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Published online: 08 Nov 2021.

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# Planning and technological innovation: the governance challenges faced by English local authorities in adopting planning technologies

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**ABSTRACT**

The term 'smart city' has become synonymous with a technologically cultivated utopia, where urban problems can be solved computationally. This approach to urban development has been promoted as a method of enabling city administrations to become more proactive when dealing with issues including pollution, traffic flow and congestion, public safety, energy use, and urban planning. This trend towards using technology in urban management and planning has sparked research and development initiatives across the planet. In the UK, the #PlanTech trend is a governmental initiative that aims to improve engagement between various actors in the planning system, including local authorities and central government, with tech start-ups and digital entrepreneurs who can design solutions to the problems currently experienced by planners, developers, and citizens alike. Despite the significant opportunities that technologies offer city council planning departments in terms of productivity, existing governance models can be shown to represent a significant obstacle to implementation. This paper uses case study research conducted at two English city councils – Coventry and Leeds – to examine the implications of planning reforms and digital transformation of public services on urban planning governance. Utilizing the information gained from a combination of semi-structured interviews and stakeholder engagement exercises, it examines the growing emphasis on technology in planning practice within the public sector and discusses the potential implications that it may have for current governance arrangements. Finally, it suggests what a framework for future urban planning governance within an English political context, in the era of the smart city might require. The paper overall offers a critical view of how current urban planning practice and governance procedures are being quickly subsumed by digital technologies which offer novel and effective methods for professional planners yet are undermined, or are inhibited, by current governance arrangements.

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## Highlights

- The push for digital planning is part of a wider governmental objective of digital transformation.
- Digital tools can streamline planning processes and workflows effectively.
- Planning technologies (#PlanTech) need suitable governance structures to enable them.
- Planning reforms need to construct new, novel modes of governance suitable for a digital future.
- Planning is never 'reformed', it is changed to suit government objectives.

## 1. Introduction

Urban planning in the United Kingdom is a politically contentious process and the delivery of this public service is dependent on the governance structures implemented by the governing party (Allmendinger & Haughton, 2012). Liable to change depending on the serving government, planning policy and governance has significant implications for local communities across the United Kingdom. The recently commissioned Ministry for Housing, Communities and Local Government (MHCLG) 'White Paper' (2020) sets out a radical framework for reform, including the use of digital technology to improve planning delivery. The current focus on digital transformation has brought planning delivery into the limelight, with technology and computation promoted as a vehicle to reform the planning service for the twenty-first century (CPC, 2020; RTPI, 2020). Feeding into a broader 'smart city' narrative, councils are looking at how to incorporate novel technologies and working practices to transform the organizational apparatus and increase the effectiveness and efficiency of the services delivered to local areas. Urban planning is one service that is closely aligned with the delivery of a smart city and as such, incubators and government organizations including MHCLG are actively looking at transforming the planning system with digital tools. To facilitate this digital transformation current governance and legal frameworks will need to adapt, becoming more agile and less restrictive.

As a politically driven activity, effective planning (and its delivery) is contingent on a variety of interdependencies. As Campbell and Fainstein (1996, p. 4) noted, 'planning adapts to changes in the city, which in turn is transformed by planning and politics. This interaction is not a closed system'. Explaining the complexity of a planner's role they continue,

> planners not only plan cities; they also negotiate, forecast, research, survey, and organise financing. Nor do planners have an exclusive influence over cities; developers, businesses, politicians, and other actors also shape urban development. The result is that the discipline of planning is influenced by a wide variety of substantive and procedural ideas beyond its own modest disciplinary backgrounds.

Planning delivery in local authorities exists in a web of complex relations between competing political and economic interests. It cannot be isolated and transformed. Rather, changes made to the governance, organizational, procedural, or technical aspects of planning delivery will have implications for public service delivery more broadly and vice versa.

The political contentiousness of urban planning is rooted in the assumption that we should, or can, intervene to produce a better outcome. Campbell and Fainstein (1996, p. 6) further examined this assumption on the basis that the alternative to urban planning is commonly thought to be free market economics and that 'for some, the hope of rational planning was simply to equate the market with uncertainty and to believe that the logic of the plan would therefore replace the chaos of the market'. The rationale that intervention is necessary stems from the problems generated by the rapid laissez-faire urbanization of the nineteenth century which resulted in the poor, inequitable living environments that characterized the industrializing metropolis. Planning as a discipline and professional activity in the UK stemmed from the activities of charitable associations and Victorian patricians seeking more state interventionism in urban development (Klosterman, 1985) and has historically been associated with the left-wing, benefiting from political enthusiasm when Labour governments are in power. The emergence of Neoliberalism in the 1970s and 1980s had major consequences for public service delivery with large sections of the public sector, including urban development and housing, being de-regulated, privatized or delivered through public-private partnerships.

