Introducing Everyday Futures as a New Interdisciplinary Area of Research

Lenneke Kuijer, Department of Industrial Design, Eindhoven University of Technology, NL, s.c.kuijer@tue.nl
Nicola Spurling, Sociology and Institute for Social Futures, Lancaster University, UK, n.spurling@lancaster.ac.uk

With the rise of ubiquitous computing, the role of HCI and interaction design in making everyday futures is becoming ever more encompassing and profound. The articles in this Special Topic offer some thought provoking perspectives on how these implications might be researched, understood, and challenged.

Future everyday life is certain to be different from today, but how is it shaped in the present? What role do technologies and interaction designers have in shaping everyday futures? How might futures be made differently, and what theories and methods would be required to do this? These were questions that brought together an interdisciplinary group of researchers to form the Everyday Futures Network (wp.lancs.ac.uk/everydayfutures) in July 2016 The network was founded with the conviction that Everyday Futures is an area ripe for development, tackling head-on the fact that futures of work, future homes, city futures and energy futures all make assumptions about, and have far reaching implications for everyday lives that are seldom explored.. An inaugural workshop was held at Lancaster University's Institute for Social Futures (www.lancaster.ac.uk/social-futures), an initiative which aims to make better futures in which the experience of being human on a finite planet is made central.

The workshop foregrounded the kinds of methods and analysis available across the disciplines, to develop everyday futures, a topic which currently slips between the disciplinary cracks. History, sociology and anthropology, though dealing with the lived everyday do not tend to engage with the future, while disciplines such as policy, planning, fashion, and interaction design focus on the future, through various objects and scales, but rarely from the perspective of everyday life. The workshop established an active and engaged network – with a growing membership from a wide variety of backgrounds, and produced a collection of nine essays. This collection lays the foundations for an original research agenda, and is freely available online through wp.lancs.ac.uk/everydayfutures/essay-collection/.

The four articles in this Special Topic are based on a selection of essays from this collection. We have worked with the authors, who are from history, design, sociology, environment, management and policy to tailor their contributions for HCI researchers and interaction designers. As such, the essays provide gateways to other realms of knowledge, approaches and perspectives. In the rest of this introduction, we briefly position Everyday Futures as a new interdisciplinary area of research, and invite you to join us in this emerging agenda. Indeed, the future is already central within HCI research, however, it is primarily approached from the perspective of particular technologies. We therefore begin by highlighting three perspectives on 'the future' that are intertwined in the articles that follow: researching past futures; identifying traces of the future in the present; and, exploring the assumptions about everyday lives that are embedded in future visions. These perspectives are valuable for the new light they shed on technologies in everyday life, and therefore by implication the roles that HCI researchers and interaction designers might play in shaping everyday futures.

A historical focus, such as that explored by Wright and Pooley, highlights that new technologies do not enter a vacuum, but rather that they become woven into everyday lives, relationships and ways of doing that already exist and work. In this light, it is no wonder that technologies have unanticipated effects. Looking in detail at past ways of living and working can provide new understandings of the present, and on why interventions (including technologies) have unexpected outcomes.

Secondly, viewing the future as performed in the present – which is the focus of Chatterton and Newmarch – highlights the diversity of ways of living that exists alongside each other at any moment in time, between different cultures and social groups. They argue that some parts of society, including technology designers and researchers, have more power than others to decide the types of futures that get promoted and prioritized, and reflect on how HCI might reproduce, but also challenge such undesirable patterns. One way of achieving this might be through using new methods to make future imaginaries and visions. As Wright and Pooley note, imaginaries do not simply materialize as envisioned, but they are nevertheless powerful devices for change. Which points to the third perspective.

This third theme is the focus of Welch, Keller and Mandich, who point out that all too often future visions – like the circular economy – brush over the changed everyday lives essential to their realisation. In the article, they show how social theories can help to unpick the relations between everyday life and technology in large scale future visions. Complementing this, Meadows and Kouw offer a method for developing multiple visions of a better everyday future, which they call collective composition, emphasising plurality and potentially conflicting ideas of 'the good life', rather than seeking a consensus.

The main aim of this special topic is to open up the area of Everyday Futures as new ground to explore between disciplines. Though they are far from being the final word, we believe the articles offer some compelling new perspectives for HCI research and interaction design. This Special Topic forms an invitation to the Interactions readership to join us in pursuit of a better understanding of the impact of new technologies on future everyday lives, and to reflect on how, through research and design, they might contribute to futures that are more equitable and sustainable.

Those interested can join the network by subscribing to the email list on the website (wp.lancs.ac.uk/everydayfutures), and join conversations with #Everydayfuture. We are currently organising a second workshop on 'Making Everyday Futures' to be held in July 2017 at the Department of Industrial Design of the University of Eindhoven, the Netherlands. The aim of the workshop is to experience the making and deployment of artefacts as a way of exploring and questioning future everyday life. More details about this workshop, and how to participate will become available on the website.

Connecting past, present and future

Rebecca Wright, Research Fellow, 'Material Cultures of Energy: Transitions, Disruption and Everyday Life in the Twentieth Century', AHRC collaborative award, 'Care for The Future: Thinking Forward Through the Past', Birkbeck College, University of London, UK: rwrigh02@mail.bbk.ac.uk

Colin Pooley, Lancaster Environment Centre and Centre for Mobilities Research, Lancaster University, Lancaster, UK: c.pooley@lancaster.ac.uk

Introduction

We cannot escape the past. It is always with us in our memories, in the physical landscape and environment that endures, and in the legacy of past policies and planning decisions at both local and global scales. At a personal level we are constantly learning from past actions and experiences, trying hard not to repeat previous mistakes, but in terms of policy formulation all too often the decisions that are taken today – and which shape the future – seem to ignore the lessons of the past. In this essay we argue that planning and policy making would benefit from a greater appreciation of the role of the past in shaping the present, and through recognition of the potential benefits of some ways of living that have slipped from view. This may help to avoid the sorts of unintended negative consequences that have sometimes arisen from past decisions. Clearly how the past is viewed in relation to the present and future will depend on the policy goals that exist at the time. These will differ as governments (both local and national) change and as external events beyond the control of individual governments shape national policies. In this essay we mainly draw examples from the United Kingdom and the USA, and make the assumption that two key policy goals of any administration must be to create a society that is more equitable and one where resource conservation and environmental protection are central objectives. Clearly such aims will interact with other goals – most obviously those of economic growth and full employment – but we assume that they are not incompatible and, indeed, that in many ways they are dependent on each other. We suggest that by paying closer attention to some aspects of past societies it may be easier to combine the goals of greater societal equality, protection of the environment and economic prosperity.

The principles advanced in this essay could be applied to many aspects of society, economy and culture, but we limit ourselves to drawing examples (based on our own research) from two arenas – transport and energy. They have been ever present, raise important issues of social equity and environmental protection, and are likely to become increasingly important as the twenty-first century progresses. We use selected examples drawn from nineteenth and twentieth-century history to show that in the connected arenas of transport and energy use some of the structures and systems that were common in the past could usefully be replicated today and in the future, not least because individuals and families tend to use new technologies to maintain existing life styles. We first review some of the existing connections between historical research and visions of the future, second we assess the sources that may be used and some of their limitations and, third, we examine selected past predictions of future technologies. In conclusion we return to the practical advantages of focusing policy on aspects of the everyday in the past, present and future.

History and the future

It is often suggested by politicians and policy makers that the public are resistant to change and that the adoption of transport or energy policies that restrict (for instance) car use or household energy consumption to conserve resources and reduce carbon emissions would be unacceptable to many. However, by collecting evidence from oral histories of past travel behaviour it can be demonstrated that when transport systems have changed in the past people have altered their travel behaviour with relative ease (for instance shifting from trams to motor buses in British cities in the mid-twentieth century). Similarly, evidence from diaries demonstrates that travellers in the past have been very adaptable and resilient in the face of transport difficulties and have altered their behaviour as circumstances changed around them. Although transport and energy infrastructures have changed dramatically over time the basic needs and priorities of individuals and families (such as shelter, work and food) have not, and people rapidly adapted their behaviour to cope with fresh circumstances and to maintain their everyday lives. Historical evidence also suggests that the transport and energy systems that people used in the past could be more equitable than some of those available today, for instance in the nineteenth century all but the very wealthy travelled and heated their homes in similar ways. Therefore, transport-related social exclusion was less marked than it is today when life often becomes difficult for people without access to a car. Historical evidence suggests that people could adapt quickly to the introduction of technologies that reduced the energy demands of transport and other everyday activities. Such policies could also help to reduce inequalities within society (Pooley, 2016).

