability to understand how HRM practices may evolve over time with firm and/or product development, in different contexts. Thus, future research can adopt configurational analysis to assess whether, and how, configurations of industry context and HRM practices differ longitudinally and their effects on performance. This could be done by collecting data for a number of firms on a yearly basis for a specific period of time (e.g., ten years). This would allow researchers to have a more dynamical look of HRM patterns.

Second, the study is limited from a sectoral and contingency perspective. From a sectoral perspective, the study is limited to firms within the manufacturing sector. It is also limited to the industry-related contexts as contingent factors. Future studies can extend this study by applying it to other sectors such as the services sector. Studies can also consider additional contextual factors that may influence the relation between HRM practices and performance. Previous literature has highlighted different potential factors that may influence the implementation of HRM practices involving firm-level contingencies such as firm strategy (e.g., Youndt *et al.*, 1996), and/or individual-level contingencies such as leader behaviour (e.g., Zhu, Chew and Spangler, 2005). This may help in shedding light on the equifinal outcomes highlighted in this study. In addition, the study is based on a limited number of HRM practices covering ability, motivation and opportunity practices. Additional HRM practices can also be included in future studies such as promotions, and profit-sharing (Huselid, 1995). In addition, the study could be extended to understand the implementation of additional management practices such as monitoring and performance targeting practices (Bloom and Van Reenen, 2007, 2010).

Third, the implementation of set-theoretic methods was used to assess two important outcomes involving high and low performance. Future studies may consider to assess different gradations of performance associated with the implementation of HRM practices such as employee retention and sales growth (e.g., Combs *et al.*, 2006, Greckhamer, 2011). For example, one could assess how different combinations of HRM practices and contextual factors are associated with high and low employee retention. This would provide information with respect to the different HRM combinations associated with employee retention in different contexts. It will help practitioners understand better how to use the firm's situation to adopt the best possible practices to retain their employees.

2.09 Conclusion

Despite the abundance of studies on how HRM practices are beneficial for firm performance, literature is still unclear on how the two elements are connected. In this study, I attempt to understand whether a configurational-based approach can provide a better insight on this connection compared to the dominant approaches used in the field involving the universalistic and contingency views. The empirical results reject the universalistic view, by showing that different patterns are likely to be associated with

high performance. This implies that the additive index of HRM is likely to obscure alternative configurations of practices. The results also show that contingent factors matter. However, by following present contingency studies based on traditional linear models and ignoring the existing interdependencies between industry contextual factors and interdependencies between HRM practices, it is likely that one attains inaccurate results. Overall, it is clear that, in order to understand how the level and patterns of HRM practices vary with the contextual variables, one has to analyse these factors as configurations. The results of this study show that the association between the factors is complex and involves multiple interactions of HRM practices and industry contextual factors associated with high and low performance. The complex associations are characterised by multifinality, equifinality, and causal asymmetry. The outcomes of this study can be regarded as a foundation for further theorising. Besides its theoretical contribution, important practical implications emerge from the study.

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CHAPTER 3 - THE ADOPTION OF MANAGEMENT PRACTICES: A COGNITIVE AND BEHAVIOURAL CONCEPTUAL FRAMEWORK

3.01 Abstract

Despite the constant findings that sophisticated management practices are likely to lead to enhanced firm outcomes, such practices tend to vary among firms in real-world settings. In this paper, I explore what drives these variations. Through a detailed review of behavioural theories of the organization, I suggest that variations in management practices are likely to be a result of top-down factors involving leader cognitions and behaviours. Theoretical arguments provide rationale for a potential link between these elements, however, such arguments are too general and fragmented to identify any connections between specific cognitions, behaviours, and management practices. In addition, empirical evidence combining all three factors is missing. To this effect, I develop a conceptual framework based on existing perspectives, linking the three constructs. In order to shed light on these connections, I delineate the potential application of the proposed framework using specific cognitions, behaviours, and management practices. Three broad, testable 'ideal types' are derived. Still, the limited theoretical arguments combined with the complexities involved in the associations of the constructs make it impossible to generate any theoretically-based hypotheses. To this effect, I propose a research agenda in order to determine how best to assess these links so as to generate more concrete findings. The research agenda proposes a relative new methods in the field of social science, involving the configurational approach based on fuzzy-set analysis. Theoretical insights to scholars related to the fields of leadership, HRM, and microfoundations of strategic management are outlined. In addition, the paper puts forth important implications for firm leaders and policy-makers.

3.02 Introduction

For decades, scholars have assessed management practices as determinants of firm performance. Studies show that good management practices, broadly defined by Bloom *et al.* (2012) as monitoring practices, performance targeting practices and Human Resource Management (HRM) practices, play an important role in generating superior performance outcomes (Awamleh and Gardner, 1999; Baum, Locke and Kirkpatrick,

1998; Collins and Smith, 2006; Huselid, 1995; Youndt *et al.*, 1996). The importance of such practices with respect to organisational outcomes stems from the fact that they are likely to bridge the gap between the firm's strategic direction and organisational outcomes (Klaas, Semadeni, Klimchak and Ward, 2012).

Despite these encouraging findings over the years, different studies show that practices are not implemented ubiquitously across firms. Empirical evidence shows that firms tend to vary in the adoption of such practices in terms of quantity (level of sophisticated management practices implemented) and quality (type of sophisticated practices implemented) (Bloom and Van Reenen, 2007; Deshpande and Golhar, 1994). Still, literature has failed in providing detailed explanations of what drives these variations. In other words, the determinants of management practices are not clearly outlined in literature (Bloom, Dorgan, Dowdy, Rippin and Van Reenen, 2005; Bloom *et al.*, 2012; Bloom and Van Reenen, 2007, 2010). Given the important implications of management practices for performance, the aim of this review paper is to provide an answer to the following question: *What drives variations in good management practices within firms?*

I draw on the behavioural theory of the firm to address this gap (Cyert and March, 1963; Simon, 1947, 1982). The behavioural theory of the firm suggests that strategic choices are made under uncertain conditions, and are likely to be *"the outcome of behavioural factors rather than a mechanical quest for economic optimization"* (Hambrick & Mason, 1984: p.194). In line with Hambrick and Mason (1984), the term "strategic choice" refers to internal choices reflecting administrative decisions (e.g., people practices) and competitive strategy decisions (e.g., vision-setting). Thus, management practices are reflected in the firm's strategic choices. The behavioural perspective has led to the top-down approach which posits that different firm decisions depend on variations in top leader cognitions (Cyert and March, 1963; Ocasio, 1997; Simon, 1947). Leader cognitions are defined as *"a class of variables pertaining to how people work through or attempt to solve performance problems"* (Mumford, Friedrich, Caughron and Byrne, 2007a, p.518).

The importance of leader cognitions in determining variations in the implementation of strategic choices can be explained on the basis of two main reasons. First, strategic decisions within firms are never based on perfect and total information due

to the complexities that are involved in the internal and external environment (Breeden and Viswanathan, 2015; Rothschild, 1973). This implies that such decisions are likely to reflect the cognitions of decision makers. Second, even if perfect information existed, humans are constrained by bounded rationality and cannot make decisions on the basis of full information anyway (satisficing) (Cyert and March, 1963; Hambrick and Mason, 1984; Jones, 1999; Taylor, 1975). Based on these arguments, in this review I suggest that variations in leader cognitions, play a very important role in determining variations in management practices.

In line with leader cognitions, another factor which has been regarded as influential in determining strategic choices involves leader behaviour, as specified by the behavioural theories of leadership. Different studies have provided different definitions of leader behaviour. Overall, these definitions suggest that leader behaviour involves the actions undertaken by the leader in designing, communicating, and managing the firm's direction, and also his actions with regards to how he interacts with employees (Yukl, Gordon and Taber, 2002). Through the review presented here, I suggest that variations in leader behaviours are likely to determine variations in management practices. This is because behavioural choices are likely to vary among leaders, based on their different individual characteristics (Yukl, 2010). This argument complements cognitive literature which also suggests that leader cognitions are a determinant of leader behaviours (Bandura, 1986; Lazarus, 1991). Thus, a comprehensive analysis of leader influence with respect to management practices should consider both cognitions and behaviour.

Through this review, I analyse in detail the association between these three constructs – leader cognitions, leader behaviour, and management practices. The analysis shows theoretical arguments have acknowledged the fact that leader cognitions and behaviours play an important role in influencing strategic choices including management practices. However, these explanations are fragmented and exist only at a general level. Literature rarely identifies how specific cognitions and specific behaviours are connected, or how such elements influence different management practices (see: Baron and Hannan, 2002; Klaas *et al.*, 2012; Zhu, Chew and Spangler, 2005). In addition, empirical evidence supporting the link between all three constructs simultaneously is missing. In view of these important gaps, I develop a conceptual framework in order to explain in detail the associations between leader cognitions, leader behaviour and management practices. The development of such a framework will help explain observed

variations in the adoption of management practices. Thus, the main contribution of the review is to provide an understanding for the association between specific leader cognitions, behaviours, and management practices and, as a result, examine how leaders influence the adoption of better management practices.

Following the establishment of a general conceptual framework, I proceed with its application to understand the relationship between specific leader cognitions, specific leader behaviours and specific management practices. Three 'ideal types' of specific leader criteria and HRM practices are identified. However, theoretical arguments are currently too general and sparse. In addition, the analysis identifies various complexities among the relationships of the variables, mainly based on endogenous relations, nonlinearity, equifinality, and asymmetric reciprocal associations. Due to the non-specific theoretical arguments and complexities involved, I refrain from generating theoretically-driven hypotheses and proceed by developing a research agenda. Specifically, focus is made on identifying the best empirical method that allows the analysis of these complex associations, using configurational methods.

Through the development and application of a conceptual framework, and the proposed research agenda, I contribute to literature in different ways. I address leadership literature and cognitive theories through the development of a theoretical understanding on the relationship between specific leader cognitions and specific leader behaviour. Contributions towards leadership and HRM literature are also provided by discussing how the combined effects of such elements are likely to influence specific management practices. I also contribute to literature on the microfoundations of strategy, by providing a detailed analysis on the link between the individual (leader) and organisational level phenomena (management practices) (Felin, Foss and Ployhart, 2015). In addition to the theoretical contributions, I contribute to empirical work in leadership and HRM literature by proposing an empirical method that caters for the complexities involved. Overall, such knowledge can have an important impact on practice. Given the positive implications of good management practices on firm performance, understanding what determines the level and type of implementation has important effects for the individual firm, and also for entire economies.

3.03 Conceptual Framework: Leader Idiosyncrasies and Variations in Management Practices

In line with an economic rationale, most scholars have assumed that firms take strategic decisions as a means to ensure economic optimisation. Given that specific management practices have been identified in literature as drivers of economic advantage, one would therefore expect that firms are likely to converge in the implementation of such practices in order to enhance organisational outcomes. Or, at least, it would be expected that firms operating in the same industry and/or country would adopt similar management practices (Gooderham, Nordhaug and Ringdal, 1999).

Yet, evidence shows that firms vary in their adoption of management practices. These variations take place across and within different countries and industries (Bloom and Van Reenen, 2007). For example, Arthur (1994) and Ichniowski, Shaw and Prennushi (1995) find variations in HRM practices across steel mills within the United States (US). Moreover, research shows that the best performing firms (irrespective of the country or industry) are likely to implement various sophisticated HRM practices such as high-commitment work systems (Arthur, 1994; Chang, Jia, Takeuchi and Cai, 2014), high-involvement work systems (Guthrie, 2001; Pil and MacDuffie, 1996), and high-performance work systems (Huselid, 1995; Way, 2002). Reasons for such variations are not clearly identified in literature. In fact, this stream of literature is criticised for focusing on the positive implications of management practices, and ignoring any potential determining factors (Bloom and Van Reenen, 2007).

Thus, while it is clear that management practices are likely to lead to enhanced organisational outcomes, it is not clear why firms adopt different levels, intensities or combinations of such practices. In order to address this gap, in this section I suggest that management practices are likely to be an outcome of behavioural factors, rather than an outcome of a rational process focused on economic goals. This reliance on behavioural factors gives rise to the important role of leaders in determining variations in management practices.

Early studies investigating leader cognitions show that leader cognitive variations, based on their individual characteristics, are likely to influence variations

in strategic decisions (see: Hambrick *et al.*, 1984). In parallel to leader cognition studies, scholars also acknowledge the role of leader behaviours in influencing strategic decisions (Bass and Avolio, 1990; Burns, 1978; Yukl, 2008). The influence of such elements is likely to take place in a combined manner. In fact, through cognitive theories, scholars have shown that leader cognitions are likely to precede behaviour (Bandura, 1982; Lazarus, 1991; Mumford, Todd, Higgs and McIntosh, 2017). Still, theoretical arguments linking these constructs are at a very general level. Studies rarely identify how specific leader cognitions are associated with specific leader behaviours, and how these elements are likely to influence specific management practices. In addition, empirical evidence linking the three constructs is absent.

The aim of this section is to understand how specific cognitions are associated with specific behaviours and specific management practices. In order to shed light on these connections, I begin by reviewing present literature in the field. Based on the review, I proceed with the development of a conceptual framework that combines leader cognitions, leader behaviours, and management practices. The framework represents the foundations that will enable the understanding of how specific cognitions, specific leader behaviours, and specific management practices are associated. It is discussed in the following sections.

3.03.1 The Role of Leaders in Explaining Variations in Management Practices

In order to explain how differences among leaders influence variations in management practices, I draw on a perspective of firm behaviour based on the fact that strategic choices are likely to be a result of behavioural factors (Cyert and March, 1963; March and Olsen, 1976; March and Simon, 1958; Simon, 1947, 1982). In line with cognitive literature, this stream of literature posits that in the course of decision making, leaders are subjected to an array of environmental stimuli. However, due to the bounded cognitive capabilities of humans, leader's attention tends to be focused upon a reduced set of specific stimuli, at the cost of other alternatives. This is the result of a cognitive process based upon the formation of mental models that generate simplified versions of the environmental situations. Thus, due to the extensive amount of information leaders are confronted with, they engage in an

information processing sequence involving attention, interpretation and action (Barr, Stimpert and Huff, 1992; Daft and Weick, 1984; Kiesler and Sproull, 1982).

This top-down organisational attention process has been widely acknowledged in various theories and perspectives such as the upper echelons theory (Hambrick and Mason, 1984), and the attention-based view (Ocasio, 1997). These approaches show that the leaders' cognitive process, based on their mental models, plays a very important role in sense-making, that is, in identifying the stimuli to respond to, and address them. Based on these arguments, various scholars suggest that different leader mental models, influenced by individual characteristics, such as cognitive abilities, personality, values, education and experience, are likely to be associated with variations in strategic choices (Cho and Hambrick, 2006; Hambrick and Mason, 1984; Herrmann and Nadkarni, 2014; Nadkarni and Barr, 2008; Nadkarni and Herrmann, 2010). While present theory and evidence provide an understanding of the link between cognitions and strategic choices, there is no sufficient clarity on the specific cognitions that may predict particular patterns of practices. The theory is at a relatively general level, it is mid-level theory in terms of abstraction.

In order to understand the process behind how variations in leader cognitions may influence variations in management practices, it is important to identify the characteristics that leader mental models are based on. Cognitive theories show that the foundation of the leader's mental models involve knowledge structures, defined as *"a mental template that individuals impose on an information environment to give it form and meaning"* (Walsh, 1995, p. 218). Studies have applied various types of knowledge structures which leaders use in identifying and addressing environmental stimuli. These knowledge structures are based on tacit knowledge (Athanassiou and Nigh, 1999), schematic knowledge (Holyoak and Thagard, 1997), associational knowledge (Jacoby, 1991), and experiential knowledge (Herrmann and Datta, 2006).

Literature has consistently shown that experiential knowledge is regarded as an essential type of knowledge structure for leaders in terms of exercising influence, and also in solving issues arising from internal and environmental stimuli (Mumford, Friedrich, *et al.*, 2007; Mumford, Marks, Connelly, Zaccaro and Reiter-Palmon, 2000; Mumford *et al.*, 2017; Nonaka and Takeuchi, 2011). To this effect, the present review will focus on these types of structures. Compared to other types of knowledge,

experiential knowledge is *"more easily acquired, and recalled"* (Mumford *et al.*, 2017, p. 26). This is likely to enhance effectiveness in decision-making. In fact, Vessey, Barrett and Mumford (2011) show that leaders who rely on experiential knowledge in identifying issues and producing solutions are likely to be associated with higher-quality outcomes and more original solutions. The importance of experiential knowledge is also supported by evidence indicating that leaders mostly rely on experiential knowledge structures to address real-world settings (Hershey, Walsh, Read and Chulef, 1990; Hunter, Gutworth, Crayne and Jayne, 2015; Kor, 2003; Mumford, Friedrich*, et al.*, 2007). To this effect, Miller (1993) states that experiential knowledge acts like a lens for leaders with regards to how they see the world.

Under the experiential knowledge approach, knowledge structures are considered to be the result of accumulated experiences gained from various tasks undertaken over time, and issues encountered (Augusto Felício, Caldeirinha and Ribeiro-Navarrete, 2015; Kabanoff and Brown, 2008; Nonaka, 1994; Nonaka and Konno, 1998; Walsh, 1995). The different experiences are organised in the individual's memory system (Bluck, 2003). When leaders are faced with a situation, they are likely to recall and reflect upon a particular experience or upon different experiences, which leads to the construction of mental models, followed by action against the particular stimuli (Mumford *et al.*, 2017).

Leaders draw from experiential knowledge to construct mental models in two broad ways. The first involves "recognition-based-decision-making" whereby leaders apply the knowledge from a closely matched case in order to understand the situation at hand. The second reflects a situation where the stimuli are not easily defined or recognised. In this case, individuals are likely to retrieve multiple cases from their memory and apply salient features abstracted from these cases in order to find a solution (Mumford, Friedrich*, et al.*, 2007).

Based on these mechanisms, it can be argued that the different experiences that individuals draw from determine how they process information and what they attend to. Specifically, different leaders are likely to go through different experiences with regards to the implementation of management practices, and/or they might have had different experiences observing the implementation of different management

practices. This leads to different models on how and when to implement different management practices. These experiences are also likely to influence how leaders use and combine different management practices in relation to the internal and external contexts faced by the firm. While it is not clear how specific experiences influence variations in management practices (Klaas *et al.*, 2012), literature shows that leaders' strategic choices are likely to vary depending on the experiences that different leaders go through (e.g., Finkelstein, 1992; Sambharya, 1996; Song, 1982).

Literature also shows that variations in management practices may be a result of the level of experience(s), and not just the type of experience(s). When a leader is presented with a new problem and his experience with respect to the problem is low, he has to go through a cognitive process in order to gain information and be able to develop and/or reshape the necessary knowledge to generate a viable solution. The complexity involved in the information processing is likely to generate errors throughout the problem-solving attempts such as focusing on the wrong trigger or giving priority to superfluous issues etc. (Mumford, Friedrich*, et al.*, 2007). As leader experience starts to increase, they are likely to develop rather accurate mental models. This is due to the repertoire of solutions they have experienced in facing different environmental and organisational issues (Levitt and March, 1988; Miller, 1993). Given that experienced leaders have a better understanding of the industry, they are better able to predict environmental changes, and thus such leaders are able to provide an effective vision in line with the environmental needs (Mumford, Friedrich*, et al.*, 2007). In order to reach their vision effectively, experienced leaders are more likely to set appropriate performance targets which change according to any external and internal changes (Mumford, Schultz and Osburn, 2002). This suggests that highly-experienced leaders are more likely to recognise the benefits of sophisticated management practices, compared to leaders with low experience. This statement is reinforced by the fact that evidence shows that experienced leaders are more likely to be associated with better organisational outcomes. For example, Stuart and Abetti (1990) found that the presence of experience in starting up new companies (entrepreneurial experience) is positively related to organisational performance of new start-ups. One mechanism through which experience is likely to influence such outcomes is the implementation of good management practices (see: Kroon, Voorde and Timmers, 2013b; Lacoursière, Fabi and Raymond, 2008).

These arguments are in line with top-down cognitive theories, such as the Upper Echelons Theory, which propose that in addressing environmental stimuli, different leaders are likely to have idiosyncratic characteristics which lead to different cognitions, ultimately resulting in variations in strategic choices (Hambrick and Mason, 1984). However, while providing a rationale for the underlying cognitive mechanisms, literature remains at a relatively high level of abstraction and does not provide guidance on how particular experiential knowledge structures may be associated with the implementation of particular profiles or sets of management practices deemed to be 'good' or 'best practice'.

Cognitive theories of leadership also suggest that leader cognitions precede leader behaviours in influencing how they address leadership problems (e.g., control or participation), which in turn influence tactics they use (e.g., strategic or emotional) (Avolio, Walumbwa and Weber, 2009; Bandura, 1986; Lazarus, 1991; Lord and Maher, 1991; Mumford *et al.*, 2017). On the basis of these theories, studies suggest that different cognitions are likely to lead to variations in leader behaviours. For example, Mumford, Antes, Caughron and Friedrich (2008) and Mumford and Strange (2013) show that charismatic and ideological leader behaviours are driven by different mental models.

These findings imply that different experiential knowledge structures are likely to influence leader behaviour variations. To a very limited extent, leadership research has recognised this notion. For example, Wofford and Goodwin (1994) suggest that the fact that some leaders opt for transactional behaviour while others opt for transformational can be due to the fact that these leaders have gone through or observed experiences associated with transactional and transformational role models, respectively. Still, studies on the association between specific leader experiential knowledge structures and specific leader behaviours remain limited.

While different experiences may influence variations in leader behaviour, through their behaviour, leaders are likely to influence strategic decisions including management practices. According to theories of leader behaviour, different leader behaviours are expected to be related to different management practices (Yukl, 2010). To some extent empirical evidence has supported this expectation. For example, studies suggest that transformational leaders are more likely to base their targets on a

long-term vision, while transactional leaders focus their target practices on short-term goals (Bass and Avolio, 1993; Jung and Avolio, 2000). Moreover, it has been shown that, based on their concern over employee well-being and development, transformational leaders are more likely to be associated with the implementation of sophisticated HRM practices, unlike transactional leaders (Bono and Judge, 2003; Hofstede, 1993; Zhu *et al.*, 2005).

Despite these observations, literature has mainly focused on the implications of leader behaviour on group or organisational performance outcomes (Conger, 1999; Peterson, Walumbwa, Byron and Myrowitz, 2008). Studies on how different leader behaviours are associated with variations in management practices are limited (Zhu *et al.*, 2005).

Overall, in this section I show that it is likely that variations in management practices are influenced by leader cognitions, based on experiential knowledge structures, combined with leader behaviour. Still, theoretical arguments that link the three constructs are very general and high level, focusing more on the general principle that experience has a positive influence on the adoption of the best solution. Literature rarely identifies how specific experience or specific cognitive structures influence behaviour or the choice of adopting particular management practices. There is also no empirical evidence supporting the link between all three elements simultaneously, although it is likely that there is some endogeneity among the three elements. Since behaviour depends upon cognitive structures which accumulate with experience, then prior experience with management practices is an important predictor of both, which in turn are expected to predict the adoption of management practices. This creates an interesting conundrum for developing a model and studying it empirically. Based on these observations, I proceed by developing a conceptual framework, drawing upon two theoretical perspectives which provide underpinnings for the connection between leader cognitions (experiential knowledge structures), leader behaviour, and management practices.

3.03.2 A Model for Leader Cognitions, Behaviour, and Management Practices

The proposed conceptual framework is based on the Attention-Based View (ABV) (Ocasio, 1997), which is a top-down model explaining how leader cognitions

and behaviours are connected to strategic choices. Given that experiential knowledge is regarded as the most important component of leader cognitions, the ABV is integrated with the Experiential Learning Theory (ELT) (Kolb, 1984a; Kolb and Fry, 1975), which is an individual-level approach that explains how the individual's cognitions based on experiences are associated with action.

Ocasio's (1997) ABV is a top-down approach based on the fact that top leaders constantly face a large amount of environmental stimuli, and their ability to attend to or act upon such stimuli is limited. In line with bounded rationality, the ABV suggests that the actions of top leaders reflect the stimuli that they focus upon. In turn, the ABV posits that top leader attention processing affects strategic choices both directly and indirectly through procedural and communication channels.

The direct relation is based on the idea that leaders focus their attention on a limited number of environmental signals, which determine what they attend to. To this effect, Ocasio (1997) states that top leaders *"employ the firm's resources in their attention process to collectively direct what, when, and how organisations enact and respond to the environment"*(p. 196). In addition, the model also shows that a leader's attention-processing and strategic direction are indirectly related through procedural and communication channels. The procedural and communication channels include formal and informal communications that give guidance in relation to the strategic direction of the firm. Ocasio (1997) acknowledges the role of leaders in directing organisational attention through the firm's procedures. Specifically, research shows that, through their behaviour, leaders play a very important role in influencing any activities that take place within the firm involving employee interaction and communication processes (Shamir and Howell, 1999; Wowak, Mannor, Arrfelt and McNamara, 2014). Therefore, based on Ocasio's model, it can be argued that leader cognitions influence strategic choices directly and indirectly through behaviour and through choices made concerning the adoption of management practices.

In addition to the above relations, the approach also posits that *"organisational moves, once enacted, become part of the firm's environment of decision and are inputs to the construction of subsequent organisational move"* (Ocasio, 1997, p.202). This speaks to the endogenous nature of the associations among experience, cognitive structures, and leader behaviours. It means that

organisational moves – e.g., choices concerning strategy or operations - are likely to shape future decisions of leaders, which implies that strategic choices are likely to reciprocally influence the cognitions and behaviours of leaders. This argument is substantiated by the ELT.

The ELT, developed by Kolb and Fry (1975), is based on the work of John Dewey (Dewey, 1938), Kurt Lewin (Lewin, 1951), and Jean Piaget (Piaget, 1953) who focused on the fundamental role of experience in creating individuals' knowledge structures. The ELT describes a process of learning by doing. The theory explains how knowledge is a result of *"the combination of grasping and transforming experience"* (Kolb, 1984: p.41). Specifically, it explains that individuals learn by actively involving themselves in tasks, rather than just being observant.

