“Digital Participatory Planning is an excellent summary of where we are today and how participation in planning has developed, especially the use of digital technologies both formal and informal. This book stands out as a reference book accessible to practitioners as well as students. Given the growing interest in consultation and participation through digital and social technologies, it will be of interest to architects, developers, and policy makers alike.”

Rachel Cooper OBE, Distinguished Professor of Design Management and Policy, Lancaster University, UK

“Digital Participatory Planning focuses on the role technology can play in supporting effective planning. While the actual technologies, platforms and systems discussed will evolve and new technologies will come into play, the important contribution this book makes is to shine a light on to these emerging methods and processes. The book will be an important resource for those who practice urban, regional, and spatial planning, but also those involved in any forms of ‘planning’ that require public engagement, including large scale infrastructure projects.”

Richard Kingston, University of Manchester, UK

“Digital Participatory Planning is at the forefront of debate in the discipline. This is particularly so in the UK where current proposals could see the entire English planning system move consultation online. Yet, the authors are correct that this is a little understood debate, and much literature on this subject currently focuses on ‘efficiencies’ in a rather clinical way, rather than the spaces and places in which normal people live. This book addresses the gap in this thinking, and it is much needed.”

Alexander Nurse, University of Liverpool, UK
Digital Participatory Planning outlines developments in the field of digital planning and designs and trials a range of technologies, from the use of apps and digital gaming through to social media, to examine how accessible and effective these new methods are. It critically discusses urban planning, democracy, and computing technology literature, and sets out case studies on design and deployment. It assesses whether digital technology offers an opportunity for the public to engage with urban change, to enhance public understanding and the quality of citizen participation, and to improve the proactive possibilities of urban planning more generally. The authors present an exciting alternative story of citizen engagement in urban planning through a reimagining of participation that will be of interest to students, researchers, and professionals engaged with a digital future for people and planning.

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We would like to express our thanks to our colleagues and friends who helped shape ideas, gave us support and encouragement, and provided challenging questions over the last five years.

In particular, we would like to acknowledge the pivotal role of all the brilliant researchers at Newcastle University’s Open Lab, who first invited urban planners to work with computer scientists, and a range of other science and social science experts, to explore what they termed digital civics and the digital economy and public service. The award of three EPSRC funding grants in close succession to Open Lab – the Digital Civics Centre for Doctoral Training (EP/L016176/1), the Digital Economy Research Centre (EP/M023001/1), and the Centre for Digital Citizens (EP/T022582/1) – together with Alexander’s ESRC Postdoctoral Research Fellowship (ES/V01160X/1) and Mark’s award from the UKRI/EPSRC of the Newcastle City Futures Urban Living Partnership grant (EP/P00203X/1), provided a robust and truly inter-disciplinary platform from which this research and innovation work grew. As this work was publicly funded, all the technologies developed within are open source (please get in touch for more information). We are especially grateful to Pete Wright, Patrick Olivier, David Kirk, Abi Durrant, Simon Bowen, Rachel Pattinson, Sunil Rodger, Rob Comber, Clara Crivellaro, Dan Jackson, Andy Dow, Ian Johnson, Dave Chatting, Samantha Finnigan, Angelika Strohmaiver, Rosanna Bellini, Gerry Wilkinson, Rob Anderson, Tom Nappey, Tom Feltwell and Shauna Concannon from Open Lab, and to Geoff Vigar, Roger Burrows, Zan Gunn, Jane Midgley, Adam Sharr, Sebastian Weise, Georgiana Varna, Moozhan Shakeri, Kim McCartney, Jen Manuel, Sean Peacock, Laura Pinzon Cardona, and Bobbie Bailey from the Global Urban Research Unit, for their immense contribution to the development of ideas around digital planning and participatory democracy, particularly through their initiation of and involvement in open dialogues about how the inter-disciplinary research and the co-produced case study pilots might develop.

Colleagues in the wider urban science and urban studies fields have also provided input at critical stages of the research and always in positive and supportive ways. We are grateful to Louise Kempton, Paul Vallance, Yvonne Huebner, Paul Watson, John Fitzgerald, Richard Dawson, Steph Glendinning, Phil James, Nick Holliman, Rose Gilroy, Simin Davoudi, Steve Graham, Mark Shucksmith, Liz Todd, Pauline Dixon, Richard Clay, Jeremy Crampton, Rachel Franklin, Andy Pike, Danny MacKinnon, Stuart Dawley, Pete O’Brien, John Goddard, Phil Taylor, Stuart Barr, Emma Coffield, Fiona McCusker, Menelaos Gkartzios, William Maloney, Elisa Lawson, Michelle Duggan, Paul
Greenhalgh, Phil Bylthe, Roberto Palacin, Elisabetta Cherchi, Natalie Bamford, Michael Crilly, Seraphim Alvanides, James Charlton, Toby Lowe, Rob Wilson, Michael Keith, and Richard Kingston.

In the wider places we have undertaken research and interviews beyond the academy, we are very appreciative of the time people gave to us, or for their assistance in securing trials of new technology and providing feedback to ideas. We are indebted to David Knight, Brian Moss, Danny Dickinson, Richard Snell, Jamie Caffrey, Huw Lewis, David Beeton, Graham Thrower, Jenny Nelson, Paul Armstrong, Neil Wilkinson, Duncan Holness, Phil Hunter, Julia Bradwell, Nicola Weatherburn, David Maguire, Vicky Sturrs, Gary Malkin, Alessandro Vincentelli, Carwyn Thomas, Emine Mine Thompson, Nicola Headlam, Sally Hardy, Aoife Herr, Stephen Lorimer, Graham Armitage, Samer Bagaeen, Andy Haddon, Steve Quartermain, Matt Bratton, Simon Hanson, James Hall, Sarah Boutell, Annie Bedford, Amanda McMahon, and Charlie Hoult.