Calls for a greater connection between past, present and future in policymaking are not new, but they do remain limited. The on-line platform History and Policy (www.historyandpolicy.org) has existed since 2002 and provides a vibrant forum where historians can engage with current policy issues. Other more recent publications have also argued for the need for historians to become more engaged with the present and future, including in the fields of transport and energy policy (Guldi and Armitage, 2014; Divall et al., 2016). However, there is little evidence in Britain that engagement by politicians and policy makers is more than superficial. This contrasts with the situation in some parts of continental Europe where, for instance, in the Netherlands historical researchers are embedded in one the country's main planning structures (Toussaint, 2016). One of the more common ways in which historical material has traditionally been utilised in planning and policy making is in the forecasting of long-term economic and demographic trends to produce different future scenarios. Past time series of data may be used to extrapolate future trends while changing key parameters such as birth and death rates or economic growth to produce different scenarios. However, such techniques can only provide a macro-scale perspective and are often undermined by rapidly changing circumstances or by the unpredictable behaviour of individuals and organizations.

Researching everyday pasts

In spite of the dominance of this macro perspective, historical archives hold a wealth of information about past everyday life, providing a micro perspective for policy makers and planners. Journals, oral histories, advertisements, news media, magazines, instruction manuals, policy documents, film, art and literature, are a few of the many available sources from which details about everyday life can be gleaned. From these sources we can collect anecdotes about the use of technologies, personal habits, routines, cultural norms, and preferences, as well as expectations about the future. Diaries, for example, contain musings on mundane details, from information about the daily commute through to reflections on the evening meal. Oral histories capture memories of the past documenting

personal reflections and anecdotal evidence of emotional engagements with living environments. Instruction manuals record appliances and point towards their intended use. Popular advertising, lifestyle magazines and marketing material reveal cultural meanings attached to products. Cultural artefacts similarly act as a depositary for evidence about past models of everyday life. Novels, biographies, and political tracts are littered with references to everyday practices. In addition to written sources, visual culture is equally revealing about the ways everyday lives have been structured. Photography, both professional and amateur, documents the changing space of the home, capturing arrangements of objects and trends of decoration. Film captures social practices unfolding over time. The post-war British genre of Kitchen Sink Realism, for example, tells us much about the social customs and living practices of factory workers in the 1950s.

Each of these sources has limitations, posing challenges for a historian of everyday life. Policy documents chart transformations at a governmental level, but as top-down documents they reveal little about how people experienced and lived these changes. Instruction manuals, advertisements, and industry periodicals, provide information about how manufacturers intended their appliances to be used, but consumers did not always use products as intended. Furthermore, in the words of Joy Parr, it is the 'embodied histories' that are excluded from the historical archive. Tacit knowledge, Parr points out, is recorded through the body in lived practices rather than in textual or representational forms (Parr, 2010). Historical sources privilege certain senses, with sight traditionally being prioritised over touch and smell. This hierarchy feeds into the type of historical documents available, with academic traditions being 'deeply invested in texts and in textual critique as the arbiter of research results' (Parr, 2010, p. 3). To overcome this weighting, Parr has created a website the Megaprojects New Media series (http://megaprojects.uwo.ca) to explore new ways of capturing 'embodied histories' lost to text.

Genre and form also structure information about everyday practices, determining what data is included and omitted. Biographies, personal diaries and film, for instance, exist within established traditions where literary conventions determine what information is included in each type of source, from the intimate, to the heroic and fantastical. The final constraint is practical. Sifting through historical sources requires time and labour. Moreover, there is a tendency towards diminishing returns when hours are spent transcribing illegible handwriting to find only the occasional detail about a journey to work or bath-time routine. Even once this information has been retained there continue to be challenges in extracting data in a coherent manner. The digitalisation of historical archives and the emergence of new research methodologies from the field of the Digital Humanities are making these practical limitations easier to handle. Functions such as word searches, data mining and frequency charts also provide new avenues for historians looking to locate trends and patterns in large bodies of material. However, there is a danger that this focuses research on those sources that are available in digital form, ignoring others that might give a different perspective.

Past futures

Records of past futures also reveal avenues not taken. Multiple futures co-existed in the past. Some were borne out and others failed to materialise. National forecasts, such as the 1952 U.S. report *Resources for Freedom* (otherwise known as the Paley Report), predicted that by 1975 U.S. aggregate energy consumption would be roughly double the amount consumed in 1950. This turned out to be a conservative estimate as U.S. energy consumption rose from 36.5 in 1950 to 75.8 exajoules (EJ) in

1975. In contrast, its suggestion that by 1975 the maximum plausible market for solar energy could be as large as 13 million installations in homes (contributing to 10 per cent of the nation's energy system) was an example of a possible future that has so far not come to pass. Other futures played an active role in shaping energy infrastructures. During the 1950s and 1960s, for example, private utilities in the United States published exaggerated forecasts for electricity consumption, circulating alarmist predictions about how consumption would soon outstrip supply. These predictions influenced the rapid construction of new generating capacity, which was soon made obsolete as electricity consumption fell during the 1970s. Social practices also vary greatly from country to country, leading to very different trajectories in the adoption of new technologies. For example, 82 per cent of American households own a tumble dryer, compared to 57 per cent in Britain and 5 per cent in Italy (Fischer, 2013). New technologies must always be located within specific cultural, environmental and political contexts.

Many futures failed to materialise. Science fiction futures (strikingly captured in the 1960s TV series the *Jetsons*) never came into being, and neither did Maynard Keynes' 15-hour working week forecast in 1930. Products, such as the 1950s all-electric doghouse, never found a mass market – closing down, until recently, a potentially lucrative energy market in pet upkeep. The failure of particular technologies and futures demonstrates the role of path dependence through the ways that people adhere to familiar or dominant technologies. For instance, the decision to cook with gas or electricity remains driven as much by historical inertia as by personal choice, as costs and infrastructures conflict with cultural preferences and cooking habits. This exposes the tension between the inevitability and malleability of the futures that came to structure everyday life. Futures have a momentum but they can also be shaped.

Conclusions

Recent events across the globe have demonstrated that the ambitions and policies adopted by governments are often disconnected from the everyday values and actions of individuals and families. This is evident, for instance, in the increasing public distrust of political parties and of expert opinion in Europe and the USA, and in the British vote in June 2016 to leave the EU. Most policy is formulated at a macro-scale be it concerned with climate change, global inequalities, trade agreements or coping with the movement of large numbers of migrants from conflict zones. In contrast, individual people live their lives at the micro-scale, negotiating work, housing, family and community on a daily basis and with little real engagement with national and global concerns beyond passive observation through news media. For instance, research on attitudes towards greater use of walking and cycling for everyday transport has demonstrated that people are most likely to see benefits in terms of their personal health and improvements to the local environment, and are less likely to adopt sustainable travel because of concerns about global climate change. Similar attitudes have also been shown for other aspects of energy consumption and carbon reduction. We suggest that the analysis of past transport and energy scenarios may help to identify ways in which this apparent disconnect may be at least partially remedied. For instance, it is clearly sensible to encourage people to undertake more short trips on foot or by bike whenever feasible rather than using a car. In the past walking was by far the most important form of everyday transport for most people, and in the mid-twentieth century in Britain cycling was commonly used by many men in particular as their preferred form of everyday transport. The reasons for this are not hard to deduce. First, there were far fewer alternatives: many people had little option but to walk in nineteenth-

century Britain. Second, the physical structure of urban areas meant that most people lived close to their workplace and that many of the goods and services that people needed could be found relatively close to their homes. Clearly it is not sensible or possible to return to nineteenth-century patterns of life, but we do suggest that transport and energy systems that minimize inequalities between users and maximize sustainable energy use – and which to some extent replicate past structures – are both feasible and desirable. For most individuals the factors that are important to them and their families have changed little over time, and when new technologies are developed people often use them in ways that maintain existing patterns of living. Greater appreciation of some of the benefits of past patterns of everyday living may help to produce more equitable, sustainable and convenient systems of transport and energy use today and in the future.