Since the Coalition (Conservative and Liberal Democratic Parties) government election in 2010, public bodies and services including councils and planning have faced significant budgets cuts in an austerity drive. This election followed the 2008 global financial crisis which triggered a UK recession and a manifesto to reduce the UK's national budget deficit. To achieve this public spending was drastically cut which prompted an acceleration of the digital transformation of public services. These events coincided with the emergence of smart city marketing strategies by multinational technology firms that were offering out-of-the-box IT solutions for urban management. Prior to the 2010 election, planning reform was an objective of the Conservative party which produced a policy paper proposing an 'open source' planning service that sought to shift planning to a locally driven activity. As Allmendinger and Haughton (2012, p. 6) noted at the time '"Open Source" thinking for planning is deliberately presented as analogous to open-source software development, which draws on the wisdom of crowds, public-spirited individuals, and communities of interest rather than simply adopting a dominant corporate or governmental blueprint'. The Conservative party's ambition was to build a planning service based on the innovation, flexibility, and optimism associated with digital technology, in part modelled on the market-oriented rollout of technologies as directed by EU policy (European Commission, 1994).

## 2. Methods

This paper examines planning governance reform with particular reference to digital transformation and the use of planning technology in English local authorities. To facilitate this study, qualitative methods were used, predominantly semi-structured interviews and document review which formed the basis of case study analysis. Leeds and Coventry City Council were chosen as the case studies from a prospective pool of 10 councils, as they had the resources (staff and operational capacity) available to accommodate this project. In total 20 interviews were conducted with a range of professionals working in these local authorities. These staff included professional planners, ICT staff, and

project managers. Analysis of corporate strategies and other relevant documentation was used to support the primary research.

Two core research questions provide the basis for this study. These were:

(1) How is planning reform being influenced by the trend towards digitalization of public services and what are the implications for planning governance in England?
(2) What impact will digital planning tools and associated governance reform have on the profession and study of urban planning in England?

Findings from the interviews were analysed by encoding the transcripts according to emergent themes and using these to critically assess the prospects of digital technology and its implications for planning governance. This paper is timely and important given the current ambitions for planning reform and broader digital transformation of the public sector. This paper aims to contribute to the evidence base that can support a balanced and progressive reform of planning governance which upholds the critical foundations of the discipline; equitable management of social, environmental, and economic development.

## 3. Current planning governance in the United Kingdom

In England, there are 338 Local Planning Authorities charged with the administration of planning (CPC, 2020). Among these authorities are District, Borough, or City Councils; County Councils and 'single-tier authorities' including London Boroughs, unitary authorities, and National Park authorities. Central government organizations involved in planning governance, delivery, and reform include the Ministry for Housing, Communities and Local Government (MHCLG) and the Planning Inspectorate. Ultimate responsibility for planning lies with the Secretary of State who may be directly involved in decisions related to projects of national importance such as HS2 rail or the proposed Heathrow airport expansion.

Land use and urban planning legislation in the UK originates from the 1947 Town and Country Planning Act which first enshrined the legal statutes regarding planning and urban development (Historic England, 2017; Legislation.gov.uk, n.d.). Since then legislation has changed to reflect the contemporary landscape and at the moment the following legislation is the legal core of the planning system in England:

(1) The Town & Country Planning Act (1990)
(2) The Planning Act (2008)
(3) Planning & Compulsory Purchase Act (2004)
(4) The Localism Act (2011)
(5) The Growth and Infrastructure Act (2013)
(6) Infrastructure Act (2015)
(7) Housing and Planning Act (2016)
(8) Neighbourhood Planning Act (2017)

Regulations such as The Town and Country Planning Local Planning (Local Planning) (England) Regulations 2012 and the Town and Country Planning (Development

Management Procedure) (England) Order 2015 are central to the policy development process and local plan development for local authorities in England. The highly decentralized delivery of planning, along with a strong national legislation and policy framework, means that local authorities have limited autonomy. This creates significant inefficiencies in planning as the local authorities cannot implement bespoke and targeted reforms to tackle local problems.