A number of organisations and individuals deserve a special mention of thanks since our interaction and discussions with them have probably contributed in no small measure to some of the ideas developed in the book over the last five years. These comprise people who have worked for or with a number of organisations interested in digital planning, democracy, and public service transformation, including the Future Cities Catapult and Connected Places Catapult, Nesta, the Royal Society for Arts, and the Royal Town Planning Institute. We thank Rachel Cooper, Brian Collins, Peter Madden, Sam Markey, Rob Whitehead, Stefan Webb, Euan Mills, Will Pearson, Jennifer Schooling, Max Nathan, Paul Cowie, Andrew Hoolachan, Duncan Wilson, Richard Miller, Geoff Mulgan, Matthew Taylor, Victoria Hills, and Richard Blyth. We are also grateful to Mark’s colleagues at UCL, especially Mike Batty, Alan Wilson, Adam Dennett, Andy Hudson-Smith, David Price, Alan Thompson, Christoph Lindner, Sarah Chaytor, Olivia Stevenson, Paola Lettieri, Clare Meluish, Ben Campkin, and Eduardo Rico Carranza, all of whom have been incredibly supportive and interested in the research.

We should note that Chapters 6 and 7 are based on previously published articles, both in Environment and Planning B, and we are grateful to the editors and publishers for permission to use these earlier versions as the chapters’ foundations.

We would also like to thank the excellent staff of Routledge, particularly Kate Schell for commissioning the book but also keeping pressure on us to ensure delivery, and to Tom Bedford our brilliant copyeditor. We are also grateful to Robert Upton, Jill Grant, and Vanessa Watson, the recent editors of the RTPI Library book series, for their insightful comments and guidance. All errors, misinterpretations and blunders, if any remain, are of course our own.

Finally, and by no means least, we would like to pay tribute to and seek forgiveness from our long suffering better halves, Katherine and Robbie, who have not only had to endure the both of us talking shop whenever we met up, but also years of discussion about planning participation and digital technology
in earshot. Occasional single malt whisky drams and some amazing cakes have certainly helped us all over the years.

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February 2021
Cities are places where we come together to interact with one another. They are places where we exchange the fruits of our labour, the products that we make and consume, the ideas that we share with one another, and the deep social interactions that form the glue that holds societies together. Historically much of this exchange has been based on material goods but as the industrial revolution dominating our life for the last 200 or more years has evolved, there has been a dramatic shift from a focus on energy and industry to one orientated towards information and services. Much of what goes on now in cities relates not to physical production but to the processing of information. In this context, the emergence of the online economy is now central to how cities actually function, and we are beginning to adjust to this new world of information, somewhat rapidly in parts such as in online retailing, education, and since the pandemic, to work itself. Form no longer follows function. Many of our interactions have become virtual, with the locational nexus that has dominated how we arrange things in cities for the last 5,000 years beginning to fray. By the end of this century, all of us will be living in cities of one form or another but we will all be interacting by processing information in a global virtual world.

The distinction between energy and information is of course based on technological change. The notion that we can reduce many things to black or white, yes or no, 0 or 1 lies at the basis of representing many features of our behaviour and the artefacts that we are able to convert to information. Many physical products can now be seen as the ultimate stages in information processing. Cities themselves are being translated into machines to process information – into computers that is – while the way we think about planning for the future involves many information processes that themselves are made possible only by computers. We have now entered a world where the very subject matter that we are focused on is of the same genre as the tools that we use to understand and manipulate this subject matter. Computers are being used to explore systems that in themselves are composed of those same computers. This recursion or convolution presents us with some fundamental challenges that involve us in grappling with an online world that is getting ever more complex as it grows and evolves.

This book explores a major perspective on this world: the world of how we as interested citizens responsible for cities interact with each other using new computer technologies that enable us to not only disseminate, explore, and understand the cities we wish to change for the better but also manipulate and plan them. This is digital participation which has evolved in urban planning from the long-time quest for public participation, which first emerged when
institutional planning systems finally came to be established in the middle of the last century in many developed countries. Alexander Wilson and Mark Tewdwr-Jones first define their terrain quite broadly in terms of a threefold division. They partition this digital realm into public participation, which involves the more formal processes for linking the citizen to the planning process; engagement, which is a broader domain spanning the wider impact of planning on society and how a concerned citizenry is influenced by and influences this technology; and digital planning, which is the set of tools, techniques, methods, and protocols that enable planning as well as the wider citizenry to understand this new world where material things in cities are becoming digital. All this is set against the dominant mission of planning which is to provide sustainable, equitable, efficient, and more beautiful urban environments for living.

One of the themes that runs through the approach to digital participation in this book is the notion that our approach to both science and design at most levels of everyday life is continuously influenced by the technologies that we invent. Moreover in the process of using technologies to understand and to design the world, we are now continually using these technologies to understand and design a world that is composed of these same technologies. In short, the world is getting more complex as we develop newer and newer technologies and then use them in a context which in turn changes them. In this sense, our technologies are providing new ways of both building this world as well as communicating and interacting with those who have the mandate to decide what this world will be. To an extent, this is all bound up with the material, the physical, and the virtual that are entangled in diverse ways when it comes to using technology to understand and change technology, but all within the wider context of a social democracy. Participation is strongly political in that ways of involving the entire spectrum of stakeholder groups in planning and policy-making as well as in design bring up questions of the representativeness of such dialogues as well as the regulations, social practices, and norms that define the way we interact with change in cities. The way we fashion all of this with respect to appropriate methods of human-computer-interaction (HCI) also runs through the following chapters, thus providing a comprehensive context to the whole question of public participation in planning. The digital dimension of course enhances this and sharpens the challenges which are laid out in this book.

