

Title: 'Smart' Does Not Make It So: The Facts and Fictions of Smart Cities

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Abstract

The purpose of this paper is to explore the notion of smart cities and smart citizens as evolving and related concepts and constructs. The authors propose that smart city proponents must further consider the nature and role of cities and the people who live or want to live in them. The paper seeks to move the discourse driving smart city thinking from well-intended hype to a process of 'why' and 'how' (Sinek, 2009).

Society and Smart City Thinking

In 2020, Bina Venkataraman (Venkataraman, 2020) noted that societies that have survived in the long term typically have done so because of shared values, wise practices and deliberate government decisions aligned with a firm eye on the possible and subsequent consequences of those decisions. These societies have also (Desouza et al., 2020) had populations that demanded attention to their collective futures.

The authors believe that this focus on the future by long-lived societies is also an admirable focus for aspiring smart cities, ideally twinned with citizens who pay attention to their futures. To this aim, the authors explore themes and discourse in applied and theoretical literature related to smart city thinking and strategy and also to the nature and nuance of smart citizens.

From this exploration the authors develop a set of strategic considerations for policy makers, marketers, citizens and key stakeholders who are striving to build the best possible social and physical environments for themselves, where they and others live.

How Might Cities become 'Smart'?

Creating or guiding the development of a smart or smarter city has proliferated as a topic of academics, governments, think-tanks and private organisations. Common across these publications is that a framework for developing a smart city must be region specific and is highly dependent on how one defines a smart city. As such there is no one consistent 'best practice', but there are consistent themes. Firstly, creating a smart city is a holistic endeavour. It requires engaging with the citizenry, recognising the complexity of cities and prioritising broad goals, such as liveability.

The corollary of this theme is that technology and data optimisation are tools, not drivers, for developing a smart city. Secondly, smart cities must be guided by a clear strategy. This strategy must define how policy and action will accelerate achievement of specific goals. In early iterations of the smart city, undefined merging technology and city governance at best produce undirected, costly projects and at worse were deliberately hijacked by commercial interest that did not serve the community.

Why Smart Cities and What are They

It is difficult to argue that the desire to create smart cities is a new one. Communities by their nature tend to adopt and enhance the technology of the day to protect themselves and better the lives of their inhabitants almost by instinct. However, the recent smart city concept and discussions might very well have begun in the mid-1990s with a collaborative research initiative led by the Brookhaven National Laboratory in the US (Bowerman et al., 2000).

Since that time, the theory and practice of smart cities and smart citizenry has matured. Themes and causal studies are beginning to underpin insights and future directions. That is not to say that the chaotic and unruly nature of discourse has entirely abated, a state the authors believe enhances the efficacy and future validity of such endeavours. However, the concepts and strategies of the smart city movement have become mainstream.

In this discussion, the authors define an aspiring smart city as an urban environment that consciously seeks through various means to embrace technology to enable service solutions, that is conscious of the endeavours of its citizens in relation to its role as a smart city and has in place mechanisms and systems that enable such technology and the actions of its citizens (Bisani & Choi, 2016; Cardullo & Kitchin, 2018a; Desouza et al., 2020).

The first strategic consideration the authors propose is to explore and identify the purpose, the ‘why’ of its smart city journey. Success stories in the smart city space overall are built around enabling, disrupting and unknowns (Bisani & Choi, 2016; Johnson et al., 2020; Kummitha & Crutzen, 2019). Enabling purposes are focused on using technology and smart city thinking to enable existing services and city functions in a more convenient and efficient manner. This includes functions related to payments, inquires and digitisation of processes such as development approvals and record management. Disruption purposes include applying technology-based solutions to reduce energy usage, traffic management and citizen participation not previously possible. The possibilities of unknowns focus on creating platforms and systems that users can customise in unimagined ways to create value for themselves and more broadly the community. For example, widespread use of the traffic app Waze has fostered the concept of platform urbanisation that allows citizens, public sector entities and businesses to interact in previously unimagined ways (Appio et al., 2019). This platform urbanism is described as bringing commerce and community together, or more simply, better ways of knowing what is going on (van der Graaf & Ballon, 2019).

Overall, the first strategic objective of a smart city initiative is to consider the initiative’s overall purpose; to enable, to disrupt or to create possibilities for users to experiment. This sits in the ‘why’ and purpose category of decision making.

By its nature and nomenclature, smart city initiatives imply that a technological solution is the best solution for a city’s specific problem or problems (Cardullo & Kitchin, 2018a, 2018b). It is clear that technology by itself will not solve a city’s most challenging problems. At this point, the role of citizens can be considered. Two overall models of citizen involvement are apparent.