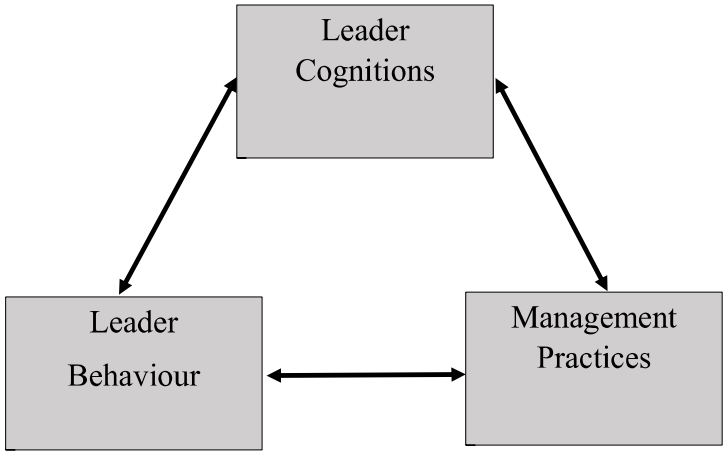
According to the ELT, following involvement in a particular experience, an individual will spend time reflecting and reviewing on what has taken place during the experience. This leads to the formulation of concepts (mental model) whereby the individual makes sense of the events that took place. Finally, the individual develops new implications from the concepts which can be actively tested while serving as guidance for new experiences. The individual's current knowledge will provide the knowledge structures against which experiences are compared and new behaviours tested.

By integrating the top-down approach (ABV) and the bottom-up approach (ELT), it can be stated that the relationship between leader cognitions, based on their individual experience, and action is likely to be endogenous, whereby leader experience leads to actions, which begets new experience and shapes future actions. To this effect, in the following section I combine the ABV with the ELT to understand in detail how leader cognitions, based on experience, behaviour, and management practices are linked.

3.03.2.1 Synthesising the Attention-Based-View and the Experiential Learning Theory

In this section, I synthesise Figure 3.1 which depicts the conceptual framework proposed for this review, aimed at integrating all three constructs. The framework is a result of merging the ABV and ELT. By merging the two approaches, three important relationships emerge, based on the endogeneity between experience and action.

Figure 3. 1: Leader Cognitions, Leader Behaviour, and Management Practices



First, there is likely to be a two-way relationship between leader cognitions and leader behaviour. In line with cognitive theories, by integrating the ABV and the ELT, it can be argued that that leader cognitions, reflecting experiential knowledge structures, lead to behaviour (Wofford and Goodwin, 1994). In turn, the ELT suggests that, through constant active experimentation (behaviour), individuals expand their cognitive attentional capacity as they would be extending their working memory with cues related to the experiences. This implies that, through action (leader behaviour), the leader's cognitions, in the form of mental models, are likely to be enhanced. In line with this, Kiesler and Sproull (1982) states that *"Managers who have learned from their past mistakes are able to avoid similar ones in the future by recognizing conditions similar to those that led to the past mistakes and by taking corrective action. Similarly, managers who have learned from their past successes are able to capitalize on similar conditions in the future"* (p. 551).

Second, the relationship between cognitions and management practices is likely to be two-way. In line with the arguments put forth in the previous section, the integration of the ABV and the ELT shows that leader cognitions, based on experiential knowledge are likely to influence management practices directly (Hambrick and Mason, 1984). In turn, the ELT suggests that, by actively involving themselves in the implementation of a particular practice, leaders would be generating experiential knowledge with that practice. Thus, the implementation of management practices is likely to influence leader cognitions. This relation supports previous findings which suggest that the strategic choices that leaders make in the past, have

implications on managers' interpretations of events (e.g., Klaas *et al.*, 2012; Martins and Kambil, 1999).

Third, leader behaviour and management practices are likely to be based on a two-way relation. In line with literature on behavioural theories of leadership, the ABV acknowledges that leader behaviour is likely to be associated with the implementation of strategic choices such as management practices (Bass and Riggio, 2006). In turn, through the ELT it can be argued that when leaders go through an experience, they expand their behavioural repertoire, and enhance behaviour stability (Hooijberg and Quinn, 1992; Katz, 1982; Miller, 1988). This implies that the implementation of management practices reflects and reinforces leader behaviour. The impact of management practices on leader behaviours is to some extent recognised by Wofford and Goodwin (1994) and Wofford, Goodwin and Whittington (1998), who suggest that leaders who adopt transformational behaviours are likely to have had the opportunity to work on long-term visions. On the other hand, leaders who adopt transactional behaviours are more likely to have worked in organisations promoting short-term performance goals. The implementation of such practices is likely to strengthen the adoption of the related leader behaviours.

This integration of the ABV and ELT shows that the relationship between leader cognitions (based on experiential knowledge structures), leader behaviour and management practices is dynamic and based on reciprocal relationships (Figure 3.1). Yet this alone is insufficiently specific to offer more than general guidance. It does not yet facilitate an exploration of how specific cognitions (i.e. expertise) might relate to specific forms of behaviour or management practices. In order to explore how specific cognitions, behaviours and management practices are linked, in the following section I operationalise the constructs and assess any potential linkages.

3.04 Applying the Framework

In this section I apply the cognitive framework derived above to understand how specific leader cognitions, behaviours, and management practices are connected. In order to be able to provide this analysis, the first step involves the operationalisation of the constructs. This is followed by a review of the potential linkages among the constructs.

3.04.1 Operationalising Leader Cognitions, Behaviour, and Management Practices

3.04.1.1 Leader Cognitions (Experiential Knowledge Structures)

With regards to cognitive indicators, scholars have mostly relied on observable indicators based on the demographic characteristics to measure leader cognitions such as experiential knowledge structures. These have typically included leader positions, age, education, general work experiences, organisational tenure, and expertise (Bettin and Kennedy, 1990; Brockmann and Simmonds, 1997; Guthrie Datta and Deepak, 1997; Rodenbach and Brettel, 2012). The use of such indicators is based on the fact that they are relatively straightforward to measure, unlike psychological factors which are not directly observed (Hambrick and Mason, 1984; Walsh, 1995).

However, these indicators represent only general proxies of cognitive process and expertise which places a limit on their utility (Hambrick and Mason, 1984). For example, when using observable indicators, two persons registering similar experiences are assumed to have similar knowledge structures and therefore these persons are expected to deal with situations and strategic choices identically (same output). Still, despite the accumulation of similar levels or quantities of experience, education or tenure, there is no reason to believe that the nature of the mental maps that have been created will be the same (Hambrick and Mason, 1984).

In order to assess the impact of experiential knowledge structures on strategic choices, it is important to develop indicators that reflect the psychological process of such structures. That is, it is necessary to look for more defined indicators of the content of the mental maps. A superior way of operationalising experiential knowledge structures is through skills. The choice of skills is based on two important arguments. First, scholars suggest that knowledge structures represent an important component of absorptive capacity. Literature on absorptive capacity suggests that knowledge stocks underlie the individual's capacity to absorb new information (Bower and Hilgard, 1981; Cohen and Levinthal, 1990; Ellis, 1965; Estes, 1960). The higher the stock of related knowledge, the more likely it is that individuals are able to make sense of new information and apply it (Bower and Hilgard, 1981). Highly-skilled leaders are better at understanding real-world settings (Mumford,

Friedrich, *et al.*, 2007; Mumford *et al.*, 2017; Mumford, Zaccaro, Harding, Jacobs and Fleishman, 2000). This is because skills represent behaviourally embodied knowledge structures.

Second, literature suggests that skills are nurtured over time through experience (Zaccaro, Mumford, Connelly, Marks and Gilbert, 2000). The extent of experience in a given field of activity distinguishes highly-skilled individuals (experts) from low-skilled individuals (novices) (Chi, Feltovich and Glaser, 1981; Day, Arthur Jr and Gettman, 2001; Larkin, McDermott, Simon and Simon, 1980). Thus, skills reflect the expertise of individuals, defined as the accumulation of experiential knowledge (Ng, Van Dyne and Ang, 2009; Reuber and Fischer, 1999). Taken together, these arguments indicate that skills reflect the accumulation of experiences, knowledge stocks, and schema for interpreting the world.

An important categorization of leader skills that has dominated research over the years was proposed by Katz (1955). The author identifies three important categories of leader skills being conceptual, interpersonal, and technical skills. Conceptual skills refer to the ability to see the organisation as a whole, and understand how the different functions of the firm depend on one another. Interpersonal, or human skills, involve the leader's ability to work within a team and enhance cooperation and communication in order to meet goals. Technical skills refer to the leader's expertise in a particular area or a specific subject, often referred to as technical knowledge (Katz, 1955).

In addition to the three categories identified by Katz, recent research has shown that entrepreneurial skills are also crucial for leaders (Baum and Locke, 2004; Baum, Locke and Smith, 2001), however, this type of skill has been omitted from the mainstream leader skills literature. Entrepreneurial skills refer to the ability to identify and pursue new opportunities, to communicate the entrepreneurial vision, and to acquire and orchestrate the necessary resources for that vision (Baum and Locke, 2004; Kuratko, Ireland and Hornsby, 2001).

3.04.1.2 Leader Behaviour

Studies examining leader behaviour have proposed numerous taxonomies. Among the most popular taxonomies is that which contrasts transactional and

transformational leaders (Bass, 1985; Pearce and Sims Jr, 2002). Transformational leaders are based on four main components: idealised influence, inspirational motivation, individualized consideration, and intellectual stimulation. Idealised influence refers to behavioural charisma whereby leaders are regarded as role models for their followers. Through inspirational motivation, leaders inspire and motivate followers to achieve the expectations they have for the company. Individual consideration refers to leader behaviour involving individual attention to followers, and their developmental needs. Through intellectual stimulation, leaders encourage followers to put forward their ideas and become more creative/innovative (Bass, 1985; Bass, 1999).

Unlike transformational leaders, transactional leaders are based on contingent-reward, active management-by-exception and passive management-by-exception (Pearce and Barkus, 2004; Yukl, 1999). Transactional leaders mainly motivate people through contingent rewards whereby they recognise the efforts of subordinates through money. Subordinates are likely to be punished under this leader behaviour if the desired results are not achieved. Active management-by-exception refers to the leader's involvement by actively finding faults in the work undertaken by subordinates. Through passive management-by-exception, transactional leaders intervene only when a problem occurs (Pearce and Barkus, 2004; Yukl, 1999).

3.04.1.3 Management Practices

In this review I focus on an important component of management practices, involving HRM practices. The choice of HRM practices is based on the fact that such practices are more extensively investigated compared to other management practices. The widespread literature on these practices has consistently provided evidence on the important role of such practices for firm performance (Becker and Gerhart, 1996; Guest, 2002). Based on these studies, there is a long history on how such practices should be measured (Edgar and Geare, 2005; Van De Voorde, Paauwe and Van Veldhoven, 2012).

Despite the widespread analysis of HRM in the literature to date, popular theories in the field (e.g., Strategic Human Resource Management (SHRM) theories) have focused on the implications of such practices for firm performance. The determinants of HRM practices have been largely ignored. In fact, a major criticism

of these approaches and SHRM in general is that analysis of the role of leaders in their adoption has been completely omitted. Theorising to date has treated the phenomenon as if integration and allocation of resources, and the influence of employee behaviour is an automatic process (McDermott, Conway, Rousseau and Flood, 2013; Sirmon, Hitt and Ireland, 2007).

Multiple categorisations of HRM practices have been used in different studies over the years, including the high-involvement models (Guthrie, 2001), commitment-based models (Collins and Smith, 2006), AMO model (Appelbaum *et al.*, 2000), and competency-based models (Lado and Wilson, 1994). An important and acknowledged categorisation of HRM practices was developed by Hayton (2003), whereby the author categorised such practices into traditional versus discretionary HRM practices. The former category involves the use of HRM practices to identify the tasks needed within the firm, and the human capital and behaviours required to perform the identified tasks efficiently. Such criteria are met through the implementation of formal detailed job descriptions, structured approaches to staffing, formal performance appraisal process, job-specific training, and structured pay systems, amongst others. Conversely, the latter category uses HRM practices to promote employee discretion and knowledge sharing. Practices falling under this category include employee empowerment practices, participation programs, incentive pay systems, general skills or group skills training, and profit-sharing, amongst others. *"Therefore, while 'traditional' HRM tends toward an efficiency orientation, discretionary HRM promotes a learning orientation"* (Hayton, 2003; p.380). The other categorisations, identified and acknowledged in literature, tend to accumulate traditional and discretionary HRM practices. Given that the present study aims to understand variations in management practices, distinguishing between these two elements is important in order to understand whether different leaders tend to adopt one or the other, or both. Thus, the present paper shall use this concept to operationalise HRM practices.

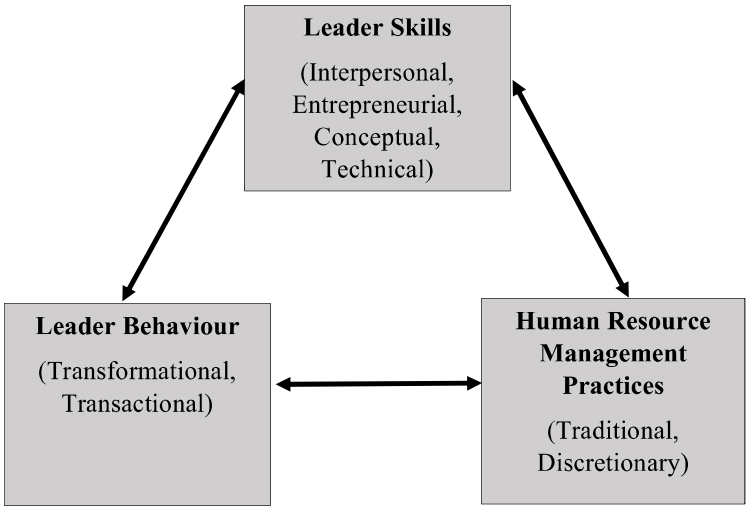
Through these categorisations of leader cognitive structures, behaviours, and management practices, it is possible to move beyond the general framework previously introduced to a more precise specification. This framework is applied in order to analyse the link between firm leaders and HRM practices. The analysis of the identified elements, based on the framework, is undertaken in the next section. The

analysis will help in understanding which skills are likely to be linked to specific behaviours, and how different skills and different behaviours may be associated with HRM practices.

3.04.2 A Model for Leader Skills, Behaviour, and HRM Practices

Based on the framework outlined in the previous section, it can be argued that the relationship between leader skills, behaviour and HRM Practices can be explained through the ABV and ELT. The integration of these two approaches shows that the relationship between the three variables is two-way (Figure 3.2).

Figure 3. 2: Leader Skills, Leader Behaviour, and HRM Practices



3.04.2.1 The Relationship between Leader Skills and Leader Behaviour

The framework shows that the skills of leaders are based on a two-way relationship with their behaviour. The idea that leader skills precede behaviour is recognised by Yukl (2012) who suggested that leader skills allow them to select the required behaviour for a specific situation. In turn, the model indicates that behaviour influences skills. In this section I delve deeper in this analysis by showing how specific skills may be connected to specific behaviours.

Given that leaders require skills (expertise) to identify and enact the required behaviours (Yukl, 2012), the low presence of skills is likely to limit the ability of leaders from undertaking those behaviours. Studies show that leaders who adopt transactional or transformational behaviours are likely to have gone through specific experiences themselves which require such behaviours, or have had the opportunity to observe a role model enacting these behaviours. These experiences help individuals gain the necessary skills to enact such behaviours (Avolio, 1994; Wofford and Goodwin, 1994; Wofford *et al.*, 1998). A low level of skills implies that individuals have not had the needed experience and thus cannot enact such behaviours. Therefore, a low level of skills is unlikely to be associated with the presence of transactional or transformational leader behaviour.

Transformational and transactional leaders are likely to be associated with different cognitive structures and thus skills, based on the various experiences they go through (Bass, 2002; Wofford *et al.*, 1998). Transactional leaders promote contingent-reward system and active management-by-exception. The former implies that employees are given specific orders on their tasks and responsibilities. The latter implies that the transactional leader monitors employees and takes remedial measure when needed (Avolio, Bass and Jung, 1999; Bass, 1997). Both of these elements are clear signs of behavioural control. Under such control procedures, the leader has to have a high knowledge of the specific processes required to produce the good and service (Eisenhardt, 1985; Ouchi, 1977b; Snell, 1992). Therefore, such leaders are likely to be associated with technical skills, which are likely to provide leaders with this knowledge. Through such skills, leaders are likely to limit any discretion that employees might have (Kreutzer, Walter and Cardinal, 2014; Snell, 1992).

Conversely, through intellectual stimulation, transformational leaders encourage employees to solve the issues they face with their respective tasks themselves. Therefore, these leaders are likely to be detached from the specific technicalities involved in producing the good or service (Avolio *et al.*, 1999; Bass, 1997). To this effect, Katz (1955) suggests that, as leaders detach themselves from low-level problem solving issues, technical skills are less likely to be important. Thus, it is expected that while transactional leaders are likely to be associated with technical skills, these skills are unlikely to be associated with transformational leaders.

Transactional and transformational leaders are also likely to vary with respect to interpersonal skills. Through the contingent-reward system, transactional leaders reward employees who perform, and correct/punish employees who do not (Bass, 1997). Such leaders expect their employees to follow the tasks and goals stipulated by them. Thus, there is no necessity for a strong or high quality interpersonal relationship in the transactional process.

On the other hand, transformational leaders promote idealised influence and inspirational motivation by aiming to become role models so as to inspire their employees to behave in a way that they work to reach the company's goals. In addition, transformational leader behaviour is based on individualized consideration whereby such leaders are expected to be sensitive to the needs of employees (Bass and Riggio, 2006). In such cases, interpersonal relationships are important to influence the behaviour of employees in the right direction (Wofford and Goodwin, 1994; Wofford *et al.*, 1998). To this effect, it can be argued that, unlike transactional leaders, transformational leaders are likely to be associated with, or require, higher levels of interpersonal skills.

The behavioural styles are also likely to be associated with different levels of entrepreneurial skills. Studies suggest that transformational leaders are pillars of change and associated with exploratory innovation (e.g., Bryant, 2003; Jansen, Vera and Crossan, 2009). This is a result of idealised influence and inspirational motivation, whereby transformational leaders aim to elicit intrinsic motivation in their employees to experiment and take risks. Moreover, through intellectual stimulation, transformational leaders encourage creativity (Jansen, Vera and Crossan, 2009b). Given their association with exploratory innovations, such leaders are likely to benefit from entrepreneurial skills.

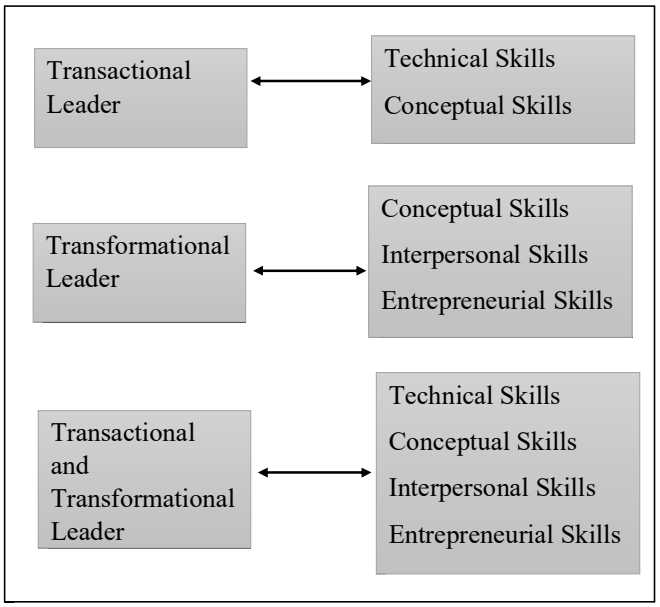
On the other hand, the aim of transactional leaders is to maintain the *status quo* (De Hoogh, Den Hartog and Koopman, 2005). Such leaders do not create an environment for an entrepreneurial vision-based innovation, involving creativity, participation or experimentation (Jansen, Tempelaar, van den Bosch and Volberda, 2009). This implies that entrepreneurial skills are unnecessary to support transactional leadership behaviours.

While the two behavioural styles are likely to be associated with different types of skills, they are also likely to be associated with a common skill – conceptual skills. Transactional leaders function on the basis of a short-term oriented exchange process whereby followers are rewarded if the specified performance standards are achieved. Conversely, transformational leaders aim to motivate employees to work towards the long-term vision of the company (Wofford *et al.*, 1998). In addition, the effectiveness in setting up short- and long-term goals is likely to be associated with conceptual skills. This is because such skills reflect the leader's knowledge on how the internal and external components of the organisation function altogether. This knowledge is important for strategy-making as they help leaders in effectively allocating resources (Mumford, Campion and Morgeson, 2007).

While transactional and transformational leader behaviours are clearly distinct, their leader behaviours are not mutually exclusive. This implies that one leader can implement both types of leadership concurrently with different employees or at different points in time. This is consistent with previous literature which states that leaders can play competing roles simultaneously (Avolio *et al.*, 1999; Vera and Crossan, 2004; Yukl and Van Fleet, 1992). Thus, given that transactional leaders are likely to be associated with technical and conceptual skills, and transformational leaders are likely to be associated with interpersonal, entrepreneurial, and conceptual skills, it is justifiable to presume that leaders who are able to enact both behaviours are likely to have all skills.

The analysis in this section suggests that technical and conceptual skills are associated with transactional leader behaviour; interpersonal, entrepreneurial, and conceptual skills are associated with transformational leader behaviour; all skills are associated with the combination of both behaviours. These outcomes are to some extent in line with present literature. On a broader level, Wofford *et al.* (1998) have suggested that transformational leaders are likely to have a higher level of cognitions compared to transformational leaders. As indicated in the framework presented in Figures 3.1 and 3.2, the association between skills and behaviour is likely to be two-way. The associations outlined in this section are shown in Figure 3.3.

Figure 3. 3: Proposed Associations between Leader Skills and Leader Behaviour



3.04.2.2 The Relationship between Leader Behaviour and HRM Practices

Prior literature has treated leadership and HRM as exogenous to a third variable without considering the endogenous relationship between them. This approach has led to two conflicting conclusions, arguing that the two elements may complement or substitute one another. The arguments are based on the fact that both leader behaviours and HRM practices are used as a means to influence employees to work towards the company's goals (Daley, 2012; Yukl, 2012). Thus, leaders may substitute the use of HRM practices through their leadership behaviours. For example, while Chuang *et al.* (2016) acknowledge an interaction effect between HRM practices and empowering leaders, their findings show that the two factors are likely to substitute each other as they both promote knowledge-sharing and acquisition. Alternatively, leaders may use HRM practices to reinforce their behaviour. To this effect, Messersmith and Wales (2013) find that the leader's entrepreneurial orientation does not influence firm outcomes, unless it interacts with the adequate HRM systems.

Unlike previous studies, through the ABV and ELT, the model presented in this review proposes that the relationship between leader behaviours and HRM practices is endogenous. That is, through their behaviour, leaders are likely to influence the type of HRM system implemented (e.g., Zhu *et al.*, 2005). Conversely, the constant application of HRM leads to an expansive behavioural repertoire, and

therefore HRM application reinforces leader behaviour (Hooijberg and Quinn, 1992).

The definition of transformational leadership is based on categories developed earlier by scholars involving relations-oriented and participative leadership styles (Vera and Crossan, 2004). Transformational leaders work towards the achievement of a long-term vision. HRM practices are likely to play an important role in the communication and implementation process of the vision (Zhu *et al.*, 2005). With regards to the communication process, leaders must ensure that employees are passionate about the vision. This is likely to be achieved by involving the employees in identifying ways on how to achieve the vision. To this effect, through intellectual stimulation, transformational leaders encourage innovative thinking and risk taking (Yukl, 2008; Zhu *et al.*, 2005). Thus, the aim of transformational leaders is to convert followers into leaders by encouraging them to take decisions that are likely to enhance the output of the organisation (Bass and Avolio, 1993; Bass, Avolio and Goodheim, 1987; Bass and Riggio, 2006). Therefore, programmes that encourage employees to communicate their ideas, share knowledge and take risks are likely to help transformational leaders in achieving their vision effectively.

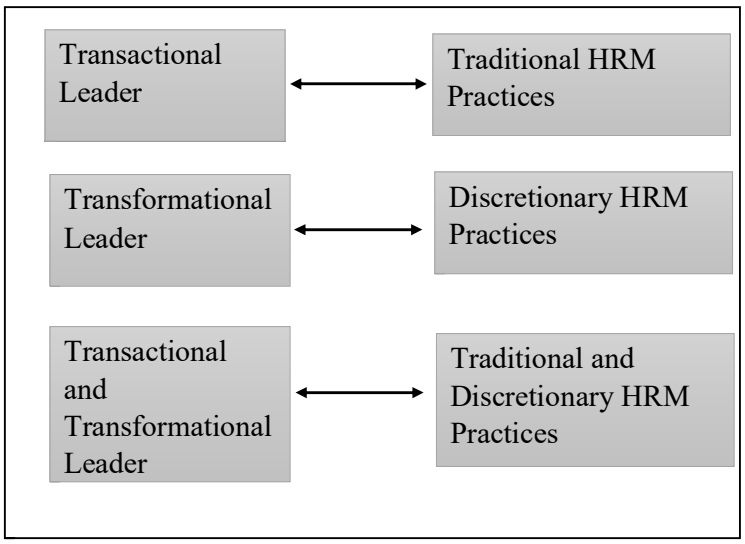
In addition, in order to implement the vision effectively, transformational leaders are likely to ensure that people are engaged and trained in line with environmental changes (Dionne, Yammarino, Atwater and Spangler, 2004). In fact, it is argued that, through individualized consideration, transformational leaders are likely to engage in human capital enhancing tactics in order to help followers achieve their career goals (Zhu *et al.*, 2005). In fact, such leaders act as mentors and coaches in guiding employees to achieve their personal goals (Avolio *et al.*, 1999; Bass, 1999; Zacharatos, Barling and Kelloway, 2000). Furthermore, through individualized consideration, transformational leaders ensure that employees are motivated to work through the adequate rewards systems (Zhu *et al.*, 2005). Based on this analysis, such leaders seem to promote employee discretion, rather than restricting employees through formal controls. This implies that transformational leaders are likely to be associated with the implementation of discretionary HRM practices.