References

Divall, C., Pooley, C. and Hine, J. (Eds.), (2016). *Transport policy: Learning lessons from history*. Farnham: Ashgate.

Fischer, B., and Kaufman, N. (2013). "America's most unpopular way of saving energy…is one of Europe's favourites." *Opower Blog* [retrieved from hhtp://blog.opower.com/2013/07/americas-most-unpopular-way-of-saving-energy-is-one-of-europes-favorites/ (26 August 2016)]

Guldi, J. and Armitage, D. (2014). *The History Manifesto.* Cambridge: Cambridge University Press.

Parr, J. (2010). *Sensing changes: Technologies, environments, and the everyday, 1953-2003*. Vancouver, UBC Press.

Pooley, C. (2016). Mobility, transport and social inclusion: Lessons from history. *Social Inclusion*, *4*(3), 100-109.

Toussaint, B. (2016). Using the usable past: reflections and practices in the Netherlands. In C. Divall, J. Hine and C. Pooley, C. (Eds.), *Transport Policy: Learning lessons from history*. Farnham: Ashgate, 15-30.

“The Future is Already Here, It's Just Not Very Evenly Distributed.” How can we write a more equitable future?

Tim Chatterton, (Air Quality Management Resource Centre, University of the West of England, UK) tim.chatterton@uwe.ac.uk
Georgia Newmarch (Institute for Social Futures & Department of Sociology, Lancaster University, UK) g.newmarch@lancaster.ac.uk

The future….is not evenly distributed

This title quote from the American speculative fiction author William Gibson (Gibson, 2012) alludes primarily to the fact that the things that will constitute the ‘normal’ or ‘everyday’ within the lives of those living in the future, already exist for some today. Most of what will constitute change, at least in the short- to mid-term, is simply the spread of these niche, or minority, ‘things’ to become more pervasive. However, Gibson’s quote can also be interpreted by considering that ‘the future’ itself will be characterised by inequalities in a way that is similar to the present. In order that these inequalities are not reproduced, or that their reproduction is minimised, it is necessary to ensure that those processes in the present which ‘write’ the future are not irredeemably tainted by these same inequalities.

It is hard to clearly identify what elements of the present will become more widespread in the future. Over the 20th Century, social transitions in the West have often involved the trappings of wealth becoming more accessible to wider sections of society, such as automobility, better quality housing, high quality healthcare and consumer technology. Many contemporary future scenarios present the future to be a utopia of wealth and health furnished by a panoply of high-tech gadgets and permitted by continued economic growth. However, it is also possible that the future for some, or all, will involve either a gradual or rapid reduction in standards of living. Thus, the future might consist of the expansion of the current lifestyles of either the rich and powerful, or of the poor and oppressed.

The future is always created on uneven foundations. In order to understand how we can create futures that do not exclude, isolate or exploit we have to understand how the future is written in the present. More specifically, we are interested in how minority elements are, in this moment, unequally distributed; how these inequalities are likely to be reproduced or altered in the future; and how these inequalities may actually determine what future or futures we arrive at. Through exploring how existing differences create unequal futures, we can begin to understand how to look forward in a way that is beneficial to those who are often excluded from mainstream narratives of change.

By considering three key domains of the social, the spatial and the temporal, this essay will briefly describe some of the ways in which we may be able to see the future as being unequally distributed

in the present. It will then consider what impact these distributional inequalities play with regard to those who may play a significant role in attempting to write the future. We close by offering some possible ways of dealing with inequality that involve technologies.

Social Inequalities

It is often the case that certain social groups (identifiable by gender, class, race, physical ability, etc.) are omitted from official/institutional visions of the future created by experts (politicians, managers, interaction designers), be that intentionally or not. However, because these visions shape policies and technologies that affect everyone, these social inequalities open up questions of power. Moreover, the unofficial futures of everyday experience, hopes, dreams and imaginations are often not considered in these future visions.

Efforts to incorporate everybody in views of the future often result in dystopian images, because they highlight current differences in exaggerated ways. Science Fiction literature offers some clear examples. J.G. Ballard's 1975 novel *High Rise*, presents us with a fictional interpretation of class and futures which is useful when assessing how social inequalities within the everyday are constructed and consumed. In the novel, class divide is physical (the higher the floor in Ballard's tower block, the higher the class of resident). Aldous Huxley's *Brave New World* (1932) also portrays fundamental inequalities at the heart of the imagined society, though here these are built into genetics and conditioning, not just architecture.

Whilst these fictional futures extend and emphasise current inequalities, in many ways, fragments of utopia exist already. For example, in the 'Western world', the majority of people can access clean drinking water in such sufficiency that they flush their toilets with it; calorific food in such quantity that they can become obese; and free health care to treat the consequences. It might be churlish to expect utopia to only exist as an endpoint or final destination. Such a view highlights that we should recognise and cherish these fragments as and when we find them, and realise that it may be necessary to fight hard to keep them.

Spatial Inequalities

The rural-urban divide is one spatial axis that highlights differences that are apparent across potential elements of the future. Access to new transport modes such as car clubs or Uber are increasingly available in cities but have little reach into rural areas. It is questionable how far these sorts of systems will be able to practically reach these areas, highlighting how different futures may emerge as a result of location. Moving from physical mobility to virtual mobility, access to high speed internet is another example of something that is 'the present' in urban areas and may soon constitute a (relatively near) future for rural ones.

In terms of global distributions of lifestyles and wealth, the late twentieth century and early twenty-first century have seen an increasing dispersion of modern, westernised, 'middle class' lifestyles from Europe, North America and Australasia, to parts of Asia, South America and Africa. In the latter we can see a rapid transition towards futures that are very different to their recent pasts, due to extended energy supply networks, availability of consumer goods or the introduction of emergent technologies, such as the internet. In parallel, the last decade has also seen what might be considered by some as less 'progressive' futures developing, such as the descent into civil war and collapse of infrastructure in parts of the Middle East (e.g. Syria and Iraq) as well as uneven distributions of the consequences of the global financial crash hitting Portugal, Italy, Greece and Spain particularly harshly.

Sometimes though, space causes less of a divide. Mobile phones provide a fascinating case study of how fast a new technology can establish itself globally, rapidly levelling access to the services that a technology can provide. Mobile phones highlight not only the speed with which futures can arrive, but also a 'virtual' shift in the everyday, from one which is only experienced through direct contact to one where connections are not just physical. Here the future may also hark further back to the past. Computing and the virtual realm can be seen as an extension of the oracles and shamans of the past (Davis, 2015), our desire for knowledge and foretelling is transplanted from chicken entrails to Wikipedia and social media. We haven't moved far from the past, and the past will always remain with us, as Wright and Pooley discuss.

Social media highlights the nature of 'information inequality'. During a time of 'post-truth', access to information and how we use it has become a vital part of our present. From initiatives to develop algorithms to reduce information overload bringing undesirable consequences such as Eli Pariser's "Filter bubbles'' to dubious initiatives such as Facebook's infamous experiment of tweaking people's timelines to affect their emotions (http://www.forbes.com/sites/dailymuse/2014/08/04/the-facebook-experiment-what-it-means-for-you/#1a63a08e1cbc). Personal newsfeeds often dictate the information that is visible to users and access to (good quality) information may be thought as more important and influential than ever before. Thus spatial inequalities can extend into virtual/cyber space.

Temporal Inequalities

Short-term events and disruptions such as blackouts and supply chain disruptions represent snippets of insight into more precarious unstable futures, as increasing energy consumption and aging generating plants mean that energy supply systems become progressively overloaded. Disruptions to systems may appear sudden, but they occur within the context of long build ups of dependencies and allow not just for a greater understanding of the nature of innovation in the moment, but also reveal much about the undisrupted, everyday 'normal'. What is taken for granted now (e.g. a reliable energy supply, or a stable climate) cannot be taken for granted in the future.

But how should these potential future disruptions be handled? Are we just trying to maintain the current system to stop an unstable future? If so, for whom is the current system actually stable? What is considered disruption in the first place? This is clearly relative, because in many other parts of the world, black/brownouts are considered normal.

Temporal inequalities can also manifest across generations: the aging population may be a picture of the future for today's young. Although attempting to avoid the consequences of aging has been a long-time concern of much of the human race, this has, in the modern West, led to a failure to adequately consider the well-being of the old. By improving life for those who are old now, younger sections of society could help design the future for themselves when that time comes.