The challenges here are focused on how we develop new technologies to develop procedures for participation that are in every sense superior to the manual methods of the past, otherwise there would be little point in embracing the digital dimension. Until quite recently, much of what we have been doing with participation is simply using new digital media to speed up and make clearer what has been the focus of participation since the middle of the last century. Websites, passing messages and reports via social media ranging from email to Facebook, Twitter and such-like, communicating with colleagues through various kinds of online systems, most recently using the new conferencing platforms such as Zoom, and even providing rudimentary
methods for developing and testing different plans – all of these methods have been in development now for almost 30 years. But the need for something much more complete and innovative to engage the many publics and stakeholders from urban scientists to community activists is still a distant prospect. What Wilson and Tewdwr-Jones show in this book is how one might be able to reach out towards this prospect, and many of the case studies as well as the ideologies of participation that they develop here point us in this direction.

They preface their arguments in the first chapter where they outline how different information technologies have developed, their benefits for participation, and their limitations. This leads to a detailed and comprehensive history of physical planning in Britain since the late nineteenth century when the basic rudiments of the planning system, in particular in health and housing, were first put in place. This is an important contextual basis for what follows because information technologies are now so broad and extensive that very different approaches have been developed during the last 30 or more years which depend on how different technologies have been deployed. Although the nuts and bolts of digital participation are similar everywhere with a reliance on the web, on social media, on open data, on GIS and so on, the way different cultures and societies deploy these can differ considerably. The UK context is thus important and after the authors introduce this history, they recount the beginnings of formal participation within the planning system which dates from the report by Arthur Skeffington in 1969 which was called “People and Planning. Report of the Committee on Public Participation in Planning”. To an extent, all planning now is accompanied by some measure of public participation, but much of it depends on the nature of the planning task itself and the nature of the plans to be mandated in terms of their legislative context. All this is taken forward with the authors making the key point that digital participation depends very strongly on traditional non-digital forms of participation. In fact the point is that digital participation is about a lot more than technology per se and many of the key issues as the authors are at pains to emphasize is about the rationale for such participation and its subsequent enablement using new information technologies.

Human-computer interaction (HCI) is an essential activity in designing software systems that are accessible, useable, and of course effective, but in many if not most large IT projects, such activity is very poorly articulated. Often systems are designed by amateurs with no knowledge of the problem context or domain and this is particularly true where one has quite technical matters to deal with. The authors develop some very important points about such designs and their foray into these questions throws up many issues about the relationships between the technologies employed, the nature of the participation involved, the abilities of those affected to participate, and the whole question of how platforms for participation might be designed. This then sets the scene for the three key case studies in the book which illustrate many of these themes, particularly the fact that quite low key technologies need to be mixed with quite high level ones, but that there is no necessity for
advanced technologies in many of the planning problems that might be informed using digital technology. The authors introduce three fascinating case studies of planning in the Newcastle-Tyneside region which show how effective quite basic technologies which are widely available can be. Digital participation does not require bespoke systems because many applications can now be developed on-the-fly using standard widely available software.

The first case study is an elaborate sequencing of ideas that are communicated using Twitter, and these pertain to a wider conversation about the quality of travel on the Tyneside Metro. They present the to-ing and fro-ing of conversations about how the system might be improved and demonstrate how the logic of these data needs to be unpicked from the morass of information produced. Their second case study examines regeneration in North Tyneside and in this they introduce a platform or rather an app called “ChangeExplorer” which enables the conversations about the local authority’s plans for such regeneration to be recorded, disseminated, monitored, and responded to. The third case study is even more elemental and involves mixing a variety of traditional gaming-like media based on poster boards, pictures, and related objects with digital and internet networking capability, building a system which treats participation like a “jigsaw”. The system called “JigsAudio” can be widely applied to many contexts. In all these cases, these types of digital participation appear to have been rather successful. The case studies are then evaluated and the authors identify some of the key challenges that digital participation identifies.

In some senses, what the authors outline is not a crisp set of organised protocols but a wide set of ideas that are consistent with the complexity of cities and the complexity of planning, and involve assessing the effectiveness of planning from the bottom up. There are no top-down recipes recounted here but simply a series of basic ideas that are forged together to provide a refreshing and insightful perspective on digital participation. The arguments that the authors make are exciting, relevant, and focused, and provide a series of ideas that readers should absorb and reflect upon. In these pages, there are many insights not only into digital participation per se but into ideas about new technologies and the way these are being incorporated into the planning system.

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The way people communicate has fundamentally changed and is in a constant state of reinvention and reinterpretation. As the world designs and embraces new technologies, new ways of doing things open up. It has always been this way. Just as the telegram allowed global asynchronous communication for the first time after the 1840s, so will future technologies such as 5G broadband create transformative impacts on the way we communicate. Each time there is technological advancement, it changes the way humans are able to interact with each other in distinct places and spaces. Communication over time becomes faster, deeper and – compared to previous eras – much more diverse. And every time there is transformation in the way we behave and act, it has significant implications for people and planning.

Communications that once used to take weeks – on risky voyages across oceans and seas – now take milliseconds, between places anywhere on the globe. An agreed set of standards – Morse code or, more lately, the internet – has changed understandings of space, and how, as a society, we exist together. With the development of these technologies, people (at least those fortunate enough to have an internet connection) can instantaneously communicate with others, thereby making distance invisible. Each century has brought a seismic shift in the method, speed, distance, and amount of information that can be communicated. This has implications for both how spaces are used and understood, but also how we communicate with each other.

