5   Public reasoning in "post-truth" times

Technoscientific imaginaries of "smart" futures

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Introduction: public knowledge-making during "post-truth" interregnum

There is currently an abundance of descriptions of our time as one of "post-truth", a state in which previously firm ideas about the status of (scientific) facts, public truth, and authority are contested, often associated with the Trump presidency and the Brexit vote in 2016. This gives cause for reflection upon the ways in which societies arrive at publicly accepted truths, as well as how previously well-established public fact-making processes are currently being reconfigured. In this chapter, we look at how previously unifying "social imaginaries" (Castoriadis 1975; Taylor 2004) of progress and modernity are weakened and even dissolved in contemporary "post-truth" times, with alternative compelling logics competing to fill spaces that are now open for transformation. We examine this fragmentation and on-going transformation of public reason through the case of technoscientific imaginaries of "smart", a label that has become increasingly prominent in areas as diverse as energy management, urban development, and healthcare in the past decade. We explore the type of shared social order that modernity's legitimate truths provided, including who benefits from such order and, conversely, from disorder. As implicated by the argument of Wynne (this volume), if public acceptance of rational scientific truths as formative elements of social order is based in quietude, rather than support, this authoritative truth can be as great a threat to a healthy democracy as can post-truth scepticism. Can this critical moment of "post-truth" provide an opportunity to debunk, or perhaps replace, some of the previously shared imaginaries of modernity? And if so, what are we left with? We discuss the ways in which emerging logics and justifications based on technical and economic rationality, such as those developed around "smart" technologies, might normatively reduce the space for democratic engagement, for instance through specific framings of publics (Welsh & Wynne 2013; Wynne, this volume). However, the argument could also be made that "smart" technological developments might entail increased democratisation, for instance, due to a proliferation of open data platforms and programmes enabling new

spaces for mediation and collective deliberation (Townsend 2013; Barns 2016). We discuss whether current "post-truth" reconfigurations could tip the scales towards an opening up of decision-making processes, or if such transformation are just resulting in new ways of "closing down".

In modern times, the openness to critique that characterises democratic societies has entailed, at least in principle, that truth claims can continually be subject to contestation, engagement, and negotiations by various publics and institutions. This has enabled a social order embedded in processes of public reasoning and fact-making, oftentimes informed by science, arriving at truths that are considered legitimate and thus accepted by citizens (Jasanoff 2012). In this view, public truths are collective achievements, presupposing the existence of a public space that allows for processes of deliberation about multiple and sometimes contradictory views, values, and interests. Certain critical moments, however, may be characterised as "times of interregnum" (Bauman 2012); a term that Gramsci (1971), in his Prison Notebooks written in the early 1930s, used for extraordinary situations in which the extant legal frame or social order loses its grip, while a new frame that fits the newly emerged conditions has not yet been assembled or is not strong enough to be put in its place. When "the old is dying and the new cannot be born" (Gramsci 1971 p. 276), previously established hegemonic discourses of science and public truths in society may be challenged and potentially reconfigured. Arguably, the contemporary "post-truth" times can be considered such a critical moment.

The current "post-truth" interregnum includes ongoing discussions about the reliability of public knowledge and scientific "facts". Importantly, however, this is not our first "post-truth" rodeo: Public debates questioning the reliability, value, or epistemic authority of science seem to be a recurring phenomenon. Robert Merton (1938), for instance, described a situation with striking similarities to some of our contemporary anxieties:

> Forty-three years ago, Max Weber observed that 'the belief in the value of scientific truth is not derived from nature but is a product of definite cultures.' We may now add: and this belief is readily transmuted into doubt or disbelief.
>
> (p. 321)

Insights from history, sociology, philosophy, and science and technology studies (STS) may guide us in making sense of the ways in which claims become accepted as settled "truths" (see also Latour 1999). Examples include Fleck's (1979) reflections on how facts are not facts until they have gained acceptance in a community of belief, and Haraway's (1991) observation that claims of truth always come from situated positions, from *somewhere*. Following this, any claim of "absolute" or "objective" truth that appears seemingly "from nowhere" is always contestable, and such a claim achieves relevance only when someone harnesses it efficiently. Based on

such insights, the relevant question in governance contexts is thus perhaps not so much *what is <u>true</u>,* but rather *which truths*, or *whose reality gets to guide political and normative action?*

During times of interregnum, various compelling logics compete to fill the spaces that are open for transformation, and in this process, what Gramsci described as "morbid symptoms" might appear (1971, p. 276). Contemporary "morbid symptoms" seem to include, for instance, the ways in which current populist political rhetoric seem to contribute to the legitimation of authoritarian ideas, as well as the normalisation of anti-immigrant or white nationalist discourses.[1] This shows that there might be good reason to pay attention to reconfigurations taking place during times of interregnum, as history has also taught us. Discussions of mass deception under totalitarian regimes, for instance in Hannah Arendt's well-known essay "Truth and Politics" (1968), serve as a reminder that during interregnums such as our "post-truth" time, we should not just be concerned about truth and falsehood, or about the creation of worlds of "alternative facts" (as famously stated by U.S. Counselor Kellyanne Conway in 2017 regarding the attendance numbers of Trump's inauguration); we should also pay attention to the ways in which such mass manipulation of facts by political leaders might potentially change entire political systems and "the sense by which we take our bearings in the real world" (Arendt 1968, p. 568). As illustrated in Huxley's *Brave New World* (1932; see Durant, this volume), an overflow of information and "alternative facts'" can become boundless and meet little resistance from increasingly passive publics, and as such, may be an efficient tool for suppression and influence.