At the other end of the age spectrum, the comfort with technology shown by Generation Z/'Digital Natives' provides an insight for older sections of society as to how digital technology can rapidly become a given within everyday life. But it is not just in technological practices that a generation gap may be widening. In 2016, both the 2016 UK Referendum on leaving the European Union, and the US General Election showed very significant differences in voting patterns between the young and the old. In both these cases it appears there has been a tension between those whose views have been ignored for the last three decades and those who haven't had voices yet (the young). It seems that the youth vote lost out, potentially condemning them to live in societies determined by victors who won't live to see them played out fully.

Structural Inequalities

The three domains above - social, spatial and temporal - are just three ways of identifying inequalities. What matters most, we argue, is not whether differences exist, but the extent to which they result from the way society and institutions work (as opposed to say 'individual choice'). When they arise from social structures, and particularly when leading to negative impacts, these become issues of inequality that should be a concern from a justice perspective. How these differences become structural inequalities is usually related to issues of power. Unequal power relationships determine who gets to write the future, at least at a macro level, for example, through decisions about long-term infrastructure provision and the built environment, corporate (R&D) strategies, government policies and research agenda's that will shape many people's everyday lives for years to come. These decisions are often made by a particular section of society – typified by being white, (upper) middle class and male. Although the demographics of decision-makers are now beginning to broaden, many of the organisational structures in which these decisions are made constrain the ability for ideas from outside the cultural mind-sets of these groups to have much traction. Additionally, incomes associated with these types of positions mean that where people from other class backgrounds enter these roles, they often become separated from the day to day experiences of those from similar situations, for example believing that if they have 'made good' then this is possible for any and all. However, even when apparently benign, current differences in power have a strong impact on how the future is being written. For example, the power of people like Bill Gates

and Mark Zuckerberg to deploy their wealth in prioritising medical rather than public health research and action determines wider contexts of what a future free from global disease will look like.

Dealing with Inequality

How can we move forward to a more equitable future? From a Marxist perspective, many of the inequalities described above arise from discrepancies in access to and control of capital. Marx saw a potential for automation to relieve the worker from the mindless tasks brought about by the division of labour. 150 years later the very real issue of wide-scale automation offers a mechanism through which to assess class and everyday futures. Incorporating a new economic model that is being posited not as utopian socialism, but rather *Postcapitalism.* Automation is often viewed as the reason for workers losing jobs, zero-hour contracts and a lower standard of living. However, recent work (Mason, 2015; Srnicek and Williams, 2015), highlights how the increase of technology that eliminates aspects of labour may see the future change in a way that is beneficial to those who have till now depended on state welfare and been excluded. Through becoming part of a narrative that views leisure and reduced work as integral to the everyday, the un/underemployed will be able to 'demand the future' and become stronger participants in their own futures, rather than having their lives dictated by the structures of labour that are currently in place. The extreme view is that increased technologies in the workplace will allow for everyone to work less, resulting in what Srnicek and Williams (2015) call 'fully automated luxury communism'. Other views of the future have been put forward that, rather than automating all work, propose a refocusing on work that is less efficient whilst being more fulfilling. For example, Jackson (2011) in *Prosperity Without Growth*, potentially reflecting William Morris' (1885) *Useful Work versus Useless Toil*, suggests a vision of the future where worth and meaning might be seen as something to be obtained through work, rather than as something to be purchased from proceeds of work. This may, however, need to be partly obtained through automation of drudgery.

How automation will be deployed and how the wealth generated from automated processes will be distributed is currently unclear. It is far from certain that automation will be used to create a better everyday for all. The futures described in the works listed above may not be that different from the present, yet they can provide a way for inequalities within wage income and work processes to be considered. Alongside full automation, is the idea of a universal basic income, a concept already being suggested as part of an everyday future in several countries, such as a recent experiment in Utrecht, Holland and a referendum in Switzerland (The Guardian, 2016). Basic income is a guaranteed unconditional amount of money, regardless of employment or social position. Changing economic and social infrastructure in such a way means state welfare becomes something beneficial to all. However, the idea that a person should be entitled to payment for being a citizen of a certain state is controversial, perhaps because those who are already financially stable view a livelihood as something which people have to earn and are not necessarily entitled to. This highlights the importance of developing social and cultural change alongside technological changes.

Futures narratives require an understanding of how inequalities could be changed, culturally, economically and politically. Significant change in current systems may be more likely to occur (at a large level) from the bottom up via revolution than from the top down – indeed Morris clearly saw that the wealthy would not relinquish their power without a struggle. The voices of some who have perceived their influence as being diminished over the last few decades, are now being heard to call an end to the future being "more of the same". These struggles can be seen to be not about what the future will actually be like, but simply about the ability to have a stake in its writing. In recent years social protests and networks dedicated to changing social standings have increased in visibility. For example, the #BlackLivesMatter network (www.blacklivesmatter.com) highlights the ways in which black people are deprived of certain rights by the state and 'intentionally left powerless'. Creating a movement that is both digital (the use of the hashtag in the network's name is demonstrative of its dependence on digital technologies and social media) and physical (through protests), shows how those who have an unequal footing in certain structures are changing their position and getting others to change as well. In order for injustices to be remedied in the future, they must be addressed now. The longer they are left, the more embedded they will become.

Acknowledgements

Tim's participation in the Everyday Futures Network is supported by funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 689289 (ClairCity project) www.ClairCity.eu.

References

Davis, E., 2015. TechGnosis: Myth, magic, and mysticism in the age of information. North Atlantic Books.

Jackson, T., 2011. Prosperity without growth: Economics for a finite planet. Routledge.

Mason, P., 2016. Postcapitalism: A guide to our future. Macmillan.

Morris, W., 1885. Useful work vs. useless toil. *Political Writings of William Morris*, pp.86-108.

Srnicek, N. and Williams, A., 2015. Inventing the future: Postcapitalism and a world without work. Verso Books.

Web References

Gibson, W. (2012) http://quoteinvestigator.com/2012/01/24/future-has-arrived/ [accessed 13/12/2016]

The Guardian (2016) 'State handouts for all? Europe set to pilot universal basic incomes',
https://www.theguardian.com/world/2016/jun/02/state-handouts-for-all-europe-set-to-pilot-universal-basic-incomes [accessed 13/12/2016]

Imagined Futures of Everyday Life in the Circular Economy

Daniel Welch (Sustainable Consumption Institute, University of Manchester, UK) daniel.welch@manchester.ac.uk

Margit Keller (Institute of Social Studies, University of Tartu, Estonia) margit.keller@ut.ee

Giuliana Mandich (Sociology, University of Cagliari, Italy) giulianamandich@gmail.com

Talk of the 'Circular Economy' has grown in recent years. Today it's central to both EU policy and the design philosophy of Jaguar Land Rover. Consulting firm McKinsey estimates it could add $1trillion to the global economy by 2025. Brad Pitt is a devotee.

The Circular Economy is offered as a blueprint for an alternative future to the current linear economy of "make, use, dispose". It's a model for an environmentally sustainable economy, resilient in the face of resource insecurity and ecological crisis. The European Commission recently reframed its commitments to sustainable production and consumption in terms of the concept, and in 2015 published an "action plan for the Circular Economy" (EC 2015). And a number of NGOs and think tanks, notably the Ellen MacArthur Foundation in the UK, have championed the notion.

Projects and visions of collective futures mobilise—sometimes conflicting—understandings of the common good. And they often embody assumptions and implicit models of everyday life—in the case of Circular Economy, crucially, models of consumption. As cultural sociologist Ann Mische puts it, imagined futures play a critical role in "processes of critique, problem-solving, and social intervention" (Mische, 2014: 440). Imagined futures can come to serve as visions guiding public or corporate policy, channel funding (as is very much the case with the Circular Economy at the EU level), have the power to influence technological design, and shape assumptions about how citizens, designers and other professionals engage with future-oriented societal projects. Analysing visions, models and public debate about possible futures is an important task. Imagined futures—whether political utopias, models in public policy or expectations in business planning—pave the roads towards the actual future.

