The smart city as mobile policy: Insights on contemporary urbanism

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ABSTRACT

What can the smart city discourse tell us about contemporary urbanism? This discourse is arguably a key exemplar of the increasingly mobile and networked characteristic of urban policy-making, and can reveal important insights into the policy processes currently shaping cities. For that purpose, this paper empirically examines smart city networks funded by the European Union, in particular three so-called 'Lighthouse cities' for smart city development – Nottingham, Stavanger and Stockholm – and their contested local implementation. On the basis of these cases, we highlight three characteristics that emerge when smart city policies are made mobile: *glossiness*, *fragmentation* and *randomness*. We propose that with intensifying policy mobility these qualities may be increasingly important features of contemporary urban policy-making, that condition possibilities to govern cities in response to critical urban challenges.

1. Introduction

"Smartness" has become one of the most predominant imaginaries in the contemporary urban policy discourse (de Jong et al., 2015). The smart approach to urban management could be described as integrating advances within information and communication technology (ICT) into urban planning and employing these to promote collaborative and networked forms of governance which are seen as necessary conditions for producing efficient, liveable and sustainable societies (see for example Joss et al., 2017; Calvillo et al., 2016; Washburn et al., 2010). This ICT-driven approach to urban policy-making is rapidly emerging throughout the world, although most prominently in Europe, Australasia and North America (Joss, 2015; Joss et al., 2019; Datta, 2015; Caragliu et al., 2011). Urban smartness has also emerged as a key topic of scholarly research, covering diverse fields from engineering to qualitative social science (Karvonen et al., 2019; Meijer et al., 2016).

This paper asks: what can smart city policy discourses tell us about contemporary urbanism? In other words, the purpose of the paper is to examine the smart city discourse and draw out lessons for the wider understanding of the policy processes currently shaping our cities. The smart city is arguably a 'paradigmatic symptom of broader, ongoing attempts to reshape modernist governance rationalities' (Cowley and Caprotti, 2018: 2). For example, the smart city policy discourse centres on concepts such as best practice, innovations, upscaling and learning. This is characteristic of the current policy paradigm where the role of inter-city networks, learning and competition are emphasized as key

drivers of urban policy and urban policies are understood to be increasingly mobile, networked and experimental (Joss et al., 2017; Karvonen et al., 2019; Caprotti and Cowley, 2017; Cowley and Caprotti, 2018). Smart urbanism is arguably a pertinent lens for assessing contemporary urbanism.

Our perspective is complementary to the predominant trend in social science analysis of smart urbanism, which has engaged with the techno-centric, top-down processes in which large corporate interests drive and define smart progress. Among other critical issues, this literature has scrutinized how smart cities encourage corporatization of the city, facilitate surveillance and render citizens mere consumers and providers of data. The smart city is critiqued for its deficit of inclusion, democracy and citizenship, and for allowing large technology companies to dictate urban change (key contributors here are Hollands, 2015; Viitanen and Kingston, 2014; Joss et al., 2017; Kitchin, 2015; Cowley et al., 2018, among others).

While recognizing the insights of this literature, our perspective is nevertheless different. We see the smart city policy discourse as a broad agenda with significant leeway for urban actors to use in the mobilization of locally determined strategies. Rather than seeing the smart city as a specific agenda with particular 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, 2019a,b; March, 2018; Karvonen et al., 2019). This means that the relationship between the high-level smart city policy discourse on the one hand, and local contextualization on the other, is key to

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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*.

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, flat and scalar. 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 (Massey, 2013; Grandin et al., 2018; Derickson, 2018). Within such a paradigm in urban theory, we conceptualize smart cities as being *made mobile* by certain powerful nodes, yet hybridized and occasionally subverted by contextually embedded actors at the urban sites of implementation. Embracing the *glocality* (Swyngedouw, 2004) of the smart city allows for a renewed understanding of the potentials and limitations of smartness by exploring how elements of the smart city policy discourse become articulated in various contextualities (see also Cowley et al. (2018) and Joss et al. (2019)).