Early on it was thought that these technologies would make place irrelevant, where “what once had to happen in the city can now take place anywhere” (Pascal, 1987: 597). In fact, as Graham (1998) argues, and as it has been borne out through time, the intertwining of urban spaces, the “vanishing city” (Pascal, 1987), and digital technologies is much more complex and nuanced. This book sets out the story of how the digital world is transforming our lives, the nature of government and the forms of democracy, and the increased use, sophistication and influence digital technologies have on our experiences and discussion of places. All these changes impact on how we shape change in place and space, manage conflicting expectations within cities, and give people and communities a chance to provide their own inputs into designing future places. That activity we call urban planning.
Planning has been around, at least in its modern guise, for about 120 years (Hall and Tewdwr-Jones, 2020). It is rightly regarded as a feature of modernity, a governmental process seeking to manage externalities of how we live today while creating the means to look forward positively into, and prepare for, the not-too-distant future. Planning has undergone significant change as a political, governmental and professional process over time and has also been impacted by the technological and digital revolution. But what has been missing to date has been a detailed analysis of how the digital turn is reshaping both urban planning and wider society’s interaction with planning issues. Our hunch, upon commencing this research, was that the digital transformation of how people understand, interact and communicate change in the built environment seemed to be passing urban planning by. It was as if planners saw the digital revolution as something that was outside planning, or even outside their remit, a matter for other forms of professional and leisure activity, rather than an innovative way that planning as a governmental and largely democratic activity could transform for the better. As others have pointed out, if planners do not engage with these technologies, others will (Williamson and Parolin, 2012), with planning having a less important and significant role in future place-making over time (Hollander et al., 2020).

Public involvement in local decision-making has been a feature of governmental processes in Western democracies for more than 50 years (Wilson and Game, 2011). It is, in fact, a diverse set of enabling mechanisms that cover both representative styles of government and participatory styles of government. Public involvement takes the form of direct elections and ballot box votes, held at periodic times to elect politicians and officials to established offices of state for set periods of time. Or it can occur through specific sectoral and policy opportunities where the public, broadly defined, are part of a set consultation process, where government is seeking the views or reactions of citizens to a new proposal, plan, strategy, or even development. These forms of involvement, elections and consultations, are a feature of representative democracies (Morison, 2017).

Since the 1990s, public involvement in the affairs of local government has also seen the rise of more direct forms of democracy, with enhancement of participatory opportunities (Buček and Smith, 2000). The extent of participatory democracy or, for some, “deliberative democracy” (Fishkin, 2011), is dependent on a range of circumstances, including styles of government, opportunities for open democratic debate, the specific issues under consideration, and the involvement of third parties. The reasons for the rise of participatory democracy may correspond to the view that it allows for direct voices in discussion with government, or that it may reach sections of the electorate who might otherwise not become involved in consultation processes. A further feature is that the participatory exercise may include broader and more open-ended issues rather than government seeking responses to a pre-determined issue with a restrictive number of possible options.

Participatory democracy is not necessarily an alternative to or replacement of representative democracy. We still exercise the right to vote for local
politicians every few years, and those politicians are elected on a manifesto that sets out commitments to policy change and service delivery over the following period. We hand responsibility and trust to our elected politicians to represent our interests and take action on our behalf. We still have the right to be consulted on matters from time to time, whether that’s in relation to economic development, housing, transport or other activities. Sometimes, and only in certain countries, this also involves the opportunity to cast your vote in referendums on set propositions. All of these options are part of representative democracy. And a hallmark of urban planning is that it has built-in consultation mechanisms into set governmental processes that allow for citizen involvement in both plan-making activities and in the determination of development proposals. Enhancing more participatory democratic involvement in planning matters has, however, been somewhat more challenging (Tewdwr-Jones and Thomas, 1998; Thomas, 1996).

This book considers these three interrelated components: the rise and use of digital technology, particularly by society; the ways urban planning is changing governmentally and democratically; and the changing nature of local citizen engagement in issues concerning the future of places. Before we start our discussion of these issues, we need to set out some definitions, since public participation, engagement and digital planning are each large subjects in themselves:

**Public participation**: We define this as interaction between the public and government that involves collaboration, citizen empowerment, involvement, and purposeful activity. In the text, we interchange this phrase with “citizen participation”. We make a differentiation here between public participation and public consultation, seeing the latter as principally an activity of government or any other agency that seeks to inform or consult and is initiated and led by officials or politicians for a set purpose of that agency.

**Engagement**: We define this as an overarching term to cover the principle of getting involved in the interests and activities of government and external organisations, communities, and citizens, and proactively seeking respectful areas of dialogue and cooperation mutually and meaningfully. The word refers to the action of seeking the best means for all those involved, and can also cover an array of methods utilised for such action.

**Digital planning**: We define this as the design, deployment, and adoption of technology to provide innovative ways that assist professional planners, elected politicians, businesses, community groups, and citizens: to understand changes in urban and rural areas; to help communicate change to all those interested in their places past, present, and future; and to undertake pilot activities to support better understanding and involvement in planning decision-making.

We do not equate digital planning directly to the ongoing smart cities debate per se, but see it as something distinctive and more open. While smart city literature is beginning to engage with the wider consequences of the introduction of digital technologies in the built environment, the focus of this book is on citizens, rather than infrastructure, to engage people in place-making.
CHAPTER 1  ▶ Introduction

We begin the discussion by considering how the digital world has developed, what consequences it has brought for society and our lives, and how technology has created a step-change in expectations for both democratic involvement in government and in urban planning.

Society and the Digital World
Humankind’s relationship to technology can be characterised as a story of wonderment and fear. We marvel at the possibility of more advanced machines that are capable of producing intricate designs, high-speed calculations, and ultra-complex computation. But, as humans, we are also conscious of both creating advanced forms of technology that might one day outstrip our control and knowledge, and of setting in train a technological process that will hurtle society into some unknown abyss from which it will be difficult to escape.