As the Ellen MacArthur Foundation imagine the Circular Economy , the very concept of waste would be eliminated. Resources and materials would circle through the economy on the model of a nutrient cycle in natural ecosystems— 'industrial symbiosis'. Circular Economy draws on an inheritance from the field of 'industrial ecology' and 'cradle-to-cradle' design (Braungart and McDonough, 2002). Even the principle of "efficiency" would be replaced in the Circular Economy. The concept of efficiency carries within it the industrial logic of the coal-powered steam engine—"efficiency" is defined as the ratio of useful output to total input. In the Circular Economy this is replaced by "eco-effectiveness"—as social scientists Jo Mylan and colleagues put it, "highlighting the potentially infinite contribution of materials to the generation of value" (Mylan, et al., 2016: 2). Idealized visions of the Circular Economy are of a new industrial revolution, with products designed for extended lifetimes and with near-infinitely recyclable materials and components forming a zero-waste 'closed-loop'.

So how are ‘everyday futures’ imagined in the Circular Economy? We apply insights from sociology concerning future projections, consumption and conventions of the common good to thinking about Circular Economy from the EU and the national contexts of Estonia, Italy, and the UK.

Circular Economy and the European Union

The level of engagement with the project of Circular Economy varies widely across the EU. In the UK, government has been scaling back work on Circular Economy, as part of a general disengagement from active sustainability policy making. On the other hand, UK think tanks, often in collaboration with business and academia, have been active in promoting the concept. In Estonia, the situation is reversed. On the formal level, government policy is tightly engaged with EU developments, however there is little civil society, academic or media engagement with the concept. Italy is similarly politically engaged, playing a very active role at EU level.

We take as an entry point the observation of Jo Mylan and colleagues (2016) that current models of the Circular Economy fall short in how they understand ‘consumption’ and ‘consumers’. And as they put it, there’s a particular “lack of attention paid to the domestic sphere, an important site and space for the practices which shape how and why consumers use particular products and services, how waste is generated, and ultimately how this might be changed” (Mylan et al, 2014: 2).

Some widespread definitions of the Circular Economy tend to elide the domain of everyday life and consumption, even as the ‘use’ stage remains the central pivot to the entire model, as in this definition from the Ellen MacArthur Foundation:

> "A circular economy keeps products, components and materials at their highest utility and value, at all times, eliminating the concept of waste, with materials ultimately re-entering the economy at end of use as defined, valuable technical or biological nutrients."

Compare here the centrality of “Consumer” and “User” in a widely reproduced graphical representation of the Foundation’s model:

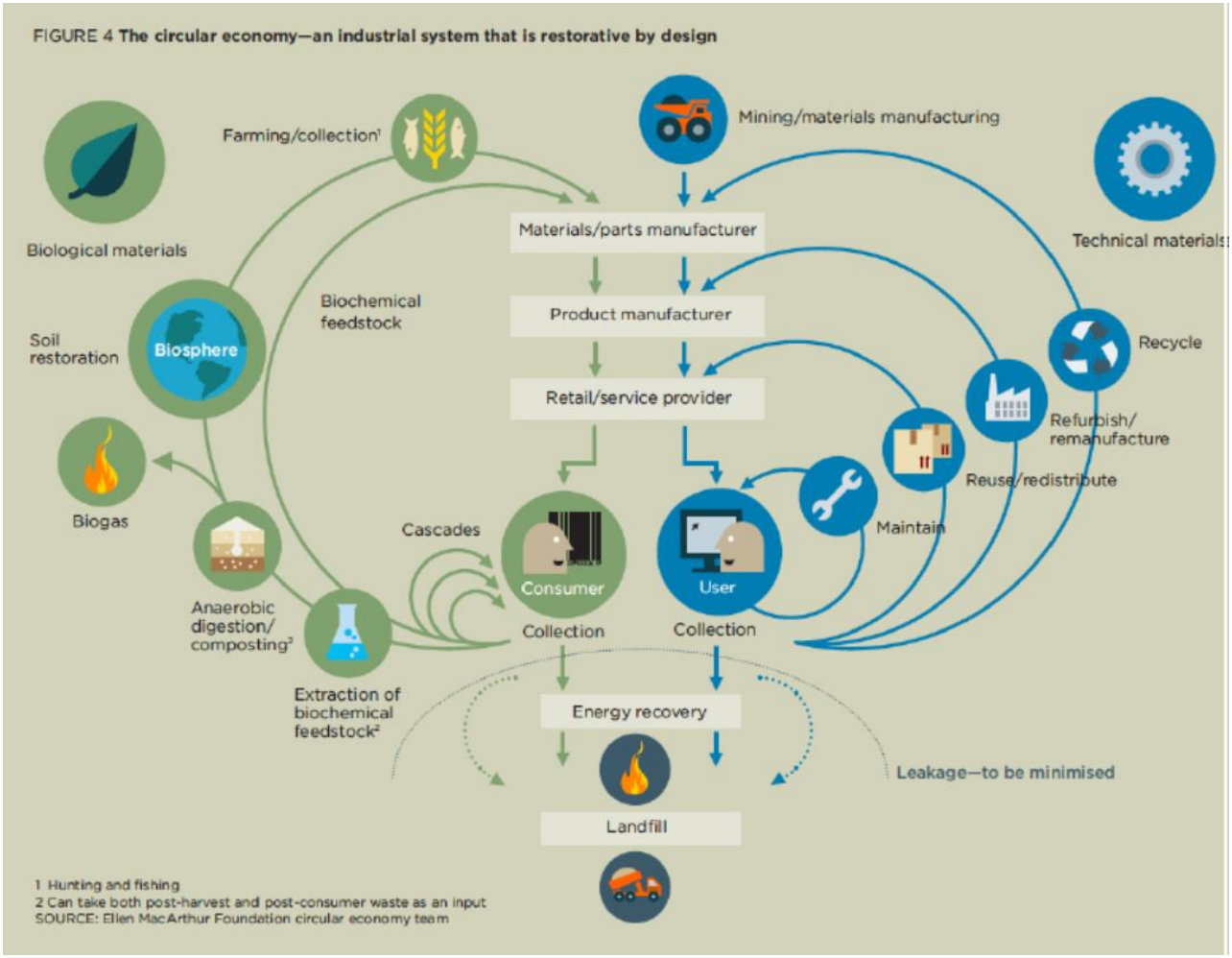

Fig. 1: Ellen MacArthur Foundation model of the Circular Economy

While 'user' and 'consumer' are separate in this graphic, they do not relate to distinct processes, leaving any implied distinction unclear. The centrality of use and consumption is routinely acknowledged in reports and policy statements. An Estonian Government press release rehearses a common pattern in policy documents, welcoming changes to the EU Ecodesign Directive that will "enhance the reparability, durability, and recyclability of products" whilst offering little to nothing in terms of concrete visions of everyday life and forms of consumption in which products will be routinely repaired, not replaced, and recycled. Between the design stage on the one hand and, on the other, the end-of-life (waste management and resource recovery) of 'circular' products, the use stage of products in the Circular Economy and their users are largely absent. Yet, the same press release assumes the role of the consumer in everyday life to be crucial, with the Minister of the Environment stressing that: "Fulfilling the set objectives implies everyone's contribution [including] reasonable and conscious behaviour of individuals [which] reduces needless consumption" (ibid). Typically for political discourse on environmental sustainability, the consumer here is portrayed almost in caricature as a rational agent—'homo economicus'. At the same time, however, the consumer's assumed engagement with the project of Circular Economy implies a strong motivational commitment towards radically changed norms and practices of consumption. And yet any context in which those changes might be assumed to take place is entirely unexplored.

Consumption does feature within the EU Action Plan (EC 2015). However, here again we note the restrictive, individualised model through which consumption is framed. The action plan section on "Consumption" begins:

> "The choices made by millions of consumers can support or hamper the circular economy. These choices are shaped by the information to which consumers have access, the range and prices of existing products, and the regulatory framework." (EC 2015: 6)

And proceeds to largely rehearse the conventional tools through which sustainable consumption policy has been framed by the EU since its outset: eco-labelling, price incentives, household waste reduction and recycling. Social scientific scholarship on consumption has come to reject this overly-individualised model (see Warde and Southerton, 2012). Instead, consumption has come to be understood as individual performances of everyday, *social* practices—like driving, cooking, parenting, playing sports and so on.

