The smart city as mobile policy: insights on contemporary urbanism

Abstract

What can smart city policy discourses tell us about contemporary urbanism? Becoming a 'smart' is now a highly popular agenda for cities, and this hegemonic policy discourse can arguably reveal important insights into how key actors currently pursue urban change. In this paper, we conceptualize the smart city policy discourse as being mobilized by certain powerful nodes; yet it is hybridized and occasionally subverted by contextually embedded actors at the urban sites of implementation. We empirically examine the EU's smart city networks in the Smart Cities and Communities programme, and link this to three case studies of 'Lighthouse cities' funded by this programme. On the basis of this examination of the smart city policy agenda, we identify three characteristics pertinent for understanding contemporary networked urban policy-making: *glossiness*, *fragmentation* and *randomness*.

1. Introduction

Contemporary cities are increasingly understood as networked and interconnected. The relational perspective on urbanism, which arguably characterizes the current human geography discussion, analyses cities as created and changed through the various relations that constitute them (Grandin et al., 2018; Massey, 2013; Derickson, 2018). In turn, researchers emphasize inter-city networks, learning and competition as key drivers of urban policy.

The 'smart city' discourse is perhaps where these relational inter-city relationships are the most evident. The smart city concept has had rapid uptake in the arena of urban policy-making. This ICT (information and communication technology) driven approach to urban policy-making to co-develop urban landscapes and innovative technology is rapidly emerging throughout the world, although most prominently in Europe, Asia and North America (ICF, n.d.). Having originated as a response to challenges created by massive urbanization, the smart city is presented as holding great promise for urban futures. The smart approach to urban management could be described as a combination of technology and urban infrastructure to promote more efficient, liveable and sustainable societies, as well as collaborative and networked forms of governance. The smart city agenda sits well within a

policy paradigm where urban policies are increasingly networked and experimental. Thus, examining the smart city can help us better understand contemporary processes of urban policy-making more generally. This affords us a broader understanding of how these urban policies are spatially assembled, disassembled and reassembled. In other words, in this paper we ask: what can smart city policy discourses tell us about contemporary urbanism?

The academic critics of the smart city typically see techno-centric, top-down processes in which large corporate interests drive and define smart progress (Hollands, 2015; Viitanen and Kingston, 2014). However, we argue that a nuanced understanding of smartness approaches the smart city as a broad agenda with significant leeway for local actors to use in the mobilization of locally determined strategies. Rather than seeing the smart city as a specific agenda with measurable objectives, it can be understood as a broadly defined strategy within which cities pursue a range of different and contextually defined goals (Haarstad and Wathne, 2018). This means that the relationship between the high-level smart cities policy discourse on the one hand, and local contextualization on the other, is key to understanding both existing smart city policy and contemporary urban policy formation in a wider sense. In other words, the smart city policy is—as the title of our paper suggests—highly *mobile*.

In this paper, we draw on relational spatial theory, and particularly the policy mobility literature, to conceptualise the movement of the smart city as both hierarchical and non-hierarchical, and flat and scalar, in complex ways. We conceptualize smart cities as being mobilized and *made mobile* by certain powerful nodes, yet hybridized and occasionally subverted by contextually embedded actors at the urban sites of implementation. This allows a renewed understanding of the potentials and limitations of smartness.

The empirical basis is research on three so-called smart 'Lighthouse cities' of the EU's Horizon 2020 programme, Stavanger (Norway), Stockholm (Sweden) and Nottingham (UK). Encouraged and financially supported to develop innovative smart solutions, these cities are placed in a context where smart city policies are to be examples for upscaling and wider replication. Through fieldwork, interviews and observation, we have examined how local governments have manoeuvred the intersection between the objectives of the EU and their own locally defined urban development strategies through smart city implementation.

We point to three key characteristics of *smart cities as mobile policy*. First, policies are *glossy*—they are largely framed and motivated by success stories in the process of making them movable. Second, when made mobile, a policy rarely travels as a complete package. Policies are commonly *fragmented* when moved and reassembled upon arrival. Third, *randomness* may play a larger role in policy mobility that what has been considered until

now. In the sense that smart urbanism is a hegemonic policy discourse, these characteristics are also relevant for broader understandings of construction and change in contemporary cities.

The paper proceeds as follows. Section 2 explores the concept of urban smartness and argues for our perspective on it as a policy discourse that is malleable across space (i.e. it is 'on the move'). In section 3, we discuss concepts and theoretical framings that can help us understand some of the characteristics shaping the topologies and flows of policies *in motion*. The empirical part of the paper begins in section 4, where we introduce the Smart Cities and Communities (SCC) programme of EU's Horizon 2020, and in particular, three smart Lighthouse cities—Nottingham, Stockholm and Stavanger—that are part of this programme. In section 5, we use our analysis of these cases to tease out three characteristics of the smart city policy discourse. In conclusion, we discuss how these characteristics are symptomatic of contemporary urban policy-making in a wider sense.