Citizens can be considered as recipients of a service or other offering, or they can be engaged as participants in the problem-solution process. Once a problem has been identified and energy has been allocated to identifying potential solutions, then a solution provision process can begin. The citizen as service recipient versus citizen as co-designer, is a strategic decision that is enduring and significant. Research suggests that treating citizens as service recipients and customers tends to create transactional relationships whilst citizen co-design tends long term to create a culture of participation (Johnson et al., 2020) and can also lead to an entrepreneurial spirit and eco-systems (Barba-Sánchez et al., 2019).

A third strategic decision for smart city strategists is to decide on the branding and positioning of the initiative and the city overall in relation to its ‘smartness’. This branding and positioning has two elements: the degree to which the city wants to position itself as a smart city, and the degree to which the city wants to position its citizens as smart citizens (Cardullo & Kitchin, 2018a). researchers have noted the differing postures of cities such as Barcelona that had very strongly

positioned and promoted itself as a smart city in its early stages of its smart city adventure. In later iterations it moved to have a more citizen-focused model built around social innovation and citizen engagement (Cardullo & Kitchin, 2018b).

These branding and marketing messages matter. Cities damage themselves and their citizens by falling into the trap of hype and lack of substance and when their projects have limited material impact (Dixon, 2018).

As a final cautionary tale, perhaps the city that has produced some of the most significant technological innovations in the world is Palo Alto; however, its social and infrastructure problems are intractable and debilitating despite its successes.

What are Smart Citizens and How do We Foster ‘Smartness

A key issue in the discourse around smart citizens and citizenship is the question of choice. To what degree do citizens have a role in the evolution and nature of smart cities? One framework suggests four forms and levels of participation as smart citizens (Cardullo & Kitchin, 2018a).

One level, termed non-participation, is a state where citizens are nudged and guided to specific sets of behaviours which requires little input or engagement. This level is typically related to technology-focused solutions.

The next level is termed consumerism, where citizens are offered predetermined choices and there are limited number of providers. The smart city model in this level assumes that the city knows best.

Tokenism defines the subsequent level. Here, citizens are engaged in a consultative manner and have some degree of input about the final shaping of smart city services. Finally, the framework highlights citizen power, a state where citizens have decision-making and shaping involvement. This level invites citizens to participate in co-creation and be involved in activities such as short hackathons. Whilst this level of smart city-smart citizen may be perceived by some as an ultimate ideal, it is extremely challenging to organise and manage.

These decisions are key for smart city planners and those who initiate smart city initiatives. There is a trade-off between control and engagement, between transactional and transformation (Johnson et al., 2020). Another key question is how smart city policy makers transform citizens’ behaviour to fit with the model of smart city, smart citizen (Kummitha & Crutzen, 2019)? Ideally, a smart city-smart citizen model would assume that citizens take responsibility for their actions and also engagement in creative activities that benefit cities and their fellow citizens. Such engagement might lead to the creation of new options and opportunities (Barba-Sánchez et al., 2019) that fall into the category of unknowns that were highlighted in the earlier discussion of smart city strategic considerations (Appio et al., 2019).

Overall, the strategic decisions that smart city protagonists need to make here is the degree to which they believe it is both desirable and beneficial to encourage citizens to take responsibility for smart city endeavours and the corresponding willingness and capabilities of citizens to

participate and to take responsibility. Those who are willing and capable might be considered as lead users who are most likely to focus on the concept of social capital (Desouza et al., 2020).

What Role does Technology Play in enabling Smart City Status

The assumption is that technology and especially digital enablement are the foundations of the smart city. One disturbing insight is that smart cities are considered to be an important niche market for the technology sector (Barba-Sánchez et al., 2019). This presupposes the notion of citizen centricity, a people led approach to smart city development, as primary driver and objective of the smart city movement. It also questions the notion of a holistic approach to developing new ways of citizenship. In fact, does the heightened interest in smart cities by technology providers suggest that Uberisation and Google-centric models are the real drivers of smart city models and thinking?

Many of the research models envisage an ‘outside in’ approach to smart city design and development. For example, despite the useful models developed to highlight the need for city smartness (Yigitcanlar et al., 2020), the framework highlights the roles of policymakers, technology providers and governance models, rather than the ‘inside out’ model of citizen centricity. Again, this is a strategic decision that smart city proponents must consider.

