



**Digital Task Force
for Planning**

A Digital Future for Planning

Spatial Planning Reimagined

EXECUTIVE SUMMARY

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Digital Task Force for Planning

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Executive Summary



The Grand Challenges and a Whole Systems Approach

The survival of our civilisation through tackling the grand challenges that we currently face relies on transformative actions locally and globally. Thinking beyond boundaries and working collaboratively are fundamental requirements of such actions.

From the recent COP26 UN Climate Change Summit, the 'whole systems' approach is clearly essential to thinking and acting over the impact of climate change (and biodiversity decline) in the immediate and near-term future. The same applies to our missions for resolving public health, inequality, and poverty issues. As highlighted by the Pandemic, these interconnected challenges need a whole systems approach in dealing with our living environment. Social, economic and environmental policies need to be considered holistically. A whole systems approach also implies the need for digital tools and big data.



Unlocking the Full Potential of Spatial Planning in the Digital Era

The importance of planning has been widely recognised by built and natural environment professionals. As an important applied science discipline, spatial planning can offer a unique place-based systems approach to coordinate multisector efforts to deliver zero-carbon, environmental net gain, a circular economy and a green industrial revolution for a fairer society. At the same time, planning exercises powerful leverage to engage communities in creating beautiful and liveable places where low-carbon lifestyles predominate.

We have now entered an era of 'digital by default' where the dramatic spread of computational resources has pervaded every aspect of our society. Data, scientific thinking and digitalisation has been extensively developed in many natural and built environment disciplines. Digital Twins, Smart Cities, Big Data, Climate Models and a host of other simulations illustrate how far the revolution has come.

The digital transformation is now evolving into its fourth wave which is dominated by developing new organisational structures, or 'platforms'. Spatial planning involves a highly sophisticated sequence of interactions and decisions that require digital methods and data advancement which enable different systems to be inter-connected. These are transforming our previous linear thinking into a multidisciplinary intelligence based on a digitally enabled approach to spatial planning.

These transformations fundamentally require behavioural change with respect to our wider mindsets, but data and new technologies can help us achieve these goals in a way that was not possible before the digital age. Moreover it is essential to ensure that the approach does not become a digitised technocratic process.

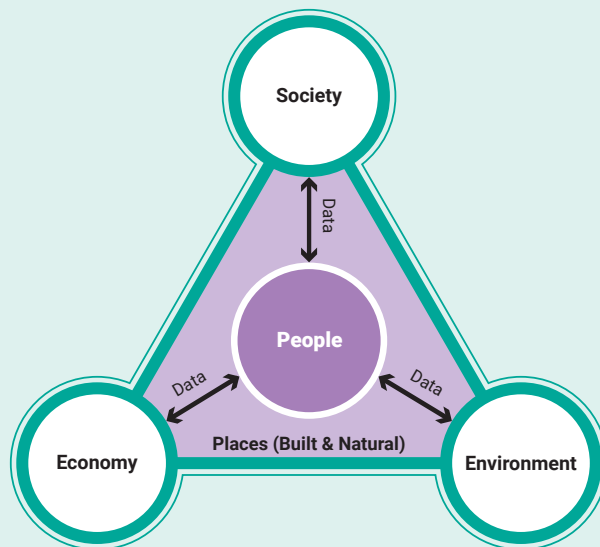
In light of the transition to a circular economy and based on the fourth Industrial revolution's focus on redesigning systems, the approach proposed here seeks a transformative digitalisation of spatial planning – a people-centric process which is enabled by digital technologies. It will generate better engagement in the plan-making process, enhance efficiency and optimise the value of data, and it will allow stakeholders, planners, designers, and policymakers to think intelligently through an evidence-based decision-making process. Participation using digital technologies for communication and design are central to its transformation.



Potentials and Principles for a Digitally Enabled Approach to Spatial Planning

Using a digitally enabled approach, the full potentials of spatial planning can be unlocked in many ways. Such principles are based on an intelligent and visionary joined-up approach and a cohesive multi-scale and multi-disciplinary approach which requires access to better data much of which is now collected in real time.

This will generate an invigorated community approach, more interesting, visual and accessible planning, a much speeded up planning processes, saving costs, and increasing efficiency and productivity, as well as a unified approach to information management.



The Concept of an Integrated Digitally Enabled Approach to Spatial Planning

The practicalities of plan-making require political decisions that are evidence-based and thus more transparent and democratic, balancing competing demands, and directing decisions pertaining to resource-allocation.

Thus a digitally enabled approach to spatial planning should embrace the following principles: strategizing with real purpose, innovating and exciting the young, defining spatial problems in context through new digital tools, communicating the differing importance and flexibility of individual policies, and embracing key questions of ethics, legitimacy, and ownership.

Collaboration through underpinning usability, accessibility, data operability and exchange is key to generating inclusivity, diversity, engagement & empowerment through citizen participation, and ensuring accountability, transparency, and consistency using a systematic approach.



Creating a New Cyclic Planning Methodology

Using a place-based systems approach empowered by data and digital technology, we propose a new spatial planning methodology to achieve net zero and other mission-orientated goals.