2. Situating smart city policies

Since the concept of smart cities emerged in the 1990s (Bibri and Krogstie, 2017), a vast body of literature, expanding in the later years, has emerged to cover a multiplicity of research agendas and perspectives in this field. Central to these publications have been attempts to define and characterize the smart city (i.e. Bibri and Krogstie, 2017; Caragliu et al., 2011; Alawadhi et al., 2012; Neirotti et al., 2014; Höjer and Wangel, 2015), descriptions of the impact of the smart planning approach on existing urban fabrics (i.e. González, 2011; Antrobus, 2011; Bakıcı et al., 2013; Haarstad and Wathne, 2018) and literature examining smart cities constructed 'from scratch' (i.e. Carvalho, 2015; Kolotouchkina and Seisdedos, 2018). Typically, the smart city is seen as an integration of new information and communication technologies into urban systems. The importance of innovations in ICT is highlighted, and main concerns revolve around the successful integration and upscaling of these innovations into urban landscapes and social paradigms (Kramers et al., 2014a; Kramers et al., 2014b; Kazhamiakin et al., 2015; Kitchin, 2014; Giffinger et al., 2007; Carvalho, 2015). Others emphasize human and social processes as well. Perhaps the most commonly used definition of a smart city is provided by Caragliu et al. (2011: 70), who argue that a city is smart when 'investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance'.

Thus, the smart city discourse typically advocates complex sustainability strategies interlinking various actors and scales and cutting across traditional silos in various organizational and political bodies. The smart city is seen as incorporating aspects of the social, environmental and economic aspects of sustainability (Bakıcı et al., 2013; Barresi and Pultrone, 2013; Kramers et al., 2014a; European Commission, n.d.; Campbell, 2013). With this promise to solve a range of urban issues, the smart city is clearly an attractive vision. Both within and outside the EU, there is what may be described as a 'smart wave' throughout global milieus of urban governance and planning (Bibri and Krogstie, 2017; Neirotti et al., 2014).

However, the smart city is contested in academic literature, and especially in social theory. Whilst many argue that it holds great potential for both emissions reductions and quality of urban life (i.e. Kramers et al., 2014a; Kazhamiakin et al., 2015; Kitchin, 2015; Giffinger et al., 2007; Calvillo et al., 2016; March, 2016; McFarlane and Söderström, 2017), others claim that the smart city is merely technological reductionism, neoliberalist globalization, corporately-driven urban development and a derailing of the deeper and purer transformations that should be encouraged to address real and fundamental urban issues (i.e. Luque-Ayala and Marvin, 2015; Viitanen and Kingston, 2014; Hollands, 2015; Hollands, 2008; Greenfield, 2013). Another strand of the smart city literature is more concerned with linking the smart city to social and human aspects such as participation, inclusion and social redistribution (Meijer et al., 2016; Neirotti et al., 2014; Bibri and Krogstie, 2017; Giffinger et al., 2007). As Meijer et al. (2016) argue, 'smart city governance is not a technological issue: we should study [it] as a complex process of institutional change and acknowledge the political nature of appealing visions of socio-technical governance'.

Within this strand, we also find a more radical criticism of the very premises of the smart city. These theorists reject the very notion of the smart city, conceptualizing it as an attempt to solve the problems of capitalism through more of the same, and thereby derailing debates of *deeper* and *purer* urban transformations (Luque-Ayala and Marvin, 2015; Viitanen and Kingston, 2014; Hollands, 2015; Hollands, 2008). Alternatively, they argue that smart technologies can be subverted and used for different purposes than the technology designers intended. For example, March (2016) argues that progressive groups should consider using smart technologies to promote their own causes, such as zero growth movements and social empowerment. Similarly, McFarlane and Söderström (2017) show how smart technology has been used in slum areas to map the provision of urban infrastructure, which strengthens the

case of marginalized groups against the government regarding the lack of infrastructure and services.