The political nature of planning and urban development means that it is often a target of reform, especially after a newly elected government is installed. The establishment of a National Planning Policy Framework in 2012 (followed by an updated version in 2018), a key Conservative objective influenced by the 'open source' proposals and a desire to deregulate, sought to provide national planning guidance instead of the local planning policy statements that had been in use previously. This aimed at standardizing planning policy around common objectives such as climate change and sustainable development nationally. DCLGs 'Plain English Guide to the Planning System' states that the NPPF

> provides a balanced set of national planning policies for England covering the economic, social and environmental aspects of development. The policies in it must be taken into account in preparing Local Plans and neighbourhood plans and it is a 'material consideration' in deciding planning applications. (DCLG, 2015, p. 7)

Crucially the NPPF has stipulated a 'presumption in favour of sustainable development' which is aimed at increasing planning approval for developments to encourage urban development and investment when proposals are deemed sustainable. This policy has been criticized for reducing the powers of local authorities in favour of developers thus threatening protected areas including sites of conservation or environmental importance (CPRE, 2011). The Friends of the Earth (2020, p. 6) charity have argued that 'the government continually tries to reform the planning system, passing new planning acts, amending legislation, releasing ministerial statements (which have the same status as policy) and revising policy, procedures, and guidance'. They further noted that reforms are often ineffective and have externalities that have detrimental social and environmental impacts. Furthermore, many reforms are started under a planning minister who is often not in office long enough to fully implement policies. Most recently, the 2020 White Paper, 'Planning for the Future', set out a proposed framework for planning reform.

It is tautological to suggest that a change in the UK government brings changes to planning governance. The governance and delivery of planning is a dynamic function of government, generally always in a state of flux and transition. Tewdyr-Jones (2012, p. IX) highlights that 'our planning mechanisms change regularly, as do legal procedures, government structures, and rights and responsibilities, but bigger societal and structural trends are more difficult to change'. Since the latter part of the twentieth century, a major economic, social and structural shift has been ongoing – the so-called information age (Castells, 1996) – where the world is being increasingly permeated and mediated by digital technologies which are causing major political upheaval. Just as the effects of the industrial age impacted urban areas, ultimately creating a need for effective urban development and management (and thereby establishing the activity and profession of urban planning), the information age has created new challenges for planners, citizens, policymakers, and developers. These challenges require yet more changes to the legal

procedures and governance that underpin planning in England and more broadly, the UK. Concomitantly, technologies associated with smart cities and big data are promising real-time data and analysis which can benefit plan making, offering an alternative to the system as it is, which is often criticized for being too slow, bureaucratic, archaic, and not fit for purpose (Airey & Doughty, 2020). In order to utilize these newly available tools, existing public sector governance is in need of adaptation.

In the foreword to the 2020 Planning White Paper the Prime Minister argued that 'as we approach the second decade of the 21st century that potential (UK innovation) is being artificially constrained by a relic from the middle of the 20th – our outdated and ineffective planning system' (p. 6). He continued by noting that 'radical reform unlike anything we have seen since the second world war' will improve the system and produce more homes, more sustainable, and fairer development, delivered in a fast, clear, and effective planning system for England. A key proposal of the white paper is to adopt 'a radical, digital-first approach to modernise the planning process. This means moving from a process based on documents to a process based on data' (p. 17). More broadly, innovation and digital transformation are central to the government's industrial strategy and the Innovate UK catapult centres were established to act as incubators and catalysts for various industries. The Future Cities Catapult was established in 2013 and charged with stimulating technological innovation in urban services. It had a particular focus on urban planning and technology and has, since 2018, been incorporated into the Connected Places Catapult (CPC). The CPC has used collaboration between tech SME's, local authorities, and public bodies to produce planning technologies that improve planning delivery for various stakeholders. The development and implementation of these tools has highlighted some of the many structural obstacles within current governance that inhibit the development of a digital planning system in England.