Successive portrayals of technology in literature, film, and television, from the rise of machines and the dawn of computers, to the development of cyborgs and creation of artificial intelligence, have all toyed with the idea that, at some unknown future point, technology may “take over”. It is a feature of humankind that we enjoy reading and watching these dystopian provocations, safe in the knowledge that they could never really happen ... could they? Tantalised by science, and happy to embrace and consume new technology when it is produced for the mass market, we are equally frustrated with the degree to which it can, unconsciously, take over our lives. How many of us have vowed to have a break from social media platforms, or limit the amount of screen time we have with technological tools, or remind ourselves that there is a real world life beyond computer gaming? And how many of us are drawn back to these technological drugs after a short break away from them?

There have even been, somewhat ironically, television series in recent times that have tested whether families can live without their technology and how long for. There is a serious side to this too: studies have shown that too much screen time might have a detrimental impact on our health, wellbeing, and even sanity (Kitchin and Fraser, 2020; Makin, 2018). There are also those in society who are only too ready to believe in conspiracy theories that technology and telecommunication devices interfere with their brains. They see telecommunication as part of some heinous grand plan by multinational corporations, foreign states, communists, or extra-terrestrial bodies to corrupt us and take over the world. In some nations, even those considered advanced such as the UK or USA, people have attacked mobile phone masts and 5G antennae for these reasons, concerned about the degree to which telecommunications track every aspect of our lives; in some cases, there is even a belief that digital technology is being used to spread the COVID-19 pandemic of 2020–21 (Meese et al., 2020).

In the global COVID-19 pandemic, conspiracy theorists, so-called “anti-vaxxers”, have refused to accept the vaccination, suggesting that Bill Gates,
the co-founder of Microsoft, has created a tracking device that will be implanted into the vaccine. A report by the Centre for Counteracting Digital Hate showed that 31 million people across the globe belonged to anti-vaccine groups on Facebook, a figure that is equally alarming and concerning, given the amount of revenue that such groups can make from the online advertising space provided by social media companies (Burki, 2020). The fact that all these conspiracy theorists are using that same technology to further their false beliefs, and that they do not see the irony of this, would be amusing if they were not so serious and steadfast.

Not so long ago, such conspiracies about technology were the stuff of science fiction. We recall the villainous, super-rich industrialist and philanthropist Ross Webster in the 1983 critically-slated film Superman III, played by Robert Vaughn, who remarks, “Computers rule the world today. And the fellow that can fool the computers, can rule the world himself”. Little did we realise then, that in the not-so-distant future, an elected President of the United States would use a social media platform, Twitter, to inform his 88m followers – falsely – that that the 2020 democratic election was rigged and fraudulent, and use digital platforms to incite violence on the streets and adopt racist language.

Similarly, the US presidential election of 2016 gave rise to another phenomenon, so-called “fake news”. Popularised by Donald Trump on his social media accounts, “fake news” as a phrase was used to refer to news that is perceived to be fake and disseminated digitally. Its authenticity is dubious, and it has been shown to be a rhetorical device (Gelfert, 2018). This is not the place to go into detail about the merits or otherwise of the use of the fake news phraseology, other than to note how it has been perpetuated through digital form, and how we might discern its authenticity when used by opponents deliberately to challenge democratic decision-making or even factual matters. Questions arise as to whether digital social media should be monitored and false statements called out.

That digital technology has been used for political ends, or used by some people to grand-stand their extreme views, the so-called dark side of the web, is perhaps not that surprising. Scientific and engineering innovations that were once intended for strategic military and research use have now been commodified and marketed for personal consumers. Very few parameters were put into place by the hardware and software designers to restrict the ways technology could be used or restrict the content it contains; this was quite deliberate, and underlay a somewhat naive assumption that knowledge-creation, education and communication would be the driving forces for its practical applicability. It should be remembered that, for a great many people in society, the use of digital technology as a fact-finding, intercommunication and fun device is still the overriding reason of having a smartphone or a personal computer or tablet in the first place (ONS, 2020a). And it has transformed positively the lives of the people that own them, in ways that would have been unforeseeable even in the 1980s. Not all users of technology are digital sociopaths.
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Science and technology in all their forms have become embedded in our lives and in our homes in such an indecorous way, that it is easy to forget how things used to be before we had that technology. It was a simpler age, reliant on manual activities, achieved through at pace activities, and certainly with less-intensive use of domestic energy. The real technology, and we are talking here of the days before personal computers and hand-held devices, was thought of as what only boffins did, those people in white coats employed in secret government laboratories and in big shiny glass corporate headquarters that most people only interacted with through another longstanding technological device, the cinematic screen. Now, individuals are consumers of these digital technologies, able to do so much digitally that benefits our home and professional lives.

A wander down a street in any urban area will reveal that digital transformation. Places may appear largely as they did a couple of decades ago, but now you will start to notice the number of people holding, looking at or speaking into hand-held devices. We now communicate with friends wirelessly as we walk down the road, share digital videos or pictures of ourselves and our interests while out and out, use Bluetooth devices to chat hands-free while on any form of transportation, we may listen to music on AirPods, check the latest weather reports on our watch and instruct our devices to play a song from a library of over sixty million pieces of music, as wireless networks (even “smart” bins) attempt to track our movements (Shubber, 2013), and as we send messages and transfer files to work colleagues over email from verbal instruction while away from our desks and laptops. But there are also a number of changes that are hidden from view, the implications of which cannot be understated: the largest accommodation provider in the world owns no property (Shabrina et al., 2021); “the world’s largest taxi firm does not own a single vehicle, or employ a single driver” (Knight, 2016, n.p.); the largest movie house owns no cinemas (Szalai, 2020); the second largest retailer has no storefronts (Felix, 2020); music is now streamed, leading to the collapse of physical music sales1 (Savage, 2019). Current processes, both within central and local government for managing these trends, are failing to keep pace with these changes.