Following this understanding of the smart city (in line with thinkers such as Datta, 2015; March, 2016; Berkhout and Hertin, 2004), our perspective is that the smart city is not inherently good or bad, but rather, that it should be understood as a polymorphous urban strategy employed to reframe local contexts and reshape leverage for locally-driven solutions. It has been pointed out that smart projects often take highly hybridized forms, shaped by the ambitions, ideas, strengths and issues of cities (Haarstad and Wathne, 2018). Thus, the smart city is not *one* thing, nor is the content of the smart city necessarily imposed on cities by global capitalist players or other large-scale institutions. The smart city should be seen just as much as an urban development strategy, whereas local agents reframe pre-existing targets within a larger discourse to activate funding and other resources (Haarstad and Wathne, 2018). In such global–local processes of contextualization and hybridization, the processes by which a smart strategy is mutated and mobilized—*made mobile*—may determine its expression in cities seeking to adopt it; therefore, it is crucial that these processes be understood.

2.1 The smart city as a mobile policy

As we emphasize in this paper, a key characteristic of the smart city policy discourse is the strong impetus to *make it mobile*. For example, a critical policy objective of the EU is to facilitate the successful *upscaling* or *replication* of smart initiatives (European Commission, 2016). This is understood as the creation of novel practices stemming from smart initiatives tested in the Lighthouses, 'with corresponding new structure and culture elements' (Riegler, 2017). There is a body of literature, particularly derived from the policy mobility debate, that can investigate how such a policy discourse is made mobile.

Work in the field of policy mobility has attempted to make sense of the processes through which policies move and are re-established in different contexts. As a reaction to the view of politics as inherently territorially bounded, the policy mobility field has largely been influenced by theories on relationality, and policies are increasingly understood as dynamic processes shaped by their spatial and temporal relations. This has co-occurred with what may be described as intensification in the spreading of policy ideas, as evidence-based policies are gaining resonance amongst urban planners, and 'policy tourism' has become a commonly accepted part of the urban policy formation process (González, 2011; Baker et al., 2016;

Ward, 2006; Peck and Theodore, 2015). Thus, policies increasingly move in relational ways, and are increasingly recognized for doing so (McCann and Ward, 2012; Baker et al., 2016). Through the formation of networks and partnerships, multiple actors are involved in the assembling of policies by learning, meeting, negotiating, reassembling and translating policy knowledge (Grandin et al., 2018).

Arguably, the smart city discourse is an exemplar of networked, experimental and mobile policy. The smart city policy discourse is ripe with concepts such as 'front-runners', 'test beds', 'best practice', 'upscaling', and inter-city learning. The policy discourse of the European Commission is centred on replication, as the movement of lessons and experiences is incorporated into the policy design of its smart city programme (i.e. European Commission, 2017b; European Commission, n.d.; European Commission, 2017a). Reading the smart city through the policy mobility literature gives us new tools for understanding the complex processes by which they are assembled, disassembled, and reassembled. Understanding the dialectic engagement by local and global actors in shaping the policy discourse can help us engage more productively in the hybridization, enforcement, or subversion of such policies and see how processes of moving policies are shaped by contextually embedded actors at the local sites of implementation.

This means that smart policies are not simply copied from one city to another; there is always a process of disassembling and reassembling as policies 'move'. Kennedy (2016) points to how *one* policy from *one* place is unlikely to be used as a sole 'blueprint' for a city's further development. Rather, cities are likely to be 'drawing upon the experiences of many other cities and not ultimately regarding any one of them as a template, but only after different actors have advanced competing claims on the basis of examples drawn from various model cities' (Kennedy, 2016: 112). In line with this, rather than seeing smart cities entirely as travelling *to* and being imposed *on* places, this literature suggests that these policies are negotiated in the meeting point between various scales.

This does not mean that institutional hierarchies are unimportant. Prince (2017) argues that the broad similarities in the policies being adopted in various locales 'suggests they are all more beholden to those global policy networks and processes than they realize or might admit' (Prince, 2017: 335). This is also the case with smart cities—for example, certain framings of what the smart city should be are foregrounded in the EU Horizon 2020 policy discourse and are thus more likely to influence actual practices than competing framings. Such an institutional hierarchy feeds into the more broadly uneven topography of the urban policy-making landscape. Some lines are denser than others, and some actors are more

powerful in framing and promoting the movement of certain policies. As existing topologies order *space*, they also order the movements of policies (Prince, 2017).

In practice, this can be decisive regarding where policies move and where they do *not* move: certain places and actors are clearly more firmly 'on the map' than others, and certain relationships are arguably denser, so policies are more likely to move in relation to these (McCann and Ward, 2012). A handful of cities are pointed out as best practice areas, whilst others are seen as having little to provide, other than lessons on what *not* to do. Being considered successful in adopting popular urban developments, certain cities tend to acquire a paradigmatic status. Consequently, they become destinations for policymakers and professionals in planning and architecture seeking to discover the secrets of their success (González, 2011). Best-practice smart cities clearly receive a considerable number of policy tourists and are visible in the policy mobility landscape. Similarly, large venues where knowledge of smart cities is shared and spread are often not equally available to all actors.