In contrast, the definition of transactional leaders has been developed on task-oriented and directive leadership styles (Vera and Crossan, 2004). In line with these leadership styles, transactional leaders achieve their goals through an exchange process with employees. Being characterised by contingent-reward systems, such

leaders are likely to be associated with extrinsic rewards which are a means to motivate employees to work in line with the goals of the company. Moreover, transactional leaders develop a strategic plan and communicate the plan clearly while assigning the tasks to employees. This implies that such leaders need to be able to identify the human capital required to reach the strategic targets. Under this approach employees receive orders from the leaders, and act accordingly. They are not invited to participate in the planning of the strategy. All these criteria conform to the use of traditional HRM practices.

Therefore, transformational and transactional leaders are likely to be associated with discretionary and traditional HRM practice respectively. Leaders who are able to enact both behaviours are associated with both types of HRM practices. The connections are based on two-way relations as summarised in Figures 3.1 and 3.2. The outcomes of the present section are illustrated in Figure 3.4.

Figure 3. 4: Proposed Associations between Leader Behaviour and HRM Practices



3.04.2.3 The Relationship between Leader Skills and HRM Practices

Based on the proposed framework, the relationship between skills and HRM is two-way. First, skills are likely to make it easier to select and implement the right practices for a given context. Thus, the presence of skills make it more likely that specific practices are implemented, when appropriate. In turn, the proposed framework shows HRM

experience is likely to enhance their experiential knowledge (and thus skills) with that practice. To this effect, Klaas *et al.* (2012) suggest that experience with the implementation of HRM practices enhances the perception of leaders with regards to the effectiveness of HRM practices. Moreover, Frenkel and Lee (2010) find that leaders who are experienced in implementing HRM practices are more effective in doing so because they have better knowledge of the practices.

Therefore, if the presence of skills is likely to help leaders in acknowledging the benefits of HRM practices and implement such practices, it is justifiable to presume that a low level of skills will be associated with the implementation of fewer HRM practices, or less effective implementation. This may be a result of the fact that such leaders are less likely to recognise the use of good management practices to achieve the desired goals.

Given that different skills are based on different criteria, it is likely that each skill category is associated with the adoption of different HRM practices. Conceptual skills refer to the ability to see the organisation as a whole, and the ability of the leader to combine and allocate all resources effectively, in the interest of the organisation (Schein, 1987). Leaders with this type of skill have strategic and visioning skills and are able to design and adopt the right strategy and vision for the firm (Mumford, Campion*, et al.*, 2007). This requires the identification of the quality and quantity of resources needed. In addition, it requires a plan of how to develop the human resources to execute the vision. Given that conceptual skills give a holistic understanding to leaders regarding what their firm needs, based on their thorough knowledge on the internal and external functioning of the firm, conceptual skills are expected to support both traditional and discretionary HRM practices.

Interpersonal skills allow leaders to work and cooperate better with other people. These skills facilitate the process of organisational consensus and help leaders in developing environments that give voice to employees (e.g., Detert and Burris, 2007; Harlos, 2001). Thus, such leaders make it more likely that practices designed to encourage employees to share their opinion and communicate within the firm are implemented, when appropriate. In addition, leaders with people skills reflect an enhanced understanding and sympathy with human behaviour, motivation and human relationships, as such practices *"signal a positive valuation of employees and their efforts by the company"* (Gardner, Wright and Moynihan, 2011, p. 320). Based on

these arguments, it can be stated that such leaders are more likely to promote HRM practices based on the development of relations with and among employees through discretionary HRM practices, rather than through formal systems, when appropriate.

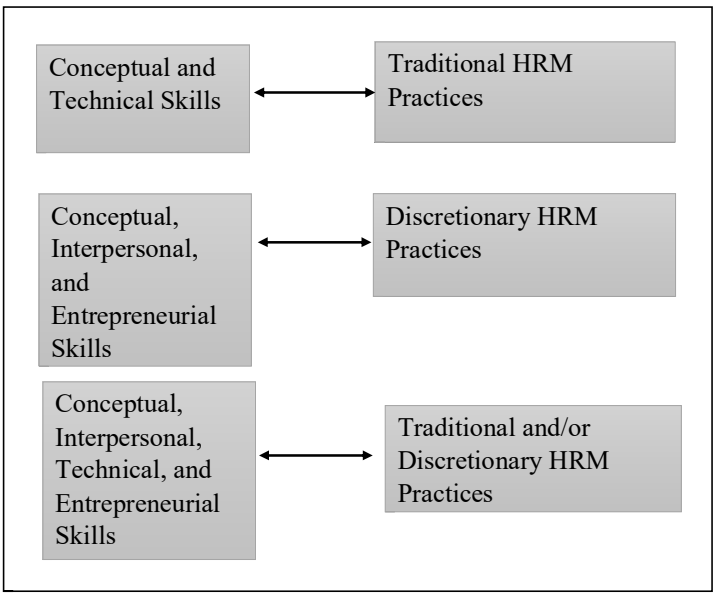
When the leader is a technical expert, it implies that he/she has a high knowledge of the product *per se*, and the tasks, duties, and responsibilities required by employees. They are also likely to have a good understanding of the human capital required to produce the good or service (Ouchi, 1977b; Ouchi and Johnson, 1978; Snell and Dean, 1992). This implies that such leaders are likely to be associated with formal HRM practices that help these leaders to steer employee behaviour in the direction they want, when appropriate. Thus, such skills are likely to be associated with traditional HRM practices.

Entrepreneurial skills involve the ability to attain firm growth by seeking and investing in new and innovative opportunities (Baum and Locke, 2004). Entrepreneurial skilled individuals are likely to understand that discretionary HRM practices facilitate growth in this regard. This is because through a decentralised approach promoted through such practices (e.g., involvement) employees are encouraged to take initiative, to be risk-takers, and focus on innovation (Jantunen, Puumalainen, Saarenketo and Kyläheiko, 2005; Lumpkin and Dess, 2001; Martin, Liao and Campbell, 2013; Turner and Pennington, 2015; Wiklund and Shepherd, 2005; Zahra, Hayton and Salvato, 2004). Risk-shifting on employees is likely to be balanced with monetary rewards that make taking risk worthwhile, and therefore entrepreneurial skills are also associated with motivation-enhancing practices (Hayton, 2003; Laursen and Foss, 2003). Moreover, in the pursuit of new opportunities and innovation, leaders with entrepreneurial skills are likely to invest time in marshalling resources to create a knowledge-sharing and collaborative environment (Zhou and Li, 2012). All of these elements are promoted through discretionary HRM practices (Hayton, 2003).

Although this analysis has investigated skills individually, it is likely that the relationship between skills and HRM practices is one of the profiles of skills. If skills are assessed in profiles a more clear and robust understanding of their association with HRM practices can be provided. For example, if a leader has technical skills, it is argued that this supports or promotes the adoption of traditional HRM practices. But, if such skills are accompanied by conceptual skills, he will have a more

comprehensive understanding of such HRM practices. Similarly, if a leader has conceptual, interpersonal, and entrepreneurial skills, his understanding of the benefits and implications of discretionary HRM practices will be higher. In addition to these arguments, when a leader possesses all skills, he/she is likely to have a comprehensive understanding of both traditional and discretionary HRM practices. All these relations are likely to be two-way as illustrated in Figure 3.5.

Figure 3. 5: Proposed Associations between Leader Skills Profiles and HRM Practices



3.04.2.4 Combining Leader Skills, Leader Behaviour, and HRM Practices

The analysis in the previous section suggests four broad, internally consistent configurations as outlined in Figure 3.6. The Figure brings together three ideal types involving combinations of leader skills, behaviour and HRM practices which emerge from the outcomes outlined in this section related to the association between specific skills, behaviours, and HRM practices.

The 'null case' in the matrix below represents a situation of low leadership. Such leaders are less likely to implement HRM activity when both leader behaviours are absent and skills are low. This reflects the absence of leadership and lack of knowledge of the benefits of such practices respectively.

On the other hand, the presence of transactional leadership behaviour is likely to be associated with the implementation of traditional HRM practices. Leaders are best able to implement such behaviour and recognise the need for such practices when

conceptual and technical skills are present (Type 1).

Figure 3. 6: Proposed Ideal Types

Transformational Leader Behaviour	Transactional Leader Behaviour: *Low*	Transactional Leader Behaviour: *High*
High	**Type 2:** Conceptual, Interpersonal, and Entrepreneurial Skills *with* Discretionary HRM Practices	**Type 3:** Conceptual, Interpersonal, Technical, and Entrepreneurial Skills *with* Traditional and/or Discretionary HRM Practices
Low	**Null Case:** Low Skills *with* Low HRM Practices	**Type 1:** Conceptual and Technical Skills *with* Traditional HRM Practices

The presence of leader skills and behaviour is also associated with the adoption of discretionary HRM practices. Such practices are likely to be associated with transformational leader behaviour. Leaders are able to enact such behaviour, and acknowledge the benefits of such practices when conceptual, interpersonal, and entrepreneurial skills are present (Type 2).

When they converge within a single leader, the first two types of combinations lead to Type 3. Leaders are more likely, and more able to implement both traditional and discretionary practices when they are able to enact both transactional and transformational behaviours. This situation is most probable when all four of the skillsets are strong.

Although the analysis of the 'ideal types' provides an insight into how specific leader cognitions, behaviour, and management practices are associated with one another, such an analysis provides only a partial assessment of the potential connections. In reality, the combinations are likely to be more complex. This complexity is due to several reasons.

First, the framework proposed in this review suggests that the relationship between leader cognitions, behaviour and HRM practices is likely to involve reciprocal associations, resulting in an endogenous relationship between the three

variables. This implies that all variables are mediators and moderators (complementarity effects) upon one another. Therefore, leader behaviour mediates the impact of skills on practices, and also moderates the direct effect of skills on practices; similarly leader skills mediate the effect of experience with practices on behaviours and also moderates that effect; experiences with practices mediate the effect of skills on behaviour, and also moderates that relationship.

Second, there is the possibility of nonlinearity between focal constructs. There is likely to be an extremely large number of possible combinations of leader skills, leader behaviours, and HRM practices. This implies that there may be other leader profiles involving different combinations of skills and behaviour, which are impossible to identify without empirical analysis. Different leaders are likely to draw on different integrated sets of skills, depending on the diversity and intensity of the experiences they have accumulated (Katz, 1955; Mumford *et al.*, 2017), which may lead to different behaviour and HRM practices combinations. This complexity is enhanced when considering the possible substitutability and complementarity between HRM practices and leader behaviours.

The identification of the relationship between the variables becomes even more complex when considering that there are multiple sub-dimensions under each focal construct, which have to be assessed concurrently. Skills are likely to be interrelated, and thus it is difficult to determine the influence of an individual skill at a particular point in time (Katz, 1955). Similarly, leaders may adopt elements from transactional and transformational behaviours concurrently, depending on their objective (Yukl *et al.*, 2002). In addition, HRM practices tend to overlap, involving substitutions and complementarities among different practices. Thus, nonlinearity may also occur among the sub-dimensions of the focal constructs. These arguments imply that if the sub-dimensions of skills, behaviours and practices are assessed individually, the effects of the focal constructs on one another are likely to be over- or understated.

Third, given that multiple combinations of variables under the three constructs are likely to be involved, the relationships between the focal constructs may involve equifinality. Equifinal solutions reflect different combinations of variables resulting in the same outcome. For example, given that HRM practices are likely to complement or substitute each other (Lepak, Bartol and Erhardt, 2005), leaders may achieve

similar objectives by adopting different configurations of practices.

Fourth, the different constructs may involve asymmetric reciprocal relations. The potential for asymmetry is suggested by evidence in other contexts of 'hygiene effects' whose presence is necessary for a given outcome but does not improve performance without limit (Herzberg, Mausner and Snyderman, 1959). For example, if one were to compare outcomes involving the low presence and high presence of HRM practices, it is expected that high HRM practices are associated with the presence of skills, whilst low HRM practices is associated with low levels of skills (see: Figure 3.6). However, it could also be the case that highly skilled leaders deem fit not to invest in HRM practices due to the specific circumstances the firm is operating in. Therefore, at this stage, assuming symmetric effect places an unnecessary restriction on the nature of the associations.

From the analysis of this section it can be concluded that while leader skills, transformational and transactional leader behaviours, and HRM practices are likely to be connected, theoretical rationale and empirical evidence that leads to a comprehensive understanding on the associations between the three constructs is missing. These limitations have made it very difficult to generate hypotheses based on past studies (see: Campbell, Sirmon and Schijven, 2016). In addition, even if one had to extract some potential combinations, the issue of endogeneity, nonlinearity (substitutions and complementarities within and between focal constructs), equifinality, and possible asymmetric reciprocal associations make it very difficult to extract any potential hypothesis related to the framework. To this effect, in the next section I propose a research agenda based on configurational analysis, which allows for an inductive analysis, and incorporated the complexities among the constructs highlighted in this section.

3.05 Research Agenda- A Configurational Model for Leader Skills, Leader Behaviour, and HRM Practices

In this section I identify a modelling strategy that allows for the empirical analysis of the relationship between leader skills, leader behaviour, and HRM practices. Based on the previous analysis, the identified model needs to cater for a detailed analysis of reciprocal associations, nonlinearity, equifinality, and asymmetric reciprocal connections. These complexities suggest that conventional econometric methods may not be the best way to assess the relations.

Traditional linear econometric methods are restricted by a correlational approach which does not allow for the assessment of configurations. Correlation-based analysis requires that one variable is treated as exogenous, while it only allows for the assessment of the individual variables. Moreover, linear models that can handle endogeneity, such as structural equation modelling or current approaches to mediation analysis, are unlikely to be adequate as with such models it is very difficult to interpret outcomes that are based on analysis involving more than two-way interactions (Fiss, 2007). Even if it were possible to assess relations that go beyond two-way interactions, linear regression models do not cater for complex associations based on endogenous connections, nonlinearity, equifinality, and asymmetric reciprocal associations. Specifically, regression-based methods assume that the relationships between variables remain constant, and that such relations are symmetric (Fiss, 2007, 2011). Thus, the adoption of linear econometric models may lead to distorted outcomes.

Compared to traditional econometric methods, the adoption of a configurational approach is likely to allow for the analysis of complex relations in more detail (Delery and Doty, 1996). A configuration is defined as a gestalt of essential and interdependent elements (Meyer *et al.*, 1993). Recently scholars in the field of social sciences have assessed complex configurations through Qualitative Comparative Analysis (QCA) based on a set-theoretic methodology (Fiss, 2007, 2011). This shows that currently, this configurational tool is the most effective method available to assess complex connections (see: Curado, Muñoz-Pascual and Galende, 2018; Ho, Plewa and Lu, 2016; Skarmeas, Saridakis and Leonidou, 2018; Tóth, Thiesbrummel, Henneberg and Naudé, 2015). As shown in the remaining part of this section, the method is likely to be well suited to investigate complex relations between leader skills, behaviour, and HRM practices.

Set-theoretic methods are a configurational tool which allows for the analysis of simultaneous multiple interactions. Moreover, the variables are evaluated synergistically, that is the method focuses on the combined effects rather than individually in a linear additive fashion. Therefore, in line with the proposed model, under this method, leader skills, behaviour and HRM systems would be considered as an endogenous bundle, with different bundles comprising of different potential interactions among the sub-dimensions (Delery and Doty, 1996). This solves the issue of reciprocal connections among the focal

constructs, that is, that all variables are both mediators and moderators. It also solves the issue that different sub-dimensions have to be assessed concurrently.

In addition, various relational patterns between the focal constructs and sub-dimensions can also be assessed in detail under the configurational approach, given that the model allows for nonlinearity. Nonlinearity implies that *"variables found to be causally related in one configuration may be unrelated or even inversely related in another"* (Meyer *et al.*, 1993: p.1178). This implies that the relations between the variables varies between one configuration and another (Fiss, 2007; Meyer *et al.*, 1993).

Set-theoretic methods also allow for the possibility to assess equifinal relations, that is, various configurations can lead to the same outcomes (Delery and Doty, 1996; Fiss, 2007; Meyer *et al.*, 1993). As identified in the previous section, equifinality is likely to be present with respect to leader skills, leader behaviour and HRM practices. Moreover, set-theoretic methods allow for the analysis of asymmetric reciprocal relations. Asymmetric reciprocal relations highlight the fact the variables associated with the absence of a variable may not be the inverse of the variables associated with the presence of a variable (Fiss, 2011). This function is important for the analysis of our framework as it will lead to an understanding of how different leader combinations are associated with variations in bundles of HRM practices in terms of the presence and absence of different bundles.

These complex associations are assessed in a robust way under set theoretic methods. This is due to the fact that the method allows researchers to identify a large number of combinations, enabling the identification of specific common patterns associated with an outcome. Moreover, complex associations are assessed in detail as the method removes elements that are not related to the outcomes. In addition, set-theoretic methods provide the level of coverage of each configuration, which indicates the extent to which the model explains variations in the outcome variable (Fiss, 2007). Based on these criteria, Fiss (2007) states that *"set-theoretic methods offer a rigorous and nuanced way of assessing the complex ways in which causes combine to create outcomes"* (p.1194).

Most importantly, set-theoretic methods are ideal to assess the relations identified in this review because such methods allow for detailed inductive reasoning. The method allows the exploration of necessary and sufficiency conditions (Longest and Vaisey,

2008). Necessary conditions are conditions that have to be present for the outcome to be present, sufficiency conditions are conditions that are relevant in producing the outcome but not the only cause (Fiss, 2007, 2011; Lacey and Fiss, 2009; Ragin, 2000). Together with the possibility of investigating the complex interrelationships between leader cognitions, behaviours and HRM practices, being able to distinguish between necessary and sufficiency conditions is important because such conditions provide the causal logic that enables us to conduct deep inductive investigations (Fiss, 2007).

Under set-theoretic methods, measures are assessed by case (which form part of pre-defined sets) and not by variable (Ragin, 2000). Set-theoretic methods can be set up in two ways including crisp-set and fuzzy-set. Crisp-sets provide a less detailed analysis compared to fuzzy-sets. Crisp-sets are based on binary values which simply indicate whether a variable is in or out of the set. On the other hand, fuzzy-set Qualitative Comparative Analysis (fsQCA) provides a detailed explanation of the interactions of the variables under review as it allows researchers to apply ordinal and continuous measures, which provide the researcher with information regarding the degree to which a variable is a member of the set (Fiss, 2007). These features allow for a more fine-grained analysis of the configurational patterns. Based on this detailed analysis, fuzzy-sets are regarded as the most ideal methods to assess the complexities involved in human decision-making. To this effect, Zadeh (1965) suggested that such methods align well with *"human thinking, particularly in the domains of pattern recognition, communication of information, and abstraction"* (p. 339).

Thus, based on this analysis it can be deduced that set-theoretic methods involving fuzzy-set analysis are the most adequate method to assess configurations involving leader cognitions, behaviour, and management practices. These elements are unlikely to be based on binary values and are likely to interact in complex ways. With the exception of a few studies (e.g., Meuer, 2017; Whittington, McKee, Goodwin and Bell, 2013) fsQCA has not been implemented in leadership and HRM research. Therefore, the implementation of this approach in these areas can offer new insight to the antecedents of HRM practices.

3.06 Discussion and Concluding Remarks

To date, scholars have consistently suggested that the presence of sophisticated management practices leads to positive firm outcomes. Still, in reality, firms do not adopt management practices ubiquitously, they tend to vary in the level and patterns of management practices implemented. While some studies highlight the fact that different practices are implemented among firms even those with similar characteristics, the determinants of such variations have been ignored. Through this review, I enhance the understanding as to why firms vary in the implementation of management practices. Present strategic management theories have been challenged to take into account the complex real-world settings within which management practices are implemented.

By drawing on present theories and literature, I show that, at a general level, theory suggests that variations in management practices are likely to be a result of the combined influence of leader cognitions and leader behaviours. However, because the theoretical arguments operate at a high level of abstraction and due to the absence of empirical evidence linking the three constructs, it was not possible to deduce hypothetical associations between specific cognitions and behaviours, and consequent differences in management practices. As a result, the utility of existing theoretical arguments for understanding variations in adoption of management practices is constrained.

To this effect, I develop a conceptual framework based on the ABV and ELT. The integration of these two views has shown that the relationship between leader cognitions based on experiential knowledge structures, leader behaviour, and management practices is based on reciprocal connections, leading to endogenous relationships between the constructs. This combination is particularly important because such connections have only been acknowledged at a general level in previous studies. In addition, the framework represents a foundation on how to integrate future studies related to the influence of leader cognitions and leader behaviour on strategic choices, which, until today have been assumed as two separate methods of influence (Yukl, 2012). The framework is also important because through its application, it has been possible to deduce more precisely the potential patterns of associations between specific leader experiential knowledge structures (represented through skills), specific

leader behaviour, and specific management practices (represented through HRM). The application of the conceptual framework leads to various conceptual advances.

Based on this review, theorising on leadership has been advanced through the establishment of a link between leader skills and specific leader behaviours, which link also supports cognitive literature (see: Bandura, 1982; Lazarus, 1991). While a limited stream of research in the field of leadership has attempted to investigate the relationship between leader cognitions and leader behaviour (e.g., Wofford and Goodwin, 1994), studies on the specific connection between leader cognitions including skills and leader behaviour remain absent in literature. In fact, Yukl (2012) states that *"research on how (leader) skills can enhance the effects of leader behaviour is still very limited, and more studies are needed to discover how a leader's skills and personality traits influence the choice of behaviours and leader flexibility in adapting behaviour to different situations"* (p.77).

The analysis supports theorising with respect to leadership and HRM literature also by highlighting the combined influence of leader skills and specific behaviours with respect to HRM practices. Studies linking these constructs are general and fragmented. Also, there is no sufficient evidence of how specific cognitions, specific behaviours, and specific management practices are connected (see: Baron and Hannan, 2002; Klaas *et al*., 2012; Zhu, Chew and Spangler, 2005). To this effect the review has led to three ideal types of combinations involving skill profiles, specific leader behaviour, and HRM practices.

In addition, the link between leader skills, specific behaviours and HRM practices also advances theorising with regards to microfoundations of strategic management. This area of research promotes the idea that organisational-level elements are likely to influence individual-level elements within firms, and *vice versa* (Felin *et al.*, 2015). Strategic research related to HRM practices tends to focus on the implications of such practices on performance (e.g., Huselid, 1995). What this stream of literature has failed to investigate is how individuals within firms, such as leaders, are likely to influence the adoption of HRM practices. Through the analysis it is proposed that there are likely to be different combinations of leader skill profiles, specific leader behaviours, and HRM practices. Given that HRM practices are likely to lead to enhanced firm outcomes (e.g., Huselid, 1995), the identified combinations

lead to the conclusion that leaders are likely to have an impact on organisation-level outcomes such as firm performance.

However, in line with the identification of the ideal types which helped in advancing leadership, HRM, and microfoundations literature, it is also claimed that the relationship between leadership and HRM practices is more complex. There are likely to be multiple combinations of leader skills, specific leader behaviours, and HRM bundles. These combinations are likely to involve nonlinearity, equifinality, and asymmetric reciprocal relations. As a result of these complexities and general-level theories, the review refrained from generating any specific theoretically-driven hypothesis, and as a result a research agenda has been proposed.

Through the research agenda, the review contributes to current empirical work in leadership and HRM literature by proposing a sophisticated empirical method that caters for the complexities involved among the constructs, and that also caters for inductive reasoning. To date, there is no empirical evidence on how the three focal constructs are connected. Such methods are based on configurational approach, namely fuzzy-set-theoretic methods. In line with theoretical and empirical advancements, the review has important implications for policy makers. From a practical viewpoint, this review is important because it guides leaders with respect to the skills they have to adopt in order to successfully implement the required management practices, as a means to attain the company's goals.

Like any other study, this framework has some limitations, particularly involving its boundary conditions. While the framework is one of the first frameworks that combines leader cognitions and leader behaviours with respect to management practices, it is still in its initial state of development. The focal constructs presented in the original model are quite general, this allows for further theoretical elaboration and empirical testing. For example, in line with experiential knowledge structures, cognitions are likely to be based on various knowledge structures such as tacit, schematic, and associational knowledge (Mumford, Friedrich, *et al.*, 2007). In addition, leader cognitions may also be influenced by leader traits, representing the leader's innate characteristics (Yukl, 2012). Furthermore, leader behaviour is also generic as a construct, given that multiple categorisations of leader behaviours have evolved over time (Pearce and Sims Jr, 2002). Finally, management practices also

represent a wide range of practices, beyond HRM practices (Bloom and Van Reenen, 2007). Thus, the framework could be further developed by combining different types/categories of cognitions, behaviours, and management practices.

Based on these generalisations, future research should use this model as a foundation, and develop detailed mechanisms on the relations between leader cognitions, leader behaviour, and management practices. Such mechanisms would allow for a more fine-grained assessment of how different leaders influence variations in management practices. In addition, the framework could also be elaborated by adding contextual factors (e.g., the firm's external and internal environment) that are known to influence leader cognitions, and the adoption of management practices (see: Hambrick and Mason, 1984; Jackson, Schuler and Jiang, 2014). Such an analysis is important to understand how the environment, leader cognitions, behaviour, and management practices are connected. Finally, future research can adopt the framework and research agenda and empirically test the proposed framework using the suggested methodology.