For those who work in professional employment (beyond essential in-situ manual, healthcare, and hospitality sector jobs), we can now practically work anywhere we wish to, outside our formal places of work. That can be good – it should, in theory, allow for a much more flexible approach to working and staggered start times for commuting – but it is also bad if it means our work follows us everywhere we go, and we feel obliged to constantly check and address work matters outside traditional work schedules.

The COVID-19 pandemic has certainly caused shockwaves to the ways we work and travel (Chinazzi et al., 2020; Kramer and Kramer, 2020; Schwarz et al., 2020). “Lockdowns” have necessitated working from home for long periods of time and caused an escalation of digital work in domestic locations, with associated demands for increased broadband and wireless coverage, the transfer of hardware from employer to employee in setting up digitally
connected home offices, and hours and hours devoted to video chats, in Skype, Zoom and Teams meetings (Waizenegger et al., 2020). The lockdowns have realised many of the earlier discussed “telecommuting” ideas through the increased sophistication of telecommunication (Pascal, 1987). Much has been written about whether this marks out a complete change in our working style and patterns over a working day and week, including questions about achieving better and more sustainable work–life balances, the demise of commuting, and the drop in demand for city centre office space (Gujral et al., 2020; Nathan and Overman, 2020).

It has also revealed other more pertinent issues that were previously largely neglected, notably the degree to which some people do or do not have a choice in their employment about whether they are able to work from home (ONS, 2020c). In reality, this choice is the preserve, predominantly, of those educated and professionally skilled groups in society (Bonacini et al., 2021) who have also become used to working on the go and needing to travel frequently to different locations nationally and internationally for meetings. Buses, trains, metros, taxi cabs, and even airplanes now have wifi availability for passengers. The transport modes that were once regarded as little safe havens, devoid of internet access and a chance for people to “escape” being contacted by anyone digitally, have now succumbed to the demand for permanent connectivity. Digital technology has diversified the employment and work location experience for these groups, but it has only caused a cleavage with those who still have to commute to their places of work and live in close proximity. There has also been reports of the impact digital homeworking has had on parents, especially working mothers, or those with caring responsibilities, in how exactly they are supposed to achieve any semblance of an equitable work–life balance when there is a need to respond to digital enquiries and pursue domestic arrangements (Ausín et al., 2021; Manzo and Minello, 2020).

This illustrates the flip, negative, side of the digital revolution for our urban lives: it is always there. Apart from the overwhelming desire to take a digital break occasionally, we can sympathise with those people who might get seriously annoyed by the ways technology is used by other people that disturbs our own peace. The use of phones by people on public transport causes particular resentment, especially if they are talking loudly or playing music (Moore, 2011). For some individuals, armed with a phone and a laptop, it is perfectly possible to transfer your place of working from home, or your office, to a local coffee shop – or even a sequence of coffee shops (the work pattern Faris (2014) notes is not unusual) – through the day as part of the so-called gig economy (Sutherland and Jarrahi, 2017).

Until COVID-19, it was possible to witness many business meetings going on in coffee shops in the centre of our cities which were, themselves, a throwback to the seventeenth and eighteenth centuries when business deals were done in London’s coffeehouses, more because they were social conversation spaces, and are now viewed as a hallmark of the Enlightenment (Ackroyd, 2000). Fast forward three hundred years, and coffee shop owners
today complain about how laptop users spend a notable amount of time sitting at a table, working and using the shop’s free wifi, sipping cups of coffee over several hours. These “cafe squatters” have prompted some coffee shops either to ban the use of laptops, tablets, and smartphones altogether (Metz, 2017), or adopt more innovative approaches through bespoke internet cafes, charging per hour for the time individuals use the wifi while providing the coffee for free (Famurewa, 2016).

Digital connectivity has become more widespread over the decades, areas are better blanketed in high-speed cell reception (but far from perfect in some locations), and the cost of access is now significantly cheaper (particularly for data access) reflecting the sixfold increase in mobile usage between 2012 and 2017, coinciding with a time period that also saw prices drop by almost a third (31 per cent) (Ofcom, 2017). But that does not mean to say that the digital revolution is universally available for all. Let us not underestimate the numbers of people who do not own smartphones or digital gadgets, who cannot afford to purchase or access online services and information, or – even if they can enjoy the means of access to digital content – do not feel sufficiently confident or skilled to do so (Ofcom, 2017).

In 2021, there were an estimated 3.8 billion smartphone users worldwide. According to statistics for 2019 (Newzoo, 2020), China is, by far, the country with the highest ownership figures with 851m users, followed by India (345m) and the United States (260m). Then there is quite a gap to the next highest country with Brazil (96m), Russia (95m), Indonesia (83m), Japan (72m), Mexico and Germany (both 65m), and the United Kingdom (55m). If Facebook were a country, it would be the most populous, with 2.48 billion citizens (Facebook, 2020), almost as large as the populations of India and China combined² (World Bank, 2019b). These figures, although mind-blowing, only really become meaningful when you compare smartphone ownership as a proportion of countries’ population figures (Pew Research Center, 2019). This reveals a noticeable different top ten, with the UK now at the top of the list (82.9 per cent), Germany (79.9), the US (79.1), France (77.5), Spain (74.3), South Korea (70.4), Russia (66.3), Hungary (64), Poland (63), and Italy (60.8). Figures for digital access, rather than ownership, are slightly more, such that in the UK the access figure stands at 96 per cent of the population (ONS, 2020a).