The empirical basis for this paper is research conducted in 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 global 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.

Based on our research in these three cities we point to three key characteristics of *smart cities as mobile policy*. First, policies are *glossy*—they are largely framed as, 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, what we here define as *randomness* may play a larger role in policy mobility that what has been considered until now. While smart initiatives are often retrospectively presented as being strategically planned, we find that chance has played a larger role than what is recognized. We highlight these three because they were prominent in our material, to an extent not reflected in the existing literature. In the sense that smart urbanism is a key policy discourse, with traits generalizable to contemporary urban policy-making more broadly, these characteristics are also relevant for broader understandings of construction and change in contemporary cities.

The paper proceeds as follows. Section 2 situates our argument in the ongoing literature on smart cities and policy mobility. In Section 3, we discuss concepts and theoretical framings that can help us understand some of the characteristics shaping the networked flows of mobile policies. Here, the empirical part of the paper also begins, 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 4, we outline the methods employed in this research. In Section 5, we use our analysis of these cases to tease out three characteristics of the smart city policy discourse. In the conclusion we discuss how these characteristics are symptomatic of contemporary urban policy-making in a wider sense and we reflect on how they condition possibilities to govern cities in response to critical urban challenges.

2. Situating smart city policies

While the concept of 'smart cities' itself emerged in the 1990s (Bibri and Krogstie, 2017), the idea of the smart city has roots in long-running debates on the role of new ICT developments in cities going back as far as the 1960s, as well as in theories on networked and cybernetic cities

(Cugurullo, 2019; Castells, 2009; Kitchin et al., 2019). The concept fits well within larger trends of emphasizing the city as the most appropriate scale for finding solutions to global issues such as resource depletion, climate change and economic stagnation (Barber, 2013). Amongst the myriad of city categories having emerged over the last couple of decades, however, the 'smart city' is amongst the most frequently used (de Jong et al., 2015). 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). The smart city presents a powerful socio-technical imaginary (Joss, 2015; Jasanoff and Kim, 2015) and a 'self-congratulatory' ethos that can be difficult to resist (Hollands, 2008).

The smart city is frequently understood as an integration of new ICT into urban systems with the aim of making governance more efficient, inclusive and sustainable (Joss et al., 2019; Rose, 2019; Meijer et al., 2016). Much of the research and policy discussion concerns how to generate innovations and how to integrate these into the city (Kramers et al., 2014a, 2014b; Kazhamiakin et al., 2015; Kitchin, 2014; Giffinger et al., 2007; Carvalho, 2015). The smart city also typically includes a strong emphasis on environmental sustainability, and in several cities 'smart' strategies have come to replace previous goals of urban sustainability (Parks and Rohracher, 2019; Joss, 2015). The smart city discourse typically advocates complex sustainability strategies interlinking various actors and scales and cutting across traditional silos in organizational and political entities (Bakıcı et al., 2013; Barresi and Pultrone, 2013; Kramers et al., 2014a; Campbell, 2013; Joss, 2015; Joss et al., 2017).

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; Giffinger et al., 2007; Calvillo et al., 2016), others hold 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, 2008; Greenfield, 2013). The potential for surveillance and problematic forms of digital governance has also been questioned (Gabrys, 2014; Kitchin, 2014) as well as whether smart urbanism actually leads to sustainable development (Haarstad and Wathne, 2019a; Viitanen and Kingston, 2014). Cowley and Caprotti (2018) argue that the smart city tends to supplant traditional planning processes and ideas with an ontology where complexity and lack of control are celebrated.