In essence, we define a cyclic planning system based on two interrelated loops – an Evidence Analytics Loop which is about the science of systems and a Decision-Making Loop which is the legislative procedure. The former is informed by multi-disciplinary evidence empowered by data and digital technology; the latter is a democratic and transparent process of argument, discussion, speculation, invention, design, innovation and of course politics. The two loops are integrative and interactive with each other, and they can be interlocked in countless ways when adapted to the planning task in hand.

The methodology enables planners and key stakeholders to iterate and explore ideas while also engaging in plan-making in real time through a dynamic cyclic process – identifying existing issues, creating a shared vision of plan-making and place-making, approval of plans and their implementation, monitoring and feedback, all tied up in continual reiteration of this cyclic process.

The methodology aims to introduce a systematic digital technological advancement in day-to-day spatial planning practice. This of course cannot be accomplished overnight but many of the seeds which define the digital transformation provide a structure to develop this.



The Current Progress of Digital Integration in Planning

While there has been a range of responses to digital thinking and applications in planning practice across the UK, there is also a fundamental set of digital practices that are used to support the planning system in its operation. The work of the Task Force has identified that many relevant digital technologies and tools which can be utilised in the cyclic planning methodology are already available. We catalogue many of these tools simply to draw attention to the fact that the digital transformation in planning is already well under way.

However, through Local Planning Authority and Planning School surveys, the Task Force has identified a huge digital skill gap in planning authorities and universities. Digital integration in planning is uneven and highly fragmented and in and of itself should be treated as a key aspect of the need for 'levelling up'.

On the one hand, e-enabling customer-facing systems are being largely used in the UK for Planning Support. On the other hand, decades of ongoing processes of reform and especially the austerity measures introduced in the last decade since the Great Recession have meant that the planning profession itself has grown slowly to adjust to the new opportunities initiated by technological change.

Despite the fact that digital planning has been identified as a priority in the *Planning for The Future* White Paper (2020), there is a lack of national cross-departmental considerations on how to achieve the digital capacity required to deliver zero-carbon, environmental net gain, levelling-up, and other ambitious goals committed by the government.



What Needs to be Done

Through extensive engagement and consultation with key stakeholders, the Task Force has identified an urgent need to establish a complementary set of core digital capacities in data, platforms, tools and techniques, as well as develop adequate skill capacity within the planning profession through training and education.

The Need to Establish Core Digital Capacities:

- A Common Spatial Data Environment based on National Mapping and Datasets:** the map and datasets (key environmental, socio-economic & public health data) that would enable every baseline study including forecasting, simulation, modelling, and monitoring for the country need to be specified and collated centrally.
- A National Network of 'Regional Data Observatories' based on Regional Data Input:** regional bodies tasked with collecting and analysing demographic, economic, social and environmental data should be created.
- An Integrated Planning Open Data Framework based on Planning Data Input:** digital planning support systems need to be designed to capture back office data in an integrated open data framework with decision support and public consultation functions.

- Planning Metadata and Information Management Standards:** unifying planning metadata and information management standards to enable the twin pillars of development control and plan-making to be coordinated and synergised.
- Digital Tools and Techniques:** a diverse range of digital tools and techniques which can be employed and integrated in spatial planning should be introduced to planners.



The Need to Establish a Digitally Enabled Spatial Planning Profession

There is also a deep urgency in cultivating an eco-system to allow advanced digital technologies based on new developments in artificial intelligence and simulation to be applied in mainstream planning practice and education. Planners should play a proactive role in driving the digitalisation of the profession by learning from other professions, such as engineering, environmental specialists, and the public health sector. The digital skillset for planners should be diversified to allow a wide scope of expertise to be developed, along with innovative ways of collaboration. Greater funding opportunities in teaching and training should be pursued to enable the urgent upskilling of planners in practice.

To conclude, the Task Force gives eight Recommendations to the government to implement a digital future for planning.

Recommendation Headlines

1

Recognising the Vital Role of Spatial Planning as an Important Applied Science Discipline where Its Digital Transformation has the Potential to Tackle the Grand Challenges

To maximise the potentials of digital transformation by establishing the key links between the grand challenges, the planning profession as an applied science discipline, and the continued development of new technologies and data.

8

Developing a National Cross-Departmental Strategy for Digital Planning

To develop a national strategy to implement the digital transformation in planning enabled by a cross-departmental culture change. This should involve training in digital skills to support processes of levelling up and joining up across different planning agencies.

7

Investing in Digital Planning and Forging an Ecosystem between Planning Research, Practice, Education, and Lifelong Learning

To integrate and invest in new forms of digital training and education in spatial planning through research, professional education, practice and lifelong learning, engendering a culture change in planning profession.

2

Establishing a Chief Spatial Planning Officer Role in the Cabinet Office

To recognise the national significance of spatial planning for joined-up governance and to reinforce leadership in addressing the challenge of moving towards a more sustainable world.