In line with these theoretical insights, we see the smart city as an exemplar of contemporary processes of urban policy-making—networked and relational. In the following sections, we examine the smart city discourse more empirically. We draw on fieldwork and interviews from three EU-designated smart cities to explore aspects of the ways in which they have engaged with the mobilization of smart policies, and to tease out what this can tell us about urban policy-making in general.

3. The topology of smart cities in Europe

The European Union, through its SCC programme and other initiatives, is a key mobilizer of smart city projects in Europe. It provides funding to European cities on their quest to develop smart solutions in the fields of energy, mobility and ICT. The objectives of the SCC programme are complex and ambitious, and include launching large-scale demonstration projects 'as "living laboratories" for deployment, testing, replication and scaling up of innovative systemic and yet locally attuned solutions and thus provide evidence for economically, socially and environmentally viable alternatives to tackle simultaneously the various challenges which cities are faced with' (European Commission, 2016: 10). Calling on cities to 'rapidly reduce greenhouse gas emissions and adapt to climate change [sic]' (European Commission, 2018: 105), this EU programme develops so-called Lighthouse cities across Europe, where smart solutions are to be implemented, developed and tested, and from where they are subsequently to be upscaled (European Commission, 2012; European

Commission, 2016; European Commission, 2018). In applying for the programme funds, cities are encouraged to bundle together in networks consisting of Lighthouse cities and fellow cities [recently so-named after previously being called 'follower cities'] (European Commission, 2018). The smart Lighthouses are encouraged and obliged to share experiences, learn from each other and continuously assist in the process of transferring knowledge to the network follower cities (European Commission, 2012; European Commission, 2016; Haarstad and Wathne, 2018).

    As a hegemonic EU policy approach, the SCC programme is a relevant lens. By aiming for the replication and upscaling of smart projects, the SCC project promotes a type of knowledge that is 'mobile'. Smartness is to be developed and tested locally, in harmony with local conditions, but is further expected and encouraged to be upscaled and replicated in cities facing similar challenges. In the Horizon 2020 work plan, the European commission states that the Lighthouses should 'act as exemplars for their region helping to plan the replication of these solutions, adapted to different local conditions', and that it is 'compulsory to develop and test innovative business models that enable deployment at large scale at different locations during the execution of the project' (European Commission, 2016: 17). In the 2019 call for new participant cities, it is also stated that 'the higher the replicability of the solutions across Europe, the better' (European Commission, n.d.).

    What is interesting is the partial acceptance of the importance of context in this programme. The SCC programme acknowledges that smart knowledge must be produced in accordance with local elements, and that when upscaled, it should be adapted to fit the follower cities. However, contextuality only goes so far: the project describes it as beneficial to include various 'types' of cities, seemingly communicating that by creating enough 'blueprint' smart cities, solutions will become available for replication across all European cities. As the Commission argues: 'The 2020 goal is to have a significant number of new Lighthouse cities of all sizes all over Europe, in a very large number of Member States with various climatic and economical positions [sic]'. This suggests that local variation is acknowledged, but that cities are simultaneously seen as groupable and comparable, and that cities with similar traits can more easily 'communicate' and 'transfer' smart solutions.

    In this respect, the SCC programme is an archetypical example of how a certain type of policy mobility is encouraged, but it is not the only example. Ideas of replicating or learning smartness, often through communication of best-practice cases, are clearly stated in several smart city programmes and initiatives. Examples are the CISCO-driven Connected Urban Development, arranging conferences for 'learning and sharing experiences' (CISCO,

n.d.), the Future Cities Catapult, hosting workshops where cities are given advice on how to develop and scale connections with larger markets, and the Indian Smart Cities Mission, an Indian national funding scheme intended to create a replicable model (Mundoli et al., 2017) by setting 'examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country' (Government of India, n.d.).

Thus, the SCC programme is characteristic of a policy drive to upscale innovations through its push to mobilize policies to benefit a larger number of EU member cities. The scale of the project is also relevant; smart projects are jointly encouraged on the regional, national and international scales, and through these other scales of government, cities are encouraged to undergo processes of policy mobility whilst simultaneously bringing their own ambitions and strategies to such a mobilization. The scalar aspects and the emphasis on upscaling and replication may create interesting dynamics of policy mobility worth exploring (Crivello, 2015). Within this policy context, we have sought to understand further the processes of hybridization of the smart city, and the leverage locally-embedded actors and agendas have in shaping the outcomes of such negotiations.