Another strand of the smart city literature is more concerned with linking the smart city to social and human aspects such as critically engaging with the forms of citizenship proliferated by the smart city (Vanolo, 2014; Cowley et al., 2018; Joss et al., 2017; Kitchin et al., 2019; Perng et al., 2018), as well as addressing questions of participation, inclusion and social redistribution (Meijer et al., 2016; Neirotti et al., 2014; Giffinger et al., 2007). Typical for this approach to the smart city has been a concern with how the citizens of the smart city are often excluded or rendered subaltern objects produced to comply with such corporate, technocratic smart urbanisms (Joss et al., 2017; Vanolo, 2014; Vanolo, 2016; Cowley et al., 2018). Although we have recently witnessed a shift in smart policies towards being more citizen-centred than technology-centred, there are still concerns to be raised about how citizenship and publicness is produced and enacted in such smart discourses, as recently addressed by theorists such as Joss et al. (2017), Vanolo (2016), and Cowley et al. (2018). Even smart activities centered around 'hacking' of software, which is often perceived as examples of how smart cities can hold potential for democratic and bottom up processes (March, 2018; Hollands, 2016; Joss et al., 2017), have been claimed to promote technocratic rationalities and entrepreneurial forms of life, intensifying the corporatization of cities and reinforcing neoliberal agendas rather than creating fruitful spaces for challenging these

(Perng et al., 2018; Townsend, 2013; Vanolo, 2014).

Others, again, do not close the door on the smart city as an emancipatory strategy, and argue that even smart technologies designed without emancipation in mind can be subverted and used for different purposes than the technology designers intended. For example, March (2018), Hollands (2016) and McFarlane & Söderström (2017) argue that progressive groups can and should consider using smart technologies to promote their own causes, such as degrowth.

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. This is in line with the ideas of Datta (2015), March (2018), Karvonen et al., (2019) and others who portray smart projects as highly hybridized forms, shaped by the actors, context and histories of cities. 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, whereby local agents reframe pre-existing targets within a larger discourse to activate funding and other resources (Cowley et al., 2018; Haarstad and Wathne, 2019a). 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 new 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 (McCann, 2011; Robinson, 2015). This has co-occurred with what may be described as an intensification in the spreading of policy ideas (Peck and Theodore, 2015) 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). In other words, 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).

Such a relational turn in the understandings of policies should not, however, be seen as an attempt to conceptually flatten the landscape through which policies maneuver, to create an 'almost-featureless and inert plane or transaction space…' (Peck and Theodore, 2010: 170). It has been emphasized that geographical borders matter, for example by Lovell (2017) showing how the nation state is still important for the movement of policies, as national priorities and policies largely influence the leeway for integrating new policies – or refusing to do so. Similarly, McCann and Ward (2010) have pointed to how mobilization of policies are contingent on their territorialisation in specific geographical and socio-economic contexts and argue that, when studying how policies move, relational and territorial geographies should be equally emphasized. Therefore, the way policies move across

geographies is recognized as contextual, embodied, and material (Robinson, 2015; McCann and Ward, 2012; Baker et al., 2016). Local actors such as city administrations are actively taking part in the negotiation process regarding where (and which) policies move and "arrive" in certain localities (Robinson, 2015).

A key argument in this paper is that the smart city discourse is an exemplar of networked, experimental and mobile policy. The discourse is ripe with concepts such as 'front-runners', 'best practice', 'upscaling', and inter-city learning, and the construction of standards aiming to ease measurability and movability (Joss, 2015; Joss et al., 2017). Reading smart cities through the policy mobility literature gives us tools for understanding the complex processes by which they are assembled – it provides us with conceptual frameworks to analyse the spatialities of networked urban policy formation. 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 (Robinson, 2015; Cowley et al., 2018; Joss et al., 2019).

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 adopt a compromise policy or a set of policies '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, and that processes are iterative and messy (Cowley et al., 2018; Robinson, 2015; Cowley and Caprotti, 2018).

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 frames.

In practice, institutional hierarchies can be decisive regarding where policies move and where they do *not* move: certain places and actors are certainly more firmly positioned '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 examples of best practice, 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).