Informed by Airey and Doughty's 2020 Policy Exchange report 'Rethinking the Planning System for the 21st Century', the White Paper presented a case to deregulate areas of the current planning system to enable faster development with fewer restrictions on developers arguing that the existing system 'has little relevance to the country's 21st century liberalised economy and society facing continuous change' (p.6). The report continued by contending that state interference and over-regulation have created dysfunctional land use and property markets. Advocating for less regulation and a move towards a market-driven land-use system, they state that in the existing system 'development rights remain nationalised and land use is still systematically controlled by local authorities. The state has substituted itself for the price mechanism in land markets. Uncertainty and complexity have been the result' (p. 6). The increasing shift towards a liberalized economy which began with Thatcher's reforms of the 1980s have gained further traction under more recent Conservative governments. The radical reform promised in the White Paper will invariably reduce the role of the state in the planning system which Airey and Doughty argued had produced 'stunted, ugly and unsustainable urban growth' (p. 7). In the planning system proposed in the White Paper, technology will be key to the delivery of a reformed planning system. The risk for planning is that introducing technologies to deliver a development process that are informed by the Libertarian ideals associated with open-source technologies, could erode the protections that the planning system was established to provide for local communities, the environment, and businesses, in favour of market forces.

Through the White paper the government will continue to support the use of digital tools like those developed in conjunction with the CPC and will further seek to establish standardized data, rules, and digital plan formats to help with access and usability of resources. In so doing it looks set to engage proactively with technology companies to develop innovative and novel solutions for the organizational workflow, thereby increasing the automation of service delivery (MHCLG, 2020). Much of this work is being led by the CPC which, since its inception, has built enthusiasm and investment in digital planning tools. With some modest success, these tools are being explored by many local authorities in England, however, the implementation of new digital methods and technologies has highlighted areas where governance needs to change to ensure that these tools and processes work effectively *and* in the public interest. These tensions between the adoption of digital planning tools and effective governance change are explored in the section below through empirical findings from two English Local Planning Authorities – Leeds and Coventry.

## 4. Key findings from Leeds and Coventry City Councils

As English local authorities, planning in Leeds and Coventry City Councils follow the same legislative and governance requirements that are often characterized as complex and frequently opaque. Hoole (2020) acknowledges a *Guardian* newspaper interview in 2006 when 'the then head of communications at the New Local Government Network' stated that 'the complexity of local government is something that even councillors can find perplexing and for those on the outside it can seem more puzzling than a Rubik's cube'. Planning governance, in particular, reflects this, as Allmendinger and Haughton (2019, p. 439) explained:

> the metagovernance of planning is multi-scalar, therefore, and also multi-directional: planning is not simply about top-down direction and rarely can it be characterised as bottom-up. Instead, there is a more complex set of cross-sectoral, multilevel set of negotiations always in motion, not least as planning rules are regularly being reinterpreted, through local plan-making, practice, legal challenge, advocacy, and central clarification or revision.

Both authorities are now required to produce a local development plan, in line with the NPPF, which guides development in the city and sustainably coordinates urban and economic growth.

In both Leeds and Coventry, planning is administered through two teams, Development Management which process planning applications and deliver enforcement measures when development is non-compliant with regulations, and Planning Policy which develops the local area plan for the authority and conducts annual monitoring exercises to ensure that the adopted local plan is effectively delivering sustainable urban development in line with the NPPF. Both these local authorities are looking at digital transformation of the services they provide and also in terms of organizational operations and infrastructure. Development management and planning policy are areas that will be affected by the government's proposed reforms.

Initial investigations into adopting planning technology have shown that many of the applications and proposed delivery mechanisms are impeded by current legislation and policy. Examples of this include the automated processing of planning applications that

can potentially free planner's time. Rather than assessing large applications against policy requirements, plans are submitted online and algorithmically assessed against the relevant policy. This would, in theory, remove incomplete and incorrect applications from the workflow and ensure that planner's attention is focused on skilled tasks and decision making. However, under recent data protection legislation, full automation of application processing is only possible with the consent of applicants and associated individuals. Notably, EU GDPR Article 22 (1) states that 'the data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly affects him or her'. Article 22 (2)(c) stipulates that paragraph 1 does not apply if the person has given explicit consent.

With the UK withdrawing from the EU, it remains to be seen what legislation regarding data protection is implemented. The Conservative Government's inclination toward deregulation suggests that it is possible automated decision-making could be included, thereby facilitating full automation of the planning application process, although this approach would likely meet local resistance with planners at Coventry City Council raising concerns about the implementation of an online automated planning application service. More specifically, the risk of a digital divide and citizens being excluded or marginalized regarding urban development was a major concern. As one planner explained during an interview (March, 2019), the council

> receives planning applications from people who can't afford professional consultants, who rely on hand-drawn plans and provide limited submissions. These often come from the elderly or people in receipt of social care who rely on our planners to guide them through the process. Moving to this digital system could exclude them entirely.