A 2019 study highlighted a disparity in this access – 99 per cent of households with an income of more than £40,000 have an internet connection, while the figure is a contrasting 51 per cent for those households with income levels between £6,000 and £10,000 (ONS, 2019a); the figure for those that self-assess as disabled is 78 per cent (ONS, 2019b). But even here, there will be significant differences within a single nation in the cost of access to technology, the availability of high-speed internet services, and the socio-geographical profile of technological users. This might relate to urban and rural settings, or even parts of the same city. And it is important because accessibility will also be more- or less-easily available to sections of society for them to exercise
democratic input into politics and decision-making, or indeed into questions about how their own places are changing.

**Technological Transformation as a Continuous Activity**

In 1792, the advent of the telegram introduced increasingly sophisticated communications to the world – people could communicate without needing to see each other – ushering in a seismic shift towards global electronic communication. As our understanding of electricity developed, so too did its use in communication, enabling the first virtually instantaneous communication, initially across the English Channel and, later, the Atlantic Ocean. As this happened, communication became hidden away, invisible, underground, or through the air, subsumed into daily lives almost without thought. And it is this transformation that has continued to grow ever since.

The aim of communication technology has been and continues to be to enable faster, more efficient communication with less latency, carrying greater amounts of information, to more places, at lower costs. Early communication involved people transporting letters, smoke signals, or optical telegraphs that required either people traversing over land or seeing one another. In the UK, the uniform penny post, written into law in 1839 (Coase, 1939), was the “great democratiser”, allowing anyone who was able to write – and had a penny – to send a letter anywhere in the country. With the marching pace of communication technologies, the ease and speed through which people could communicate continued.

Later, in the twentieth century, voice conversations between continents could be made through telephones, increasing the speed, ease, and amount of information that could be communicated. As these optical and radio technologies became commonplace so too did people’s use of them, with the cost decreasing (Trossen et al., 2016). In the twenty-first century, by contrast, we have devices that can now fit in our pockets to communicate with organisations and people across the globe through signals around cities and to satellites, underground and undersea cables. Information traverses the planet, and outside it, at the speed of light. Data and bits travel on an invisible net that connects people. We are estimated to produce 59 zettabytes (a zettabyte is a trillion gigabytes or one sextillion bytes) of data annually (up from 2 zettabytes in 2010, and an expected rise to 149 by 2024).

As the capabilities of these technologies have grown the pace of this change has grown faster. Speedier internet relays, switches, routers, and servers have become the backbone of how we communicate. Average internet speeds in America have increased 20 times between 2008 and 2019, from an average speed of around 5 Mbps to 96.25 Mbps (Villas-Boas, 2019). Within digital communication technologies, the exponential growth of their abilities and the growing application of digital technologies to new contexts indicate that we
are witnessing even more profound impacts on society (Graham, 1998). One of these transformative technologies, the internet (the physical infrastructure, rather than the World Wide Web or email, which are services that use it) is a series of connected computers with a common protocol. The first uses of the internet date to the 1960s, when connections were established between MIT and UCLA through ARPANET (Advanced Research Projects Agency Network); see Figure 1.1 (see also Leiner et al., 2009). The internet was a series of connected independent networks, with no central control and no one “in charge”. Information was packetized and given a destination IP address, allowing a shift from one computer communicating with another computer over a single line (circuit switching), to allow many to communicate with each other (packet switching). These packets were passed through wires, across continents, into space and back, through switches and routers at the speed of light until (or if) they reached their destination. With the introduction of packet switching technology, the development of personal computers increasing demand, the commercialisation of internet services providers, and the falling costs of semiconductors, the speed of these internet connections routinely doubled every 18 months between the 1970s and 2000s (called Edholm’s Law).

Although a huge part of our everyday life, the physical internet is mostly hidden, made tangible through the hidden data centres and internet fibre optic trunk lines that traverse oceans, and occasionally the coaxial or twisted pair cables that enter homes and businesses. The internet allows people to communicate internationally in milliseconds, delivering on our appetite for the speed and amount of information we consume and share: “over the last two years alone 90 per cent of the data in the world was generated” (Marr, 2018, n.p.). The penny post established a set of expectations, practices, and systems for transferring information. People could write a letter to anyone in the country. Almost 200 years later, the internet does this much faster, and cheaper.

These technologies have changed how people communicate with each other, entertain themselves, and work. The focus of this book is to examine how they communicate, interact, and engage with government and formal
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decision-making processes, specifically in relation to urban planning. While these technologies change how we do things, there are increasing shifts in what we do. This has had profound implications on how spaces are used and understood – some early predictions stated that digital technologies would make space irrelevant where cyberspace removes all the barriers of physical space – but the opposite is true (Aurigi, 2005). Cities compete for the need for ever-faster internet speeds to attract investment; computers and algorithms drive many (if not all) back-office processes in government; where people live is shaped by the technology they can and cannot access and decisions that algorithms make (Neyland, 2019); and across this, the growing use of digital technologies has excluded those already excluded (Ash et al., 2018; ONS, 2019a). All of these have important spatial implications that it is important to capture, analyse, reflect on, and consider within urban planning.

There is much talk about smart cities and how big data, and the usage of the aforementioned high-speed data networks, will change how cities are managed, experienced, and lived in, allowing governments and organisations to track, measure and exploit our uses of space (Batty, 2018c; Greenfield, 2013). A smart city may be defined, loosely, as the collection of data about various aspects of the city’s life and existence from digital sources and sensors, in order to manage the city’s assets and services efficiently (Hall et al., 2000; Peris-Ortiz et al., 2016). The push towards smart cities has lost all its meaning as time has progressed, since just about all cities around the globe claim to be smart in one degree or another. But whether it is a badge of honour is a moot point, as one hallmark of smart cities is the increasing privatisation of city spaces by businesses wishing to gather, control, and harvest urban data (Artyushina, 2020; Greenfield, 2013). Large multinational companies, such as Siemens, IBM, and Cisco, are notable for the way they have sought to provide digital smart city technological solutions to address the complex problems of cities. In so doing, they have reinterpreted the way our cities are seen and understood, in ever finer resolution, with an emphasis and examination of individuals’ use of urban spaces. Smart cities are able, for example, to digitally alter the brightness of street lights, monitor public transport frequency and usage in real time, collect second-by-second information about pedestrian footfall and traffic levels in and around the city, collect data on the degree of air pollution on individual roads, and change traffic light signals to give priority to certain road users (such as emergency vehicles or buses).