Issues, Episodes and Change

Change comes to cities and its citizens in unexpected ways, small and large. These changes can be deliberate or they can be as a consequence of unforeseen issues and events (Weick, 2007; Weick & Sutcliffe, 2011). Regardless, these are opportunities for cities and their citizens. There are a few insights that can be instructive. Missing from most discussions of smart city development is insight from the past. The assumption appears to be that cities in the past did not face discontinuous changes or disruptions from technological innovations. Clearly this is not the case. What may now be somewhat unique is the possibility of the convergence of design models and principles (Bisani & Choi, 2016). These design-led opportunities that link urban design, product and service design, with technology and communication interfaces, allow for the practice of strategic design thinking. Citizen engagement is the foundation of such opportunities.

Culture and community are powerful models in city change and development (Kummitha & Crutzen, 2019). They allow for the development of mentoring and access to capabilities that exist in parallel to city development. Too, sub-cultures such as gay gentrification bring diversity and different ways of thinking and creating, to city development.

What role does Marketing play in the development of Smart Cities

Ultimately, smart cities and their smart citizens are known as such through the efforts of implicit or explicit marketing strategies. This brings up the issues of branding and positioning for smart cities. In a world of rapid technological expansion and digital disruption, intelligent debate and guidelines are necessary for how cities should market and brand the smart city paradigm. This marketing and branding can be separated into two layers: micro and macro. At the micro level, city leaders and governments market smart city projects to their users, the residents of the city.

City leaders much explain the smart city strategy including technological enablement and provide a compelling rationale for its necessity. How do such leaders create confidence and trust in the services and the strategy overall? Often, the technology vendors and the innovators behind the technology are portrayed as working in partnership with the city, and thus the question is how the vendor and government market the projects to user citizens, and to some extent how the city represents itself as a partner to a technology vendor and innovator.

On a macro level, how do cities brand themselves to investors, academics, and technology firms as worthy smart cities? Larger considerations are at play here. How can cities cut through the hype that has arisen around smart city concepts? Cities need to be able to distinguish what technology is truly valuable and be able to provide solutions to real, identified problems.

How does the branding of smart city projects align, or fit as a subtype, with the broader branding of the city as a place? What guides the way the city brands itself? Given that cities regularly positioning themselves as leaders in something, such as smart city credentials, how do they focus deal with the competitive nature of such branding and positioning?

(Jokela on Smart Helsinki): is it a differentiation strategy, i.e. cities in competition with one another, or is it a transformative process, with city branding as a form of urban policy and a form of branding?

Discussion

The specific message of this paper is that cities must develop careful and clear strategic positions on specific strategic considerations before they embark on any smart city initiative. These are firstly to decide the purpose, the ‘why’ of the overall positioning as a smart city and then be clear about any and all smart city initiatives in terms of its purpose. Smart city as hype leads to failure.

Next, city leaders and policy makers need to be clear about the scope of the initiatives they are considering: are they enablers, disruptors or unknowns? The city leaders must then build a cohesive model that balances the overall mindset and accepted concept of smart city for the context: technology centred or citizen-centred. Is the city explicitly branded as a smart city or is the ‘smart’ implicit in the services models and overall branding and positioning? Does ‘smart’ mean digitally enabled or perhaps does it mean convenient?

City leaders also need to create clarity for its citizens about their roles in the smart city. Are citizens to be co-creators, contributors and participants in the creation of ‘the smartness’, or are they recipients only of the outcomes of the strategy? How does the city go about change? Does it build communities, localities and sub-group engagement to further its strategies or does it create awareness through advertising and promotion? Finally does the city engagement in explicit marketing strategies to promote and position itself as a ‘smart city’ and compete in the smart city race, or does it built its reputation and capability set and leave its credibility to the nature development of its position in the smart city competition to the savvy and efforts of its citizens?

Limitations and Future Research

In this paper, we address the broad ‘why’ and ‘how’ of a smart city. Consequently, limitations include a lack of specific research hypotheses. The premise of this paper is to foster and prompt discussion around the nature and purpose of smart city initiatives and their respective outcomes and consequently begin to form a measurement framework. This framework potential offers an exciting opportunity for further research engaging directly with city governments to understand how these questions are answered in context, how city governments, stakeholders and citizen conceptualise these choices, and the ramifications of these choices. Specifically, this framework enables smart city researchers and practitioners to track the decisions that influence the shape of individual smart cities and potentially divide cities into categories based on the order and outcome of these choices. Once the ‘decision trees’ of cities are understood, the existing metrics in the literature for measuring smart city success can be applied in a less piecemeal manner. Currently these measures focus on individual programs rather than smart city programs as a whole.

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