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CHAPTER 4 - LEADER INFLUENCES ON THE ADOPTION OF MANAGEMENT PRACTICES: A CONFIGURATIONAL APPROACH

4.01 Abstract

Prior research shows that management practices play a crucial role in determining organisational outcomes. Still, evidence indicates that firms implement different levels of management practices. The source of this variation has been explored only to a limited extent. In this study I propose that leader cognitions and strategic behaviours are a significant source of variation in the adoption of management practices. Based on a sample of 348 owner-managed small and medium-sized enterprises, I take an inductive approach, involving fuzzy-logic methodology. This is a relatively new approach in the field of strategic management. The results show compelling evidence of how combined patterns of leader cognitions and strategic behaviours influence the level of management practices. By constructing different leader classes associated with the high and low presence of management practices, I show that leader influence is complex, involving nonlinearity, multifinality, equifinality, and asymmetric reciprocal associations. In line with these findings, the study outlines theoretical insights related to the fields of leadership, HRM, microfoundations of strategic management, and human capital theory. In addition, concrete implications for practitioners are discussed.

4.02 Introduction

Decades of studies have consistently shown that sophisticated management practices have a positive influence on organisational outcomes (e.g., Miller and Cardinal, 1994). The importance of management practices stems from the fact that they bridge the firm's strategy and performance (e.g., Youndt, Snell, Dean Jr and Lepak, 1996). Despite these conclusions, various studies show considerable variations in the level of management practices implemented across and within countries, sectors, and industries (Bloom and Van Reenen, 2007). One important trend that these studies show is that some firms are likely to adopt higher levels of sophisticated management practices compared to others, despite the fact that they operate in the same industry and the same country, and thus face

similar strategic and environmental challenges (see: Arthur, 1994; Ichniowski, Shaw and Crandall, 1995) .

While it is clear that sophisticated management practices are an important element for firm performance, it is not clear why firms adopt different levels of management practices (Bloom and Van Reenen, 2007, 2010). In line with these *lacunae* in literature, I address the following question: *Why do some firms adopt effective management practices, while others do not?* I start by addressing this research question through the lens of the behavioural theory of the firm. The theory states that decisions with regards to the implementation of strategic choices, including management practices, are a result of behavioural factors, rather than a rational process aimed at economic optimisation (Cyert and March, 1963; Hambrick and Mason, 1984; March and Simon, 1958; Simon, 1947, 1982). This theory gave rise to top-down approaches and theories which posit that strategic decisions are based on uncertain conditions and are likely to reflect the cognitions of decision-makers, that is, how leaders interpret the information available within the environment (Hambrick and Mason, 1984; Ocasio, 1997). Based on these outcomes, I suggest that variations in management practices may be a result of different leader cognitions.

In addition to cognitions, a second potential influence on variations in strategic choices is the strategic behaviour of leaders. Strategic behaviour reflects the role of top leaders' behavioural choices in influencing the strategic direction and processes of the firm, including his/her way of influencing interactions with and among employees (Hart, 1992; Vera and Crossan, 2004). Behavioural theories of leadership posit that leader behavioural choices differ as they reflect the individual characteristics of the leader such as values (Yukl, 1999). Complementing this view, cognitive theories suggest that leader cognitions are likely to precede strategic behaviour (Bandura, 1982; Wofford and Goodwin, 1994). This implies that a comprehensive analysis of leader influence on variations in management practices should include both cognitions and strategic behaviours.

Although evidence shows that leader cognitions are likely to influence their behaviour (Wofford and Goodwin, 1994), research on how these two elements integrate to influence strategic choices including management practices is absent. Scholars have acknowledged the role of leader cognitions and behaviours in determining strategic choices, only on a separate basis (Conger, 1999; Hambrick and Mason, 1984). Despite

the presence of these studies, empirical evidence on how leaders' cognitions and behaviours influence the adoption of sophisticated management practices such as Human Resource Management (HRM) practices is limited (see: Baron and Hannan, 2002; Zhu, Chew and Spangler, 2005).

Theoretical arguments posit that cognitions, behaviours and management practices are linked. However, the explanation exists only at a general level. Meso-level theories propose that cognitions, behaviours, and management practices are linked, but do not provide sufficient definition to derive specific hypotheses about what kinds of cognitions, or behaviours, link with the adoption of better management practices. It is therefore unsurprising that there is little or no empirical evidence of such an association. In view of these gaps, and building upon these theoretical bases, I develop a conceptual framework linking leader cognitions, strategic behaviour, and management practices. I then proceed by providing empirical evidence of these associations.

Due to the high-level theoretical arguments, and empirical complexities, I employ an inductive, theory-building approach involving fuzzy-set analysis, based on set-theoretic methodology (Fiss, 2007). Through this empirical analysis, different combinations of specific leader cognitions and specific strategic behaviours that are associated with the high and low presence of management practices are examined. Thus, the goal is to not only provide evidence of an association, but to derive evidence of the patterns of association among the facets of these variables - i.e. specific cognitions and specific behaviours, with respect to variations in the adoption of management practices - and then seek to present these as stylised facts that may help further theorising. The ultimate objective is to enhance our understanding of factors driving adoption of better management practices.

I contribute to existing literature by providing novel insights on how leaders influence the adoption of management practices. An important research stream which I contribute to involves the micro-foundations of strategy which seeks to understand the individual actions underlying organizational level phenomena (Felin *et al.*, 2015). In addition, I also extend theoretical insight with regards to the leadership literature and support cognitive theories by illustrating the complex implications of the combined effects of leader cognitions and strategic behaviour, on the adoption of management practices. Potential implications with regards to other theories are also discussed in detail on the basis of the results.

The findings offer important practical implications. Given that management practices influence employee productivity and performance, the identification of the determinants of such practices is likely to have important implications for individual firms and entire economies. Taking an inductive approach, I begin by outlining the guiding conceptual framework, followed by a description of the methodology and summary of results. Based on the results, I develop a discussion, leading to theoretical insights generated through the findings. This is followed by the practical implications, suggestions for future research, and concluding remarks.

4.03 The Role of Leaders in Determining Variations in Management Practices

I begin by briefly reviewing existing research that examines the link between leaders and organisational strategic decisions. Overall, this research outlines two broad leader influences with respect to such decisions, involving leader cognitions (Child, 1997; Hambrick and Mason, 1984) and strategic leader behaviour (Hart, 1992; Vera and Crossan, 2004). Based on cognitive theories, evidence shows that these two methods of influence are likely to have joint implications on organisational strategic decisions, as leader cognitions are likely to precede strategic behaviour (Mumford *et al.*, 2017). However, the theories are still not sufficiently precise about how particular cognitions and specific behaviours influence the adoption of best management practices, individually or in a combined way. Thus, the theoretical understanding on how leader cognitions and strategic behaviour influence management practices is not comprehensive.

This theoretical problem is explored inductively. After investigating the associations between leader cognitions, strategic behaviours, and management practices, I develop a conceptual framework explaining the mechanisms between these constructs. In order to be able to examine the framework empirically, and develop further, novel theoretical insights inductively, I also examine issues relating to the measurement and modelling of the theoretical constructs.

4.03.1 Leader Cognitions, Strategic Behaviour and Variations in Management Practices

The behavioural theory of the firm suggests that decisions in organizations are significantly influenced by the bounded rationality of decision-makers. A key evolution of the concept of bounded rationality is the notion of organisational attention-directors (Cyert and March, 1963; Hambrick and Mason, 1984; Ocasio, 1997; Simon, 1947, 1982). Leaders are constantly faced with complex internal and external stimuli. Due to bounded rationality, leaders are likely to give priority to some stimuli, and ignore others. Through this attentional processing mechanism, leaders construct mental models in order to give sense to the environment, before taking strategic decisions (Weick, 1995; Weick, Sutcliffe and Obstfeld, 2005). Thus, in order to understand how leaders influence decisions, it is important to investigate how they construct mental models.

Leaders' mental models are based on their knowledge structures, defined as the mental template that individuals use to simplify complex information environments (Kiesler and Sproull, 1982; March and Simon, 1958; Walsh, 1995). These knowledge structures help in understanding how leaders cope with limited attention and information processing capabilities, in order to take specific decisions (Walsh, 1995). From the different types of leader knowledge structures highlighted in various studies, experiential knowledge is regarded as the most important cognitive component for leaders (e.g., Miller, 1993; Mumford, 2017). Experiential knowledge structures have been identified as a crucial component when it comes to executing the main leadership role - influencing and solving complex real-world settings (Mumford, Friedrich*, et al.*, 2007; Mumford *et al.*, 2017). For example, Miller (1993) states that experiential knowledge structures "*shape the lens-like cognitive structures through which managers see the world"* (p. 119). In addition, experiential knowledge structures are more easily acquired and recalled compared to other types of knowledge structures such as conceptual knowledge (Mumford *et al.*, 2017). This is likely to help leaders in identifying and acting upon environmental stimuli more effectively.

Experiential knowledge structures involve various experiences gained over time through the different tasks undertaken, and issues faced (Nonaka, 1994; Walsh, 1995). By reflecting on different experiences, individuals develop mental models through two mechanisms (Mumford *et al.*, 2017). First, when an individual faces an experience that is familiar, the mental model is likely to be drawn directly from past direct or observational

experiences, a technique known as 'recognition-based-decision-making'. Second, when the experience faced is new and cannot be easily solved, the individual is likely to engage in a more complex cognitive process of combining the outcomes of multiple relevant experiences. In this case, individuals are likely to generate new knowledge which help in finding a new solution (Bower and Hilgard, 1981; Mumford, Friedrich*, et al.*, 2007).

The mental models, based on their experiential knowledge structures, are likely to vary among leaders because different individuals go through different experiences over a lifetime. This means that different leaders are likely to go through different experiences in observing or actually implementing different management practices. This implies that they develop different mental models of when and how to apply different management practices. While it is not clear how specific experiences influence the adoption of specific management practices (Klaas *et al.*, 2012), research shows that different leader experiences are likely to influence variations in the firm's strategic choices (Sambharya, 1996; Song, 1982). Thus, variations in management practices are likely to be associated with different leader experiences.

In line with this argument, it can be stated that variations in experiential knowledge structures are likely to influence variations in the level of management practices implemented. To a limited extent, present literature supports this claim. Scholars suggest that experienced leaders have a better understanding of the industry, and the required solutions for different situations, places, and periods of time. This is because experienced leaders are likely to have accurate mental models based on a repertoire of solutions (Levitt and March, 1988; Miller, 1993). This understanding gives leaders the ability to plan ahead, and thus such leaders are more likely to implement the management practices needed to reach those plans, such as performance targets and people practices (Mumford, Friedrich*, et al.*, 2007; Mumford *et al.*, 2002). Without experience, all else equal, leaders are less likely to be able to identify which practices are required for a given situation.

In fact, high levels of experience among leaders are likely to be associated with better leader and organisational outcomes, compared to low experienced leaders (e.g., Bettin and Kennedy, 1990). Given that good management practices are associated with enhanced organisational performance, it can be argued that leaders with high experiential knowledge are likely to be associated with the implementation of effective management practices.

These arguments are in line with present top-down cognitive theories (e.g., upper echelons theory) which state that leaders are characterised by idiosyncratic characteristics which influence how they process information, leading to different strategic choices (Hambrick and Mason, 1984). Despite these acknowledgements, literature does not clearly show how specific components of leader cognitions, such as the types of experiential knowledge structures, influence the implementation of different management practices.

Studies also show that different strategic choices are likely to be influenced by variations in the leader's strategic behaviour (Bass and Avolio, 1993; Jung and Avolio, 2000). These variations are based on the fact that different strategic behaviours are defined on the basis of different behavioural choices, arising from the different individual characteristics (e.g., values) (Yukl, 2012). For example, research shows that due to the value certain strategic behaviours, such as transformational leadership behaviour, give to the uniqueness of human capital, they are more likely to be associated with the presence of sophisticated human resource management practices, when compared to the use of transactional behaviours (Liu, Lepak, Takeuchi and Sims, 2003; Zhu *et al.*, 2005).

Despite these general observations, the theoretical rationale and empirical findings on how variations in strategic behaviour are associated with the implementation of management practices are rather generic, nonspecific, and unclear (Zhu *et al.*, 2005). In fact, studies involving strategic behaviour mainly focus on the implications with respect to group or organisational processes and outcomes, rather than the drivers of such behaviour (Conger, 1999; Peterson *et al.*, 2008).

Theoretically, the influence of leader strategic behaviour on strategic choices can be justified through a cognitive lens, which suggests that leader cognitions are associated with their actions (Bandura, 1986; Lazarus, 1991; Wolff, Pescosolido and Druskat, 2002). Leader cognitions precede strategic behaviour by influencing how leaders address leadership problems (e.g., participation), what influence tactics (strategic and emotional) they adopt, and the boundary conditions related to task performance they adopt (Mumford *et al.*, 2017). The evidence indicates that different leader strategic behaviours are associated with different mental models (Mumford, 2006). Thus, it can be argued that different leader behaviours are likely to be associated with variations in experiential knowledge structures. In fact, studies show that people adopting transformational

(transactional) strategic behaviours are likely to have gone through specific life experiences that require transformational (transactional) behaviours, or may have had the opportunity to observe transformational (transactional) role models (Avolio, 1994; Wofford and Goodwin, 1994; Wofford *et al.*, 1998). Despite the acknowledgements that cognitions may influence strategic behaviour, it is not clear how different experiential knowledge structures are likely to be associated with different strategic behaviours.

Based on these arguments, it can be stated that idiosyncratic leader mental models, based on experiential knowledge structures and different strategic behaviours, are likely to be associated with variations in the level of management practices implemented. Despite the arguments put forth in this section, it can be noticed that the theoretical arguments are at a very general level. Such arguments rarely focus on the association between specific cognitions, specific strategic behaviours and specific management practices. In addition, empirical evidence that links all three components is missing. In order to address this gap, I propose a framework based on two theoretical perspectives which combine the influence of leader cognitions based on experiential knowledge structures, and strategic behaviour, with respect to management practices. The identification of the preliminary framework helps articulate the mechanisms for the interdependence among these three sets of variables, and propose a specific approach to studying the phenomenon empirically.

4.03.2 Leader Cognitions, Strategic Behaviour, and Management Practices: A Conceptual Framework

In order to provide theoretical underpinnings to the relation between leader experiential knowledge structures, strategic behaviour and management practices, I combine the Attention-based View (ABV; Ocasio, 1997) and Experiential Learning Theory (ELT; Kolb, 1984a). The ABV is a top-down cognitive approach which acknowledges leader influence on organisational decisions through cognitions and strategic behaviour. On the other hand, the ELT is an individual-level approach, explaining how individual cognitions based, on experiential learning, and behaviour interact.

Ocasio's (1997) ABV explains that leaders, through their cognitions, influence strategic choices. The model posits that leaders tend to focus on a limited set of stimuli,

which in turn determine what they do in terms of organisational moves. In addition to the direct influence of cognitions on strategic choices, the model also shows that leader cognitions precede procedural and communication channels which in turn influence organisational decisions. These channels are defined as *"formal and informal concrete activities, interactions, and communications set up by the firm"* (p.194). Therefore, it could be suggested that procedures and communication processes used in a company are reflected in the leader's strategic behaviour. This is because through their strategic behaviour leaders influence the strategic activities and processes that take place, including employee involvement, and methods of communication (Hart, 1992; Vera and Crossan, 2004). Thus, in line with the review in the previous section, the ABV suggests that choices concerning management practices are likely to be influenced by both leader cognitions and strategic behaviour.

Moreover, the ABV posits that strategic choices are likely to influence reciprocally leader cognitions. Leaders are likely to use information related to the outcomes of strategic choices as a reference for future decisions and behaviours. This argument is further explained through the ELT.

The ELT shows that when individuals actively experience an activity, or a reinterpretation of the existing activity, they are likely to reflect and review that experience. Based on these reflections they develop abstract conceptualisations (mental models) which give rise to new ideas or existing ideas. This leads to active experimentation whereby the individual applies these ideas to future real-world experiences to see what results emerge, resulting in new experiences (Kolb, 1984b; Kolb and Fry, 1975; Kolb and Plovnick, 1977).

Thus, in line with the ABV, the ELT suggests that experiential knowledge structures are likely to influence action, implying that the experiences leaders go through are likely to influence their strategic behaviour. In turn, the ELT model also states that action provides knowledge structures against which future experiences are evaluated. Thus, it can be implied that leader strategic behaviour is likely to influence experiential knowledge. To this effect, Carmeli, Tishler and Edmondson (2012) posit that when people in leadership positions act upon a situation, and reflect upon that experience, they enhance their stock of knowledge in a way that allows them to improve the quality of

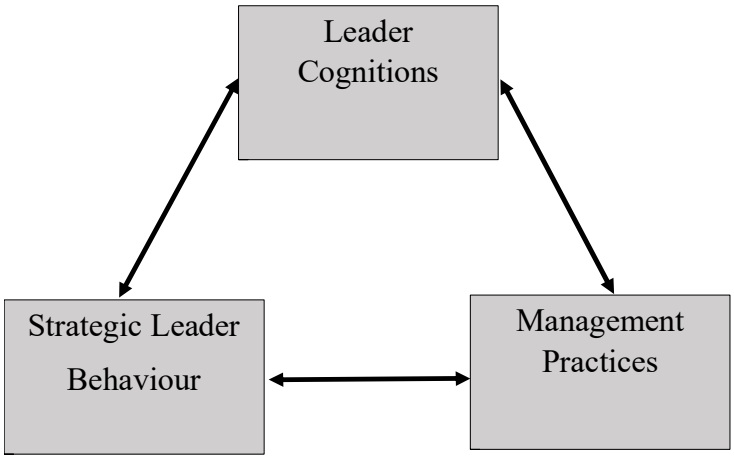
future decisions. Thus, by integrating the ABV and ELT, it could be implied that the relationship between leader cognitions and strategic behaviour is two-way.

The ELT also suggests that when leaders actively involve themselves in the implementation of management practices, they are likely to enhance their experiential knowledge with regards to those practices. This argument is in line with previous findings which suggest that past organisational moves have implications on managers' interpretations of events (e.g., Martins and Kambil, 1999). To this effect, Klaas *et al.* (2012) find that the implementation of HRM practices, positively influences leader perception with regards to management practices. Therefore, by merging the outcomes of the ABV and ELT, it is suggested that leader cognitions, based on experiential knowledge and management practices are likely to have a two-way relation.

Another relationship identified through the ELT involves strategic behaviours and management practices. The perspective suggests that, when leaders are actively involved in an experience, they are likely to expand their behavioural repertoire, leading to more behavioural stability. Based on this argument it can be stated that given that different strategic behaviours are likely to be associated with the implementation of specific management practices (ABV), the experience gained through the constant implementation of such practices is likely to reinforce the use of specific leader behaviours (ELT). To this effect, Wofford and Goodwin (1994) and Wofford *et al.* (1998) suggest that leaders adopting transactional behaviour are likely to have experienced working toward short-term goals, while leaders adopting transformational behaviours are likely to have had the opportunity to work toward long-term goals. Therefore, by integrating the outcomes of the ABV and ELT, it is suggested that strategic behaviour and management practices are likely to have a two-way relation.

Therefore, the ABV acknowledges the leader's influence on strategic decisions including management practices through cognitions and strategic behaviour. On the other hand, the ELT provides arguments for the reverse linkages identified in the ABV. Based on the conclusions identified in this section, it is suggested that the leader's influence with respect to management practices involves two-way associations between the leader's experiential knowledge structures, strategic behaviour, and management practices (Figure 4.1).

Figure 4. 1: Leader Cognitions, Strategic Leader Behaviour, and Management Practices



The next step involves the application of the conceptual framework, outlining the elements that constitute leader cognitions, strategic behaviour, and management practices. This step is important in order to be able to empirically assess these connections.

4.03.3 Application of the Framework

In this section, I discuss how I intend to proceed with the operationalisation of leader cognitions, behaviour, and management practices.

In terms of management practices, I focus on Human Resource Management (HRM) practices, based on the widespread recognition of the importance of such practices on firm performance (Huselid, 1995). The specific focus is on the use of HRM best practices designed to influence, manage, attract, and retain the firm's human capital (Bloom and Van Reenen, 2007). There is ample evidence that sophisticated HRM practices matter for organisational performance. In fact, HRM practices are much more investigated in literature compared to other management practices (Bloom and Van Reenen, 2007; Messersmith and Guthrie, 2010; Youndt *et al.*, 1996).

In addition, there is a long history of research into how such practices can be measured validly and reliably (Huselid and Becker, 2000; Wright and Gardner, 2000, 2003). Despite the widespread knowledge on the role and implications of HRM practices within firms, HRM theories, have completely omitted the role of leaders in the process, as if

integration and allocation of resources, and the influence of employee behaviour is an automatic process (McDermott *et al.*, 2013; Sirmon *et al.*, 2007). Therefore, the choice of HRM practices is based on a number of justifications.

With regards to strategic behaviour, different studies have identified different categorisations of leader strategic behaviour over the years (Pearce and Sims Jr, 2002; Yukl *et al.*, 2002). I focus on command, rational, and generative strategic behaviour, adapted from Hart (1992). The reason for this choice is that Hart's work is uniquely focused on the categories of behaviour that relate to strategic capabilities. These three categories represent different modes of strategy-making, each of which involve distinct strategy-making behaviours (Hart and Banbury, 1994). Leaders, through their behaviour, play a key role in determining the firm's strategy-making capabilities (Teece and Pisano, 1994).

Hart's (1992) categorisations involve a thorough explanation of the different roles leaders undertake in the strategy-making process. These roles outline the leader's behaviour with regards to strategic management by explaining the extent of leader involvement in developing the firm's strategic direction, and the way they influence employees to design and reach the firm's strategy. Thus, I refer to these categories as leader strategic behaviours. The categories build on one other in terms of leader involvement and interrelations with employees. Command strategic behaviour involve high leader involvement and low interactions with employees. Leader involvement decreases as one moves to rational and generative strategic behaviour, while the importance of employee interactions increases.

Finally, I analyse the leader's cognitive influence based on experiential knowledge structures, through leader skills. The choice of skills is based on three main arguments. First, skills as knowledge structures are reflected in the literature on absorptive capacity. This stream of literature argues that knowledge stocks provide support in learning/absorbing new information (Bower and Hilgard, 1981; Cohen and Levinthal, 1990; Ellis, 1965; Estes, 1960). Based on this argument, it is suggested that the higher the level of knowledge stocks, it is more likely that individuals are efficient in making sense of new information and applying it to new settings (Bower and Hilgard, 1981). Based on these arguments, literature shows that highly skilled individuals are better at

framing and understanding the world (Mumford, Friedrich, *et al.*, 2007; Mumford *et al.*, 2017; Mumford, Zaccaro, *et al.*, 2000). Thus, skills are in fact knowledge structures.

Second, based on previous literature, it is suggested that skills reflect the expertise of an individual and thus are likely to represent the accumulation of experiential knowledge (Ng *et al.*, 2009; Reuber and Fischer, 1999). Taken together, these arguments imply that skills reflect underlying expertise, knowledge structures, and schema for interpreting the world, and will influence decision making through their effects on cognition (Mumford *et al.* (2017).

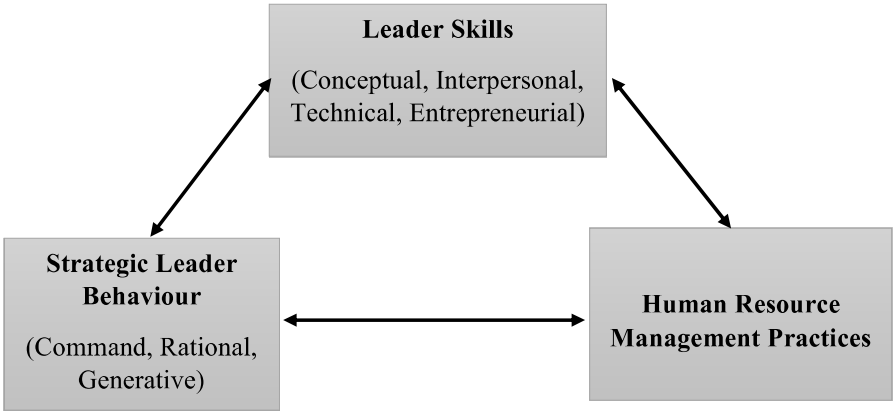
Third, compared to more observable indicators used in the past to proxy for cognitions (e.g., age, and education), measures of skills are likely to represent more proximal indicators of cognitive structures. For example, with observable indicators, two individuals with the same education are likely to be treated as having similar level of experience and thus these individuals would be expected to deal similarly with similar situations. However, individuals with similar levels of experience measured by age or education level are likely to develop distinct knowledge structures, based on qualitatively different types of experiences. Therefore, in order to assess the impact of experiential knowledge structures on strategic choices, it is important to develop indicators that reflect the psychological process of such structures more closely, such as skills (Hambrick and Mason, 1984).

Leaders are likely to draw on multiple skills that they develop over time. These skills can be categorised as conceptual, interpersonal, and technical skills, based on the work of Katz (1955). Conceptual skills refer to the leader's knowledge with regards to the internal and external factors that influence a firm and how these factors work together. Such skills enhance the leader's logical thinking and lead to better reasoning especially in uncertain events. Interpersonal skills refer to the leader's knowledge with regards to interpersonal relations, human behaviour and provide leaders with a sense of emotional intelligence. These skills also enhance the leader's oral communication ability. Technical skills refer to the leader's task-related knowledge with regards to the product and/or service, and the processes involved in developing it (Baum and Locke, 2004; Katz, 1955; Yukl *et al.*, 2002). These categorisations are relatively old, however, they remain the dominant framework involving managerial skills to date (Boyatzis, 1982; Pavett and Lau, 1983). In addition, more recently scholars have identified the important role of

entrepreneurial skills, that is, the leader's knowledge with respect to identifying and seeking new and innovative opportunities, and his/her ability with respect to the communication of entrepreneurial vision, and the acquisition and orchestration of the necessary resources. These skills are likely to assist leaders in managing the firm's resources toward organisational growth (Baum and Locke, 2004; Mintzberg, 1973, 1978). Therefore, in line with the three managerial skills identified by Katz, I include entrepreneurial skills in the analysis.