Yet, although "post-truth" seems to be a recurring phenomenon, certain aspects of our current interregnum are arguably new, or have at least *intensified*. Following Pellizzoni (2017), we apply the Foucauldian concept of *intensification* to capture "shifts which are difficult to grasp, because things look similar, yet also different to what they used to be" (p. 212). The shift away from widely shared ideas about legitimate knowledge or "truth" has happened gradually, arguably in relation to a technological explosion and new media of communication. Post-truth is often associated with social media platforms, which on the one hand could potentially support citizen empowerment and democratisation, for instance, by enabling easier organisation of social movements or civil protests. However, on the other hand such platforms might also be seen as "truthless" public spheres (Marres 2018), constituting highly efficient tools for manipulating opinion through targeting and persuading specific publics. The development towards tailored news feeds, and the increased mobility and circulation of user-generated truth claims based on social media algorithms, could potentially lead to a weakening of shared public spaces for deliberation, including a reduction of possibilities for public "fact-making". These contemporary technology-intensive developments might thus entail "grave consequences for public life" (Postman 1985, p. 24; see Durant, this volume), beyond what classic accounts such as Anderson's (1991)

theorisation of "print capitalism" or Postman's (1985) descriptions of the rise of a television-based epistemology may account for.

The acknowledgement that broad social imaginaries are no longer (and perhaps never were) "collective" or shared by everyone (Massey 1991; Appadurai 1996) potentially brings opportunities for increased understanding of situated realities. However, the present fragmented situation seems to be accompanied by the emergence of new forms of decontextualised and almost universalist logics. Across complex and fragmented contexts, diverse actors are mobilised and enrolled in networks through unsituated circulating "truths" that efficiently close down alternative future imaginations. In this chapter, we examine the example of promissory futures of "smart" technologies, underpinned by logics of neoliberal technoscience, which at present are gaining traction through post-truth conditions of disorder. We argue that such imaginaries achieve legitimacy through a ubiquitous presence an emphasis on technological development, where the lack of situated perspectives constitutes a type of strategic fuzziness, allowing for seemingly "post-political" urban governance (Mouffe 2005; Swyngedouw 2007).

In what follows, we outline some relevant theoretical concepts for understanding this move from the presumed shared imaginaries of modernity to our present situation of competing realities and the intensification of technoscientific logics. We present a critique of "smart" imaginaries in the domains of energy and urban development, through an analysis of *logics of "smart"*[2], examining how technoscientific imaginaries may serve to mutually order different worlds in contemporary society. They thus become "key providers of public meanings and policies" (Rommetveit & Wynne 2017, p. 133), enticing a wide variety of actors into innovation and collaboration aimed at large-scale infrastructural and technological developments. Lastly, we discuss the ways in which such logics normatively reduce the space for democratic engagement through the construction of "imagined publics" (Welsh & Wynne 2013), but also point to some ways in which these trends might be turned, to potentially open up new spaces for public reasoning and deliberation.

Competing realities within public reasoning

From shared imaginaries to competing realities

With the modern emphasis on grand narratives, shared imaginaries were acknowledged as key to progress. The idea of a shared social imaginary goes back to Castoriadis (1975), and was further developed through Taylor's (2004) analysis of how collective imaginations relate to the development of modernity. Emphasising the role of the social imaginary in the hermeneutics of everyday life, Taylor describes this as "that common understanding that makes possible common practices and a widely shared sense of legitimacy" (p. 23). A shared social imaginary enables us to have a sense of what

to expect of each other, to carry out collective practices that make up social life and feel that we belong to certain "imagined communities" (Anderson 1991). In short, it is "the way our contemporaries imagine the societies they inhabit and sustain" (Taylor 2004, p. 6). Such understandings are both factual and normative, and hence closely linked to what Taylor sees as an underlying moral order: Our sense of how things usually function (related to our collective social practices) is interwoven with our background understanding of how things *ought* to be, and of what missteps would invalidate the practice. Our social imaginary can change, according to Taylor (2004), as a new moral order slowly penetrates and transforms the social imaginary through a change in our social practices.[3] This shift can be seen as a process of intensification (Pellizzoni 2017), with gradual, rather than abrupt changes. However, Taylor also emphasises that people need to be able to connect the transformed practices to new principles and form a new, viable social imaginary. If people are expelled from their old forms before they can find their feet in the new structures, for instance, due to war, revolution, or rapid economic change; breakdown or, in Gramsci's terms, "interregnum" may occur.