Between 2015 and 2018, we conducted fieldwork in three of these smart Lighthouses: Nottingham, Stavanger and Stockholm. These are all amongst the first generation of SCC Lighthouse cities, having initiated their programme phases in 2015 (REMOURBAN, n.d.; GrowSmarter, n.d.; Triangulum, n.d.). In addition to drawing on the networks established through the EU programme, these cities also use pre-existing relations and additional networks in their efforts to become 'smarter'. For example, Nottingham is part of a UK-wide smart city network, consisting of all UK Lighthouse cities, and is frequently used for knowledge-sharing (interview). Stavanger frequently draws on its network through the Covenant of Mayors for climate adaptations in cities (interview). Thus, the cases forming the empirical basis for this paper should not be seen as discrete and delineated entities merely adhering to the SCC Lighthouse project, but rather as relational and dynamic cases where projects and connections are continuously negotiated within the urban assemblage.

Through the operation of such networks, the cities enabled and negotiated local hybrid signs of smartness within the larger framing of the EU, as well as those of other international processes and players.

The European Innovation Partnership with the SCC programme was launched in 2012, aiming to stimulate knowledge-based economic competitiveness and increase liveability in European urban areas (Haarstad, 2017). In 2015, the first three smart networks were rolled

out, each containing three Lighthouse cities and several [then-called] Follower cities. The project periods were for 5 years, and each city was funded with approximately 20–25 million euros. The three pilot networks were REMOURBAN (with Lighthouses Nottingham, Valladolid, Tepebasi), Triangulum (Stavanger, Eindhoven, Manchester) and GrowSmarter (Stockholm, Cologne, Barcelona). We visited one of these three networks to explore the various networks and to choose field sites that had already come some way in developing their smart strategies.

All three cities had projects that appeared to be quite similar. They were all obliged to follow the SCC programme objectives of developing smart solutions in the fields of energy, mobility and ICT. However, there were vast contextual differences in regard to motivation, design and implementation.

Previous to its SCC programme engagements, Nottingham had a long-standing reputation as a successful testing ground for solutions in the fields of energy and transportation, and this was further strengthened by the smart city project. These issues were combined with planned revitalizations of the city, such as upgrades of social housing, which gave the smart strategy a clear social aspect.

The smart city programme in Stockholm came to embody a long-standing emphasis on climate and environmental policy by the municipality. Branding itself as one of Europe's most environmentally friendly cities, the smart project in Stockholm continued to have a strong environmental emphasis, and its main objectives were to address environmental concerns in a time of rapid urban growth.

Stavanger, known as the oil city of Norway, employed the smart city strategy largely to fill the void left behind by a declining oil industry. The smart agenda had a clear focus on absorbing knowledge and promoting innovation and entrepreneurship to ensure that Stavanger had 'more than one leg to stand on' at a time of declining relative importance for the petroleum industry. It may be argued that in comparison, the smart project in Nottingham had a clearer social and environmental aspect. Horizon 2020 resources were used to reduce emissions from transport and housing, combining many such initiatives with socially equalizing efforts.

Stockholm was perhaps the case study most clearly associated with promoting environmental sustainability to improve urban flow and quality of life in the rapidly growing urban area whilst simultaneously cutting carbon emissions by 60 per cent. In Stavanger, the emphasis was more clearly on the economic aspects of innovation, entrepreneurship and

economic competitiveness, and a stated aim was to become a leading European smart city. The establishment of the vast Nordic Edge Expo Smart City Conference should be understood in relation to such negotiations of the smart city in Stavanger.

The fieldwork in these three cities included observations, participation at conferences and demonstration tours, as well as interviews with key actors in the smart city enrolments in the local sites of implementation. Municipal co-ordinators for the three projects were interviewed, as were other project partners such as business partners and work package leaders. The fieldwork was part of a larger research project exploring contextual negotiations of smart city strategies in an attempt to understand how the smart city projects have been assembled and employed locally, and how these lessons can inform and explore the current state of urban policy-making.

4. Three contributions to understanding contemporary urban policy-making

What can concrete experiences of smart city projects tell us about contemporary urbanism? When we extend our empirical analysis of the negotiations and reassembly of the smart city projects granted by the SCC programme of the EU in the three Lighthouse cities, we consider what the processes tell us about contemporary urban policy-making in a general sense. We highlight and discuss the three aspects we find particularly acute—*glossiness*, *fragmentation* and *randomness*—and tie our empirical observations to the wider literature.

4.1. Urban policy-making as the *construction of glossy stories*

In urban governance, an increased focus on *place branding* to ensure a city's competitiveness on the global market may be identified. Cities and regions are increasingly given roles as catalysts for economic development in a fluid global reality and are increasingly expected to compete against each other in the struggle for resources. In this competition, *exposure* and *branding* are increasingly important, and promoting regional qualities is thus vital to enhance urban and regional competitiveness (Zimmerbauer, 2011; Paasi, 2013). This goes beyond the physical extent of the city or region and includes aspects such as *place identity* and *image* (Wathne, 2017).