The framework involving HRM Practices and the categorisations of skills and strategic behaviour is outlined in the Figure 4.2. Based on this framework, the aim of this study is to assess how combinations of leader skills and strategic behaviour are likely to be associated with high and low levels of HRM practices.

Figure 4. 2: Leader Skills, Strategic Leader Behaviour, and HRM Practices



Overall, the analysis in this section shows that the relationship between leader cognitions, strategic behaviour, and management practices involves reciprocal connections between the variables, resulting in endogenous relationships. Endogeneity across the three constructs also implies that skills, strategic behaviours, and HRM practices are moderators (complements) and mediators of each other. These relations become even more complex because leader cognitions and strategic behaviours involve multiple sub-dimensions which can also have multiple configurations or profiles.

First, in order to implement their tasks effectively, leaders may draw on multiple skills at one point in time (Mumford, Campion*, et al.*, 2007). Given that these skills are closely interrelated like any other cognitive construct, it *is "difficult to determine where one ends and one begins"* (Katz, 1955; p.94). Thus, multiple skills need to be assessed simultaneously. Different combinations of skills are likely to be associated with different strategic behaviours and levels of HRM practices.

Second, the different strategic behaviours identified in this section represent "pure" behaviours which, in practice, can be blended into multiple combinations. For example, leaders may use specific elements of rational and generative behaviours and also may combine the two approaches (Hart, 1992). In order to cater for these potential connections, multiple strategic behaviours have to be assessed concurrently. Different combinations of strategic behaviour are likely to be associated with different combinations of skills and levels of HRM practices. These conclusions imply that, if these sub-dimensions are assessed individually or selectively, their implications may be over stated or understated.

Moreover, strategic behaviour and HRM practices may complement or substitute each other. These two elements are both used to reach similar goals, that is, to influence individual and firm-level outcomes. Leaders may use HRM practices to reinforce their strategic behaviours (Zhu *et al.*, 2005). Alternatively, leaders may use their behaviour to substitute for the presence of HRM (Chuang *et al.*, 2016). In practice, it is quite possible that both configurations of strategic behaviours and HRM practices occur.

These complexities imply that the relationships within the sub-dimensions and between focal constructs are likely to involve nonlinearity. That is, the interactions may involve positive relations, negative relations, or an absence of relations.

The presence of multiple potential combinations may also generate equifinal solutions. For example, more than one combination of leader skills and strategic behaviours may be associated with a high level of HRM practices. In addition, we cannot rule out *a priori* the potential for asymmetric reciprocal associations among the constructs. Assuming a symmetric effect places an unnecessary restriction on the nature of associations. Evidence in other contexts of 'hygiene effects', whose presence ensures a given outcome but does not improve performance without limit, suggests that asymmetries are not uncommon. Therefore alternative approaches to modelling may be

more revealing of the true relationships among these phenomena, especially when considering the complex associations involved (Herzberg *et al.*, 1959). For example, if one had to compare leader influence with respect to the high and low levels of HRM practices, it is expected that highly skilled leaders are associated with the presence of HRM practices whilst low skilled leaders are associated with low levels or even the absence of HRM practices as discussed in the previous section. However, it could also be the case that a highly skilled leader may refrain from investing in HRM practices as a result of specific circumstances the firm is operating in. Therefore, assuming symmetric connections at this stage would impose unnecessary restrictions on the nature of the associations among the focal constructs.

Overall, this section shows that based on high level theory, one might expect leader skills, strategic behaviour, and HRM to be related. However, the level of abstraction is such that current theorising does not specify how the particular relationships might look - which skills, or combinations of skills relate to which behaviours or combinations of behaviours and what level of HRM practices. Due to the limited theoretical rationale and empirical evidence, it is impossible to generate ex-ante hypothesis (see: Campbell, Sirmon and Schijven, 2016). Even if it were possible to generate hypothesis through the presence of theories, the endogeneity problem, nonlinear relations, and the possible equifinal solutions, and asymmetric reciprocal relations make it very difficult to test the hypothesis of simple associations. Furthermore, because of the reciprocal and complex nature of the associations, a configurational approach is the best way to assess these relations. The next section justifies the importance of such an approach vis-à-vis other models.

4.03.4 A Configurational Model for Leader Skills, Strategic Behaviour, and HRM Practices

This section aims to identify a model that allows for a detailed analysis of the association between leader influences and the presence of HRM practices, in order to address the main research question. The analysis in the previous section shows that the model adopted to analyse the relations has to accommodate complex interactions characterised by endogeneity, nonlinearity, equifinality, and asymmetric reciprocal associations, which are likely to be present among the variables. The model will also need

to allow for inductive reasoning, due to the limited research available on these connections.

From an analytical perspective, it can be argued that complex relations cannot be assessed by using typical econometric methods such as multilevel models. This is mainly due to the fact that the variables in the framework involve endogenous relations, implying that skills, strategic behaviour and HRM practices are all mediators and moderators upon one another. For example, strategic behaviour mediates the impact of skills on practices, and also moderates this relationship; similarly, skills mediate the effect of experience with practices on behaviours and also moderates this relationship, and so on. Together with the fact that different sub-dimensions have to be assessed concurrently, this calls for the need to assess analytically feasible combinations of the factors from among all possible combinations through configurations.

Linear models such as classical linear regression are based on a correlational approach which does not cater for the examination of configurations. These models analyse the unique contribution of individual variables, keeping the other variables constant. While some linear models can handle a certain degree of endogeneity, (structural equation modelling), and the analysis of multiple interactions (interaction effects method), with linear modelling it becomes increasingly difficult to interpret beyond two-way effects (Fiss, 2007). Failure to take into account the endogenous connections may lead to distorted outcomes (Bergan, 1980).

In addition, regression methods do not allow for the possibility of equifinality, and asymmetric reciprocal associations (Fiss, 2007). Regression methods generally assume that the relationship is constant between a variable and an outcome. Moreover, under linear regression, relationships are based on correlations which are symmetric, that is, the variables that relate to the low presence of HRM practices are the exact inverse of those leading to high presence of such practices. Thus, I rule out the possibility of implementing econometric models based on linearity.

In order to address the model issues identified in the previous section, namely, endogeneity, nonlinearity, equifinality, asymmetric reciprocal associations, I propose the adoption of a configuration-based approach involving Qualitative Comparative Analysis (QCA) based on a set-theoretic methodology (see: Fiss, 2007, 2011; Schneider and Wagemann, 2010). Set-theoretic methodology has been recently adopted in various

studies in the area of social sciences in order to assess complex interactions (e.g., Curado, Muñoz-Pascual and Galende, 2018; Skarmeas, Saridakis and Leonidou, 2018). This recent uptake of the method shows that, currently, this approach is considered to be one of the most effective tools to assess complex associations. The reasons for choosing this approach are outlined below.

As a configurational tool, through set-theoretic methods it is possible to look simultaneously at multiple interactions, solving the issue of endogeneity. In addition, the relations of the sub-dimensions are assessed in detail as the approach allows for nonlinear interactions, that is, relations among the dimensions can vary from one configuration to the other. These complexities cannot be analysed through bivariate contingency analysis (Fiss, 2011). This is especially important for the analysis of the proposed framework as different relations are expected, given that leaders are likely to draw on different experiences, leading to different skills, behaviour and HRM compositions. Then in addition, there is the possible substitutability and complementarity between the focal constructs.

Set-theoretic methods allow for the analysis of equifinality (Fiss, 2007; Ragin, 2006a). Equifinality refers to the phenomenon of different variables or combinations of variables leading to similar outcomes (Fiss, 2011). As explained in the previous section, this is an important criteria given the potential multiple combinations that could be present involving leader skills, behaviours and HRM practices.

In addition, set-theoretic methods allow for the analysis of asymmetric reciprocal relations. That is, a separate analysis of different combinations leading to the high and low presence of management practices can be conducted. High presence of HRM practices and its inverse can be modelled as two separate outcomes. This condition allows for a more detailed understanding of the different combinations leading to high and low management practices, as it takes into account the fact that factors associated with the high presence of management practices may not be the exact inverse of those leading to the low presence of such practices (Ragin, 2008a; Schneider and Wagemann, 2012).

The use of set-theoretic methods is considered adequate mainly because the complex relations are likely to be assessed in a robust way. This is due to three main reasons, *"First, such methods allow the researcher to examine extensive numbers of different combinations of elements and detect the underlying commonalities of configurations that*

lead to a certain outcome. Second, set-theoretic methods allow a detailed assessment of causality, enabling the researcher to strip away elements that are not causally involved with the outcome" (Fiss, 2007, p.1188). Third, the importance of each complex solution can be estimated under such methods through coverage, defined as *"the proportion of instances of the outcome that exhibit a certain causal combination or path"* (Fiss, 2007, p.1188).

For the purpose of this study, the importance of the adoption of set-theoretic method also stems from the fact that it allows for detailed inductive reasoning. This is because data is analysed "by case" and not "by variable" (Ragin, 2000). In line with this, Fiss (2007) stated that *"thinking of firms as cases that have membership in different causal conditions therefore forces us to consider whether these conditions are necessary, sufficient, or perhaps neither"* (p. 1190). A condition is necessary when it is the only condition leading to the outcome, and sufficient when it is one of many conditions associated with the outcome (Ragin, 1987, 2000, 2008a). Distinguishing between necessary and sufficiency conditions is very important for theory building as such conditions provide the causal logic that enables a detailed inductive analysis. Together with the possibility to assess complex causal relations, these arguments show that the set-theoretic method provides solid and detailed foundations for inductive reasoning (Fiss, 2007).

Set-theoretic methods can take place using crisp-set or fuzzy-set approaches. The former approach only indicates whether or not a variable forms part of a set. The latter approach is considered superior to other set-theory methods as it provides a detailed explanation of the interactions of the variables under review as it involves ordinal and continuous measures which allow for the quantification of the degree of membership (Fiss, 2007). Under this approach, each case will have different degrees of membership scores for each of the variables in the case (associated with leader skills, behaviour, and HRM). Thus, each case is part of different sets which form a configuration of interrelated elements, aligned towards reaching a particular objective (HRM level). At present, fuzzy-sets are considered to be one of the most adequate methods available to assess the complexities involved in human reasoning and how they process information (Zadeh, 1997).

In line with these arguments, I adopt a configurational approach based on fuzzy set-theoretic methods. The application of this technique in organisational literature is still in its initial stages, which also explains why it has been scarcely applied by HRM and leadership scholars (Backes-Gellner, Kluike, Pull, Schneider and Teuber, 2015; Bryant and Allen, 2011; Fiss, 2011; Meuer, 2017; Short, Payne and Ketchen, 2008; Whittington *et al.*, 2013). In order to address the research question, I will assess different patterns of leader cognitions, and strategic behaviour, with respect to the presence and absence of management practices.

4.04 Method and Analysis

4.04.1 Sample and Data Collection

Given that the aim of this study is to understand the influence of firm leaders on HRM practices, the analysis has been based on a final sample of 348 owner-managed small and medium-sized enterprises (SMEs) (10-249 employees) from across different industry sectors. SMEs are defined in line with the European Commission's definition - firms which employ not more than 249 employees and/or have an annual balance sheet total of not more than 43 million Euro (EUR) (Commission, 2003). These firms are located in the United Kingdom (UK). Studying the relationship between sole owners and the presence of management practices in an SME context is more practical as well as more salient, due to the relatively lower layers of hierarchy. This implies that leaders are more likely to exert a direct impact upon decisions related to management practices (Klaas, Gainey, McClendon and Yang, 2005; Patel and Cardon, 2010). In addition, SMEs are the main economic contributor in the European Union (EU) (Commission, 2014) and the United States of America (USA) (Grover and Suominen, 2014), representing more than 99% of the total enterprises. Therefore, potential stylized facts attained through such studies are likely to represent an important source of knowledge for policy-makers.

The sample size has enough statistical power to attain statistically robust results with regards to configurations involving leader skills and leader strategic behaviour, and their potential influence on the level of HRM systems (Fiss, 2011). Data has been collected through telephone surveys, complemented with information compiled by the U.K. Government through the Interdepartmental Business Register (IDBR). IDBR allowed for the identification of firms which employed more than 249 employees such as

multi-site units and subsidiaries of larger firms. These were excluded from the sample. The data is part of a larger dataset. The validity of the outcomes in this survey is checked through second response to the same questions used in the survey on a subset of the original sample. These responses have been used to estimate the reliability of responses to questions regarding leader skills and leader strategic behaviours.

4.04.2 Measures

In a previous section (Section 4.03.3) the operationalisation of the three focal constructs of this study involving leader cognitions, strategic behaviours and management practices have been identified. Based on these operationalisations, I proceed by outlining the measures for the specific elements identified.

HRM Practices. Whilst literature highlights a number of HRM practices, the approach used for this study is adapted from the work of Messersmith and Guthrie (2010), based on Huselid (1995) and Guthrie (2001). Ten questions were asked in relation to ten different HRM practices (Appendix C, Table C.1). In order to generate an HRM index, the average value of these ten of HRM practices is computed. The average value of HRM practices has been used in various studies (e.g., Shaw, Gupta and Delery, 2005). When "low" presence of HRM practices is analysed (i.e. firms that fail to implement sophisticated management practices), the inverse of this measure is used. Cronbach's alpha for HRM practices is at an acceptable level at 0.71.

Leader Skills. Based on the work of Katz (1955) and Baum and Locke (2004), four types of leader and management skills have been assessed for the study including conceptual skills (3 items), interpersonal skills (3 items), technical skills (2 items), and entrepreneurial skills (4 items). The measure used was adapted from Chandler and Jansen (1992). In total, 12 items were analysed based on a response format involving a five-point scale ranging from "strongly disagree" (1) to "strongly agree" (5) (Table 4.3). Through the set of twelve questions, the sole owners have identified their own skill-sets. Cronbach's alpha for conceptual skills, interpersonal skills, technical skills, and entrepreneurial skills registered acceptable levels at 0.74, 0.80, 0.75, 0.80, respectively.

Leader Strategic Behaviour. The measure includes nine items, categorized through command (3 items), rational (4 items), and generative behaviour (2 items), adapted from Hart (1992). The items were measured based on a five-point response

format ranging from "strongly disagree" (1) to "strongly agree" (5) (Table 4.3). The procedure involved self-reporting by owner-managers, consistent with previous research (e.g., Bass and Yammarino, 1991; Sosik and Megerian, 1999). Cronbach's alpha for command, rational, and generative strategic behaviours registered acceptable levels at 0.67, 0.78, 0.72, respectively.

For all measures, where missing values were present, the mean from the remaining items was assessed.

4.04.3 Calibrations

The calibration process is an important technique in fuzzy-set analysis which involves converting ordinal and continuous variables to a scale ranging from 0 to 1. The calibrated values indicate the strength by which the variable forms part of a set, with 0 indicating "completely out of the set", while 1 showing "fully part of the set". The measures have been calibrated using the direct method of calibration which involves the determination of values for full-membership (score of 1), non-membership (scow of 0), and cross-over points (score of 0.5), on the basis of the theoretical knowledge and the statistical distribution of the sample. That is, in order to determine the calibrations, particularly the cut-off point, I relied on both the theoretical understanding and judgement, whereby the latter is based on the distribution of data. This method of calibration is the one recommended in literature (Campbell *et al.*, 2016; Ragin, 2000, 2008a; Schneider and Wagemann, 2012). Fuzzy scores are compiled based on the following formula:

$$Degree\ of\ membership = \frac{e^{\log\left(\frac{p}{1-p}\right)}}{1-e^{\log\left(\frac{p}{1-p}\right)}} \qquad \text{(Equation 4.1)}$$

Therefore, the degree of membership in a set is the exponential log odds divided by unity plus the exponential log odds. The rescaled measures range from 0 to 1 and are tied to their respective membership thresholds and crossover points. Table 4.1 illustrates the descriptive statistics (maximum, mean, minimum, standard deviation), and calibrations for each variable used in this study. Before confirming the calibrations, various options have been analysed using different levels of calibrations for each variable in order to ensure that the solutions are robust.

Table 4. 1: Descriptive Statistics and Calibrations

Variable	Statistical Distributions				Calibration		
	Max.	**Mean**	**Min.**	**Std. Dev.**	**Full-Membership**	**Cross-Over**	**Non-Membership**
HRM Practices	91.00	38.91	0.00	19.95	91.00	35.00	0.00
Command Strategic Behaviour	5.00	4.37	1.00	0.72	5.00	4.00	1.00
Rational Strategic Behaviour	5.00	3.19	1.00	1.12	5.00	3.00	1.00
Generative Strategic Behaviour	5.00	3.04	1.00	1.09	5.00	3.00	1.00
Conceptual Skills	5.00	4.21	1.67	0.61	5.00	3.90	1.00
Interpersonal Skills	5.00	3.98	1.00	0.80	5.00	3.68	1.00
Technical Skills	5.00	3.52	1.00	1.04	5.00	3.05	1.00
Entrepreneurial Skills	5.00	3.94	1.75	0.67	5.00	3.53	1.00

4.04.4 Data Analysis

Following the calibration of the measures, the analysis proceeds by assessing potential sufficient and necessary conditions through the implementation of a sufficiency analysis and necessity analysis respectively (e.g., De Vos *et al.*, 2016; Kasper-Brauer and Leischnig, 2016). Both types of analysis have been conducted for high and low HRM outcomes, using fuzzy-set Qualitative Comparative Analysis (fsQCA) 2.0 (Ragin, 2006b).

The sufficiency analysis illustrates different configurations that are associated with the outcomes. While these configurations are relevant in generating the outcome, they are not the only cause. In fact, there can be multiple conditions that are sufficient for the outcome (Ragin, 2000; Schneider and Wagemann, 2012). The analysis involves various steps. First, the data is used to develop a truth table which involves a data matrix of possible sufficient combinations, with each row illustrating a specific combination of attributes. The truth table has been constructed with 2^k rows, where k is the number of conditions used in the analysis (in total seven). Following this exercise, the second step involves the analysis of the subset relations. In the case of fuzzy-sets, simple conditional probability cannot be used to assess the degree of membership of the configurations with respect to

the outcomes, given that the variables range between 0 and 1. To this effect, data is explored for consistency which refers to the proportion of cases associated with a given outcome (Campbell *et al.*, 2013; Ragin, 2008a). This is measured by dividing the number of cases that exhibit a particular configuration of attributes as well as the outcome, by the number of cases that exhibit the same configuration of attributes but not the outcome (Ragin, 2008b). In line with this, the formula for the consistency coefficient is:

$$I_{XY} = \sum \min(x_i, y_i) \,/\, \sum x_i \qquad \text{(Equation 4.2)}$$

Where x_i stands for each case's membership in the configuration X and y_i stands for each case's membership in the set Y (Ragin, 2006). When the consistency coefficient is close to 1, it implies that there is a close empirical correspondence to a subset relation. For example, if consistency is 0.9 it implies that there is a 90% probability that the solution leads to the outcome. A low consistency value implies that the configuration is not frequently related to the outcome.

The third step involves the implementation of the Quine-McCluskey algorithm by employing Boolean algebra. This process is important in order to logically reduce the data matrix rows to simplified combinations (Ragin, 2008b). In order to ensure robust outcomes, each of the solutions provided is assessed through its coverage of the outcome. Coverage indicates the empirical importance of the solution by showing the extent by which the given outcome is explained by the condition, synonymous to the R^2 in linear regression (Fiss, 2007). Coverage is computed as follows:

$$C_{XY} = \sum \min(x_i, y_i) \,/\, \sum y_i \qquad \text{(Equation 4.03)}$$

The fourth step of the sufficiency analysis involves the choice of the solution to be assessed. Provided that the study involves an inductive approach, the complex solution is used for interpretation. The complex solution is the minimal solution derived, excluding logical remainders, that is it shows a true reflection of the sample. This is the most appropriate type of solution, especially when a large sample is available, unless there is a theoretical justification that promotes the use of logical remainders (Cooper and Glaesser, 2011).

The fifth and final step of the sufficiency analysis involves the assessment of the conditions. The analysis involves a total of seven conditions (4 for leader skills and 3 for

strategic leader behaviour) and therefore 128 (2^7) potential combinations, based on two different states, that is, high or low. The frequency threshold for the study was 1 case per solution for both high and low HRM outcomes, encompassing 95% and 92% of the sample respectively, beyond the recommended 80% stipulated by Ragin (2008a). The consistency value has been set at 0.938 for the high HRM outcome, and 0.964 for the low HRM outcome, both higher than the 0.75 threshold (Ragin, 2008a). The different cut-off points are due to the fact that these are two separate analyses, based on different outcomes. As previously described, numerous options have been analysed using variations in calibrations for each variable in order to ensure that the solutions are robust. There was no real change in the end results, meaning the model is robust.

In line with the sufficiency analysis, the data analysis in this study also involves the assessment of any potential necessary conditions, with respect to both outcomes. Necessary conditions are superset conditions which indicate whether the condition tested has to be present for the outcome to be present (Ragin, 2000; Schneider and Wagemann, 2012). Under this process, the presence and absence of leader skills and strategic behaviours are tested in order to assess whether each condition alone can lead to the two different outcomes (Fiss, 2007). For a condition to be called necessary, there has to be a consistency of at least 0.90 (Equation 4.2), and a coverage of at least 0.80 (Equation 4.3) (Ragin, 2006a).

4.05 Results

This section examines the results of the fsQCA analysis explained in the previous section. The first outcome to be assessed in relation to the fsQCA results involves the descriptive statistics and zero-order correlations based on the uncalibrated values of the variables, as illustrated in Table 4.2. The outcomes of this table show the overall meaningful association among the uncalibrated variables.

Table 4. 2: Descriptive Statistics and Correlations

	Mean	SD	1	2	3	4	5	6	7
1. HRM Practices	38.91	19.95							
2. Command	4.37	0.72	0.03						
3. Rational	3.19	1.12	0.41**	0.13*					
4. Generative	3.04	1.09	0.35**	0.05	0.33**				
5. Interpersonal Skills	3.98	0.80	0.2**	0.17**	0.26**	0.15**			
6. Entrepreneurial Skills	3.94	0.67	0.28**	0.3**	0.37**	0.34**	0.41**		
7. Conceptual Skills	4.21	0.61	0.07	0.31**	0.17**	0.02	0.48**	0.4**	
8. Technical Skills	3.52	1.04	0.08	0.2**	0.18**	0.2**	0.27**	0.42**	0.25**

Notes: The descriptive statistics and correlations are based on uncalibrated measures. **Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level.

Before proceeding with the assessment of the necessary and sufficient outcomes, a Confirmatory Factor Analysis (CFA) was performed on all items falling under leader skills and strategic behaviours. The aim of this analysis is to verify that the items chosen to compile the different constructs are in line with literature on leader skills (Baum and Locke, 2004; Katz, 1955), and strategic behaviour (Hart, 1992). All constructs were confirmed, as illustrated in Table 4.3. The results suggest a reasonable fit for the proposed measures of leader skills and strategic behaviours (Chi-squared (χ^2) = 290.58; degrees of freedom (df) = 168; Root Mean Square Error of Approximation (RMSEA) = 0.046; Comparative Fit Index (CFI) = 0.946; Tucker Lewis Index (TLI) = 0.926; Incremental Fit Index (IFI) = 0.948; Normed Fit Index (NFI) = 0.884). All CFI, TLI, and IFI exceeded the recommended 0.9 threshold. Compared to the other variables, the NFI is more conservative and lower than 0.9, but still at an acceptable level used in other studies (e.g., Gold, Malhotra and Segars, 2001). RMSEA is 0.046, below the 0.05 threshold and the Root Mean Square Residual (RMR) and standardized RMR are at 0.097, and 0.055, respectively, which is considered acceptable (Oke, Ogunsami and Ogunlana, 2012).

Table 4. 3: Standardised and Unstandardised Coefficients for CFA

Item Description	Standardised Coefficients	Unstandardised Coefficients	S.E.	C.R.
Conceptual Skills				
1. Relative to others, I am skilled at keeping my organization running smoothly.	0.623	1		
2. One of my greatest strengths is organizing resources and coordinating tasks.	0.778	1.341	0.132	10.166
3. Relative to others I am skilled at making decisions about how to allocate limited resources most effectively.	0.707	1.112	0.114	9.765
Interpersonal Skills				
1. Relative to others, one of my greatest strengths is achieving results by organizing and motivating people.	0.802	1		
2. I am highly skilled at delegating work to others effectively.	0.667	0.991	0.81	12.273
3. One of my greatest strengths is my ability to supervise, lead and influence people in my organization.	0.865	1.054	0.07	15.011
Technical Skills				
1. One of my greatest strengths is my expertise in a technical or functional area.	0.647	1		
2. Relative to others, I am skilled at developing goods or services that are technically superior.	0.939	1.274	0.17	7.495
Entrepreneurial Skills				

1. Relative to others, I accurately perceive gaps in the marketplace.	0.648	1		
2. One of my greatest strengths is identifying the goods or services people want.	0.721	1.03	0.099	10.38
3. I am skilled at taking advantage of high quality business opportunities.	0.5	0.783	0.1	7.793
4. I am skilled at identifying those products or services that provide real benefit to customers.	0.749	1.111	0.105	10.628
Command Strategic Behaviour				
1. I primarily determine and execute the strategy based upon my analysis of the business situation.	0.659	1		
2. I primarily define our firm's 'vision' - its basic purpose and general direction.	0.697	1.003	0.121	8.3
3. Strategy, for this company, is primarily set up by myself.	0.614	0.89	0.111	8.019
Rational Strategic Behaviour				
1. Our company adopts a written strategic plan each year to guide our operating activities.	0.839	1		
2. Strategic planning in our firm is a formal procedure occurring in a regular cycle.	0.791	0.903	0.066	13.594
3. We have a written mission statement that is communicated to employees.	0.606	0.801	0.075	10.747

4. Formal analysis of the business environment and our competitors forms the basis for our company's strategic plan.	0.538	0.539	0.057	9.483
Generative Strategic Behaviour				
1. Most people in this organization are willing to take risks on behalf of the organization.	0.639	1		
2. People are encouraged to experiment in this company so as to identify new, more innovative approaches or products.	0.883	1.433	0.219	6.551

4.05.1 Necessity Conditions Results

This section analyses the necessary conditions for high and low (~) presence of HRM practices, using calibrated measures. The conditions tested include the high and low (~) presence of all variables for both outcomes (Table 4.4). As specified by Ragin (2006a), a condition is necessary if the consistency and coverage are at least 0.90 and 0.80, respectively. Table 4.4 shows that none of the conditions meets the criteria requested to be deemed necessary, and therefore I proceed by analysing potential sufficient solutions.