This social practice oriented understanding of consumption alters the position and nature of the consumer. Firstly, against mainstream understandings of consumption—reflected in the examples above— in which the consumer is characterised as rational, utility-maximising 'homo economicus', the contemporary practice approach to consumption stresses the habitual, embodied and unreflective aspects of consumption. Secondly, the figure of 'the consumer' is decentred from accounts of consumption, which foreground rather dynamic relations between practices—such as for example how eating practices are conditioned by the temporal rhythms and spatial locations of work practices.

In other words, current models of Circular Economy tend to naively construe the changes in patterns of consumption necessary for achieving the large-scale social and technological change they presuppose as shifts in individual consumption choices understood as "conscious behaviour". They import the figure of 'the consumer—with all its baggage—into the 'use' phase of the model. A social scientifically informed account, by contrast, underscores the need to attend to transformations in dynamically related social practices and the technologies with which they are intertwined (see Mylan et al. 2016). Consumption in social practice theory is expanded beyond acquisition to refer to a 'moment' in almost all social practices, in which goods or services are involved (Warde, 2005). From a sustainability point of view we can understand this moment as the consumption of energy and resources.

Circular Economy as a New Model of Consumption

The EU Action Plan does note "innovative forms of consumption" (EC 2015: 7) as supporting the development of the Circular Economy and thus gestures towards imagined novel practices of consumption. Here the Action Plan rehearses a common collection of elements: "sharing products or infrastructure (collaborative economy), consuming services rather than products, or using IT or digital platforms" (ibid.). It recognizes that moving to a circular economy will require changes in how people consume products and services. Business and think tank discourse on the Circular Economy tends to frame the future of everyday life in terms of radical change, "profound transformational opportunity" as the Ellen MacArthur Foundation puts it (EMF 2013), conceived largely through the disruptive effects of digital technologies, ubiquitous computing, 'big data' and social media, and the reconfiguration of consumption and work practices that these trends produce. And note, this places a major responsibility on the HCI research and design community. "Collaborative consumption" and models of "product-service systems" are routinely invoked here, suggesting a profound shift away from private ownership of products to a new service model of provision. The Ellen MacArthur Foundation describes this as:

> "A new model of collaborative consumerism —in which consumers embrace services that enable them to access products on demand rather than owning them—and collaborative

> consumption models that provide more interaction between consumers, retailers, and manufacturers." (EMF 2013: 10)

This imagined "collaborative consumerism" is also a more community-based and localised economy, in some of its circuits at least. What is imagined here is a future of consumption that embraces not only novel business models and consumption practices, but novel norms of consumption and emotional and motivational engagements in consumption as well.
We note here how Circular Economy discourse conflates with the problematic framing of the "Sharing Economy". Both draw on quite distinct existing elements projected into an imagined future of consumption transformed—grass roots projects such as novel digital platforms to share goods and services (such as Freecycle and Streetbank) on the one hand, and 'disruptive' capitalist enterprises such as Uber and AirBnB on the other.

In so doing such models of Circular or Sharing Economy obscure the deeply conflicting orientations that these different elements manifest. Imagined futures such as "collaborative consumerism" tend to be projected from deeply contradictory trends— intensifications of commercialisation (such as AirBnB) on the one hand, and trends of de-commercialisation, such as digital platforms enabling sharing (such as Streetbank) on the other. As such, they downplay conflict between these orientations, and ignore the very different forms of moral justification they draw upon.

Orders of Worth

Cultural analysis alerts us to different "orders of worth" (Boltanski and Thevenot, 2006), or different conventional values that are drawn upon to justify courses of action—such as organizational change, or, as in Circular Economy, the future orientation of society as a whole. Such orders of worth draw upon distinctive understandings. Thus, the market order of worth seeks justification through understandings of profit maximization and competition. The industrial order draws upon notions of productivity, efficiency and instrumentality. The ecological order of worth, by contrast, draws upon notion of sustainability, conservation and natural limits. Such orders may complement one another relatively unproblematically—but they may also conflict.

Notable in the EU Action Plan's "Consumption" section (EC 2015) is the absence of general statements of value or morally-framed calls to action, the effect of which is to frame the domain of consumption within default market and industrial orders of worth. Notable, then, is not only the absence of an ecological order of worth, but any gesture beyond the model of industrial efficiency towards "eco-effectiveness" through which the Circular Economy claims to distinguish itself (Mylan et al., 2016).

Justification processes in official government texts are generally not very elaborate, drawing upon taken for granted, naturalised key-words, such as "sustainable" and "competitive". In our Estonian example the ecological, industrial and market orders of worth are all invoked, adjectives signalling different orders are placed side by side, eliminating conflict between them, and normalising an imagined future that sets competition, efficiency and ecological sustainability in harmony:

> "Estonia supports most of the measures in the Circular Economy Package of the European Commission, which aim to promote the growth of competitive and sustainable economy in the European Union by increasing more effective and sustainable implementation of resources within the entire product value chain."

We note here that while such collisions of the market and ecological orders may signal contradiction and conflict, some management theorists argue such dissonance may act as a form of "strategic ambiguity" which enables very different constituencies, say corporations and green NGOs, to work

together without having to resolve fundamental differences. This noted, it is unclear what the relationship is between the kinds of circularity in the Circular Economy that maximise profits and the kinds of circularity maximising environmental benefits. Whether this is a fundamental contradiction or a productive “strategic ambiguity” only time will tell.

Ann Mische (2014) suggests that narrative and even grammar in documents suggests how different groups understand social and technological change. In our final example, an Italian Environment Ministry document, we note how there is almost no rhetorical extension toward the future. In other words, the necessary long term future orientation of an ecological order of worth is missing. The word future very rarely appears, the present tense is prevalent and future-characterizing nouns (such as aspirations, challenge, progress, vision etc.) are noticeable by their absence. What seems to be at stake is more the short-term destiny of the Italian economy than the long-term environmental future. The transition to a Circular Economy is presented as a resource for improving the competitiveness of the Italian economic system:

> "Here is an entrepreneurship that believes in Italy and in Europe, which knows to bet on an innovation environment, now a decisive element for competitiveness in the global market. [And which] serves to project ourselves in the only possible future, the circular economy and sustainable development as the cornerstone of doing business.”

In our Italian example we find the market order of worth the primary frame, with the ecological frame little more than a new marketing strategy for Italian economic competitiveness.

Conclusions

In this article we show how resources from social science and cultural analysis can help us analyse imagined futures. Imagined futures do not lie over the temporal horizon. They are very much in the here and now. They condition our imaginative relation to the future, and how we understand social and technological change—the future projections of our societies. In doing so they have very real effects—in terms, for example, of the allocation of resources, political attention and professional expertise, and of individuals’ capacity to imaginatively project themselves into wider social programmes. And imagined futures contribute to path dependencies—roads left untrodden and possibilities unimagined on the one hand, and avenues opened up, and novel routes taken on the other.

We’ve seen how the imagined futures of the Circular Economy often elide everyday life, even whilst acknowledging the centrality of consumption to the model. More expansive imaginaries of everyday futures posit radically changed forms of consumption, such as “collaborative consumerism”. But these imagined everyday futures assume norms and patterns of consumption transformed, whilst offering little by way of projected context which might show how such changes will come about. On top of this, they draw on potentially fundamentally incompatible justifications, or orders of worth.

We live in times of a widely acknowledged crisis of political imagination, a crisis in the imagined futures of social democracy and capitalism, often characterised as a collective failure to imaginatively project progressive social and technological change. In that context, engaging critically with imagined futures of everyday life is crucial work, not least for those working to materialize them into new technologies. In this article we illustrate how theoretic 'tools' from cultural and social theory might be of help in this pursuit.