In theory, smart cities are also meant to enhance citizen engagement (Jiang et al., 2020) by creating enabling devices or platforms for people to access information about their places. But the corollary of this is that the transition to smart cities might involve seemingly privatising the data about the city’s services, and elected local government may be required to enter into contracts with those large companies that could involve handing over the city’s assets (lights, sidewalks, even refuse bins) to allow the companies to install their own sensors; and local government being obliged legally to allow businesses to install their own sensors and then having to buy back that data for planning and public service purposes.
The impact of these technologies on cities is growing; some have declared that these approaches will “destroy democracy” (Poole, 2014), while others believe they will open up new opportunities for wider and meaningful engagement (Foth et al., 2015). This book is not about smart cities per se, but it does explore an aspect of this transformation that is often missing from these debates, namely how citizens are involved in these wider urban changes. Recognising the growth of these technologies, now is a vital time to survey, reinterpret, explore, and exploit the opportunities of digital technologies in addressing the democratic deficit and the role of proactive urban planning in considering alternative city futures.

A Global Village or a Shouting Match?

Think back a few decades, to a time before the internet was weaved into our cities and lives. There were no web browsers or smartphones. How we communicate with our friends, take photos and share them, access movies and television shows, how we work or find and apply for jobs, find answers to questions, shop, bank, and compare prices for things we want to buy, order takeaways or taxis, book travel, holidays, and accommodation, or even walk and access driving directions, have all been transformed. To younger generations, those in their mid-20s, they are only used to doing things digitally. Those of us considerably older will remember the onset of the digital revolution and the transition from pre-digital to digital worlds and services. For even older generations, all of this may seem bewildering. Most people have adapted, gradually and with different degrees, to the new digital world order. But some individuals will still be sceptical about the onset of technological change. Or, they might be adept at using emails, the web, accessing social media and using teleconferencing applications to stay in touch with friends and family but will be less confident about the degree to which technology could assist other aspects of their everyday lives.

Internet technologies have dramatically shaped how many people do things, and how we understand and use space. But access to the internet is not universal. People without internet connections, or the skills to use computers, are routinely the most ostracised in society. They pay more for goods, spend more time interacting with government and banks, and typically earn less (ONS, 2019a). As physical distancing becomes commonplace in a post-COVID-19 world – at least in the short to medium term – the use of and reliance on fast home internet connections has come into sharp focus. So too have those without internet connections, either because of the costs of internet access, and hardware, or skills in using the internet (World Economic Forum, 2020). Whilst the internet has been a democratising force, the unequal distribution of this power must also be recognised, particularly with matters of democratic involvement and essential government services. The problem is that the technology, by its nature, only serves to create more technological forms that leave behind those outside computing science.

As the sophistication of internet technologies has developed, so too has the ability for anyone to have a voice online (Fuchs, 2015). Early websites adopted
a broadcast model, where people, at the very least, needed to write their own webpages in HTML. The advent and wide adoption of so-called “Web 2.0” marked a change towards person-to-person interaction through social media. Web 2.0 is used to describe the interactive opportunities for people to create and share their own content (“user generated content”). With this ease of content sharing, the internet moved from a broadcast medium (I make a website and you view it) to one that creates virtual communities where people can collaborate, discuss, debate and share (O’Reilly, 2009). People no longer just view static content but are able to create their own. The increased take-up and use of the Web 2.0 technologies was bolstered by the increased use of internet-connected smartphones, with studies showing that 84 per cent of UK adults use the internet whilst “on the go”, and 87 per cent of adults use the internet on a daily or almost daily basis (ONS, 2019c).

Early visions for the internet was as a global village of people that communicated across the globe, working together to solve the world’s problems (McLuhan and Powers, 1989). It was meant “to democratise the world, connecting us with better information and the power to act on it ... that would flatten society, unseat the elites, and usher in a new kind of freewheeling utopia” (Pariser, 2012: 3). This once optimistic view about the potential of digital technologies was somewhat dulled by recognition of the reality that the internet has fuelled entrenched views and polarised opinions through “filter bubbles” of personalised internets that are “pleasant, familiar and confirms our beliefs” (Pariser, 2012, n.p.) but which only serve to “distort[s] our perception of what’s important, true, and real” (Pariser, 2012: 20). Furthermore, while the internet was meant to give anyone a voice, it has increasingly been taken over by large corporations that seek to monetise the experience and close-off the internet for their commercial gain.

In 2019, Tim Berners-Lee, the co-creator of the World Wide Web, reflected:

I had hoped that 30 years from its creation, we would be using the web foremost for the purpose of serving humanity ... However, the reality is much more complex. Communities are being ripped apart as prejudice, hate and disinformation are peddled online. Scammers use the web to steal identities, stalkers use it to harass and intimidate their victims, and bad actors subvert democracy using clever digital tactics. The use of targeted political ads in the United States’ 2020 presidential campaign and in elections elsewhere threatens once again to undermine voters’ understanding and choices. We’re at a tipping point. How we respond to this abuse will determine whether the web lives up to its potential as a global force for good or leads us into a digital dystopia (Berners-Lee, 2019).

Amongst other profound changes, the ease and availability of these technologies have also led to changes in how citizens interact with government, and social media is central to this. Social media is cited as being central to the so-called “Arab Spring” of the early 2010s, presenting “a novel resource that provided swiftness in receiving and disseminating information; helped to build and