Table 4. 4: Necessity Analysis

	High Presence of HRM Practices		**Low Presence of HRM Practices**	
	Consistency	***Coverage***	***Consistency***	***Coverage***
High Command	0.87	0.61	0.87	0.59
Low Command	0.42	0.76	0.42	0.77
High Rational	0.80	0.74	0.65	0.59
Low Rational	0.55	0.62	0.72	0.78
High Generative	0.76	0.74	0.64	0.61
Low Generative	0.60	0.62	0.73	0.75
High Conceptual Skills	0.88	0.65	0.86	0.62
Low Conceptual Skills	0.49	0.77	0.52	0.80
High Interpersonal Skills	0.87	0.67	0.81	0.61
Low Interpersonal Skills	0.49	0.72	0.56	0.81
High Technical Skills	0.82	0.65	0.80	0.62
Low Technical Skills	0.53	0.72	0.56	0.76
High Entrepreneurial Skills	0.89	0.68	0.83	0.60
Low Entrepreneurial Skills	0.47	0.72	0.56	0.85

4.05.2 Sufficiency Conditions Results

The sufficiency analysis outcomes, summarised in Table 4.5, show five configurations for high presence of HRM practices and five for low presence of HRM practices. The symbols in the Table are defined as follows - "●" illustrates the presence of a condition, and "⊗" illustrates the absence/low presence of a condition, following notations used by other similar studies (e.g., Campbell *et al.*, 2016; Meuer, 2017). In addition, the blank spaces show indifference towards the outcome.

The validity of the different configurations is checked through the consistency. All configurations exceed the threshold stipulated by Ragin (2000) of 0.75, with the overall consistencies amounting to 0.899 and 0.934 for the high presence of HRM and low presence of HRM outcomes respectively. This implies that it is highly likely that each of the configurations outlined in the next section lead to the outcome specified (Campbell *et al.*, 2013).

The sufficiency solution also provides a level of coverage. In this solution two coverage indicators are provided – raw and unique. Both raw and unique coverage are calculated using Equation 4.3. *"Raw coverage indicates how much of the membership in the outcome is covered by the membership in a single path; the unique coverage instead indicates how much a single path uniquely covers"* (Schneider and Wagemann, 2012; p. 139). The levels of coverage are quite low. The number of cases per configuration for high HRM range from 1 to 3, and for low they range from 2 to 9. The most frequent path for high levels of HRM is represented through configuration 2a, and through configuration 5b for low levels of HRM. Whilst the coverage levels are low, one is still able to proceed with the analysis. Coverage is similar to R^2 levels in regression analysis but referring to actual empirical cases (Fiss, 2009; Fiss, 2011). Although there is no particular threshold for the level of coverage, the levels of coverage are in line with similar studies (see: De Vos and Cambre, 2016; Meuer, 2017). In linear regression, variables can be statistically significant but the model can have a low R^2. This reasoning is especially true when theoretical advancement is the aim of the study. The aim is to extract general theoretical insights by looking at different combinations linked to an outcome (Campbell *et al.*, 2013).

The sufficiency solution shows that three classes of leaders are likely to be associated with the high implementation of HRM. These include rational, transactive, and generative leaders. On the other hand, two leader classes are associated with low levels of HRM, including the inactive and authoritative. The results for both high and low levels of HRM are explained in Table 4.6 below.

To examine the robustness of the fsQCA outcomes, further analysis was conducted by varying the calibrations for each variable. The results are robust toward these changes, and the interpretation of the findings remain unchanged.

Overall, the solution shows clear signs of nonlinearity, equifinality and multifinality. The solution shows that the conditions and outcomes are nonlinearly related as the same conditions have contrasting impact in different configurations. Equifinal solutions involve different combinations of leader skills and strategic behaviours, leading to the same outcome (e.g., configurations 1-3). There is also equifinality of strategic behaviour with respect to skills (configurations 1, 2a, and 5b, and configurations 3 and 4b), and equifinality of skills with respect to strategic behaviours (configurations 2a,b,c,

and configurations 4a and 4b). Multifinal solutions are present with respect to skills, whereby a number of solutions show that similar configurations of skills are associated with different behaviours (e.g., configurations 3 and 4b), and HRM approaches (e.g., configurations 1 and 5b). In addition, the solution shows asymmetric reciprocal associations between high and low levels of HRM outcomes. That is, the configurations of skills and behaviour associated with low HRM practices are not the mirror image of the configurations associated with high HRM practices. These elements show a clear sign of complex associations. These complex relations are further explained in the next section.

Table 4. 5: Configurations of Strategic Leader Behaviour and Leader Skills with respect to high and low presence of HRM

	High Presence of HRM Practices					**Low Presence of HRM Practices**				
Label	*Rational Leader*	*Transactive Leader*			*Generative Leader*	*Inactive Leader*		*Authoritative Leader*		
Permutation	1	2a	2b	2c	3	4a	4b	5a	5b	5c
Strategic Behaviour										
Command	⊗	⊗	⊗	⊗	⊗	⊗	⊗	●	●	●
Rational	●	●	●	●	⊗	⊗	⊗	⊗	⊗	●
Generative	⊗	●	●	●	●	⊗	⊗	⊗		⊗
Skills										
Interpersonal		⊗	●	●	●	⊗	●	⊗		
Entrepreneurial	⊗	⊗	●	⊗	●	⊗	●	⊗	⊗	⊗
Conceptual	●	●	⊗	⊗	●		●	⊗	●	⊗
Technical	⊗		⊗	●	⊗	⊗	⊗		⊗	⊗
Consistency	0.930	0.940	0.948	0.938	0.940	0.973	0.965	0.973	0.961	0.961
Raw Coverage	0.213	0.222	0.209	0.212	0.217	0.303	0.242	0.304	0.349	0.267
Unique Coverage	0.021	0.008	0.009	0.006	0.021	0.009	0.021	0.043	0.044	0.024
Overall Solution Consistency	**0.899**					**0.934**				
Overall Solution Coverage	**0.301**					**0.456**				

N*otes:* Black circles ("●") indicate that the presence of the condition is high, and open circles ("⊗") indicate that the presence of the condition is low. Blank spaces indicate irrelevance of the condition to the solution.

Table 4. 6: Description of the Configurations

HRM Presence	Classes of Leaders	Configuration	Description
High	**Rational**	Configuration 1	The leader's rational strategic behaviour is associated with conceptual skills.
	Transactive	Configuration 2a	The combination of the leader's rational and generic strategic behaviour is associated with conceptual skills.
		Configuration 2b	The combination of the leader's rational and generic strategic behaviour is associated with interpersonal and entrepreneurial skills.
		Configuration 2c	The combination of the leader's rational and generic strategic behaviour is associated with interpersonal and technical skills.
	Generative	Configuration 3	The leader's generative strategic behaviour is associated with conceptual, interpersonal, and entrepreneurial skills.
Low	**Inactive**	Configuration 4a	The leader's lack of strategic behaviour is associated with low skill levels.
		Configuration 4b	The leader's lack of strategic behaviour is associated with conceptual, interpersonal, entrepreneurial skills.
	Authoritative	Configuration 5a	The leader's command strategic behaviour is associated with low skill levels.
		Configuration 5b	The combination of the leader's command strategic behaviours is associated with conceptual skills.
		Configuration 5c	The combination of the leader's command and rational strategic behaviours is associated with the absence of skills.

4.06 Discussion

Building on the work of previous scholars, the present study acknowledges the important role of leaders with regards to the implementation of management practices, and suggests that leaders may play a role in determining the extent of HRM practices implemented. When investigating the connection between leaders and management practices in detail, it is shown that theoretical rationale is at a general-level and empirical evidence is limited. In addition, the relationship is complex with potential for reciprocal interdependencies, multiway interactions, and mediation among the variables of interest. These gaps call for the need to develop theoretical and empirical insights on the relationship, while addressing the issue of complexity. As a result, I adopt a large sample, which enabled the implementation of the fsQCA inductive method. The sufficiency analysis in the previous section has shown clear evidence of complex interactions between leaders and HRM through nonlinearity, equifinality, and asymmetric reciprocal associations. The outcomes will be discussed in detail in this section.

The configurational patterns discussed in this section are ideal types rather than empirically observed phenomena, implying that leaders resemble, rather than fit perfectly, the different configurational types (Delery and Doty, 1996). The aim of this section is to analyse the different leader classes associated with high and low presence of HRM practices, and discuss the different patterns involved across these classes, with respect to leader skills and strategic behaviour. The analysis is followed by patterns that emerge when analysing the role of leaders across the two HRM outcomes.

4.06.1 Leader Classes

The sufficiency analysis illustrates five different leader classes. Three leader classes are likely to be associated with the implementation of high levels of HRM practices, namely, the rational, transactive, and generative. Two leader classes are likely to be associated with low levels of HRM practices, namely inactive, and authoritative. All leader classes are based on different combinations of command, rational, and generative strategic behaviour, in line with Hart's (1992) work. Based on this author's work, I define the characteristics involved in the different leader classes observed in the sufficiency analysis.

The rational leader class is based on rational strategic leadership behaviour (configuration 1). According to Hart (1992) rational leaders aim to defend their market share by taking decisions based on formal analysis of internal and external data. Employees are encouraged to share information through a formal and highly structured system, while the leader evaluates and controls these communication flows (Hart and Banbury, 1994; Hart, 1992). Thus, in order to obtain the necessary information from employees, leaders need to continue engaging with them and involving them. However, this is achieved on a transactional basis, in contrast with the more generative approach described below. The information is acquired through a systematic approach to strategy formation, strategy maintenance, and strategy communication that requires employees to be involved in the process (Hart, 1992; Kuhnert and Lewis, 1987).

The transactive leader class involves a combination of rational and generative strategic behaviour, consistent with the transactive strategic behaviour outlined by Hart (1992) (configurations 2a,b,c). Similar to rational leaders, transactive leaders outline strategic plans, based on an extensive communication process with internal and external stakeholders. Through this communication, such leaders encourage learning among employees. Unlike rational strategic behaviour, this type of leader does not force employees to participate through a structured process but employees are empowered and enabled to participate. Through this approach, such leaders promote collaboration and shared purpose. In line with generative leaders, employees are encouraged to learn through communication and to play an active role in order to generate incremental innovation. Despite the more important role employees have in the strategic process, compared to rational strategic behaviour, there is still some dependency on the leader in determining the strategic direction of the firm (Hart and Banbury, 1994; Hart, 1992).

The generative leader class is based on generative strategic behaviour outlined by Hart (1992) (configuration 3). This leader is primarily focused on seeking market opportunities and in being the "creator of change" by launching new products and services into the market. In order to do so, generative leaders are likely to avoid bureaucratic systems and promote autonomy. Under this approach, employees are encouraged to take risky decisions and experiment with their ideas. In fact, the distinguishing factor of this leadership approach from other approaches is the "discovery-driven" mind-set of the leader (Gupta, MacMillan and Surie, 2004). Leaders support employees in being creative and endorse relevant ideas in line with the company's direction (Hart and Banbury, 1994;

Hart, 1992). The set-up under generative strategic behaviour is based on decentralised structures, which enable employees to share their knowledge and ideas and take decisions that affect strategy (Andries and Czarnitzki, 2014; Hart and Banbury, 1994; Hart, 1992; Martin, Liao and Campbell, 2013; Turner and Pennington, 2015).

The inactive leader class involves the low presence of strategic behaviours (configurations 4a,b). This type of leader is likely to limit himself from the setting up and/or implementation of a vision, mission, and/or strategic direction for the company. Studies on the exclusion of leaders from the firm's strategic process are not popular. Thus, I shall resort to the analysis in this section to understand what drives such absence and what the likely outcomes in terms of management practices are.

As opposed to inactive leaders, leaders falling under the authoritative leader class make sure that they are involved in all of the strategic decisions (configurations 5a,b,c). All configurations falling under this leader class involve the command strategic behaviour as a common factor. The command leadership style involves centralisation of vision, mission, and strategy formulation while the execution of the strategy is undertaken by the employees (Hart and Banbury, 1994; Hart, 1992). Under such systems, employee discretion is low, which means that employee involvement is low, as the firm's goals are set, controlled and executed by the leader (Hart and Banbury, 1994; Hart, 1992). Even when the command strategic behaviour is combined with other strategic behaviours that have a more inclusive structure for employees, such as the rational strategic behaviours (configuration 5c), it is likely that the single-mindedness of the command strategic behaviour will lead to a strategy-making process that is highly centralised (Lumpkin and Dess, 1995).

The different leader classes identified in the sufficiency solution show that leader skills, namely, conceptual, interpersonal, technical, and entrepreneurial skills, are likely to map on the strategic behaviours identified. These skills reflect different knowledge structures. The different patterns of leader cognitions and strategic behaviour that emerge from the sufficiency analysis are discussed in the next section.

4.06.2 Patterns of Leader Cognitions and Strategic Behaviour

When examining the configurations to understand how leader skills map on the strategic behaviours, three major patterns emerge. The first pattern is based on

configurations 1, 2a, and 5b, and configurations 3 and 4b, which show that the same skill-sets are associated with different behaviours. These comparisons show clear signs of multifinality of skills with respect to behaviours or, in the inverse, equifinality of strategic behaviour with respect to skills. One way of interpreting this pattern is to deduce that, contrary to what might be assumed, skills have no deterministic difference on strategic behaviour, they are two separate constructs. Thus, if assessed empirically in isolation from behaviours, one may not find evidence of a connection with the adoption of superior management practices. It is only in combination with behaviours that such an association becomes apparent. Thus, it is important to examine combinations of skills, behaviours and the adoption of management practices as meaningful holistic configurations.

This pattern may be also due to similarities between the different leader behaviours. In fact, although the leader categorisations provided by Hart are distinctive, they share common elements. For example, Dess, Lumpkin and Covin (1997) suggest that both command and generative strategic behaviours are likely to support an entrepreneurial orientation. These overlaps in strategic behaviours are likely to make leaders depend on similar skills. For example, the leader's ability to understand the mechanisms of the environment (conceptual skills) is likely to be crucial for leaders who adopt rational, or transactive strategic behaviours. Both types of leaders need to be able to effectively link the outcomes that emerge from the data gathering processes over time, in order to devise a well-suited strategy (configurations 1 and 2a) (Hart, 1992). Conceptual skills are also associated with authoritative leaders (configuration 5b). Similar to rational and transactive leaders, these leaders need to be able to understand the environment around them in order to be able to outline and implement an effective strategic plan by themselves and change the plan in line with environmental needs (Mintzberg and Waters, 1985). Thus, in any strategic behaviour whereby leaders are expected to make sense of the environment around them and design a strategy, conceptual skills are likely to be required. It can be concluded that there are similarities involved in leader strategic behaviour which justify the adoption of similar skill-sets.

Another reason that justifies the presence of similar skills to different behaviour is the fact that skills show *"why some leaders are able to select relevant behaviours and use them more effectively"* (Yukl, 2012a, p.77). As previously discussed, expertise (high skills) involves organised mental templates, based on knowledge from a repertoire of situations. This helps leaders in understanding what is required, depending on the

situation (Levitt and March, 1988; Miller, 1993; Wofford and Goodwin, 1994; Wofford, Goodwin and Whittington, 1998). Thus, it is likely that high skills levels provide leaders with the ability to adopt the relevant strategic behaviour, depending on what is required to achieve the firm goals. On the basis of this argument, when comparing configurations 3 with 4b, one can state that a leader may use his high level of expertise based on interpersonal, entrepreneurial, and conceptual skills to consciously implement generative leader behaviour or none of the strategic behaviours, depending on what is relevant and effective in a particular situation. Thus, configurations showing different strategic behaviours associated with similar skills, could be a result of mindful decisions made by leaders based on what is required for the firm.

The second pattern identified in the sufficiency analysis involves different skill-sets associated with similar behaviour. This pattern emerges when comparing configurations 2a, b, and c, and configurations 4a and b. These comparisons show clear signs of equifinality of skills/cognitions with respect to strategic behaviours. This implies that the different experiences that leaders draw on may not necessarily lead to different strategic behaviours. These equifinal solutions are likely to be based on different justifications.

Configurations 4a and 4b show the association of the inactive leader class with the low levels of skills (configuration 4a), and with a high level of skills (configuration 4b). The former combination is in line with the previous arguments based on present literature which shows that leaders require expertise to identify which strategic behaviours are needed (Yukl, 2012). The latter combination may reflect contexts where experienced leaders consciously choose not to involve themselves strategically, based on their extensive knowledge on what the firm needs and what direction it should take (Levitt and March, 1988). Again, without knowledge of strategic behaviours by leaders, simple correlational analysis would obscure these polar equifinal cases.

Equifinal solutions of skills/cognitions with respect to strategic behaviours may also be due to the fact that skills may substitute each other. For example, in the case of the transactive leader class, transactive behaviour is associated with three types of skill-sets which are likely to substitute each other in executing such behaviour (configurations 2a, 2b, 2c). The transactive leader has two main roles – facilitating the communication process to obtain information from key stakeholders, and determining the strategic direction. Conceptual skills are likely to help leaders in executing both tasks. Through the

"analytical ability, logical thinking, concept formation, inductive reasoning, and deductive reasoning" such leaders are likely to enhance the effectiveness of communication flows (Yukl, 2002; p.71). In addition, the ability to understand all elements that influence the organisation helps in determining a strategic direction (Katz, 1955).

In addition, the roles associated with transactive strategic leadership behaviour may also be associated with skill-sets involving interpersonal skills and entrepreneurial skills (configuration 2b), or interpersonal skills and technical skills (configuration 2c). Interpersonal/people skills facilitate the process of organisational consensus and are likely to help leaders in developing environments that give voice to employees and create a firm culture based on communication which is very important under this strategic leadership style (e.g., Detert and Burris, 2007; Harlos, 2001). Moreover, entrepreneurial skills are likely to help such leaders in identifying opportunities and innovative solutions by linking the outcomes that emerge from the information gathering process, and determine an effective strategy. On the other hand, technical skills are also likely to help leaders in devising a better strategy through their knowledge on the technical details of the product and/or service in line with the processes involved. This gives the leader the ability to identify task-related issues that emerge from the communication process, and devise a strategy to correct such issues. Thus, while interpersonal skills are likely to help leaders in facilitating the communication flows in order to gather information from the key stakeholders, entrepreneurial and technical skills are likely to determine how leaders interpret the information, and in turn how they determine the strategy. This analysis shows a clear indication that skill-sets can substitute each other.

The third pattern shows that when analysing the "pure" configurations that are in line with Hart's strategic behaviour categorisation, it can be noticed that as one moves from command to generative strategic behaviour (configurations 5a,b,1,3), overall the level of skills tends to increase. Therefore, higher skills are likely to enhance the strategy-making process capabilities of the leaders who will have sufficient skills to execute different strategic behaviours (Hart and Banbury, 1994).

This trend in skills may be reflecting the increasing complexity in terms of the strategic process challenges associated with strategic behaviours as one moves from command to generative behaviours (Dess *et al.*, 1997; Hart, 1992; Lumpkin and Dess, 1995). As one moves from the command to the generative behaviour, the firm's

competitive advantage becomes increasingly dependent on multiple competences. In fact, it can be noticed that the role of organisational members increases, while the role of the leader decreases (Hart, 1992). To this effect, based on the resource-based theory, Hart and Banbury (1994) suggest that, as firms start relying on multiple human resources complexity in strategy-making is likely to increase due to the complex patterns of coordination and multiple stakeholders involved.

Based on this argument, the results show that higher leader skills are needed to support complexity in the strategic process. This pattern is justifiable as the process of complex strategic patterns involving the coordination of multiple individuals are difficult to comprehend, appraise and imitate, and therefore leaders cannot simply reproduce what other leaders in the industry are doing. This is especially the case when such situations are compared to simpler strategic approaches which can be exploited and understood by many individuals (Hart and Banbury, 1994). Apart from comprehending and managing the process, leaders need to be able to identify and act upon critical causes which stem from the strategic process. This becomes increasingly difficult when complex strategic patterns are involved, thereby stressing the need for cognitions. In fact, various authors have stressed the need of better cognitions as leader tasks become more complex (Mumford, Friedrich, Caughron and Byrne, 2007; Mumford, Zaccaro, Harding, Jacobs and Fleishman, 2000; Wilensky, 1983).

These three patterns highlight the fact that the association between the two methods of influence is very complex. Different combinations of different skill profiles are associated with different behavioural patterns. In addition, in line with the solution, the patterns show clear evidence of equifinal and multifinal solutions between the two elements. Similar skills are associated with different behaviours, and similar behaviours are associated with different skills. This is likely to be a result of the complex nature of the relationship between leader strategic behaviour and skills involving mindful decisions of leaders, supporting the fact that human order is not easily predictable. These complexities are also likely to be due to overlaps in the roles identified within the different combinations of strategic behaviours, and the substitution effects among skills.

These findings provide important theoretical advancements to leadership literature. Through this stream of literature the connection between leader cognitions and behaviours has been acknowledged only at a general level (Avolio, Walumbwa and Weber, 2009). Empirical evidence on the connections between specific leader cognitions

and specific behaviours is very limited (e.g., Wofford *et. al*, 1998). These limited findings do not highlight empirical connections between specific leader skills and specific behaviours (Yukl, 2012). In addition, it is also important to note that the patterns provide support to existing cognitive literature which has consistently acknowledged the fact that different leader cognitions are associated with different behaviours (see: Bandura, 1982; Lazarus, 1991).

Through the third pattern I provide important implications for human capital theory. Specifically, it shows that as leader cognitions/skills increase, they are likely to become more able to execute complex strategic behaviours which involve the coordination of multiple stakeholders. This is likely to lead to enhanced human process advantage, defined as *"causally ambiguous, socially complex, historically evolved processes such as learning, co-operation and innovation which are thus very difficult to imitate"* (Boxall, 1996; p.67). Thus, through their superior organisational capabilities, leaders generate human process advantage, giving firms the ability to maximise the knowledge and talent of the employees within the strategic process.

In line with this analysis, in the next section I will outline the theoretical implications that emerge from the study which connect leader skills, strategic behaviour, and HRM practices.

4.06.3 The Role of Leaders in Determining the Level of HRM Practices

The configurational analysis shows that different leader classes are associated with the high and low presence of HRM practices. The association between leaders and the adoption of management practices is complex, based on nonlinearity, equifinality and asymmetric reciprocal connections. Based on these complex relations, two broad patterns emerge when comparing the different classes under the two outcomes.

First, overall results show that leaders associated with low HRM levels are more likely to have low skills levels, compared to leaders associated with the high presence of HRM. Leaders with high levels of expertise are likely to have experienced the benefits of HRM practices over time. Thus, they are likely to implement such practices to achieve their targets more effectively (Klaas, Semadeni, Klimchak and Ward, 2012). In turn, it could be argued that low skills are likely to be a result of low experiences, given that leaders with low skills are unlikely to have experienced the benefits of motivating and engaging

employees and thus are less likely to adopt HRM practices. On the other hand, with low skill levels, the leader's ability to understand the product in detail, to plan ahead, and to develop innovative ideas and/or a culture based on communication is limited. This implies that even though such leaders may have the right values and believe in the worth of people and the positive implications of HRM practices, such leaders are less likely to be able to identify which HRM practices are needed to lead the company in the right direction. This is in line with cognitive psychology literature discussed previously which states that highly skilled individuals (experts) are likely to have more organised knowledge structures compared to novices, allowing them to be more efficient in identifying the required solutions (McDonald, Westphal and Graebner, 2008; Ng, Van Dyne and Ang, 2009).

Second, when analysing the "pure" configurations that are in line with Hart's strategic behaviour categorisation, it seems that the presence of HRM practices is related to the complexity involved in executing strategic behaviour. In fact, the solution shows that rather simplistic strategic behaviours, where employees have a minimal role such as command strategic behaviour (configurations 5a,b), are related to low HRM practices. Conversely, strategic behaviours that are relatively complex involving multiple human resources such as rational, transactive, and generative (configurations 1-3), are related to more extensive HRM practices. These relations may reflect the complexities in the strategic planning process. As previously discussed, as one moves from command to generative strategic behaviours, complexity with regards to the strategic process is enhanced. This is based on the fact that the strategic process becomes increasingly dependent on multiple competencies and human resources. (Dess *et al.*, 1997; Hart and Banbury, 1994; Hart, 1992; Lumpkin and Dess, 1995). To this effect, Hart (1992) suggests that the role of organisational members within the firm's strategic process increases as one moves from command to generative behaviours. Thus, it becomes more important for leaders to ensure employee commitment with regards to the firm's strategy and strategic process. Literature has consistently shown that employee commitment is promoted and ensured mainly through the implementation of HRM practices (Meyer and Smith, 2000). In line with this argument, it can be suggested that, unlike command behaviour, rational, transactive and generative strategic behaviours are associated with high HRM practices as they depend more on employee commitment.

Under the command strategic behaviour, the strategic direction of the company is drafted by the leader, and employees are ordered to follow. Thus, there is limited room for the promotion of employee commitment under this approach. This is supported by the fact that, through their centralised approach, leaders are likely to monitor employee behaviour and, therefore, practices that steer employees towards the right direction are less important. Based on these arguments, previous studies show that in situations where leader control is high, HRM practices are likely to be low (e.g., Liu, Lepak, Takeuchi and Sims Jr, 2003).