References

Boltanski, L. and Thévenot, L. (2006) On Justification: Economies of Worth. Princeton and Oxford: Princeton University Press

Braungart, M. and McDonough, W. (2002) Cradle to Cradle: Remaking the Way We Make Things London: Vintage Books

Mische, A. (2014) "Measuring futures in action: projective grammars in the Rio+20 debates" Theory and Society 43:437–464

Mylan, J., Holmes, H, and Paddock, J. (2016) "Re-Introducing Consumption to the 'Circular Economy': A Sociotechnical Analysis of Domestic Food Provisioning" Sustainability 8, 794

Warde, A. (2005) "Consumption and Theories of Practice" Journal of Consumer Culture 5 (2), pp. 131-153

Warde, A. and Southerton, D. (eds.) *The Habits of Consumption.* COLLeGIUM: Studies across Disciplines in the Humanities and Social Sciences vol 12. https://helda.helsinki.fi/handle/10138/34215

Web References

*EC (2015) Closing the Loop—An EU Action Plan for the Circular Economy. European Commission (COM614) http://ec.europa.eu/environment/circular-economy/index_en.htm

*EMF (2013) "Towards the Circular Economy: Opportunities for the consumer goods sector " Ellen MacArthur Foundation, Report 2

www.ellenmacarthurfoundation.org/assets/downloads/publications/TCE_Report-2013.pdf

Future-making as collective composition: towards an inclusive design of smart cities

Maureen Meadows (Coventry University, Coventry, United Kingdom)
Maureen.meadows@coventry.ac.uk

Matthijs Kouw (Rathenau Instituut, The Hague, Netherlands) m.kouw@rathenau.nl

Introduction: smart cities and the need for a visioning methodology

It is becoming more and more difficult to avoid the notion of the 'smart city'. In the discussions surrounding it, an optimistic and firm belief in the ability of 'smart' technologies drives efforts to enable efficient governance of urban public spaces, energy flows, and mobility patterns by such technologies. City officials and industrial actors around the world have joined forces to promote the endless possibilities of smart technologies in world expos, demonstration cities and smart city partnerships. The desire to design and construct smart cities is driven by an optimistic view of smart technologies, which is used as a catch-all term to refer to various information and communication technologies (ICTs), such as sensors, facilities processing 'big' data, wearable technologies, and autonomous vehicles. Implementing smart technologies, it is argued, will lead to more innovative and sustainable cities, and dramatically improve urban life through greener living spaces, more democratic modes of governance, and better health.

This 'techno-optimism' that accompanies smart cities and smart technologies is increasingly criticised by urban social science scholars, who highlight risks such as increased private control over public spaces and the neglect of participation and engagement of civil society in formal decision making processes (Kitchin, 2014). Smart cities, some argue, is the trend *du jour* in top-down and technocratic approaches to urban planning that ignore the complexity and dynamics of everyday city life, and downplay social, entrepreneurial and community aspects of liveable and resilient cities. Those involved with the design of smart cities disagree about what a smart city is or should be, and diverging designs of future smart cities are proposed as the best way forward. This multiplicity of designs can render public debates about smart cities opaque and may even obscure the interests at play. We suggest that wide and effective stakeholder engagement is a key criterion when generating and debating a plurality of visions around what a future smart city might be.

Following Throgmorton's (1996, xxi) idea that urban planning is "persuasive storytelling within a web of relationships", future visions of smart cities can be aligned with governmental and commercial attempts to provide better lives for citizens through new and improved urban designs. In line with the aforementioned critiques advanced by urban social science scholars, we wish to develop an inclusive methodology for developing future visions of cities. We adopt Throgmorton's (1996) idea of urban planning as persuasive storytelling, but argue that the stories told need to be developed in collaboration with a variety of social groups. Thus, techno-optimism can be side-stepped in favour of an inclusive methodology that fosters a plurality of perspectives. Such a plurality of perspectives is needed to unleash the power of smart cities to confront the urban challenges of the future. It is not our aim to push technology aside carelessly, informed by Luddite angst or a romantic longing for times supposedly untainted by technological mediation. Rather, we frame technology as both a technical and profoundly social phenomenon that should be intertwined with the interests and perspectives of social groups affected by technological innovation.

In developing the methodology, we draw on the work of Checkland and Holwell (1997), who propose that any research may be thought of as entailing the following elements: a framework of ideas (F), which are used in a methodology (M) to investigate an area of concern (A) (see Figure 1).

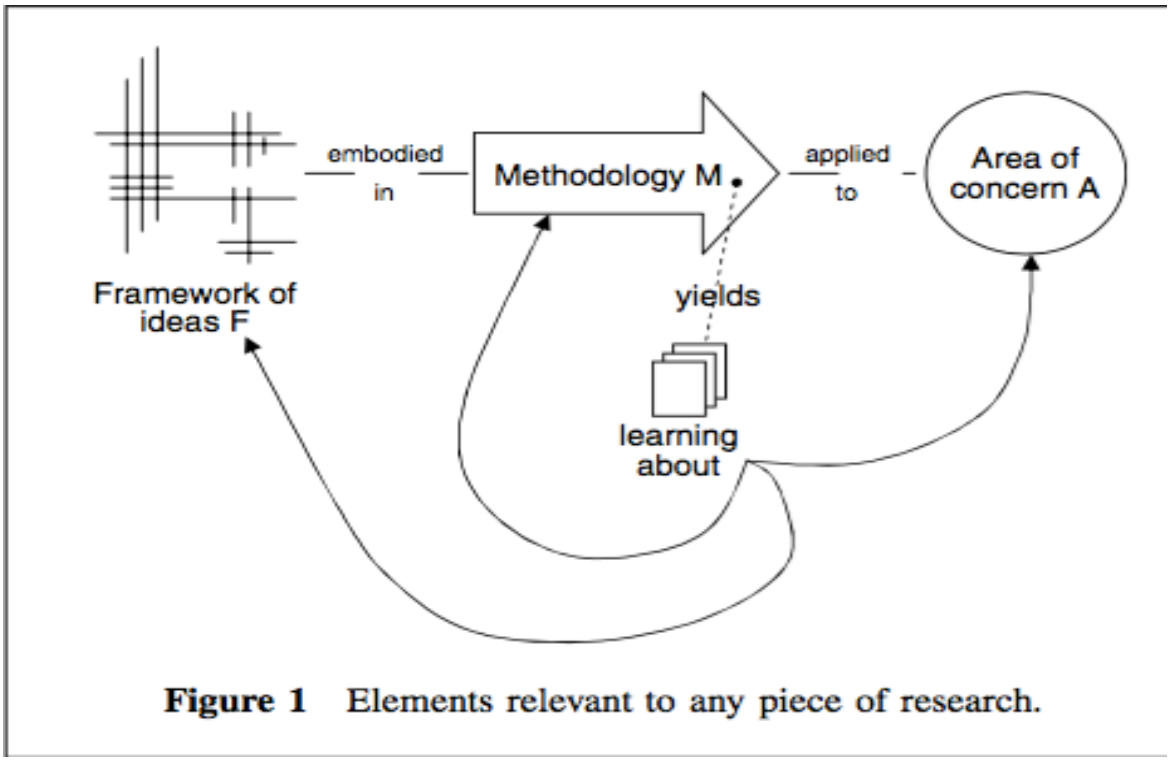

Figure 1 Elements relevant to any piece of research.

[Source: based on Checkland and Holwell, 1997; reproduced in O'Brien and Meadows, 2007]

The 'methodology' M is our proposed visioning methodology, which will be applied to A, our 'area of concern' which is to devise an effective, participative and creative process for situations where a plurality of values may be desirable. The 'framework of ideas', F, is a set of concepts which are introduced below. These include visions and visioning, multiple perspectives on the future, involvement and participation, and alternative futures.

In deciding what to include in the framework of ideas, we are influenced by the need to explore a desirable future, while taking into account the opportunities, *and challenges* presented by the growing role of digital data, i.e., the availability of 'big data', the permeation of ICTs in the urban environment, the dissolution of the homogenous geographical entity of 'the city' and the increasing intertwining of cities with digital environments, etc.. Data-driven forms of urbanism that result from the intertwining of ICTs with the urban environment have become a global phenomenon, and have established the idea of cities as 'knowable' and 'controllable' environments. As a result, the operational governance of city services is becoming highly responsive to a form of networked urbanism in which big data systems prefigure and set the urban agenda, persistently driven by the promise of smart people, governance, mobility, sustainability, and cutting-edge innovation. Thus, the development of data-driven smart cities is primarily focused on technological promise, which may be at odds with broader societal concerns.