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, drawing on field work from actually existing 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 networked mobility of smart cities in Europe

The European Union is a key mobilizer of smart city projects in Europe. Through its Smart Cities and Communities (SCC) programme and other initiatives, it provides funding to European cities on their quest to develop smart solutions in the fields of energy, mobility and

ICT. To achieve this, the EU promotes smartness as a highly *mobile* object. It 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 through networks (European Commission, 2012, 2016, 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'), as well as academic and private partners (European Commission, 2018). The smart Lighthouses are expected to share experiences, learn from each other and continuously assist in the process of transferring knowledge within the network (European Commission, 2012, 2016).

Even though the EU aims for a mobile type of smartness, it also emphasizes local embeddedness. 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. Lighthouses should 'act as exemplars for their region helping to plan the replication of these solutions, adapted to different local conditions', and 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 stated that 'the higher the replicability of the solutions across Europe, the better' (European Commission, n.d.).

Contextuality, then, only goes so far: the programme 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 (in Dincer, 2018: 460): '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 categorizable 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 other 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 EU's smart city programme is characteristic of a policy drive to upscale innovations through its push for mobilizing policies in order to benefit a larger number of cities. The scale of the programme 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.

Within this policy context, we have sought to understand further the messy and iterative processes of hybridization of the smart city, and the leverage locally embedded actors and agendas have in shaping the outcomes of such negotiations. Here, we focus on the particular networks funded by the EU's Smart Cities and Communities program. In 2015, the first three smart networks were rolled out, each containing three Lighthouse cities and several [then-called] Follower cities. The project period was 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).

The three Lighthouse cities visited in this paper, Nottingham, Stavanger and Stockholm, are thus 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.). The 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 within the time and budget frame given by the EU. However, there were vast contextual differences in regard to motivation, design and implementation (for a more detailed description, see Haarstad and Wathne, 2019a).

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. Economic sustainability was therefore a key emphasis.

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, which 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 local smart city projects are negotiated between the SCC Lighthouse projects, other inter-city networks as well as the local contexts.

4. Methodology and fieldwork

While methods such as "follow the policy" has been popular within policy mobility studies (McCann and Ward, 2012; Peck and Theodore, 2010), we have here taken a more locally grounded approach to understanding how policies move. Through conducting fieldwork in three Lighthouse cities between 2015 and 2018, we have explored local smart city policies and how local actors worked to implement these, place themselves within larger discourses on smart cities at the EU-level, and subsequently how these policies were mobilized in and fitted to the local contexts. We explored how these cities, through representatives from city administrations, key corporate partners, consultants and academic partners, took part in the teaching and learning of smart policies and the contents of these. This can be seen as inspired by what Robinson suggests as an *inverted perspective*; rather than examining that which moves, one can gain a lot of insights on policy mobilities by exploring how policies are composed locally 'amidst myriad influences from elsewhere' (Robinson, 2015: 831). Initiated from the local sites, this research thus explored the co-constitutive relationship between the mobility of these smart policies and the design and qualities these policies came to have.

The fieldwork was conducted as multiple visits to the three Lighthouse cities in question. The fieldwork 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. In total, we conducted 18 interviews as well as observations in the three cities and at smart city events and conferences they attended. The interviews included municipal co-ordinators for the three projects, as well as other project partners such as business partners, work package leaders and academic partners. 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.

5. 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 reassembling 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 three aspects we found particularly acute—*glossiness*, *fragmentation* and *randomness*—and tie our empirical observations to the wider literature.

5.1. Urban policy-making as the construction of glossy stories

In urban governance, there has been an increased focus on *place branding* and the construction of *imaginaries, visions* and *stories* about the city, partly to promote its competitiveness on the global market. Cities and regions are increasingly given roles as catalysts for economic development in a fluid global reality and are expected to compete against each other in the struggle for resources. In this competition, *exposure, branding* and *images* 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 also include less tangible aspects (Wathne, 2017).