Contemporary society seems to have lost the binding force these collective social imaginaries provided. Bauman (2000) calls this *liquid modernity*: times characterised by temporality, constant movement, accelerating flexibility and change; in social relations, identities, and institutions. In short, a situation in which "change is the only permanence and uncertainty the only certainty" (p. 9). In other words, modernity has failed to rationalise the world, and we face times in which facts seem dependent on context, problems are often too complex to have scientific solutions, and the anxiety this uncertainty causes is exacerbated through politics of fear (Furedi 2005; Bauman 2006). The technological explosion of the past century leading up to our current information society facilitated a new intensity in the sharing of opinions and ideas across vast geographical distances. Thus, people today may live in deeply perspectival "imagined worlds" (Appadurai 1996), and not just imagined communities (Anderson 1991), as part of groups, networks, or movements that in our digital age can be deterritorialised, even having a global range, yet have little contact with other socio-political constellations. This is another way of describing the post-truth society: truth is no longer considered universal (or at least, universal truths are not considered available to us, in an argument that abounds with Nietzsche's nihilist early thought). Truths, in the plural, become fluidly resistant to objections from outside an imagined world, as the preconditions for the truths are internal to that world.

An intensification of technoscientific logics

Jasanoff and Kim (2009) link Taylor's notion of social imaginaries to modernity's grand aspirations with science and technology. They argue that science and technology can be seen as key sites for the constitution of

modern social imaginaries, coining the concept "sociotechnical imaginaries". Jasanoff describes this as: "collectively held, institutionally stabilised, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Jasanoff 2015, p. 4). Future imaginaries of technoscience are seemingly concerned with the realisation of technical wishes, potential, or possibilities; with what could exist and how to make it exist. Yet, they also carry implicit ideas about what kind of society is needed to allow for the imagined-possible future of a specific technological potential to become realised. The concept of sociotechnical imaginaries thus helps us elicit the underlying values and normative understandings within such imaginaries, for instance regarding what is considered to be "desirable", what constitutes "public good", or what it means to be a "good citizen". This brings a sensitivity to power structures, less present in Taylor's account, which is useful for understanding why some imagined futures become dominant at the expense of others or the extent to which such imagined futures are performative.

Importantly, technoscientific logics are not dedicated to a traditional Enlightenment ideal of "truth-seeking", but rather to "the acquisition of basic capabilities of visualisation, manipulation, modelling and control" (Nordmann 2010, pp. 7–8). The technosciences engage in engineering practices of creating prototypes and devices that do not call for truth questions, but for questions about *whether an artefact works*. Theoretical representation of the world "out there" is no longer distinguished from technical intervention into the world. Rather, representing and intervening is considered to be inextricably interwoven (Hacking 1983; Nordmann 2010). As our discussion of logics of "smart" will illustrate, this blurring of boundaries, with promissory futures of technoscientific developments emphasising *what might work* (rather than *what or whose reality is true*), is part of what enables technoscientific logics to operate across complex fragmented realities.

"Smart" technoscientific futures in a moment of competing realities

Among the authoritative imaginaries of technological progress and economic growth manifesting themselves in contemporary society, those of "smart" abound. In 2010, the chairman and CEO of IBM, Sam Palmisano, declared the 2010s "the Decade of Smart". The ensuing years have proved him right, in terms of the increasing amount of funding (H2020 2018), journals (IJSmartTL 2020; Technol Econ Smart Grids Sustain Energy 2020), and conferences (IEEE 2017; SES 2019; UDMS 2017) dedicated to various "smart" technologies. In the same year as Palmisano's lecture, the European Commission released a strategy for smart, sustainable, and inclusive growth. Following this, major research, innovation, and policy programmes on the European level have included the notion of "smart", such as the European

Innovation Partnership on Smart Cities and Communities (EIP-SCC 2020) and the Smart Energy European Technology Platform (ETIP-SNET 2020). In general, the ubiquitous references to "smart healthcare", "smart grids", or "smart cities" tend to have rather technologically studded meanings. Multiple lists have been produced (e.g. van Doorn 2014) of "smart" as an inventory of certain characteristics (digital, interactive, user-centred, etc.) and as pertaining to certain technologies (phones, tablets, energy systems, home management, transportation, etc.). Increasingly, "smart" refers to the *interconnection* of and *communication between* various technologies and devices, to various forms of infrastructure both digital and physical. A central development here is the emergence of the *Internet of Things (IoT)*, based in the use of RFIDs and increasing digital networks. This has later expanded through a number of additional artefacts, i.e. radical expansions of sensors in everything from household appliances to roads, Big Data applications, cloud computing, and algorithmic decision-making systems. As such, "smart" devices and the data gathering they enable can be interconnected and combined with other digital devices and innovations (see e.g. Silvast et al. 2018). Increasing institutional endorsement and steps towards the realisation of "smart" visions at the level of local and national politics illustrate the increasing dominance of such logics. But what is actually implicated, as well as explicated, by the concept of "smart"?