We respond to the challenges of integrating these broader societal concerns in designing smart cities by developing a framework for assessing the inclusivity of future-making. We take the visioning literature as a starting point. The complexity of a case study situation, such as a 'digital vision' for a city, clearly raises the issue of the existence of multiple stakeholder groups who may not be able to come together in a single workshop setting. Hence, creative approaches to encouraging stakeholder

engagement are required. Another key component of the framework of ideas is that of participation in the process, particularly in the context of identifying who should be involved and how to involve them in visioning. The relationship between scenario planning (a widely used approach to making flexible long term plans and robust strategic decisions) and visioning has been discussed in the management literature; thus the framework of ideas may consider how this literature might influence the design of the methodology.

Visioning: a short summary

While there are numerous examples of vision and visioning in practice in the business and management literature, no consensus has been reached around the definition of these terms. Many definitions emphasize the core concept of a vision as a preferred path or destination consciously chosen by an individual or group of individuals, which they can work towards achieving. Another way to consider them is as providing guidance about what core to preserve and what future to stimulate progress towards.

Workable, winning visions do not just happen; they crucially depend on the vision development process itself. Moreover, if the vision is to produce results, it must be widely understood and enthusiastically embraced throughout the organisation. So what are the key issues in establishing a successful visioning process? Important questions include the type and sequence of steps to follow; who should be involved and how to involve them; whether to consider single or multiple visions of the future; and how to encourage creativity within the process.

There are many recommended methods for vision development, which tend to differ in the sequence of steps they promote, but show general agreement on the content of the process as involving the following fundamental steps:

1. Identification of stakeholders

2. Analysis of the organisation's current situation

3. Identification of a desired future vision

4. Comparison of the future vision with the current situation

5. Development of action plans

Visioning processes are often run with one or more representatives of different stakeholder groups, typically during a one-off workshop or event. The group analyses the present situation, and then goes on to develop a single shared vision of the future. This shared vision is contrasted with the current situation in order to develop action plans to take the organisation from the present to the future. In the design of future visions, these five steps can be considered as building blocks that help characterize the process.

Multiple perspectives: participation and stakeholder involvement

Successful visions must appeal to people, and inspire them to work towards the realisation of the vision. However, for this to happen, the visions must be widely understood and embraced. Another key issue, then, is the *involvement and participation* of the relevant stakeholders. Participation has multiple benefits; it provides those involved with a valuable opportunity to learn; it increases their

commitment to action to realise the goals that have been articulated; and it enhances the implementability of the plans that emerge. Moreover, the more diverse the experiences of the participants, the more robust the set of visions they create.

Identifying who should be involved in the process is clearly important, as is the issue of how to involve them. Stakeholders can be defined as persons or groups that impact on, or are impacted on by the organisation. It would seem logical therefore that key stakeholders should be invited to participate in the process. It is important, via stakeholder analysis, to identify stakeholders who will, or can be persuaded to, *support* actively the strategic intent of the organisation, as well as those who will seek to *sabotage* the successful management of strategic intent. This reflects the notion that there may be important differences between stakeholders that benefit from the organisation's strategic intent and those that are negatively affected by it.

Next, we consider how different types of 'future' can be classified and whether it is desirable to consider more than one view of the future.

Collective composition: scenarios and the CHOICES approach

Ducot and Lubben (1980) provide a classification of different types of possible future, which they term scenario. The most common type of scenario is classed as descriptive and exploratory, and is often used in the assessment of future uncertainties concerning an organisation's external environment. Such scenarios typically have an external orientation in relation to the organisation, and are based on people's assessment of factual information. They are most often presented as sets of alternative views of the future external environment against which an organisation should develop a robust set of plans (in contrast to the practice of visioning, where a single vision of the future is usually produced).

O'Brien and Meadows (1998) draw a distinction between *strategic planning* scenarios and *visioning* scenarios. The latter, in contrast to the former, are focused on the internal environment of the organisation and on issues over which the organisation has control. According to Ducot and Lubben's typology mentioned above, they are exploratory, and also normative, meaning 'subjective' or values-laden as they are intended to address the deep concerns of participating stakeholders. Indeed, visioning scenarios are developed from the initial viewpoints of the stakeholders, in such a way that each scenario represents a contrasting and strongly held perspective on the issues under consideration. The intention is not necessarily that a particular visioning scenario is chosen as 'the way forward'. Rather, the set of visioning scenarios can act as a vehicle to promote informed debate. For instance, attention could be drawn to the possible trade-offs that might exist between different, often difficult, choices.

A further but related distinction between strategic planning scenarios and visioning scenarios is the location of control (O'Brien and Meadows, 2007). Strategic planning scenarios describe future possible external environments that are largely out of the control of the organisation, whereas visioning scenarios describe possible future states of the organisation itself. Future research should reflect the difference between visioning for a single organization (e.g. as part of the strategic planning for a private business) and visioning for a city with its plethora of stakeholders and driving forces that have the potential to shape its future. We suggest that the scenario planning literature can assist us in developing visioning. First, it insists upon the explicit consideration of multiple views of the future; looking forward from any point in time, multiple possible futures exist, not just one. Second, the use of participation is key to the process of developing the scenarios; scenario development is a process of creating a shared language and understanding of future issues.

We argue that it is desirable to consider different potential visions of the future as part of a participative journey towards creating a shared vision of the future. When involving multiple stakeholder groups, it is important to acknowledge that each group may be concerned about a different set of issues and hold a different and possibly conflicting set of values that could influence their choice of a preferred future. Put simply, each stakeholder group may have their own preferred vision for the future. When stakeholder groups are involved in developing and advancing visions for the future, they end up in a process of collective composition – a term we use to describe the process by which a plurality of social groups construct a vision of the future.

O'Brien and Meadows (1998) describe the CHOICES approach to a public discourse project which develops and uses visioning scenarios as part of a participative journey toward creating a shared vision of the future. Table 1 shows the six phases of the CHOICES approach and outlines the key tasks and activities that are conducted during each phase. We propose this approach as a useful basis for future methodological developments.

Phase	**Key Tasks**	**Example actions from "Choices for Bristol" (see O'Brien and Meadows, 1998)**
Project definition	Establish project team, and identify drivers of need for change	Steering group formed, funding proposal developed
Issue Exploration	Identify concerns of representative stakeholders	Focus groups held, seeking to involve a diverse group of participants
Preparing discussion materials	Project team to produce a set of discussion materials containing a brief history of the organization and a summary of the current key issues and concerns, representing different stakeholder perspectives; an overview of the project process with timescales; a set of visioning scenarios, each describing a future nature or state of the organization from a contrasting perspective.	Discussion materials prepared and checked/tested, including a set of questions to form the basis of planned conversations about the future of the city
Dialogue and idea generation	Disseminate and promote dialogue using the discussion materials. Generate ideas for action arising from discussion materials	Discussion materials disseminated via a local newspaper, and in a targeted way by the project team
Producing the vision	Analyze and consolidate ideas for action. Encourage participation in developing a vision	Over 2000 ideas for action fed into public meetings were six broad statements were generated

Planning for action	Commitment to action	Booklet published and distributed; follow-up meetings held

Table 1: Summary of the CHOICES approach (adapted from O'Brien and Meadows, 1998, 2007)

In conclusion, we have set out above criteria and some resources for the development of a visioning methodology that is appropriate for addressing challenging questions such as the future of a city. In setting an agenda for future work, we emphasise the need for a visioning methodology that addresses the challenge of including broader societal concerns in such situations, and draws on a wide range of stakeholders, while allowing for the possibility of multiple visions of the future. When this plurality of perspectives is included in telling the story of future smart cities, collective composition becomes possible. It is our hope that this ideal of collective composition will become to benchmark for developing the smart cities of the future.

References

Checkland, P. and Holwell, S. (1997). *Information, Systems and Information Systems*. Wiley: Chichester.

Ducot, C. and Lubben, G.J. (1980). A typology for scenarios. *Futures* **12**: 51–57.

Kitchin, Rob. (2014). *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences*. London: SAGE Publications.

O'Brien, F.A. and Meadows, M (1998). Future visioning: a case study of a scenario based approach. In: Dyson RG and O'Brien FA (eds). *Strategic Development: Methods and Models*. Wiley: Chichester. pp 39–54.

O'Brien, F.A. and Meadows, M. (2007) Developing a visioning methodology: Visioning Choices for the future of operational research. *Journal of the Operational Research Society* (2007) **58,** 557–575.

Throgmorton, J.A. (1996). *Planning as Persuasive Storytelling: The rhetorical construction of Chicago's electric future*. Chicago: University of Chicago Press.