It should however be noted that digital planning applications are not a new idea or process. Planning applications have been accepted online in the UK since 2002 through Planning Portal, once a Ministry for Housing, Communities, and Local Government project. Planning Portal accepts applications for most local authorities in England, however, each council still receives many analogue submissions that must be processed in-house. Planning Portal was established as a government-owned project which was then privatized in 2015 and provides an example of early attempts to digitize the planning process in England. In practice, though, planners have expressed regret that it isn't more effective. Another planner at Coventry Council explained that the digital technology underpinning Planning Portal differs from those used in Coventry and increases, rather than lessens the time taken to process planning applications: 'the systems in use differ so applications do not sync seamlessly across from the portal's servers. This means we have to fix the incoming applications to suit our workflow anyway'.

At Leeds City Council the process of adopting digital technologies is more progressed that in Coventry, facilitated through a relatively advanced smart city programme that aims to establish and mainstream digital working and service provision across council working practices. However, whilst the city council is working with CPC, the Open Data Institute, and local universities to unlock the potential benefits of digital technology and data-oriented projects, there still remain issues in purchasing and adopting such planning technologies. A planner at Leeds who manages the GIS team felt that current government policy regarding software procurement inhibits the deployment of novel

tools, as developed and promoted by CPC. In this regard, the Public Service Network (P–N – part of Government Digital Service) accreditation is vital to allow local authorities to offer the current digital services such as online payment of fees. Here, PSN accreditation

> is part of the risk management process of a public sector organisation. The basic idea is to have a formal process to identify the risks, work out how to manage them and finally to assess if this is within the risk appetite of the organisation. (Curran, 2015)

This accreditation relies on local authorities using software that meets specific requirements such as licensing and security which his often difficult and costly to achieve. The planner further noted at interview that there was a mismatch between how existing system operate and newly developed planning technologies and that 'many of the projects from start-ups and CPC backed organisations that streamline planning would not meet the requirements of PSN and therefore we can't test them or, were they to work, deploy them in the council'. In 2017 it was announced that PSN accreditation would be phased out, allowing public sector organizations more flexibility in terms of digital products they use to deliver services. However, as of October 2020, the PSN accreditation is still in place meaning organizations must be compliant 'at least for the immediate future' (Curran, 2015) and thus reducing their ability to adopt new digital technologies for planning tasks.

## 5. Governance for future planning

Within the current governance framework, planning authorities at the national, regional, and local scale are always in a state of flux, adapting to the everchanging governance mechanisms and demands from various stakeholders including communities and developers. Coventry City Council is one of the seven metropolitan boroughs that constitute the West Midlands Combined Authority (WMCA) which has a portfolio including economic growth, transport, and housing, all of which are planning dependent and require cross-boundary strategic collaboration. Devolution is a current government priority and the decentralization of power to regional authorities, including the WMCA, could create opportunities to establish effective mechanisms for digital planning. Such an approach is supported by The Royal Town Planning Institute – the accredited professional body for planners in the UK – who have called for action that will deliver reform of the system alongside 'long term sustainability, resilience, and inclusivity' (RTPI, 2020, p. 34). Among these recommendations are the need for 'robust strategic planning arrangements', 'resources for community participation in planning', and the creation of digital planning resources such as 'regional data observatories', 'scenario modelling tools', 'standardisation and open data', and 'digital tools for inclusive and participatory planning' (RTPI, 2020, p. 34). Arguably, to achieve these goals, devolution of planning governance must coincide with the establishment of local and regional powers regarding digital and data, which are currently centralized.

The future of planning governance in England will ultimately continue to change and evolve, being decided by the political party in government and their guiding objectives or ideology, while technological innovation is likely to continue. The existing multi-level and complex system of planning governance needs to adapt if digital tools and working practices are to be incorporated successfully and fulfil the intentions of the