Leaders, opting for rational and transactional strategic behaviour, allow for the involvement of employees in the strategic process through a formal and informal structured procedures respectively (Hart, 1992). Thus, such firms need to ensure that employees are committed to share their views effectively. In addition, both rational and transactive leaders need to ensure that employees are committed to work towards the company's strategic plans which are designed by the leader himself. Leaders adopting generative strategic behaviours tend to promote corporate entrepreneurship, whereby the firm's commitment involves production process and market innovations (Kuratko, Ireland and Hornsby, 2001). This is achieved through a decentralised approach that encourages employees to come up with new and innovative ideas (Hart, 1992). In such cases, it is important that leaders ensure that the employees' commitment and firm's commitment converge. Employee commitment is likely to be ensured and promoted through the effective use of HRM systems (Kuratko *et al.*, 2001).

The two patterns identified in this section show that leaders are likely to be important determinants of variations in management practices. Higher skills and complex strategic behaviours are associated with high levels of HRM, when compared to situations where HRM levels are low. These patterns provide insight with respect to human capital theory. It shows that leaders, through their organisational capabilities, are likely to have an important impact on the level of HRM, which is likely to determine the human capital advantage of the firm, defined as superiority in talent and productive capabilities of a firm (Boxall, 1996). Based on the resource-based view, it can be argued that the higher the level of HRM practices, the higher the human capital advantage of the firm is through the recruitment and retention of the most talented employees and the enhancement of their productive capabilities (Barney, 1991; Boxall, 1996; Grant, 1999).

Thus, overall, by combining the contributions of the previous section related to human capital theory to the contributions of this section related to the same theory, it can be deduced that high skills and complex behaviour are likely to lead to human resource advantage (combination of human capital advantage and human process advantage) (Boxall, 1996). This is an important overall contribution with respect to human capital theory. Studies in this field of research tend to exclude the role of leaders by mainly focusing on how best to implement HRM practices in order to enhance employee human resource advantage and achieve better organisational outcomes (e.g., Lepak and Snell, 2002; Wright, Dunford and Snell, 2001).

The patterns identified in this section, linking leader skills, specific strategic behaviours, and HRM practices, have other important theoretical implications. These patterns provide theoretical insights with regards to leadership and HRM literature by highlighting the combined influence of leader skills and specific behaviours with respect to HRM practices. To date, leadership and HRM studies linking these constructs are general and fragmented (e.g., Conger, 1999; Hambrick and Mason, 1984; Jackson, Schuler and Jiang, 2014; Klaas *et al.*, 2012). Also, there is no sufficient evidence of how specific cognitions, specific behaviours, and specific management practices are connected (see: Baron and Hannan, 2002; Klaas *et al*., 2012; Zhu, Chew and Spangler, 2005).

The patterns also lead to insights with respect to research in the area of microfoundations of strategic management. This area promotes studies on how macro firm elements influence micro firm elements, and *vice versa* (Felin, Foss and Ployhart, 2015). Over the years strategy research has focused on the implications of HRM practices (e.g., Huselid, 1995). Based on this research, scholars have consistently shown that the implementation of HRM practices is essential to the firm's competitive advantage, and long-term resilience, which in turn influence organisational performance (Stavrou and Brewster, 2005). What this stream of literature does not show is how individuals within firms are likely to influence organisational-level elements such as HRM practices, which in turn influence the firm's competitive advantage. With this study I have contributed to this stream of literature by showing that leaders, as individuals, have an important implication on organisational-level elements, in particular HRM practices. This implies that leaders are likely to influence the competitive advantage of the firm. Therefore, based

on a framework developed on the ABV and ELT, the study supports microfoundations research.

All five identified patterns lead to important empirical implications. In order to analyse leader influences with respect to management practices, one has to consider both cognitions and behaviour in a model that allows for the analysis of complex relations. To this effect, the results are consistent with the framework developed on the basis of the ABV and ELT, which shows that the association between leader skills, behaviour, and management process is dynamic and endogenous. The results also support the analysis by showing complex interrelations between leaders and HRM, involving nonlinearity, equifinality, and asymmetric reciprocal associations. This complexity is further enhanced through multifinality. This implies that if the relationship is assessed through linear models, it is likely that results will be imprecise.

4.07 Practical Contributions

The study provides direct implications for firm leaders. Despite the constant findings that management practices are likely to enhance performance, evidence also shows that not all firms seem to implement them. In this study, I show that firm leaders play a crucial role in determining the presence of management practices. The complementarity between specific skills and strategic behaviours helps leaders in recognising the benefits of management practices. By showing which skills and behaviours are associated with high levels of HRM practices, and which skills and behaviours are associated with low levels of HRM practices, the study provides leaders with insights on what skills they need to acquire, and what behaviours they need to enact in order to be able to acknowledge the use of certain practices and enhance the firm's performance. The acquisition of skills is possible as, unlike traits and abilities, skills are not innate but can evolve overtime (Boyatzis, 1982; Connelly *et al.*, 2000; Neuman and Wright, 1999; Yukl, 2006).

The findings also derive important implications with respect to SMEs, given that the data is based on such firms. Literature on SMEs indicates that some firms tend to implement HRM practices (e.g., Hayton, 2003) while others are less likely to implement them. The low levels of HRM practices in SMEs have been mainly attributed to the high costs involved in implementing such practices (e.g., Agarwal, Green, Brown, Tan and

Randhawa, 2013). Our findings show that leaders, through specific cognitions and strategic behaviour, are an important determinant of the level of HRM practices implemented. If SME leaders are able to identify which skills and strategic behaviours they need to be able to recognise the benefits of such practices, they are likely to be more able to compete with other SMEs in similar industries who implement such practices, and achieve better performance outcomes. Knowledge on SMEs with respect to the implementation of HRM practices is especially important because these firms employ more than 60% of total employment in the EU, and more than 50% of the total gross value added (Muller, Caliandro, Peycheva, Gagliardi, Marzocchi, Ramlogan and Cox, 2014).

4.08 Limitations and Future Research

Like any other research study, the present study involves a number of limitations. The first limitation is related to the measurements of leader skills and strategic behaviours. The measures are based on self-ratings. When comparing self-rating with ratings made by others, there may be imperfect correlations (Mabe and West, 1982; Shore, Shore and Thornton, 1992). Still, industrial psychology literature acknowledges that most frequently, self-ratings are the only way to collect information on the individual characteristics of people (Levine, 1980; Levine, Flory and Ash, 1977; Mabe and West, 1982; Shrauger and Osberg, 1981). Also, it has been concluded that self-assessments predict industry outcomes as other information sources (Mabe and West, 1982; Shrauger and Osberg, 1981). It is also important to consider the fact that individuals have a unique know-how about their skills and strategic behaviour, thus it is likely that such assessment lead to more precise results (Levine, 1980), unless the questions are framed in a way that motivate individuals to reply in a self-serving manner. In this respect, future research may consider involving self-ratings and ratings by others and compare the outcomes.

Second, different skills are likely to be associated with similar behaviours. Similar skills are likely to be associated with different behaviours. This could imply that, while skills and behaviours may be connected, there are other elements in leaders which lead to variations in behaviour. Leader cognitions are complex and involve different components. In this study, I specifically focus on experiential knowledge structures by evaluating them through skills. Cognitions are based on different types of knowledge structures which are associated not only with skills, but also by the individual's personal characteristics, traits, abilities, motives and values. All of these elements are likely to influence how individuals

process information, and thus the leader's strategic choices (Hambrick and Mason, 1984; Zaccaro, 2007). Thus, future research should involve these elements in trying to assess the role of leader cognitions on management practices. Future research could also use the framework to assess other categories of cognitions, behaviour and management practices. These constructs are relatively general and multiple categorisations have evolved over time in research.

Third, while leadership is an important factor when it comes to analysing the determinants of HRM practices, it is only one of the components that is likely to influence the presence of such practices. Other elements include contingent and contextual factors such as environmental, strategic, and organisational factors (see: Martín-Alcázar, Romero-Fernandez and Sánchez-Gardey, 2005). Including contextual factors could also help in understanding why leaders use similar skills to behave differently. Thus, in order to attain a more comprehensive analysis of the role of HRM practices, future research should include these elements together with the role of leadership.

The fourth and final limitation is related to the output. The output is limited to high or low presence of HRM practices. Management practices involve other practices apart from HRM such as monitoring practices (Bloom and Van Reenen, 2007). Future research should provide insights on other practices in this regard. In addition, while this output approach has provided insights into the implementation of HRM practices, it does not provide any detail with regards to the type of HRM practices implemented by the different leader classes identified. Studies show that different leader classes are associated with different employee interactions which is likely to influence the type of HRM practices implemented (Liu, Lepak, Takeuchi and Sims, 2003). Thus, future research should include HRM practices as part of the configurational set in order to assess the variations in the implementation of HRM practices.

4.09 Conclusion

Despite the widespread knowledge that management practices enhance organisational performance, empirical evidence shows that certain firms implement such practices and others do not. These variations apply even when firms operate in similar scenarios. While most research has focused on the implications of management practices, little or no studies are available on the factors driving the adoption of management practices (Bloom

and Van Reenen, 2007). In order to address this gap, I adopt an approach based on behavioural factors which led to top-down arguments stating that leaders, through their cognitions and strategic behaviour, are likely to influence the level of management practices implemented within a firm. When analysing in detail the association between leader cognitions, strategic behaviour, and management practices, it is evident that there is a general lack of evidence and understanding. While there are theoretical arguments at the most general level that these elements may be connected, evidence on how specific leader cognitions and specific leader behaviours drive the adoption on management practices is limited. Due to the generic theoretical arguments, combined with the issue of limited empirical evidence, the association between the constructs is investigated inductively.

I use existing theoretical perspectives, combining the ABV and ELT, to show that leader cognitions and strategic behaviour are likely to influence management practices simultaneously. In contrast to previous research which focused on the separate implications of leader cognitions and strategic behaviour with respect to firm decisions, it is shown that the influence of these two methods is likely to be connected, as also stipulated in cognitive theories.

The construction of the theoretical model led to arguments which highlight the complexity involved within the relationships between the constructs. In fact, it is suggested that the theoretical model is too complex to be analysed through econometric methods based on linearity. Based on these arguments, I show the significance of the leader's role on firm choices through a novel approach. It takes the first step toward developing a configurational approach, based on fuzzy-set methodology, to understand how leaders influence variations in management practices.

Through the empirical findings, my study provides evidence of an association between leader cognitions, strategic behaviours, and management practices. It is argued that leader influences based on cognitions and strategic behaviours are endogenous and dynamic. In addition, my study also provides evidence of patterns of association among specific cognitions, and specific behaviours with respect to the adoption of different levels of management practices. Such patterns are based on nonlinearity, equifinality, asymmetric reciprocal associations, and multifinality. The overall findings clearly show the configurational nature of leader influence. Moreover, the identified patterns can be regarded as stylised facts that may contribute to further theorising. As such, this study

provides a more detailed and comprehensive understanding of how leaders influence firm decisions, contributing to both theory and practice.

4.10 References

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CHAPTER 5 - GENERAL DISCUSSION

5.01 Introduction

Present literature has consistently shown that the adoption of management practices is likely to help firms in generating better outcomes (e.g., Huselid, 1995). Still, such practices are not universally adopted across firms. Different firms are likely to adopt different levels and patterns of management practices. Despite the acknowledgement of such variations, studies have failed to explain why such variations take place (Bloom and Van Reenen, 2007, 2010). To this effect, the main theme of this thesis involves the understanding of variations in management practices. By investigating such variations, through this thesis I challenge existing strategic management theories to be more realistic and seek to understand real-world patterns related to the adoption of management practices. Also, the understanding of these variations is particularly important because of the implications they have on firm outcomes and economies at large.

Within the present thesis, I investigate variations in the adoption of management practices through three individual papers. All papers focus on the understanding of variations in Human Research Management (HRM) practices as a result of the vast amount of literature on such practices. This area of research indicates that such practices are likely to enhance firm outcomes (e.g., Huselid, 1995). One of the papers assesses how HRM practices vary with respect to performance across different industry-related contexts (Paper 1 – Chapter 2). The other two papers focus on how leaders, through specific cognitions and behaviours, are likely to influence variations in HRM practices (Paper 2 – Chapter 3; Paper 3 – Chapter 4).

A common element and primary contribution that emerges from all three papers is the value of configurational analysis in understanding variations in management practices. This lead to important methodological and empirical contributions as discussed in the first part of this chapter. I proceed by explaining how specific theories in the field of strategic management are enhanced through the adoption the configurational approach. Finally, also summarise the main limitations, suggestions for future research, and practical implications that emerge from all three papers.

5.02 Methodological and Empirical Contributions on Variations in Management Practices

All three papers in this dissertation highlight the importance of the configurational approach in understanding variations in management practices. This is mainly a result of the complex associations involved and unclear theoretical rationales. The proposed approach is based on set-theory using Qualitative Comparative Analysis (QCA).

Configurational methods tend to combine complexity with parsimony (Fiss, 2011). They offer a pragmatic way to assess complex relations and interdependent elements in a coherent way through typified profiles (Delery and Doty, 1996; Doty, Glick and Huber, 1993). In fact, recently a number of studies in the field of social sciences have used this approach to assess complex relations (e.g., Curado, Muñoz-Pascual and Galende, 2018; Ho, Plewa and Lu, 2016). Yet, to date, the HRM field has adopted this approach only to a limited extent (e.g., Meuer, 2017). To this effect, this dissertation lead to methodological and empirical contributions within the field of strategic management by highlighting the importance of such an approach in understanding variations in HRM practices.

As discussed throughout the dissertation, the configurational approach allows for the analysis of complex combinations through the investigation of synergistic multiple interactions simultaneously. Thus, it recognises the fact that different organisational elements cannot be understood in isolation. Moreover, the approach considers that different elements may have different relationships within different configurations (nonlinearity). The approach also accommodates for equifinality, that is, it acknowledges the fact that there may be more than one way to succeed (Delery and Doty, 1996; Fiss, 2007; Meyer, Tsui and Hinings, 1993). It also accommodates for asymmetric relations, that is, the idea that the elements associated with the high presence of the outcome may be different from the elements associated with the low presence of that particular outcome (Fiss, 2007, 2011).

Therefore, unlike traditional econometric methods, set-theoretic methods based on fuzzy-set analysis are considered to be an appropriate method to assess multiple interacting effects and complex associations, as shown in recent studies. Most importantly, fuzzy-set analysis facilitates a data-driven approach (inductive reasoning), and allows researchers to derive some propositions/observations that themselves help provide greater specificity to extant theoretical arguments. These are important criteria

due to the lack of theoretical understanding and limited empirical evidence of the associations investigated, and also due to complex associations related to variations in management practices which make it very difficult to adopt a deductive approach (Fiss, 2007, 2011).In this respect, the importance of the configurational approach in each paper papers is explained in the remaining part of this section.

Through Paper 1, I analyse in detail how HRM practices are likely to vary with respect to performance, as a result of different contextual situations. In line with the contingency view of Strategic Human Resource Management (SHRM) theories, the first paper posits that, theoretically, it is expected that the influence of HRM practices on performance is likely to vary depending on different internal and external contingent factors (Jackson *et al.*, 2014). However, empirical evidence tends to support the universal 'best practice' approach across all contexts (e.g., Becker and Huselid, 1998; Combs, Liu, Hall and Ketchen, 2006). In fact, when analysing industry-related factors (knowledge-intensity, capital-intensity, competition) with respect to the HRM-performance relation, I find competing theoretical rationales and equivocal empirical outcomes (e.g., in the case of capital-intensity; see: Arthur, 1994; Datta, Guthrie and Wright, 2005).

In this paper, I argue that the empirical support with respect to the universalistic view and equivocal empirical outcomes with respect to the contingency view may be a result of the empirical methods typically used in this area of research, based on linear econometric methods and the use of HRM additive index. These methods obscure the potential interdependencies between industry-related factors and between HRM practices (Purcell, 1999), thus ignoring the potential influence that combined HRM practices may have with respect to performance as a result of combined contextual situations. In addition, the methods also fail to show the likely presence of equifinality and causal asymmetry, which are likely to be present as a result of the multiple interactions that may be involved (Fiss, 2007).

Due to the competing theoretical rationale and complexities involved in the association between contextual factors, HRM practices and performance are associated, I adopt a configurational-based empirical method. The empirical results based on this method confirm that different combinations of HRM practices are associated with different industry contextual factors within high and low productive firms. The multiple interacting relations among the constructs show complex causal associations, involving nonlinearity, multifinality, equifinality, and causal asymmetry. These outcomes confirm

the importance of configuration analysis in understanding the effect of HRM practices on performance in different contextual situations.

In Papers 2 and 3 I investigate the connection between leadership and HRM practices. I suggest that the adoption of such practices is likely to be influenced by leader cognitions and behaviours (Hambrick and Mason, 1984; Yukl, 1999). The influence of these leader elements is likely to be combined given that leader cognitions are likely to precede behaviour, as shown in various cognitive studies (Bandura, 1982; Lazarus, 1991).

A detailed review shows that theories acknowledge a connection between leader cognitions based on experiential knowledge structures, behaviour, and management practices. However, these theoretical arguments are fragmented and at a general level. Literature on how specific cognitions and specific leader behaviours are connected or how they are likely to influence variations in management practices is limited (see: Baron and Hannan, 2002; Klaas *et al.*, 2012; Zhu, Chew and Spangler, 2005). Moreover, empirical evidence on how the three elements are simultaneously connected is missing.

In view of these gaps, Paper 2 is designed as a review paper, aimed at digging deep into the potential associations between specific cognitions, specific behaviours, and specific management practices. Specifically, in this paper I discuss how the adoption of HRM practices (traditional and discretionary HRM) might be impacted by variations in leader skills (as a form of experiential knowledge structures, analysed through conceptual, interpersonal, technical, and entrepreneurial skills), and leader behaviour (transactional and transformational). Paper 2 served as a foundation for the empirical analysis conducted in Paper 3. This Paper examines how the level of HRM practices (high and low) might be impacted by leader skills and strategic behaviour (command, rational, and generative).

Due to the lack of knowledge associated with the relation among leaders and management practices, a conceptual framework is developed within Papers 2 and 3, aimed at establishing a link between specific cognitions, specific behaviours, and specific management practices. The framework is based on the Attention-Based View (ABV; see: Ocasio, 1997) and the Experiential Learning Theory (ELT; see: Kolb, 1984). It stipulates that leader cognitions (based on experiential knowledge structures), behaviours, and management practices are likely to be based on reciprocal associations. This implies that the connections between the constructs are likely to be complex, involving endogeneity.

This complexity is enhanced when taking into account that leaders are likely to have different cognitive structures which are likely to be associated with different patterns of behaviours and HRM practices. In addition, based on these idiosyncratic characteristics among leaders, it is argued that the association between these constructs is likely to be characterised by equifinality and asymmetric causality.

The lack of theoretical rationale, limited empirical evidence, and the complex associations call for configurational analysis, based on set-theoretic methods. This is discussed through a detailed analysis in Paper 2 through a research agenda. In Paper 3, the application of set-theoretic methods to assess the relationship between leader skills, strategic behaviours, and HRM practices confirms this complexity. Overall, the empirical findings lead to important theoretical insights, showing that leader skills map on strategic behaviours in complex ways, involving nonlinearity, multifinality, and equfinality. Moreover, the results show that leader skills and behaviours are likely to influence the level of HRM practices. This relationship is characterised by nonlinearity, equifinality, and asymmetric relations.

These complex interactions confirm the importance of the configurational approach as opposed to traditional regression methods based on HRM indices. As discussed previously, the importance of this approach also stems from the fact that it allows for inductive reasoning. In fact, through these complex associations, important findings emerge with respect to specific theories in the field of strategic management which have not been observed in previous studies. These theoretical insights are discussed in detail in the following section.

5.03 Theoretical Implications for Variation in Management Practices

The findings in the previous section clearly show that configurational analysis provides a better and more detailed understanding with regards to variations in the adoption of management practices, as a result of the complex situations within which such practices are implemented. Through the adoption of this approach, and by digging deep into the understanding of the adoption of, and variations in management practices, this thesis contributes to specific phenomena within the area of strategic management through different theoretical insights, as outlined below.

First, through the findings of Paper 1 the dissertation sheds light on specific explanations of relationships among variables within the field of SHRM. By drawing on the contingency and configurational theories, the study finds complex causal combinations with respect to the association between industry-related contextual factors (knowledge-intensity, capital-intensity, and competition), HRM practices, and performance. These complex associations are based on multiple interactions of HRM practices and industry factors, associated with high and low performing firms. Findings also show complex associations based on nonlinearity, multifinality, equifinality, and asymmetric reciprocal relations.

More specifically, the results contribute to the field of SHRM by showing that in reality the adoption of HRM practices is more nuanced than the 'more is better' case irrespective of the situation proposed in the universalistic view. Different firms operating in different contexts are likely to achieve high performance by adopting different constellations of configurations based on motivation-, ability-, and/or opportunity-enhancing practices. The results show that highly productive firms are likely to implement at least one motivation-enhancing practice, combined with ability- and/or opportunity-enhancing practices. The importance of combined HRM practices with respect to performance is in line with previous studies which show that HRM practices are more effective when combined in systems, rather than when they are implemented individually (Combs et al., 2006; Huselid, 1995). This outcome is also supported by the necessary analysis which shows that no individual practice is necessary to achieve high performance. These outcomes also imply that the additive index of HRM is likely to obscure alternative configurations of practices.

The rejection of the universalistic view is sustained through causal asymmetry. The universalistic view assumes that high performing firms are likely to implement high levels of management practices whist low performing firms are likely to implement low levels of management practices. In contrast to these assumptions, the results in Paper 1 indicate that some low-performing firms actually over-invest in HRM, other low perfomers appear to implement the same level of HRM practices as high performers. This contradicts the 'more is better' assumption that it is only high-performing firms which implement high investment in HRM (e.g., Guthrie, 2001; Subramony, 2009).

Moreover, the results reject the universalistic view of SHRM, by showing that contexts do matter, in line with the contingency view of SHRM. However, overall the

results extend on the contingency view by clearly indicating that better results emerge if contexts and practices are analysed on the basis of the configurational view of SHRM. This is especially because when comparing high and low performing firms in similar contexts it can be noticed that low-performing firms are likely to be associated with a mismatch between the choice of different HRM practices and multiple industry contexts. In addition, in explaining the variations in levels of management practices across different contexts in high performing firms, better insights emerge when looking and contextual factors in a combined way. For example, findings for highly productive firms show that the influence of capital-intensity is likely to have different effects on the adoption of management practices, depending on the level of competition and knowledge-intensity. Specifically, the results indicate that highly-productive capital-intensive firms are likely to benefit from a high level of HRM practices when competition is high. Irrespective of the level of capital-intensity, the presence of knowledge-intensity is likely to justify a higher level of HRM practices. When competition levels or knowledge-intensity levels are low, capital-intensity is likely to have the opposite effect with respect to HRM practices in highly productive firms. These findings add insight to previous empirical findings which show equivocal outcomes with respect to the role of capital-intensity on the HRM-performance link (e.g., Arthur, 1994, Datta *et al.*, 2005). Capital-intensity may have enhancing or dampening effects on HRM practices, depending on the other contingent factors involved.

Similarly, different effects emerge with respect to the influence of competition on the adoption of management practices in highly productive firms. Such effects are observed when combining competition with knowledge-and capital-intensity. Specifically the findings show that in traditional manufacturing firms (low knowledge-intensity; high capital-intensity), competition seems to have no influence on the adoption of management practices. Still, competition seems to be effective in other highly productive-industries. Highly-productive firms operating in highly competitive contexts are likely to benefit from higher levels of HRM practices when both knowledge and capital-intensity are high. When knowledge-intensity is high but capital-intensity is low, competition is likely to have the opposite effect on the adoption of HRM practices in highly productive firms. Similar outcomes emerge when both knowledge-, and capital-intensity are low. These findings add insight to previous literature which involves limited empirical findings with respect to the role of competition on the HRM-performance link (Kaufman, 2015).

Competition may have enhancing or dampening effects on HRM practices, depending on the other contingent factors involved.

Supporting previous findings, the results show that in highly productive firms, the presence of knowledge-intensity is associated with the highest level of HRM practices (e.g., Colling and Smith, 2006). However, overall, the industry-specific observations clearly show that all three contextual factors and patterns of HRM practices need to be assessed simultaneously in order to attain an enhanced understanding of the adoption of management practices across different contexts.

Theoretical insights on industry-related factors are particularly important as these factors have not received the deserved attention in the area of SHRM and were mainly used as control variables (e.g., Huselid, Jackson and Schuler, 1997). These explanations are also important because they shed light on the conflicting theoretical rationale associated with capital-intensity and competition as discussed in Paper 1.

In addition to the patterns associated with industry-related factprs, important findings also emerge with respect to SHRM when analysing the adoption of ability-, motivation-, and opportunity-enhancing practices individually. These findings continue to sustain the rejection of the universalistic view, and show that contexts matter with respect to the HRM-performance relation, in line with the contingency view.

Furthermore, clear patterns emerge when using the configurational approach. For example, for motivation-enhancing practices, results show that almost all high and low productive firms tend to implement one of these practices. This means that such practices may be sufficient but not necessary, as shown through the necessary analysis. Still, the presence of such practices is constant in high-performing firms which may imply that their absence may deter productivity. The benefits of such practices are likely to depend on the complementary implementation with other practices. Moreover, results show that highly productive firms that are knowledge-intensive are more likely to benefit from performance appraisal, as opposed to highly productive firms that operate in low knowledge-intensive environments. In fact, it is shown that highly productive industries with a low level of knowledge-intensity are more likely to benefit from the implementation of variable pay rather than performance appraisal. Variable pay is also consistently present in high-performance firms operating in highly competitive industries. On the other hand, high-performance firms operating in highly concentrated industries

have been found to benefit from opportunity-enhancing practices involving employee involvement.