These trends can be identified in smart city policies and their representations as part of making them mobile, malleable and sellable. In cities undertaking 'smart' projects, branding and displaying smart initiatives is increasingly given importance, and representational activities such as hosting large-scale conferences, organizing on-site demonstrations or

guiding individual researchers, planners or developers wanting to explore smart city initiatives are prioritized. The prioritization of such activities, coupled with the growth of policy tourists, has led to a change of focus in the work of city administrators and business employees. Employees previously concerned with the development and implementation of smart policies and initiatives are now invited to take an active part in the *transfer* of policies as hosts for visiting transfer agents, or as transfer agents themselves, and often as both.

While hosting a tour of Nottingham's new electric bus fleet, a Nottingham City Council (NCC) representative clearly expressed concern over this. Participating in meetings and guiding visitors around the key nodes of the transportation system to show them the new and 'smarter' bus fleet now took up most of his working week, whereas previously, he had been more directly involved with its actual establishment and integration. The NCC representative agreed that knowledge-sharing was important, 'but it just means more work', he argued, adding that he now spent more time in meetings than 'actually getting work done' (interview).

Competing for recognition from transfer agents on a topologically uneven policy landscape, it becomes crucial for cities and companies alike to stitch together programmes to attract visitors wishing to *absorb knowledge* on the smart initiatives established. Visiting the headquarters of a major power company in Stavanger, a company representative gave us the 'set tour' around a staged smart apartment. The tour was standardized and frequently given to policy tourists and others visiting the headquarters to learn about smart technology. The company representative did not have additional information on whom he was receiving or why; he merely conducted the officially prepared tour.

Such demonstrations of policies are often accompanied by a certain storyline that has been constructed, more or less intentionally, for such policy tourists. González (2011) argues that a narrative over the city's policy development is often collectively developed, not necessarily because of some agreement on the 'official story'; rather, the external pressure for such a narrative can spur its development within cities.

Indeed, the form and format of many smart city arenas encourage the production of such collective stories. By visiting existing smart cities and arenas where smart city agents meet to share experiences, one can see how such stylized versions of glossy 'smart truths' are encouraged to facilitate the rapid and wide dissemination of smart experiences. When there is limited time to communicate the story of a smart city, the nitty-gritty details become superfluous, and the experience is easily reduced to a coherent story. This often includes an inadequate or non-optimal past, the turning point of having received smart city funds and

implementing the smart strategy, as well as the subsequent positive outcomes. When proponents either receive visitors or present at conferences, this is generally the format smart city stories take.

For example, at the 2018 Nordic Edge Expo Smart City Conference, Lighthouse cities were to sketch their "smart stories" on posters and discuss them in plenary. The poster session yielded little sharing of problems and challenges with the smart strategies, but rather, presented smartness as an undisputed turning point leading to improved urban development for the cities partaking in such programmes. In addition, newly elected smart cities then sketched their problematic contemporalities, followed by all the problems they expected the smart strategies to solve.

Figure 1: The 'smart story' of Stavanger, beginning with 'Daily life as usual' with an attempt to replace oil and gas with 'smart energy' and ending with the statement 'Together we can do anything!'

There may be many arguments for cities presenting these glossy stories. There is arguably a selling point to smart strategies, and those involved could have a business interest in presenting their cases as successes. Similarly, successful development projects reflect well on those initiating and driving such agendas. It may also be assumed that those investing time and resources in such large-scale projects would be proud of their accomplishments and would want to show these off at events and when receiving visitors. Such incentives can encourage more polished presentations of smart projects.

However, the problem is that the outputs from such venues for experience-sharing are incomplete. As González (2011: 1413) states, 'the consequence is that urban policy tourists learn particular lessons from their visits to these cities based on a stylised and partial version constructed by local authorities of what is happening'. Researchers often suspect they are being presented with such stylised versions. Certain terms, topics and examples are repeated, whilst others are avoided. Asking representatives from the smart city consortiums about negative experiences was often met by a denial or a rapid change of topic. Occasionally, one comes across people who apparently do not follow the 'script'. In one of the smart cities visited, an informant derided the city council decisions, ridiculing many of the measures to develop the smart projects in the city. However, in general, careful construction of the stories around the various smart cities was evident.