Planning White Paper (2020). The explicit focus on creating a digital planning service will require changes to be implemented within the planning and the broader public sector, as many planning decisions are affected by, and impact other services. Planning reform cannot be isolated from the broader government strategy regarding digital transformation, which will inevitably require reform across most, if not all, government services and processes. The Town and Country Planning Association (2020) have further argued that the broad reforms proposed by the MHCLG white paper (2020) will aim to simplify the planning system by basing it on three principles: a zonal system, deregulation, and 'codified' management of development within permitted zones, all of which have the potentially to be digitally enhanced. This simplification and introduction of 'zones' and 'codes', introduces a technical rationality, which potentially increases the prospects for a technologically mediated planning system, or at least alludes to it. Applied across England these reforms are designed to speed up development, particularly the rate of house building. They aim to reduce the complexity of the planning system by removing the number of checks and regulations that are currently in place, and which were originally designed to ensure sustainable, high-quality development. It remains to be seen how these reforms will be implemented and play out in practice, however, the integration of digital systems and standards alongside these reforms will have a major impact on planning delivery in England.

The White Paper (2020) also proposes that

> local plans should be visual and map-based, standardised, *based on the latest digital technology*, and supported by a new standard template. Plans should be significantly shorter in length and limited to no more than setting out site or area-specific parameters and opportunities. (MHCLG, 2020, p. 20)

In order to facilitate a digital planning system, future planning governance frameworks will further need to incorporate digital standards. Based on the preliminary investigations conducted at Coventry and Leeds City Councils presented in this paper, it is clear that there is currently little in the way of data standardization that would enable the strategic integration of digital resources, nor a broader consideration of digital ethics and data protection protocols that are playing catch up to the development of planning technologies.

A digital planning framework will need to facilitate effective planning delivery at national, regional, and local levels. Nationally it is necessary that all digital, planning-related data, information, procedures, and requirements are standardized to ensure uniformity across England. Regionally planning authorities will still need to collaborate through 'combined authorities' on strategic issues which fall beyond their immediate boundaries. The national standards will be vital to facilitate this process. Locally, freedom to employ digital tools from local SMEs and ensuring the role of neighbourhood planning will be vital to ensure a representative planning system that supports and incubates local innovation and community-led urban development.

It is, therefore, necessary to implement a governance framework that recognizes the changing nature of service provision within the economy and aligns with citizen needs, expectations, and rights. Planning's contentious political nature and the likelihood for alternating governments to impose ideological changes suggests that this framework must be agile, resilient, and realistic given the multiscalar, fragmented nature of political

organization. Based on the current evidence, it is necessary to create a digital planning office that operates at the national level, supplemented by local digital incubators that support councils, businesses, communities, and other stakeholders to engage, influence and develop the tools and practices of twenty-first-century urban planning. Figure 1 (Authors own) shows an overview of how these organizations could be incorporated into the current governance regime. At the national level, many departments have planning interests. The Ministry for Housing, Communities and Local Government, Department for Transport, Department for Environment, Food and Rural Affairs, and the Planning Inspectorate have distributed planning portfolios, whereas the Department for Business, Energy and Industrial Strategy, Department for Digital, Culture, Media and Sport and the Government Digital Service are all involved in the government's digital transformation strategy. The Office for National Statistics which collates, produces, and analyses government data should also have involvement in the Digital Planning Office to support open data initiatives. The rationale for this office is the need for:

(1) National standards for planning data that enable local authorities to access, contribute and utilize an open data lake. This is necessary for cross-boundary developments and also to ensure uniformity and ease for prospective applicants/developers.
(2) Digital is not a devolved issue. National departmental involvement is necessary to develop oversight and strategy until such a time that digital powers are devolved.
(3) The distribution of planning interests at the national level requires that all departmental interests are represented in the digital planning office.
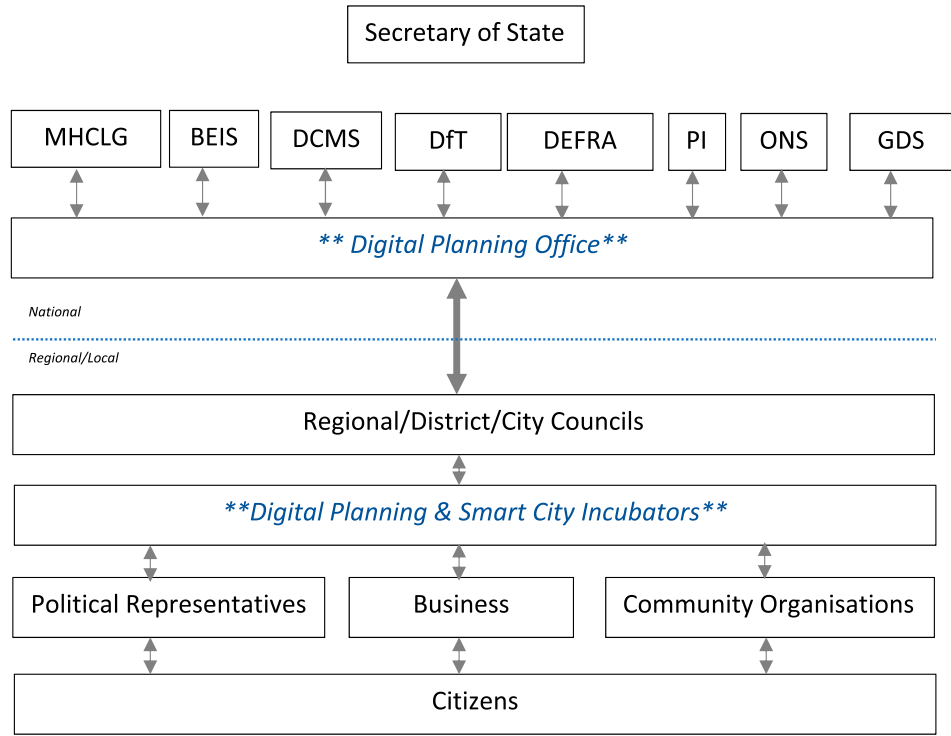