Results with regards to ability-enhancing practices are less clear. Such practices are present in high-performing firms, mainly where knowledge-intensity is high. However, these practices have also been observed in knowledge-intensive firms registering low productivity. When comparing the whole configuration it was noted that the low-performing firms fail to complement such practices with motivation-enhancing practices unlike the high performing firms. Therefore by looking at combinations of HRM practices and industry contexts, a better understanding of the adoption of management practices is achieved. Whilst different patterns of the individual practices emerge from the results, it is clearly shown that by looking at the individual HRM practices within a specific contextual situation, one is likely to get inconclusive results.

Overall, the results that emerge from this paper highlight the importance of configurational analysis in assessing the relationship between contextual factors, HRM practices, and performance. As indicated through the results outlined in this section, the configurational approach helps reconcile competing theoretical rationales and equivocal empirical outcomes based on the universalistic and contingency views which have dominated the field of SHRM until today (Skarmeas, Saridakis and Leonidou, 2018).

Important theoretical implications also emerge through Papers 2 and 3. Both papers highlight connections between specific leader cognitions, specific leader behaviours, and HRM practices. The outcomes of Papers 2 and 3 are important for leadership literature because, the connections between leader cognitions and behaviours have only been acknowledged at a general level (Avolio *et al.*, 2009). In addition, empirical evidence is limited and does not specifically show how specific cognitions, such as skills, and specific behaviours are connected (Yukl, 2012). These connections support the cognitive literature, which specifies that cognitions are likely to precede behaviour (Bandura, 1982; Lazarus, 1991). In addition to leadership literature and HRM literature by highlighting the combined influence of specific leader cognitions and behaviours, with respect to HRM practices. To date, theories linking these constructs are at general level and fragmented. In addition, there is no sufficient evidence of how specific cognitions, specific behaviours, and specific management practices are connected.

Based on the development of a conceptual framework linking the ABV and ELT, Paper 2 provides detailed insights on the specific connections between leaders skill profiles (interpersonal, entrepreneurial, conceptual and technical skills), specific leader behaviours (transactional and transformational), and HRM practices (traditional and discretionary). An in-depth review has led to development of three ideal types of combinations involving different skill profiles, different leader behaviours, and different HRM practices. The first ideal type involves a combination of transactional leader behaviour (low transformational behaviour), conceptual and technical skills, and traditional HRM practices. The second ideal type involves a combination of transformational leader behaviour (low transactional behaviour), conceptual, interpersonal, and entrepreneurial skills, and discretionary HRM practices. The third ideal type involves both behaviours, all skills, and both traditional and discretionary HRM systems.

Despite the potential insight that these ideal types provide, the paper refrains from generating theoretically-driven hypotheses with respect to specific cognitions, behaviours, and management practices. This is due to the fact that literature connecting these elements is too sparse and generic. In addition, the complexities involved among the three constructs make it impossible for scholars to follow a deductive approach. These complexities are based on the fact that there are likely to be multiple combinations of leader skills, behaviour, and HRM practices. In addition, these combinations are likely to involve reciprocal associations, nonlinearity, equifinality, and asymmetric reciprocal relations. Thus, a research agenda highlighting the importance of configurational analysis in understanding the relations among the constructs is outlined.

The conceptual framework and research agenda identified in Paper 2 served as a foundation for the empirical analysis conducted in Paper 3. Paper 3 applies the conceptual framework and uses set-theoretic methods to understand how the level of HRM practices (high and low) might be impacted by leader skills and strategic behaviour (command, rational, and generative). Based on this analysis, the empirical findings provide a deep insight on the connection between specific elements. Overall, results show that different configurations of leader skills and strategic behaviour are associated with the presence of high HRM practices, and different configurations of leader skills and strategic behaviour are associated with low HRM practices. Specifically, rational, transactive and generative leader classes are likely to be associated with the high presence of HRM practices whilst

the authoritative and inactive leader classes are associated with the presence of low HRM practices.

Overall, findings from this paper show that leader skills map on strategic behaviours in three complex ways. First, there is evidence of multifinality of skills with respect to behaviours or in the inverse equifinality of strategic behaviour with respect to skills. This is because the same skill sets are associated with different behaviours. Second, there is also evidence of equifinality of skills with respect to strategic behaviour. That is, different skill-sets are associated with the same strategic behaviours. Third, evidence shows that, as one moves from command to generative leader behaviours identified by Hart (1992), higher levels of skills are present. These findings add value to previous studies that have acknowledged the importance of a link between leader skills and behaviour (e.g., Yukl, 2012).

Findings also show that combinations of leader skills and strategic behaviour are likely to influence the level of HRM practices adopted in complex ways. In fact the results show clear signs of equifinal combinations of leader skills and strategic behaviours with respect to HRM outcomes. In addition, the results are characterised by asymmetric reciprocal associations as solutions for the high presence of HRM are not a mirror image of solutions for low presence of HRM. Based on these complex connections, the overall results show that low HRM levels are likely to be associated with leaders who have low skills levels and with leaders who execute less complex strategic behaviours such as command behaviour. On the other hand, high HRM levels are likely to be associated with highly skilled leaders, and leaders who execute relatively complex strategic behaviours such as generative behaviour. These findings confirm that leader cognitions, behaviours, and management practices are connected and should not be assessed separately as done previously. Moreover, they shed light on the connections between specific cognitions, strategic behaviours and management practices.

Apart from contributing to leadership and HRM literature, the insights with respect to the links between leadership and HRM derived from the two papers also lead to theoretical advancements with respect to literature on the microfoundations of strategic management. This area promotes studies on how macro firm elements influence micro firm elements, and *vice versa* (Felin *et al.*, 2015). Like any other area of strategic management, over the years theories and empirical evidence, related to the adoption of HRM practices, have focused on the implications of such practices on firm outcomes

(Delery and Doty, 1996). Theoretical arguments and empirical evidence on how individual-level factors influence firm-level outcomes have been limited. In the case of leadership, various authors have acknowledged the important role of leaders in influencing strategic choices including management practices (e.g., Hambrick and Mason, 1984; Zhu *et al.*, 2005), yet, knowledge of how specific leader factors influence specific strategic choices, including management practices, has been limited and fragmented. There is no coherent body of work that shows how these factors integrate (Leroy, Segers, Van Dierendonck and Den Hartog, 2018). To this effect, I provide important insights to this stream of research by linking individual-level elements (leaders) with organisational-level elements (HRM practices). Through the establishment of connections, the findings imply that leaders are likely to influence firm performance, given the important implications of such practices on performance (Huselid, 1995).

Finally, through the identification of the connections among skills, strategic behaviour and HRM practices, Paper 3 provides important insights with respect to human capital theory. To date, this stream of research has mainly focused on how firms can use HRM practices better in order to enhance their human resource advantage to achieve better organisational outcomes (e.g., Lepak and Snell, 2002; Wright, Dunford and Snell, 2001). The findings contribute to knowledge with respect to human capital theory by showing that leaders may enhance the human resource advantage of the firm (the combination of human process advantage and human capital advantage). The findings showing a link between high skills and complex strategic behaviours reflect leader classes with superior organisational capabilities. These leaders enhance human process advantage as they promote the coordination of multiple stakeholders, and thus maximising the knowledge and talent of employees within the strategic process (Boxall, 1996). Moreover, the findings show that leaders with superior organisational capabilities are likely to be associated with high levels of HRM practices, which is likely to lead to human capital advantage (Grant, 1999).

The findings in this section clearly show that configurational analysis is likely to shed light on the different theoretical perspectives associated with variations in the adoption of management practices. Next, I proceed by outlining the limitations of the three papers and propose future research directions.

5.04 Limitations and Future Research

Like any other research paper, all three papers in this dissertation have a number of limitations. These limitations however can give rise to gaps that can be addressed through future studies. The limitations and future research directions are discussed in this section.

In Paper 1, three limitations are outlined. First, the study is based on is based on cross-sectional data. This limits the analysis of how different patterns of HRM practices are likely to emerge over time in line with firm and/or product development, throughout different contexts. Therefore, future research may also consider to assess how configurations of contextual factors, management practices, and performance are likely to change longitudinally. Second, the study is limited to the manufacturing sector. Future studies should consider implementing this study to different sectors in order to understand how management practices vary across sectors. Third, the study limited to specific contextual factors (industry-related factors), specific HRM practices. It is also limited to productivity as an output. Additional contextual factors that are likely to have an impact on the HRM-performance relation should be investigated (e.g., family ownership; Bloom and Van Reenen, 2007). Additional HRM practices can also be included in future studies such as promotions, and profit-sharing (Huselid, 1995). Moreover, different outputs that are likely to be influenced by management practices such as employee retention should be taken into consideration in future studies (e.g., Patel and Conklin, 2012).

Various limitations have also been outlined in Papers 2 and 3, related to the development and operationalisation of the conceptual framework. Leader cognitions, behaviours, and management practices are considered to be generic constructs, that is, there are multiple categorisations which can fall under each of the focal constructs. For example, cognitions may be based on knowledge structures other than experiential knowledge such as tacit, schematic, and associational knowledge (Mumford *et al.*, 2007). When assessing the link between leader cognitions, behaviours, and management practices, future studies may consider using the framework as a foundation to analyse how the different categorisations of cognitions, behaviours, and management practices outlined in previous literature are linked. One could also consider combining management practices within the configurational set and assess different patterns of management practices associated with leaders, rather than the levels of management practices (Paper 3).

In addition, future research may consider expanding upon the proposed conceptual framework by operationalising it in a more complex manner than that suggested in Papers 2 and 3. For example, skills and leader traits are likely to influence one another as cognitive structures (Zaccaro, 2007). Thus, these elements could be assessed simultaneously with respect to specific behaviours and management practices. By digging deep into these constructs, researchers can continue building on the conceptual framework. Finally, researchers should also look at other measures which would lead to a more precise analysis, especially measures related to cognitions, which are very difficult to assess. For example, in Paper 3, measures of skills are based on leader self-ratings. Future research may consider complementing such ratings with ratings by others and compare the outcomes to achieve more robust results.

The outcomes that emerge from all three papers lead to an important suggestion for future studies. Through the papers I show that leadership and contextual factors are associated to management practices. I also suggest that through their cognitions, leaders interpret the environment before they take action (Barr, Stimpert and Huff, 1992; Daft and Weick, 1984; Kiesler and Sproull, 1982). Therefore there must be a connection between contextual factors and leaders. Thus, the next step would be to combine these two elements in one study and assess how configurations of leadership, contextual factors, and management practices are likely to be associated. Such a study would show how leaders, through their cognitions, interpret the environmental context and how that interpretation is reflected in their behaviour and strategic decisions with respect to management practices. This implies that by combining leadership, contextual factors, and management practices in one model, a more fine-grained understanding of strategic decision-making would be provided.

In understanding variations in management practices, all Papers are mainly based on HRM practices. However, as noted in each individual paper, the conceptual framework and empirical analysis can be extended to understand variations in other types of sophisticated management practices such as monitoring, and performance targeting practices (Bloom and Van Reenen, 2007, 2010). Additional HRM practices can also be added to the studies undertaken in this thesis (e.g., promotions and profit sharing) (Huselid, 1995).

Finally, another implication for future research that emerges from all three papers is the importance of configurational analysis in understanding the adoption and variations

in management practices. All the papers point towards the importance of such methods as a result of the contradicting or limited theoretical rationale available among the relations and also due to the empirical complexities involved in assessing different models related to management practices. Such methods led to fine-grained theoretical insights based on configurations, or profiles of management practices and their association with leaders, contexts, and firm outputs. Therefore, when assessing the adoption and implications of management practices empirically, it is recommended that future studies take into consideration this method.

Therefore, overall, it can be deduced that, while the present thesis offers important theoretical insights and empirical outcomes in relation to the adoption of, and variations in, management practices, this work can be considered as just the beginning in this line of research. Much more studies need to be undertaken in order to be able to develop concrete theories with respect to how different firms adopt different levels and patterns of management practices.

5.05 Practical Implications

The present research has important implications for practitioners, particularly for professionals who are involved in the adoption of management practices such as firm leaders and decision-makers. These practical implications stem from the fact that management practices are likely to have important implications on employee productivity and performance and thus studies related to such practices are likely to help such leaders improve firm performance which, in turn, enhances economic growth.

This thesis can be used to guide firm leaders in various ways. It indicates that firm leaders play an important role in determining the patterns and levels of management practices. Specifically, this research guides leaders as to what skills they need to acquire and which behaviours they need to execute in line with their skills in order to implement management practices, and achieve the desired goals (Papers 2 and 3). Empirical results show that leaders who are able to match the adequate combinations of interpersonal, conceptual, entrepreneurial, and technical skills, with rational and/or generative strategic behaviours are likely to recognise more the benefits of HRM practices. Conversely, leaders who do not have the adequate skills, or complement their skills with certain behaviours, such as command behaviour, are unlikely to adopt HRM practices. In

addition, a detailed analysis also shows that the type of management practices adopted is likely to vary across transactional and transformational leaders, who are likely to depend on different skill profiles. Transactional leaders are likely to implement traditional HRM practices while transformational leaders are more likely to implement discretionary HRM practices. In order to be able to implement both types of practices, leaders need to have an extensive skill profile which enables them to implement both types of strategic behaviour. Overall, this means that leaders who have the adequate skill-sets and complement it with the adequate behaviour, are more likely to be successful in the implementation of HRM practices. As a result such leaders are more likely to achieve better outcomes given the positive implications such practices have on firm performance.

Findings also show that management practices are likely to be effective when implemented in a sensible and structured way, in line with the multiple contextual factors. Over or under investment in such practices may deter productivity, implying that more is not always better (Paper 1). When implementing management practices, leaders need to analyse the firm's environment before implementing management practices, in order to achieve the desired goals. Also, they need to make sure that the management practices adopted complement one another and that they actually add value to performance rather than deter it. Different combinations of HRM practices are likely to be applicable in different industry situations. Still, this does not mean that firms should imitate what other firms in the same industry context are doing. Evidence shows that even firms in the same industry can achieve high performance by implementing different HRM practices (equifinality). This is because the implementation of HRM practices depends on contingent factors other than those related to the industry context such as strategy, and leader characteristics and behaviour (see: Jackson *et al.*, 2014). Thus, leaders should look exhaustively at the elements that define their firm (idiosyncratic contingencies; see: Becker and Gerhart, 1996) and implement HRM practices accordingly.

The research also has important implications with respect to the adoption of management practice in small and medium-sized enterprises (SMEs). Previous research has led to conflicting outcomes with regards to the adoption of HRM in SMEs. Some authors have argued that such firms are likely to implement low levels of HRM practices, especially compared to large firms as a result of their resource constraints (e.g., Hornsby and Kuratko, 1997). Others argue that such practices are likely to be extensively implemented in small firms, at similar levels to larger firms (e.g., Golhar and Deshpande,

1997). Findings from this study show that various HRM practices are likely to be implemented in small firms and they are likely to be beneficial to performance of SMEs, if integrated with the adequate contexts (Paper 1).

Still, the findings show that there are SMEs that are likely to implement low levels of HRM practices. The findings show that the level of adoption of HRM practices depends mostly on the leaders. The adoption of HRM practices depends on the ability of leaders to complement the adequate skills with the adequate behaviours (Paper 3). Therefore if leaders acquire the right skills and adopt adequate behaviour, they might be able to compete more effectively within the industry through the adoption of HRM practices. These findings have important implications to European Union (EU) economies in general given that within the EU, SME represent 99% of all firms, they employ more than 60% of all employees and contribute to more than 50% of gross value added (Commission, 2014; Muller *et al.*, 2014).

Through the papers I enhance knowledge on how best to combine HRM practices across different contexts and across different leader classes. These insights allow firms to enhance their performance given the positive implications that such practices are likely to have on performance (Bloom and Van Reenen, 2007), and in turn generate higher economic growth. Thus, the detailed insights that configurational analysis provides with respect to the adoption of management practices has the potential to influence firms and economies at large.

5.06 Concluding Remarks

The main aim behind this thesis has been to shed light on the adoption of, and variations associated with, the implementation of management practices. In view of the results which have been presented and discussed in the preceding chapters, it can be deduced that leaders and contexts are influential in determining the level and patterns of management practices implemented. The relations are based on conflicting or limited theoretical arguments, and involve a number of empirical complexities. This implies that variations in management practices are best assessed through sophisticated configurational methods. Given the lack of theoretical clarity and limited empirical evidence, these studies can be used as a foundation to assess in more detail the association between contexts, management practices, and performance, and also the association

between leadership and management practices. In addition, future studies will also benefit research in general by establishing links between leaders, contexts, and management practices.

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APPENDICES

Appendix A

A.1 Data Sources and Data Collection for Chapters 2 and 4

The data for the two empirical papers in this thesis (Chapters 2 and 4) is publicly available data, collected by the Department for Business, Innovation and Skills for a study titled "Leadership and Management Skills in SMEs: Measuring associations with management practices and performance" (Hayton, 2015). The report shows associations between leadership and management skills and the implementation of management practices. As outlined in the declaration section, it is important to note that the questions addressed in this dissertation are distinct from those addressed in the original report (Hayton, 2015). Aside from this dissertation, no academic publications have been derived from this data set to date.

The original sample collected for the study consisted of 3,511 SMEs in the United Kingdom (U.K.). The sample included almost an equal number of responses from five size-bands (5-9, 10-19, 20-49, 50-99, 100-250 employees). The sampling frame was the Inter-Departmental Business Register (IDBR). IDBR allowed for the identification of firms which employed more than 249 employees such as multi-site units and subsidiaries of larger firms. These were excluded from the sample. This sample involved eleven industry groupings including:

- Agriculture; Forestry & Fishing; Mining and Quarrying
- Manufacturing
- Electricity, Gas, Water supply etc
- Construction
- Wholesale & Retail
- Accommodation & Food Services
- Transportation, Storage, Communications
- Financial & Insurance
- Real estate, Professional Services
- Education and Health
- Arts and Recreation.

The firms had within the sample were founded in different years with the earliest founded in 1900 and newest in 2013. The median founding year stood was 1998, while the modal founding year was 2002. Different ownership structures also characterise the sample, involving owner-managed firms (approximately 15% of the sample) and firms managed by teams (approximately 85% of the sample).

Data with respect to HRM practices (used in Chapters 2 and 4), and leader skills and behaviour (used in Chapter 4) was based on interviews, conducted by a survey services provider, TNS/BMRB, leading social research agency for the UK, using Computer Assisted Telephone Interviewing (CATI). Target respondents included CEOs. Prior to contacting by telephone, letters of introduction outlining the project were sent to firms. In the letter, respondents were asked if there are other members of the top management team. In cases where a team runs the organisation, a second member of the top management team was asked to respond to the survey. Data collection was subject to informed consent, and responses have been kept confidential.

The whole survey was designed to last not more than 20 minutes so as to avoid respondent fatigue and still enable the collection of all relevant data. The questionnaire was assessed through ten cognitive interviews to evaluate the comprehensibility of the interview questions and check the quality of responses. A pilot test of the instrument was then conducted using a sample of 50 firms (from across the sampling criteria).

In order to enhance the confidence in response validity, whilst ensuring measure reliability, a second response was obtained to the same survey from a sub-sample of 500 organisations. The sampling strategy was a non-proportional stratified random probability approach, stratifying by number of employees as a proxy for size, and industry sector. Enterprises with more than 50 employees have been oversampled in order ensure sufficient number of responses in strata that form only a small proportion of the population.

For reasons outlined in Chapter 2, this study is specifically based on manufacturing firms, which employ between 20 and 249 employees. The final sample, after removing missing data through list-wise deletion, and firms employing less than 20 employees stood at 261 (see: Chapter 2, Section 2.04.1). I was able to distinguish between manufacturing firms and other firms through the availability of the 2007 Standard Industry Classification Code (SIC) code attributed to each firm in the sample. Firms with

a SIC code ranging between 10110 and 33200 fall under the manufacturing sector as outlined by the SIC code guidelines (House, 2015).

Through the SIC code I was also able to compile the Concentration Index for each firm and the level of knowledge-intensity. These were attained through a document published by the National Statistics Office titled *"United Kingdom Input-Output Analyses"* (Mahajan, 2007), and a document published by National Endowment for Science, Technology and the Arts (NESTA) foundation titled "The geography of the UK's Creative and High–tech Economies" (Bakhshi, Davies, Freeman and Higgs, 2015), respectively. Finally, through the availability of the Company Registration Number (CRN) for each firm, I was able to connect survey data with secondary data in the Fame database and the IDBR to compute measures for productivity, and capital-intensity.

The data used for Chapter 4 involves owner-managed firms across all industry sectors. Owner-managed firms were distinguished from other firms as leaders were asked to identify whether the company is run by one or more people. All of the data gathered in this chapter related to leader cognitions, behaviour, and HRM practices was gathered through the telephone surveys. As indicated in the Chapter, the study is based on a final sample of 348 owner-managed SMEs, employing 10-249 employees (see: Section 4.04.1).

Overall, the data were gathered comprehensively and in a highly professional way, allowing for PhD-level analysis.

A.2 Epistemological Stance

The epistemological stance reflects the philosophical background which the researcher adopts in order "to understand the world and communicate this as knowledge to fellow human beings" (Burrell and Morgan, 1979, p. 1). The two main philosophical foundations discussed by scholars include prositivisim and interpretivism. Positivism assumes that there is an objective, measurable, external world. Thus, according to this stance, knowledge can be acquired and transmitted in a tangible form. This philosophical stance is the foundation of most traditional approaches used in social sciences. Interpretivism assumes that reality and its constituent elements are socially constructed and can only be interpreted rather than measured (Marsh and Furlong, 2002; Sale, Lohfeld and Brazil, 2002). This philosophical approach assumed that knowledge is

subjective and "based on experience and insight of a unique and essentially personal nature" (Burrell and Morgan, 1979, p. 2). In the case of the present thesis, I take a positivist approach and aim to produce generalizable results, based on regularities observed within the data acquired. Thus, the knowledge gained throughout the thesis is acquired and not personally experienced.

Appendix B

Table B.1: Items for HRM Practices

Training	What percentage of employees received formal training in company-specific skills (i.e. task or firm specific training)?
	What percentage of employees received formal training in generic skills (e.g., problem solving, communication skills)?
Performance Appraisal	What percentage of employees received a regular (e.g., annual) formal performance appraisal?
Staffing	What percentage of employees had structured interviews, using standardised questions and scoring of answers?
	What percentage of employees were given one or more employment tests prior to hiring (e.g., skills or aptitude tests)?
Variable Pay	What percentage of non-managerial employees received variable pay: by which I mean some of their pay is contingent upon individual, team or firm performance)?
Involvement	What percentage of all employees are provided with information about operating performance, financial performance or strategic information (e.g., strategic mission, goals, tactics, competitor performance, etc..)?
	What percentage of non-managerial employees are involved in any programme designed to elicit employees participation or input in decision making (e.g., self-managed teams, quality circles, problems solving or similar groups)?

Table B.2: HRM Combinations

	Combinations involving substitutions and complementarities within AMO areas
Run 1	Staffing (st), training (tr), Performance appraisal (app), variable pay (vpa), involvement (inv), capital-intensity (ci), knowledge-intensity (ki), competition (comp)
Run 2	Substitution(sub)-st-tr, app, vpa, inv, ci, ki, comp
Run 3	St, tr, sub-app-vpa, inv, ci, ki, comp
Run 4	St, tr, Complementary(compl)-app-vpa, inv, ci, ki, comp
Run 5	Sub-st-tr, sub-app-vpa, inv, ci, ki, comp
Run 6	Sub-st-tr, compl-app-vpa, inv, ci, ki, comp
Run 7	Sub-st-tr, compl-app-vpa, sub-app-vpa, inv, ci, ki, comp
	Combinations involving substitutions and complementarities between AMO areas
Run 8	St, tr, compl-vpa- inv, app, ci, ki, comp
Run 9	Sub-st-tr, compl-vpa- inv, app, ci, ki, comp
Run 10	Compl-st-vpa, tr, app, inv, ci, ki, comp
Run 11	Compl-tr-vpa, st, app, inv, ci, ki, comp
Run 12	Compl-st- inv, tr, app, vpa, ci, ki, comp
Run 13	Compl-tr- inv, st, app, vpa, ci, ki, comp
Run 14	Compl-st- inv, tr, sub-app-vpa, ci, ki, comp
Run 15	Compl-tr- inv, st, Compl-app-vpa, ci, ki, comp
Run 16	Compl-st-vpa- inv, tr, app, ci, ki, comp
Run 17	Compl-tr-vpa- inv, st, app, ci, ki, comp
Run 18	Compl-st-vpa- inv, sub-st-tr, appraisal, ci, ki, comp
Run 19	Compl-st-app- inv, tr, vpa, ci, ki, comp
Run 20	Compl-tr-app- inv, st, vpa, ci, ki, comp
Run 21	Compl-st-app- inv, sub-st-tr, vpa, ci, ki, comp

Appendix C

Table C.1: Items for HRM

Generic Training	What percentage of employees received formal training in generic skills (e.g., problem solving, communication skills)?
Specific Training	What percentage of employees received formal training in company - specific skills (i.e., task or firm specific training)?
Interviews	What percentage of employees had structured interviews, using standardized questions and scoring of answers?
Employment Tests	What percentage of employees were given one or more employment tests prior to hiring (e.g., skills or aptitude tests)?
Promotions	Ignoring entry-level jobs, what percentage of employees has been promoted from within?
Performance Appraisal	What percentage of employees received a regular (e.g., annual) formal performance appraisal?
Financial Ownership	What percentage of your workforce shared in the financial ownership of the firm (e.g., stock, options, profit sharing or other means)?
Variable Pay	What percentage of non-managerial employees received variable pay: (by which I mean some of their pay is contingent upon individual, team or firm performance)?
Information Sharing	What percentage of all employees are provided with information about operating performance, financial performance or strategic information (e.g., strategic mission, goals, tactics, competitor performance, etc.)?
Employee Participation	What percentage of non-managerial employees are involved in any programme designed to elicit employees' participation or input in decision making (e.g., self- managed teams, quality circles, problems solving or similar groups)?

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