Exploring the ways in which the smart city is branded, narrated and constructed as an imaginary in actually existing smart cities is highly relevant. Representations of smart cities–whether constructed intentionally or unintentionally–are part of the process wherein these are made 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, displaying smart initiatives on social media, organizing on-site demonstrations or guiding 'policy tourists' are prioritized. In the smart cities we visited, there was also a large interest in literature produced around the local smart city projects, and academic texts concerning local smart city implementations was requested by planners wanting to forward this to the EU to show that they participated in knowledge production as part of their smart city enrolment. Communication was thus key both vertically and horizontally.

The prioritization of such representational activities, coupled with the growth of policy tourists, has led to a change of focus in the work of city administrators and business employees, which we saw evidence of in our three cases. Employees previously concerned with the development and implementation of smart policies and initiatives were increasingly 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 the amount of effort put into branding and communication. 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 within an uneven policy landscape, it became crucial for cities and companies alike to stitch together coherent programmes that seemed attractive for 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 on 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, shiny 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 would solve (see Fig. 1).

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. In interviews, city representatives were clearly more interested in highlighting positive aspects of their projects than to dwell on challenges, mistakes and failures.

The problem is that the outputs from such venues for experience-sharing are incomplete as negative experiences are under-communicated. 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', deriding city council decisions, ridiculing measures to develop smart projects and

Fig. 1. The 'smart story' of Stavanger, beginning with 'Daily life as usual' and attempts to phase out oil and gas and phase in 'smart energy'. The story ends with the smart city project Triangulum and the statement 'Together we can do anything!' Foto: Marikken W. Wathne.

criticizing how the implementation has been carried out. However, in general, careful construction of the stories around the various smart cities was evident.

5.2. 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, 2010) 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. An EU representative at a major smart city conference explained this as creating a menu consisting of smart modules that the Fellow cities could 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 implementation of smart strategies is less fragmented. They aim at permeating the very foundation of the city, altering its operations and the relationships between actors within it. There is thus a contrast between the holistic application of smart city projects and the fragmented form in which these are communicated.

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 lessons. In sum, then, the different contexts where the smart initiatives were to be implemented were often too different to allow for holistic mobilization processes. Often, take-aways were only viable in fragmented forms.

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. When we planned our visits to these three smart cities, we were frequently provided with schedules where sites and interviewees were suggested based on our time schedule and on who were available to meet us within those time slots. In addition to being partly determined by coincidence (and thus also speak to the categorization of smart policy mobility being *random*, to which we will shortly return), these meetings may have served to break up the totality of smart city strategies into smaller, more easily conveyable takeaways – often focused on minor technological innovations. On the ground, there is a tendency to think of all these minor fragments as instances of the smart city, without considering how they contribute to a coherent larger whole. Presented with these minor innovations, visitors can easily be led to thinking of the smart city as a series of fragments rather than any strategic, urban-scale process of change. These fragments are also easier to copy and import to other cities, again without placing them in larger strategic contexts.

This indicates the need for policies and/or policy concepts (such as 'smart cities') to be evaluated based on overall coherence. A policy cannot be reduced to discrete 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 consists of much more: values, beliefs and assumptions on what is worth preserving (Jacobs, 2006). Likewise, smart city policies too can be understood as constructed as coherent and complete in the glossy framings discussed above, but are inherently negotiated and assembled from a variety of distinct policy objects.

5.3. Urban policy-making as a random process

Finally, we argue that what we here define as *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. However, policies often emerge in less thought-through and explicable ways. Robinson (2015) has pointed to how the emergence of policy ideas are often perceived as having emerged from structural processes, while in reality such ideas can stem from more ephemeral spaces such as brief conversations, half-forgotten meetings or presentations, long-buried memories or the like.

The smart city policies we examined bear resemblance to what Robinson highlights. 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. We witnessed a messy and chaotic policy reality wherein pre-identified problems, solutions and interventions were assembled under the smart city umbrella through more random than structural processes.