Logics of "smart": the "only" way forward – colonising the future

Buzzword concepts such as "smart", "sustainable", or "low-carbon", and the technoscientific imaginaries linked to such concepts, get much of their attractiveness from their formulation as problem-solving visions that no one really opposes (see e.g. Haarstad 2016; Rommetveit & van Djik, this volume). As noted by Susan Brenner in her book *Law in an Era of "Smart" Technology*, the "general desire to make all of our lives easier and more rewarding is the global driver for the development and incorporation of 'smart', embedded technologies into our environment" (2007, p. 131). Oftentimes, such buzzwords also implicitly point to some pre-existing state that needs to be superseded (Vincent 2014); it is hard to argue for not wanting to move past a "dumb", "unsustainable" or "high-carbon" scenario. As such, "smart" imaginations are a way of "creating fantastic worlds" (cf. Ezrahi 2012) in which boundless technological development and digitalisation provide solutions to some of the major societal challenges we are currently facing. For instance, "smart" developments is portrayed as a possible way out of our current "double-blind scenario" related to climate change, where "we can't keep growing indefinitely in the way we have done so far, but if we don't keep growing, we jeopardise the economic stability, not only of future generations, but also – more decisively – of present ones" (Benessia & Guimarães Pereira 2015, p. 82).

Importantly, however, the act of extracting any single reality or potential future from the welter of possibilities can be seen in effect as a moment of co-production (Jasanoff 2004), in which a desire to see the world in a particular way (how things *are*) gets coupled to particular norms and values (how things *ought* to be). Following this, public reason is not just an epistemic, but also a normative commitment (see also Jasanoff & Simmet 2017). Technoscientific imaginaries of the future, in this case of "smart" developments, provide justification and legitimation for political decision-making in the present, by pointing towards desirable and seemingly almost inevitable future outcomes of technological progress. They are also often correlated, tacitly or explicitly, with the obverse: shared fears of harms or dystopias that might be incurred from the failure to innovate (Jasanoff 2015). What might happen if we were to "fall behind", not able to keep up with "inevitable" and necessary technological progress?

As certain imagined futures increasingly circulate, become widely shared and occupy new spaces, they close down possibilities for public decision-making based on alternative views or imaginations and previously available spaces for democratic intervention. In this way, "smart" technoscientific imaginaries "circumscribe the horizon of possibilities" (Leszczynski 2016, p. 1692), increasingly hijacking, or colonising (Rommetveit, this volume) the future. Furthermore, some actors have more power than others to project their imaginations, and thus more possibilities for making their imaginations widely shared and accepted, through drawing on recognised expertise or other resources that contribute to authority and legitimacy. Nation states have a long history of establishing the dominance of the ruling class through making their worldview hegemonic as broadly accepted norms (Gramsci 1971) and disciplining citizens (Scott 1998; Foucault 2000). In our time, such mechanisms are weakening in the face of post-truth value clashes, and other, less visible and networks are emerging to vie for hegemony.

As STS scholars have shown, for instance, artefacts and infrastructures emerge in and are deeply intertwined with social contexts, practices, and modes of organisation, norms, and discourses (Winner 1980; Jasanoff & Kim 2009). They come with built-in functional properties and intentionalities and as such, "smart" or sensing energy technologies typically reflect the values, knowledge, and expertise of energy experts and tech developers (Strengers 2013, p. 32), although this is rarely made explicit. Although smart technologies might be technically and socially disruptive when introduced in households, for instance, typically requiring time-consuming familiarisation and adaptation (Hargreaves et al. 2017) or interrupting well-established domestic routines that sustain comfort, cleanliness, or convenience (Shove 2003), these concerns are considered these concerns are considered short-sighted and are often pushed aside in the face of the drive towards implementing positive technological change. As such, imagined-possible technological futures of "smart" technological innovations enables a framing of

potentially controversial political issues or value conflicts as simply techni-
cal issues. Thus discussions of significant changes in people's everyday life,
energy practices, or routines due to the introduction of strong market sig-
nals and incentives, gets reduced to discussions of "grid optimisation", and
issues of privacy and security become framed as minor problems that can be
easily solved through programming, design, or other "technical fixes" (e.g.
Ballo 2015). In other words, social consequences of technoscientific inno-
vation, as well as discussions of *which truths* that get to guide political and
normative action, can effectively be side-lined. Both the natural and human
world can be controlled, automated, and optimised to remove bothersome
contradictions or complexity. Alternative, and potentially dissenting, imagi-
nations, are hence deemed undesirable, excluded, or neglected.

   In a post-truth situation, where many issues might entail strong value
clashes, such technoscientific "engineering" logic becomes an extension of
the modern convictions of scientific objectivity. The possibilities for chal-
lenging such a de-politicised technology-oriented "neutrality" is further re-
duced with current fragmented realities. In this "post-truth" interregnum,
technology-intensive "ideologically drenched policy frames and strategies
circulate not only with increased velocity but also with intensified purpose"
(Peck 2010, p. 139). With this intensified and accelerating mobility, the legit-
imacy of "smart" futures, as well as their implicit understandings of "public
good" or of what is considered to be desirable", is strengthened (Peck 2005;
Prince 2012). Arguably, we are witnessing an historically unprecedented
intensification of technoscientific innovation processes. The logics of tech-
noscience are gaining ground within public reasoning, to such an extent
that imagined-possible futures of technological innovation are increasingly
included in political agendas, and "the entangled, 'impure' hybrid quality of
today's forms of technoscientific and social order seems to be an explicitly
accepted state-of-being in day-to-day political discourse" (Rommetveit &
Wynne 2017, p. 134).