3

Implementing an Integrated Digitally Enabled Spatial Planning Methodology

To create a digitally enabled cyclic system in planning through connecting the decision-making loop and the evidence analytics loop.

4

Establishing a Central Resource and Delivery Body to Empower Cross-Sector Innovation, and to Develop and Implement Digital Planning

To form a central resource and delivery body to lead the implementation of digital planning methodology as part of the levelling up agenda. The organisation will be responsible for coordinating the development of core digital capacities by setting up a national network of 'regional data observatories', promoting digital tools and technologies being mobilised in planning.

5

Creating a Comprehensive Mapping System, a Common Spatial Data Environment, and a Basic Set of Analytic Functions Tailored to Plan-Making

To establish an open data platform which integrates national data sources, development data, comprehensive mapping and associated analytic tools: focused on 1) Identifying Baseline Data; 2) Defining Consistent Spatial Data Standards; 3) Data Licensing, Security, and Confidentiality; 4) Establishing Common Datasets and Improved Monitoring; and 5) Developing Analytics for Better Local and Strategic Planning.

6

Establishing a Chief Spatial Planning Officer Role in Every Local Authority

To build and restore stronger leadership in spatial planning at the local level and to develop integration between local authority services using a whole systems approach.



"Much of the planning system has remained unaltered since the 1940s. The full potential of geospatial data, computational models, scenario planning and the artistic leaps forward in digital design and rendering have not been fully embraced by the profession. It has become ensnared by the administrative burden of legislative interpretation, rather than being a creative and collaborative profession. Greater utility of data science by the profession would provide us with the opportunity to unlock the potential of – and reduce the complexity of – accessing and assessing the right data to inform policy needs, in a manner that can be more responsive to day-to-day needs, whilst establishing the longitudinal insights necessary to address the pressing challenge of rebalancing economic, ecological and ethical factors to address our single biggest challenge of the climate emergency."

- Ritchie Somerville, City Region Deal Group, University of Edinburgh

"A shared database to be created on a GIS base so constraints, brownfield land, contaminated sites, flood zones, travel to work patterns, housing market areas, areas of historic or ecological importance etc can be mapped and considered in the production of sound planning."

- Robert Purton, David Lock Associates

Digitalisation can "coordinate complex and competing policy needs" and "... seamlessly connect to other key national databases".

- Spatial Policy & Analysis Lab, Department of Planning & Environmental Management, the University of Manchester Roundtable

"A digital planning system will require new and improved systems and tools that bring this together."

- Atkins

"Comprehensive mapping systems across the whole UK" is needed.

- Sue James, The Trees and Design Action Group

Digitalisation provides "a catalyst for change ..." enabling the "planning profession to be demystified, accessible and impactful – transparent and accountable".

- Dr Deb Upadhyaya

"The planning system more digitally focussed ... to improve the quality, transparency, and speed of decision-making on spatial planning matters"

- Spatial Policy & Analysis Lab, Department of Planning & Environmental Management, the University of Manchester Roundtable

"Every opportunity should be taken to embrace the changes forced upon us in the last 14 months. The pandemic has taken local government, PINS and the planning system forward by about a decade. These changes are long overdue. Cost, political reticence and inertia held the system back and allowed development plans, planning applications and appeals to be prepared consulted upon and determined in a largely unaltered way for over 70 years."

- Robert Purton, David Lock Associates



"Digital planning can help to improve the democratisation of planning and make planning processes, and the subsequent outputs, more accessible to the population."

- The University of the West of England Digital Skills Workshop

"The value of digital planning lies in its value to community planning; production of legible maps; communication and debate of issues; visualisation of sites; 3D modelling for urban design etc."

- The Young Planners and Student Focus Group

"The digitisation of planning should lead to quicker access to data, better informed decision making and help better engage stakeholders in the planning process ... there is huge potential for greater transparency, efficiency and collaboration between developers, planning authorities, communities and across the wider sector."

- Atkins

"Digital planning right now is too narrow in its focus, it is primarily considered in new build and reducing cost of construction but the benefit often lies outside of the central project. More work needs to be done to educate organisations of the potential for digital planning and a digital planning strategy should be included in all projects."

- Colin Hewertson, OpenText PLC

"Plans that are working as data models as well as policy statements. This implies having parts of the plans that are 'self-refreshing' or simply frequently updated - and parts of plans that include targets and indicators which are related to policies".

- Martina Juvara, Urban Silence

Digital Task Force for Planning

The Digital Task Force for Planning is an independent panel set up by Michael Batty and Wei Yang in February 2021. The Task Force is comprised of an interdisciplinary panel of 10 influential thought leaders drawn from a broad spectrum relating to planning and digital technology.

The mission of the Task Force is to promote an integrated digitally enabled approach to Spatial Planning. It is a prelude to a wider ongoing debate about how planning needs to fit into the wider framework of development of our towns, cities and rural areas to tackle the grand challenges of our times, and at the same time create beautiful, sustainable, resilient and inclusive communities for us and for our future generations.

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Full report and other project outputs can be viewed at: www.digital4planning.com