In particular, it was evident how much the profiles of the smart city project depended upon the individual(s) 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 sustainability, 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. Asking a project leader of why a certain project had been decided on in the first place, he responded by referring to various people that had held positions within the project and who could possibly know. But then he admitted: 'to be perfectly honest, we might never find the answer to that question'. The project had been passed along from person to person, tweeked and altered by every new person being put in charge. 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. On their way to the network meeting, 'the flights were very delayed. I remember we were sitting in the airport. (…) 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. This is arguably true for smart city projects more generally; Many decisions and strategies are clearly resulting from structural processes and strategic decision-making. Such strategic and structural processes are generally recognized as important for driving policy formation. Less often, however, 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, institutional logics of departments easing or restricting collaboration, 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. A chance encounter, a detour or an unintended action may spark a new set of priorities and developmental pathways.

6. Conclusion

What can smart city policy discourses tell us about contemporary urbanism? It has been well established that urban policy-making is highly mobile and networked – perhaps more so today than ever before, as argued extensively in the policy mobility literature that we discussed above. Within this context of intensifying mobility of policies, our contribution is to advance some implications this might have for the form that urban policies take. The paper builds on and extends the insights from the policy mobility literature by pointing to characteristics that emerge in processes where policies are made mobile.

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 characteristics that smart policies take on in these policy mobility processes. First, *glossiness*, as cities and their projects are branded and framed as success stories. Second, *fragmentation*, as the larger strategic transformations in cities are replaced by minor technological innovations seemingly unconnected to the larger whole. And third, *randomness*, which upon closer inspection seems to play a significant role in determining the content and direction of urban projects. These three elements should also be seen as complimentary: policies often have aspects of glossiness, fragmentation and randomness that come together in specific ways in certain contextualities and which, in this coming-together, shape urban policy-making in interesting ways.

As the smart city policy discourse is a key exemplar of mobile and networked policy so characteristic of contemporary urbanism, these three qualities of smart urban policy formation arguably constitute important features of how cities are currently shaped. Visiting smart city conferences and smart projects we are struck, not by the strategic push for urban entrepreneurialism or techno-optimism that many previous academic commentators have noted, but by the desire to showcase local accomplishments and an enthusiasm for these that we felt was sincere. Yet the local initiatives are still trapped in a logic where they have to show that they are using EU and city funds well, that they are helping resolve global challenges like climate change, and that they are competing on the global marketplace of ideas. This creates incentives to construct these narratives of strategic vision and success, or glossiness, that are so pervasive in the smart city policy discourse. When looking at the actual projects and initiatives, however, the picture is less glossy and instead more of a diffuse patchwork of different ideas, subverted models and outliers, that seemed to come together by processes where chance played a substantial role. Behind the glossy image of the smart city there is fragmentation and randomness.

As contemporary policy mobility is increasingly characterized precisely by its mobility, these features are important to understand to better make sense of the processes and practices that are at hand in contemporary urban policy-making. The smart city discourse is a key exemplar of tendencies that are pervasive across many areas of urban policy. In other words, the glossiness, fragmentation and randomness we see in the smart city discourse is arguably characteristic of the broader field.

The critical question is then, what does this do to the possibility to govern cities in response to critical urban challenges – such as the interconnected challenges of environmental sustainability, social justice, equity and livelihoods? Basically, if these are the emerging contours of urban policy formation, how well will urban actors be able to transform cities and urban life in ways that respond to these challenges? It is easy to see grounds for pessimism. Glossy narratives, fragmented parochialism and important decisions substantially defined by chance can

easily lead urban policy to be self-serving and competing in a race to nowhere. But we also find grounds for a more optimistic view. There is significant room for maneuver for local actors. Their ability to pick and choose between innumerable policy models and networks, their ability to create powerful narratives and their ability to share ideas between themselves can also mean that cities can seize the current trajectory, and fashion new political alternatives and pathways.

CRediT authorship contribution statement

Marikken Wullf Wathne: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Validation, Visualization, Writing - original draft, Writing - review & editing. **Håvard Haarstad:** Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing - review & editing.

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