4.2. Urban policy-making *as fragmented processes*

As demonstrated above, literature on policy mobility is comprehensive in relation to issues of how, where and by whom policies are made mobile. Parts of this literature (perhaps most notably Peck and Theodore) point to how policies are not holistic and inseparable packages traveling in an impenetrable totality. Rather, when travelling, policies 'morph into fragments containing selective and partial speeches, ideas, general models' (Peck and Theodore, 2010: 170). Such fragmented mobilization permeates the smart city mobility landscape. Attractive (or easily obtainable) parts of smart policies are picked out and reassembled 'upon arrival'.

In the SCC programme, the goal is not to upscale and replicate holistic blueprint models for smart cities. Rather, Lighthouse cities are seen as test hubs for *modules of smartness*. As smart initiatives are implemented and tested, use cases are developed from which the follower cities can 'pick and choose' for replication. These can be seen as creating a menu consisting of smart modules that the follower cities can choose to implement to make their cities smarter. Thus, upscaling (and mobility) is expected to be case-specific rather than holistic. However, for the cities in question, the smart strategies are far from fragmented. They aim at permeating the very foundation of the city, altering its operations and the relationships between actors within it. Thus, one can question the value of communicating fragments, when the value of the smart city arguably lies in its totality.

Fragmentation of the smart cities was further encouraged by the international character of the SCC programme. The formation of networks across national boundaries impeded the mobilization of holistic smart approaches. As regulations and practices varied greatly between

countries, the policies needed to be tweaked and customized to fit the various Lighthouse cities. 'I can't say that we've learned that much from partners abroad. They are not doing the same kind of projects as us,' one informant argued. Several informants pointed to how national networks (or networks with neighbouring countries) were in some ways more attractive than knowledge-sharing with partner cities in very different contexts, but that both had their respective strengths. 'Ideas from abroad can encourage policy changes', one informant pointed out, arguing that these international networks were thus purposeful. However, with regard to the broader policy mobilization, mere technical elements were more easily transferred than were broader policy implications.

The fragmentation of smart policies should be seen in relation to the latter point on polished communication of smart projects, which necessarily facilitated the reduction of complete, complex and intertwined smart strategies to fragments. Planning our trips to the smart cities involved learning about the initiatives undertaken by the municipalities and their conglomerate partners; visits and interviews were suggested and scheduled to provide examples of the smart initiatives. In addition to being partly determined by coincidence, these meetings may have served to break up the smart city strategies into smaller, more easily conveyable takeaways. With the different actors responsible for their respective parts of the smart aggregate, visiting one actor and hearing about their involvement in the smart conglomerate could easily lead to assumptions about the priority and importance of such involvement, and might easily encourage these specific interventions being 'copied' in home cities, without necessarily seeing them in connection with the wider strategy.

This indicates the need to see policies or policy concepts (such as 'smart cities') as a homogeneous or coherent entity. A policy cannot be reduced to its practical implications or discursive elements; rather, it should be seen as more than a sum of its parts, created through synergy and complexity. This resonates with Prince's (2010) concept of 'policy assemblages' and his point that the objects of policies are constituted differently in different places. In a sense, a policy can be compared to a building: it is apparently composed of the mere physical materials included in the construction; but on closer examination, it is made up of so much more: values, beliefs and assumptions on what is worth preserving (Jacobs, 2006). The building should thus be conceptualized as a social–technical assemblage consisting of elements that are more abstract as well as more distant in time and space than the bricks and metal that comprise the building itself.

Likewise, a policy should be understood as continuously made and unmade through various relations in space and time. Smart city policies, too, should be understood as elements

that may be constructed to be coherent and complete in the glossy framings discussed above, but are inherently complex processes of translation, negotiation and reassembling distinct policy objects. Arguably, it is also this 'picking and choosing', disassembling and reassembling of policies from various sources that gives the smart city its mobilizing force; cities are able to pick aspects and pieces to fit their own contexts and interests.

4.3 Urban policy-making as a random process

Finally, and building on the previous points about glossiness and fragmentation, we argue that *randomness* may play a larger role in urban policy formation than is usually admitted. We tend to look for structural or deeply contextual explanations for developments taking particular courses and for events occurring in the way they do—this is also true of cities. In our case studies, we were repeatedly struck by the contrast between the glossy narratives surrounding smart city projects on the one hand, and the messy and haphazard tales that surfaced when we started digging into how projects had come about on the other.

Projects often appeared, to a significant extent, to be assembled from the relationships, personal priorities and ongoing plans that were 'lying around' when the SCC programme proposals were made. In particular, it was evident how much the profiles of the smart city project depended upon the person in charge of the proposal or the operating project. In Nottingham, for example, the co-ordinator at the time of our research was keenly interested in social housing, and used this as an important part of the explanation for social housing being so important in Nottingham's smart city profile. Moreover, when we tried to dig deeper into the historical trajectory of the Lighthouse project, questions of how certain projects were chosen or why certain partners were involved were met with shrugged shoulders. There was such a high turnover among project staff, and a rapid circulation of project roles and functions, that no one seemed to know. Therefore, key decisions seemed to be made not by following a particular project development trajectory, but through the haphazardness of who occupied a particular role at a particular time.