Logics of "smart": creating collectives through malleable modules

The envisioned future "smart" electricity grid is articulated, mainly from
within the discourses of energy experts and political elites, as a kind of
"shared roadmap" for the planning of future energy developments and in-
vestments (e.g. EC 2009; Berker & Throndsen 2016). Smart grid visions
are often visualised in images or diagrams, such as the one below (Figure
5.1), showing the different areas or domains in which one could imagine
potential "*smartness*".

   Arguably, the imagined future smart grid could be divided into different
parts or technological "modules" that are enabled by the introduction of
"smart" electricity meters. In this particular visualisation, the parts im-
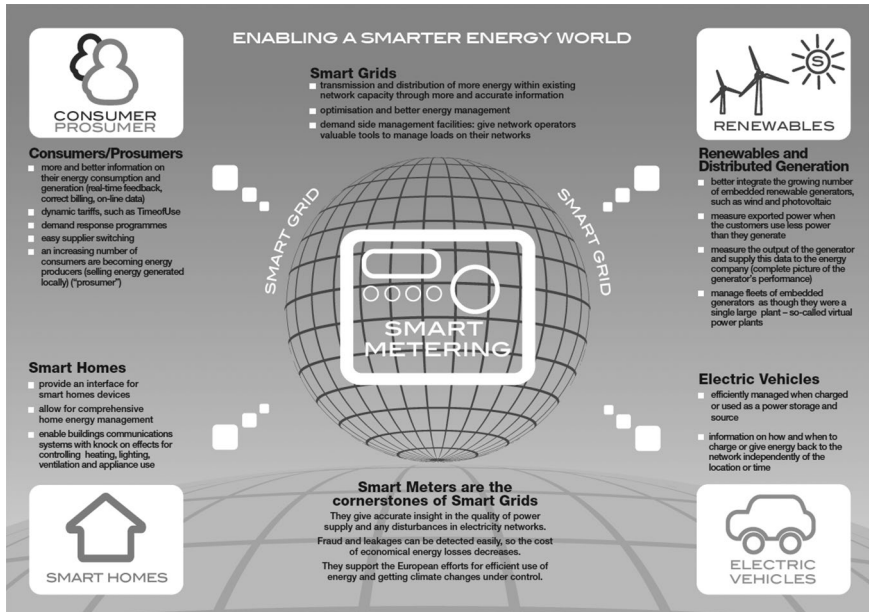agined are electric vehicles (EVs), smart homes, consumers/prosumers, and

Figure 5.1 Visualisation of the future smart grid. Reprinted with permission from ESMIG images.

renewables. Like Latour's (1990) *immutable mobiles*, these kinds of visual illustrations or graphisms make the smart grid into "flat" parts that are mobile, readable, reproducible, of varying scales, and can be reshuffled and recombined. The kinds of illustrations exemplified by Figure 5.1 presents the smart grid agenda as an assemblage of a diverse set of activities and actors, efficiently washing away controversies and inconsistencies. The smart grid is presented with an impression of "optical consistency"; as a bright energy future that is coherent and controllable. When taking a closer look at the illustration, however, it becomes clear that these "modules" are constructed to work in different worlds. They can be modified depending on context, scale, or audience, which also changes the actors who would need to be involved in realising the vision. The EV "module", for instance, could be applied for mobilising many different actors and publics, such as citizens/consumers, car production companies, grid transmission operators or national or regional policies, schemes, or incentives for EVs. As this illustrates, "smart" technoscientific imaginaries tend to lack context and particularity (Viitanen & Kingston 2014), often being malleable, or *weakly structured*, with standardised subjects and a bracketing of contingency.

Yet, this indeterminacy and ambiguity of "smart" futures are in many ways "well-understood misunderstandings" (Vincent 2014, cf. Wynne

1992), embraced and utilised to create shared spaces for actors with a broad variety of values, interests, and agendas. The characteristic "fuzziness" of "smart" imaginaries thus *creates collectives*, by contributing to enrolling, connecting, and integrating expertise from different domains such as law, politics, science, or industry. This enables collaboration, translation and serving to guide action (Borup et al. 2006) across the fragmented realities of various actors involved in the making, distribution, and use of such imaginaries. The ambiguity characterising "smart" imaginaries allows the actors in these networks to strategically mobilise and operationalise them, for instance, by emphasising certain parts or "modules" in the overall vision while excluding others, in line with their specific agendas. While still recognisable as the loosely structured vision, this allows for situated translations or interpretations of "smart" developments at various times, in different sites and according to different political or social aims. In this sense, "smart" imaginaries are a kind of professional achievement, which entails the emergence of "techno-epistemic networks" (Rommetveit et al. 2019)[4] of various innovation contexts.

The *sense of urgency* that is implicit in such imaginaries (Benessia & Guimarães Pereira 2015), as well as the distribution and mobility of "flat" visual illustrations or graphism of imagined-possible "smart" futures (illustrated in Figure 5.1), intensify this process of *drawing actors together* (cf. Latour 1990) from different domains. As alternative views or imaginations are side-lined, the implicit goals and agendas of the assembled collectives producing "smart" imaginaries become increasingly hard to dispute. In the domain of energy, for instance, dominant smart grid imaginaries can provide solutions that reflect current institutional, economic, and political structures, and which would keep these structures relatively intact, thereby closing spaces for potential reconfiguration or contestation (see e.g. Ballo 2015; Inderberg 2015). In a fragmented post-truth moment, this characteristic malleability makes "smart" imaginaries resilient and robust in the face of any kind of objection to their implementation.