**Figure 1.** Digital Planning Governance Framework.

At the local level, local authorities will need to develop and implement new practices, software, and tools that foster civic involvement in a new, technologically mediated planning service. This will require a collaborative workspace where councils, communities, businesses, individuals, and other stakeholders can develop tools, working practices, and policy that maintains the democratic nature of planning while supporting the transition, uptake, and implementation of digital tools, software, and data. A joint initiative where local authorities and private sector stakeholders support 'digital planning & smart city incubators' would be a progressive step towards realizing the goals of a digital planning system that is fit for purpose and satisfies the needs of all. Importantly, these groups can ensure that social and environmental objectives are not relegated in favour of technological and economic outcomes. The establishment of these organizations would create a facility within society and local governance that can shape urban development from the 'bottom-up' and respond to various policy changes while providing a mechanism for ensuring complementarity and consistency with regard to planning outcomes.

## 6. Implications for planning as a discipline

The growing role of ICT and data across society and public service delivery requires that technology is a central component of future planning studies. Planning as a discipline needs to more thoroughly integrate technological considerations into its foundations. Figure 2 (Authors own) shows an adaptation of Campbell and Fainstein's (1996) trigram to incorporate technology and the interactions between the four pillars of urban planning in the twenty-first century. As technology saturates the city it will have increasing economic, social and environmental interactions, positive and negative. Future planning governance must reflect this reality while maintaining the democratic and equitable ethos of urban planning.

The increasing role of computationalism and data-driven public services will force urban planning practice to change to adapt to the broader conditions in which it operates. This shift towards a more positivistic epistemology in practice will inevitably feed back into the academic study of urban planning, and the role of the planner could become one of mediation between the insights produced from technology, and the expectations or needs of local communities. This evolution requires that planning theory and
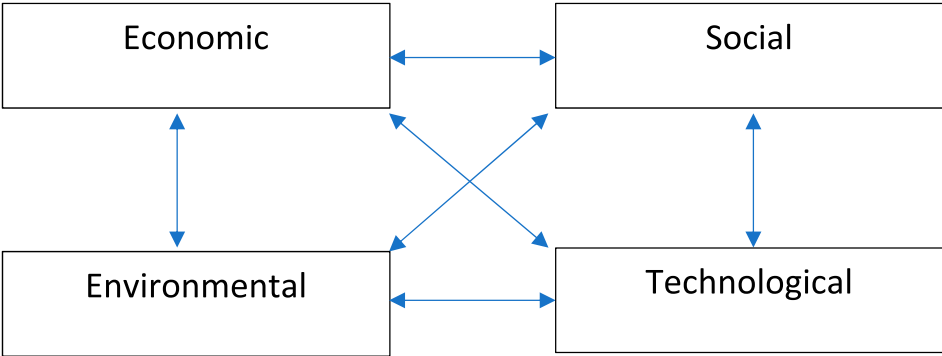


**Figure 2.** Pillars of Digital Planning Paradigm.

education reflect the new challenges facing urban development. The role and impact of novel digital technologies in planning is likely to exceed the traditional planning support systems, such as GIS, that many planners are familiar with. Instead, ubiquitous digital technologies will influence how people interact with and experience urban space. The relationship will be reciprocal, one where planners use technologies and data to plan while also making decisions about how to deploy urban technologies for maximum advantage. As witnessed with recent smart city projects such as the Sidewalk Labs initiative in Toronto, this is a difficult and contentious area which future research must address.