Another example of the serendipitous nature of policy-making was a story recounted by an actor in the Triangulum project in Stavanger. He attributed the initiative behind this game-changing project to a delayed flight. A group of individuals from Stavanger were heading to a network meeting of the World Energy Cities Partnership (WECP) independently of one another. Stavanger has long oriented itself towards such international networks, which our interviewees attribute to the city's strong industrial base, particularly in relation to the oil

industry (Haarstad and Oseland, 2017). It has long been oriented towards Houston and other oil cities, and has more recently been active in the WECP. On their way to one network meeting, as one interviewee told us, 'the flights were very delayed. I remember we were sitting in the airport, [another informant] and I among others. We really had time to talk together and came to know each other quite well. I guess that is when it started. It is mostly the same people who are now in this smart city project […] And now we are friends'.

There are of course many other, and less random, factors that are used to explain the emergence of the Stavanger initiative to become an SCC Lighthouse city: the need to branch out of its oil-centred industrial base, its entrepreneurial spirit and the highly-competent technology clusters. Less often, we acknowledge the presence of chance; part of the reason for this may be that randomness can be difficult to identify in smart city projects. Questions of why certain partners are involved, why the city has become a lighthouse and why certain initiatives and not others were decided on were often vaguely answered, and the truth may depend on such randomness. Personal interconnections, a chat over a beer, returning a favour—all kinds of random effects might influence how smart cities, and policies in general, move. One may even hypothesize that the relational, networked character of contemporary urban policy-making increases the element of randomness. An entrepreneurial policymaker is less bound by place-based structures and can find support for most ideas in the sprawling web of potential connections. One chance encounter, a detour or an unintended action may spark a new set of priorities and developmental pathways.

5. Conclusion

In closing, we want to return to the initial question: what can smart city policy discourses tell us about contemporary urbanism? We have proposed that the smart city can be seen as symptomatic of a trend towards mobile, connected policy formation that flows through networked and intra-urban relationships, and that experiences from smart cities can thus inform broader theories on urban policy-making. From visiting the three smart Lighthouses of Nottingham, Stavanger and Stockholm, and exploring how smart policies transform and mutate within and beyond these cities, we have identified three elements characterizing smart policies in mobilization processes. First, we have pointed out how smart policies are generally presented as *glossy* stories in attempts to mobilize such policies. Second, we argue (as has been noted previously in the policy mobility literature), that when made mobile, policies are significantly *fragmented*. Thus, they rarely move as whole constructs, but are picked apart through the mobilization processes and reassembled with locally contingent elements and

integrated into other spatialities. Third, we have highlighted the *randomness* present in such networked and relational policy-making. Although much strategic work is devoted to smart policy work, a number of continent factors may influence policy work in unforeseen ways. Such random occurrences vary in size and shape, and where larger coincidences can mean the difference between a smart policy being sought or not, they can also have smaller impacts on local policy negotiations, which may determine the project's outlines and outcome.

These three characteristics of (smart) urban policy formation can be observed in isolation, but notably, they also feed into each other. The glossy presentation of a smart policy is likely to have an impact on the mobilized fragments. The people communicating in certain arenas for policy mobilization are likely to shape the policy's movement across the topographical landscape, from both the recipient's and the sender's side. Whether policy tourists are taken to meet an extrovert planner engaged in the enrolling of electric vehicles or a communications specialist responsible for engaging citizens in policy formation is likely to shape the lessons and experiences communicated and mobilized. Thus, the ways in which policies are *made glossy* (or not) when presented are likely to influence their form of fragmentation, in addition to a vast number of random factors that are impossible to manage completely.

In summary, if the smart city policy discourse can rightly be said to be symptomatic of wider or emerging trends, we need to consider more thoroughly how policies are made glossy, how they are fragmented as they move and the randomness that often intrinsically shapes policy formation. As urban policies are increasingly networked and relational, such aspects may rework policies in new and perhaps more substantial ways than earlier policy formation processes conducted through more hierarchical governmental practices. Integrating such an understanding into contemporary policy mobility (both practice and research) sets new requirements for the actors involved. Acknowledging such characterizations should cause researchers and practitioners to question *how*, *where* and *with whom* they engage in policy mobility activities. This can broaden our understanding of the new spatialities caused by the contemporary trends in urban policy formations.

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