Logics of "smart": "smart" modes of citizen engagement and participation

As we have seen, "smart" technoscientific imaginaries carry implicit assumptions and truth claims, such as what kind of society or which "imagined publics" (Wynne 2006; Welsh & Wynne 2013) would be necessary to allow for the realisation of these imagined-possible futures. Such tacit views or "deficit models" (Irwin & Wynne 1996) of citizens, includes assumptions about what citizens are capable of in terms of knowing, doing, or learning, which might consequently narrow down what seems to be possible and meaningful in terms of democratic engagement, intervention, and deliberation. The ways in which publics are constructed within expert discourses are often essential for the framing of lay-expert interactions and public engagement mechanisms (Irwin & Wynne 1996; Barnett et al. 2012), and

affect the conditions under which publics may assert themselves as mean-ing-makers (Silvast et al. 2018).

For instance, specific "imagined publics" can be given agency in processes of sociotechnical change and be present at key decision-making points in evolving trajectories of technology development. As part of sociotechnical imaginaries of a future "smart" grid, the imagined consumer is idealised and de-contextualised, often constructed as some form of rational "Re-source Man" (Strengers 2013) or "smart user" (Throndsen 2017; Silvast et al. 2018), intended to both help realise and significantly benefit from the sociotechnical change. Hence, while such conceptualisations may foreground "smart" consumers as having a key role as active contribu-tors in order to realise the technoscientific vision, they often build upon instrumental behaviourist assumptions (see e.g. Hansen & Borup 2018). Sociological empirical findings about the complexities of social practices, energy consumption, and everyday life (see e.g. Shove & Walker 2014) are not taken into account, and the critical capacities and competencies of citizens are rarely recognised (Ballo & Rommetveit, forthcoming). This raises important questions about what kind of agency, citizenship (Ryghaug et al. 2018), or modes of engagement and participation might be available for so-called "smart" citizens, for instance as inhabitants of "smart cities":

Similar to the weakly structured "smart" energy futures, imaginaries of desirable futures of "smart" in urban contexts are characterised by inde-terminacy, with somewhat "fuzzy" competitive goals and a lack of refer-ences to local contexts or "actually existing" urban politics (Shelton et al. 2015; Wiig 2015). Often framed as a *modernisation and development strategy* (cf. Scott 1998) in response to challenges of urban sustainability, such as climate change adaptations, of providing clean and energy-efficient solutions to increasing populations (Luque-Ayala & Marvin 2015), these imaginaries entice city governments and other urban actors into innovation and collaboration aimed at large-scale "smart urbanism". In short, "smart" seems to be almost co-extensive with "digitalisation of the city", which might entail a reconfiguration and transformation of urban governance and political practices (Braun 2014; Rutherford & Coutard 2014).

As illustrated by Figure 5.2, visualisations of the "smart" city include ICT sensing devices and new digital networks being built into the fabric of urban environments. City flows and processes such as traffic, shopping, and energy consumption are increasingly being monitored, registered, and regulated, but seemingly by ubiquitous, helpful technology rather than by human actors with clear agendas. In this sense, "smart" urban govern-ance moves towards becoming "evidence-based" or *data-driven* (Townsend 2013; Barns 2016), in many ways a continuation of the Cartesian ideals of control and prediction. In line with the deterministic tendencies often characterising "smart" technoscientific futures, data is seemingly disentan-gled from values or stakes, appearing frictionless and non-ideological, as
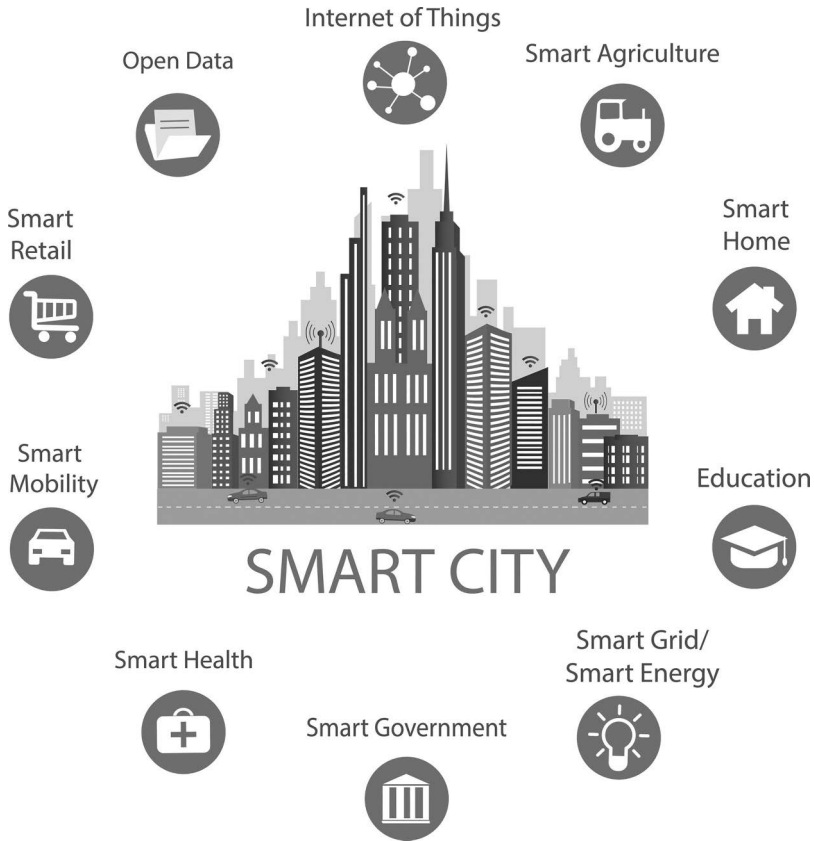
Figure 5.2 Visualisation of the future smart city. Reprinted with permission from PIXTA.