## 7. Conclusion and future research

In 2020, the UK is in a state of transition. Brexit, digital transformation, and the global COVID pandemic have created major challenges for governance and service delivery across the board. For urban planning, a long-criticized profession and activity, the challenges will bring opportunities to evolve and potentially improve service delivery and outcomes for citizens. The prospect of a streamlined, effective, and representative digital planning system is espoused by many in government however, it remains to be seen how the digital transformation that is underway will impact planning delivery. Early investigations indicate that current governance and legislation will need to be reformed to maximize the potential of technology, however, this must be balanced to ensure that technology is used and delivers urban development that is in the public interest.

Due to its political nature planning will always be contentious, in a state of flux, and consecutive governments will implement reforms to deliver political, economic, or social objectives. The mechanisms used to deliver planning will often be reactive to perceived flaws of the incumbent system, resulting in 'a planning system regularly though fruitlessly searching for the perfect market supportive scalar and institutional fix' (Allmendinger & Haughton, 2012, p. 10). Referring here to planning as an instrumentality of the state, these authors foresaw ongoing flux as an inherent feature of the English planning system with 'the search for an appropriate geoinstitutional architecture for taking forward state strategies, whether neoliberal or otherwise. In some periods, regional scale interventions may be favoured, at others some combination of national and local approaches may be preferred'. The increasing use of technology and deregulation of planning are evidence of a long running agenda that seeks to introduce market rationality into the English planning system often as a reaction against the inefficiencies or perceived inadequacies of the incumbent system.

However, these objectives may not always be a target of government. As new governance regimes and practices are established, they inevitably demonstrate drawbacks and inefficiencies which are targeted by opposition politicians as in need of reform. This reactive, back and forth reform has been a core characteristic of English planning since its inception and is likely to continue due to the inherently political nature of planning. Transformation in terms of both digital and governance, on the scale proposed by the MHCLG (2020) and other policy documents such as the Industrial Strategy (2018) could have profound implications for planning delivery and outcomes in England. However, concerning the political rationality for reform, 'we could expect there to be a backlash against this more deregulated paradigm at some point' (Allmendinger & Haughton, 2012, p. 24) if the government changes or the new structures or technologies prove to be problematic or ineffective.

Digital transformation of planning will require substantial reform of planning governance in England. Enmeshed with the broader digital transformation of public services, reforms will need to establish new, novel modes of governance that are suitable for a digital future. It is, therefore, necessary to establish a planning system and governance structure in which the mechanisms for adaptive changes are 'encoded' and that the structures, tools, and technologies used are agile rather than fixed. With the pace of technological innovation, the agility of governance and institutional structures will be essential for establishing a digital planning system that is effective and relatively futureproof. To date efforts at introducing flexibility into planning governance have been reliant on reducing the 'bureaucratic load' faced by applicants and planning officers. This has most recently been characterized by the NPPFs of 2012/18 and again in the 2020 MHCLG white paper recommendations, both of which attempt to streamline planning through a process of policy stratification. These approaches have been criticized for the externalities they produce on the built environment and local communities by promoting efficiency (or speed of the process) and development (by reducing policy constraints on developers) at the expense of many environmental and social requirements of communities. These top-down reforms have effectively prioritized economic objectives ahead of environmental and social considerations, contributing to an unbalanced planning system.

Key considerations will include standards and protocols regarding data; procurement and licensing of digital tools that can be used by public bodies including councils; changes to planning legislation to support a new planning paradigm; retaining and reinforcing planning's democratic importance; and establishing a governance framework that reflects the inherently dynamic nature of planning. Technology has an established role in urban planning whether as digital planning support systems or as one of the previous innovations which required new ways of thinking about space, the built environment, and how we manage and interact with it. Just as many preceding technologies have influenced urban development and spawned various iterations of planning theory, the adoption of digital technologies is likely to be disruptive for urban planning as a practice and discipline. As this transition takes place, future research must examine how planning can adapt and deliver its objectives of a just and equitable distribution of spatial resources (and burdens) in an information society.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

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