a streamlined and a straightforward way to improve or optimise what some have called the "post-political" city (Mouffe 2005; Swyngedouw 2007).

However, narrowing complex urban dynamics into that which can be coded is of course far from "post-political". Rather, *knowing and governing through data* entails strong universalist logics, dissolving prior categories of understanding and ordering (Rommetveit & Wynne, this volume). This also has extensive social implications (see e.g. Kitchin 2014; Thrift 2014). For instance, gathering, storing, and utilising such massive amounts of data may threaten the privacy, identity, autonomy, and legal rights (Hildebrandt 2015) of "smart" city inhabitants, and might make critical urban and national in-frastructures more vulnerable to digital threats (van Dijk, this volume). As such, "smart" urban developments seem, to some extent, to contribute to a "black box society" (Pasquale 2015), in which an increasing number of decisions become automated in processes that are opaque, coached in highly

technical language and to some extent performed by codes and algorithms. This efficiently excludes or blocks publics from taking part in discussions about significant social, legal, and ethical issues related to such technological developments (e.g. Ballo 2015). Arguably, this constitutes an intensification; from normatively reducing citizens' space for democratic engagement through various "deficit models" and conceptualisations of an "imagined public", to seeing the emergence of an "obstacle model" (Rommetveit & Wynne 2017), where publics are viewed as potential threats to the imagined necessary progress and thus need to be removed or circumvented. A countertrend to such black-boxing, however, is the proliferation of open data platforms and programmes as part of "smart city" developments, which some suggest might have the potential to open up for more citizen-centric approaches to ICT urban innovation (Barns 2016).

As this shows, "smart" approaches to urban development (Viitanen & Kingston 2014; Luque-Ayala & Marvin 2015), with their technocentric and neoliberal logics, as well as "smart" modes of citizen engagement and participation are far from unproblematic. For instance, urban and national governments are framed as entrepreneurial facilitators of economic growth through new markets of "smart" products and services (Hollands 2015), with corresponding narrow conceptions of "publics" and of public participation. "Smart city" imaginaries seem to conceptualise publics as either passive recipients of economic development strategies from urban governmental or business elites (Bulkeley et al. 2016). In many ways, "smart" urban governance becomes a form of "corporate storytelling" (Söderström et al. 2014) where the aim to create "greener" cities or energy systems takes on the role of an irrefutable argument. Although some scholars argue for such challenging "corporate dominance" (Sadowski & Bendor 2018), and the implicit premise of "smart growth" (Pollard 2000), pointing out the need for developing alternative desired futures and a critical understanding of "smart urbanism" (Luque-Ayala & Marvin 2015), this is arguably becoming increasingly difficult to achieve.

Future imaginaries of "smart" urbanism are also strengthened through various forms of smart "urban experiments" of technological innovation, which has become part of contemporary urban governance, promising to couple de-carbonisation with economic growth by fostering innovative knowledge production (e.g. Silver & Marvin 2016). This kind of "government by experiment" (Bulkeley & Castán Broto 2013) entails carefully selected modes of participation, much in line with technoscientific logics, with demonstrations and testing of new technologies and policies, to see *what works* in "real world" conditions. Such intensification of technoscientific logics, in Pellizzoni's (2017) words, makes publics increasingly "appear as 'lookouts', marginal accomplices involved in someone else's plot" (p. 216). Such increasingly passive publics would not be well-equipped for dealing with the overflow of information and "alternative facts" characterising our "post-truth" times, which means we would be at risk of coming close to Huxley's (1932) dystopian descriptions.

Opening up or closing down? Democratic engagement in a time of "post-truth" and technoscience

As emerges from our discussion, our current "post-truth" interregnum, evolving in parallel and in conjunction with an "age of technoscience", seems marked as a moment of competing realities with a lack of shared future imaginations. This moment of "post-truth" can be named as such because the authoritative arguments of modernity, often scientifically founded, are now seen to be less persuasive, as increasing acknowledgement of complexity and uncertainty destabilises previously broadly accepted public truths or facts, leading to a void of authority. Our contemporary "post-truth" panics and the debunking of some of the previously unifying imaginaries of modernity, might, at least in principle, provide the necessary conditions and opportunities for increased understanding of situated realities and an opening up of processes of public reasoning and fact-making (see e.g. Stirling 2008). However, the spaces open for reconfiguration are already getting hijacked by the rationalist imperative of technology, for instance through widespread future imaginaries of "smartness". Such imaginaries are becoming increasingly dominant within the epistemic competition of contemporary public reasoning, drawing upon the modernist arguments of technological progress as more or less equal to societal progress. They also imply that the fantastic futures they describe are almost inevitable, in a move that mirrors the cultural hegemonisations of modernity.

Post-truth times entails a weakening of shared public space, which makes it increasingly hard to challenge or dispute the circulating technoscientific imaginaries which are currently establishing themselves as new forms of truth regimes. "Smart" imaginaries are charged with positive values, yet in a way that is ambiguous, fuzzy, and lacking in context, enabling them to translate to different social worlds across fragmented realities. Although claims of "truth" always come from situated positions (Haraway 1991), these weakly structured visions, emphasising technological artefacts and what might *work*, appear ubiquitous, and thus their source is hard to locate and, consequently, to engage with. The ambiguity of these imaginaries contributes to enrolling, connecting, and integrating expertise from different domains, and makes possible a "colonisation of the future" by appearing to be inevitable, "consensus-based", or even "post-political". The mobilisation of smart truth claims and logics, as well as their entanglement with emerging political agendas and discourses, seems to be intensifying, and over time, widespread "optically consistent" technoscientific imaginaries might desensitise the public to contradiction, allowing incoherencies to escape unnoticed.

This suggests that the transformations in public reasoning and fact-making that we are witnessing essentially represent new ways of "closing down", resulting in harsher conditions for alternative or dissenting views or imaginations. The intensification of technoscientific logic as part of public reasoning and policies normatively reduces the space for democratic

engagement, intervention, and deliberation for citizens, through the construction of "smart imagined publics" that are increasingly rendered passive, and which might, with the emergence of an "obstacle model" (Rommetveit & Wynne 2017), eventually even be removed or circumvented. However, as stated by Hannah Arendt (1968, pp. ix–x): "Even in the darkest of times we have the right to expect some illumination." Although our critical analysis points to significant challenges for contemporary public reason, this time of reconfiguration of hegemonic assessments of what "gets to count" as relevant knowledge also provides opportunities for applying insights from STS, philosophy and other humanities and social science disciplines to address important questions on the role of science and technology in society, how "facts" are made and prevail, or what makes certain realities or futures become hegemonic. This opens up for deliberations about which imaginaries might serve the needs of our democracies during our contemporary liquid and fragmented times, although the emergence and proliferation of encouraging alternative imaginaries across fragmented realities is no simple task. An emphasis on sustainable ways of acting and knowing might in such a situation be spurred through a reaction against the intensification of technoscientific logics and a mobilisation of what Gramsci[5] called "pessimism of the intellect, optimism of the will".

Critiques, such as this analysis, of dominant technoscientific logics (see also Schick & Winthereik 2013; Strengers 2013; Throndsen & Ryghaug 2015), might contribute to a gradual expansion of the narrow framings of imagined ("smart") publics, and thus might foster more complex and reflexive configurations of citizens. Such nuanced views of citizens might also contribute to shifts in public deliberation mechanisms; opening up new decentred spaces for dialogue between government and citizens, for instance, emphasizing place-based knowledge (Kohler 2002), of what it might mean to live in a "smart" city characterised by "big data" urban governance, or how to make use of new and emerging open data platforms and programmes as a "non-corporate" part of "smart city" policies to enable more "citizen-centric" approaches to urban innovation (Barns 2016).

As when Gramsci wrote about the interregnum in the early 1930s, many ways forward might yet materialise, and not all of them are equally visible from our present perspectives. The post-truth interregnum might, in this positive scenario, resolve into a situation where publics are not required to be quiescent and supportive to facilitate social order, but through their engagement, from various value perspectives, bring technology into use for the good of people, rather than people serving disembodied technoscientific ends as the new social order. As Hannah Arendt suggests (1968, pp. ix–x):

> …such illumination may well come less from theories and concepts than from the uncertain, flickering, and often weak light that some men and women, in their lives and their works, will kindle under almost all circumstances and shed over the time span that was given them on earth.

Notes

1 As we witnessed, for instance, when Donald Trump was unwilling to explicitly condemn white nationalist groups, famously blaming "both sides", after the white nationalist demonstrations and counter-protests in 2017 in Charlottesville, Virginia.
2 The analysis builds on a taxonomy of "smart" developed as part of the research project Checking Assumptions aND promoting responsibility In smart Development projects (CANDID), a European Union's Horizon 2020 project with grant agreement No. 732561. It was based on project members' expertise and a snowballing literature review.
3 Taylor's argument is that our modern order has been transformed by an underlying moral order of disembedded individualism.
4 This is co-extensive with a notion of epistemic networks (see Rommetveit 2013) (as well as with Stengers' (2005) ecologies of practice), since in every case, it is a matter of observing how each professional community has to rely on a given professional knowledge base, in relating to other epistemic actors/networks/communities.
5 After the motto created by Romain Rolland, see Antonini (2019).

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