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Smart cities need to be open: The case of Jakarta, Indonesia

Michael P Cañares

If the city could speak, what would it say to us?
– Beauregard, 1959

Introduction: The appeal of smart cities

In recent years, the re-conceptualisation of the city as more than just a physical, geographic space has dominated the discourse of urban planners, politicians, academics and the private sector, among other stakeholders. This process of redefinition is not novel and is largely brought about because cities have increasingly become the biggest catchment area of the population. It was reported that ‘the year 2008 marked the first time in history that majority of the world’s people live in cities’ (Peirce & Johnson 2008: 18). More recent figures report that 54% of the world’s population now live in urban areas (UN 2014) and with this reality come the attendant challenges of housing, water and sanitation; health and education; transport and communication; and food and agriculture, among others.

Making cities smart is one of the strategies to deal with these growing urban challenges. Washburn et al. (2010) identify five emerging challenges that provide the impetus for making cities smart: the scarcity of resources; inadequate infrastructure; energy shortages and price instability; global warming and human health concerns; and the demand for economic opportunities and social benefits. The core of the strategy is to use information systems to address these five challenges, which are the result of the process of urbanisation (Harrison & Donnelly 2011).

What exactly is a smart city? Many definitions have been put forward and tested by different authors. In a triple helix model proposed by Nam and Pardo (2011), three fundamental components of a smart city are defined: the smart city is conceived as being composed of technological (digital, intelligent, ubiquitous, wired, hybrid, information), institutional (smart community, smart growth) and human (creative, learning, humane, knowledge) factors (see, also Chourabi et al. 2012). The definitions focus on the adjective 'smart', generally concern themselves with the means to become smart (for example, communications technology), what a smart city does (for example, combines infrastructure and information), or on what a smart city can achieve (for example, efficiency in public service delivery). While several definitions include aspects such as participatory governance, natural resource management and sustainable economic growth (see Caragliu et al. 2009), the smart city concept has 'evolved to mean any form of technology-based innovation in the planning, development, and operation of cities' (Harrison & Donnely 2011: 3). This chapter will use Nam and Pardo's (2011) conceptualisation of a smart city. For them, a smart city is one which

infuses information into its physical infrastructure to improve conveniences, facilitate mobility, add efficiencies, conserve energy, improve the quality of air and water, identify problems and fix them quickly, recover rapidly from disasters, collect data to make better decisions, deploy resources effectively, and share data to enable collaboration across entities and domains. (Nam & Pardo 2011: 284)

The use of information technology is at the centre of this process. Not surprisingly, the phrase has been adopted by major technology companies (such as Siemens and IBM) to characterise new ways of managing big-city concerns such as crime, service delivery, transport, communication, water, business and energy use (Batty et al. 2012). In fact, in a review of articles on smart cities, Meijer and Bolivar (2015) find that most definitions focus on the use of technology in cities.

Here lies the appeal of the smart city. The smart city as an operational construct is intended to make city living more comfortable, productive, efficient, responsive and resilient through the use of technology. The International Standards Organisation, for example, reported that smart cities are targeted towards ensuring convenience in public services; livability of the living environment; smartness of infrastructure; long-term effectiveness of network security; and delicacy in city management (ISO 2015). Thus, it is not surprising that in Asia, the Indian government has invested in the building of one hundred smart cities by 2020,¹ and that Indonesia engages in an annual ranking of smart cities based on economic, social and environmental indicators.²

1 <http://indianexpress.com/article/india/india-others/100-smart-cities-project-gets-cabinet-nod/>

2 <http://lipsus.kompas.com/kotacerdas/about>

Literature review

Lombardi et al. (2012) and Batty et al. (2012) have also identified five characteristics of smart cities, namely: smart governance (related to participation), smart human capital (related to people), smart environment (related to natural resources), smart living (related to quality of life) and smart economy (related to competitiveness).

In this chapter, the focus is on the concept of smart governance which underpins the smart city concept. So far, the most extensive work on the governance of smart cities has been done by Meijer and Bolivar (2015). They categorise four ideal or typical conceptualisations of smart city governance as summarised in Table 1.

Table 1 Prevailing concepts in the governance of smart cities

Conceptualisation	Characterisation	Implication
Governance of a smart city	<ul style="list-style-type: none"> • Making the right policy choices, implementing the policy choices in an effective and efficient manner; • Traditional governance of the city when the city promotes itself as 'smart' 	<ul style="list-style-type: none"> • No need for transformation of existing governmental structures and processes; • The promotion of smart city initiatives
Smart decision-making processes	<ul style="list-style-type: none"> • Focused on the process of decision-making and how these decisions are implemented; • Decision-making is innovative through the use of technology and information 	<ul style="list-style-type: none"> • Government rationality is enhanced through the collection and analysis of data; • Data are used for government decision-making processes
Smart administration	<ul style="list-style-type: none"> • Electronic governance that uses information and communication technologies to connect and integrate information, processes, institutions, and physical infrastructure to better serve citizens and communities (internal transformation) 	<ul style="list-style-type: none"> • Coordination of the many different components of a smart city; • Integrating different information from various sources
Smart urban collaboration	<ul style="list-style-type: none"> • Collaboration between government, citizens, private sector and communities to achieve citizen-centric governance (external transformation) 	<ul style="list-style-type: none"> • Highlights the need of citizen participation, multi-stakeholder collaboration; • Data is accessible and used by citizens

However, neither the conceptualisation nor the operationalisation of smart cities involves essential aspects of access to information, civic participation, public accountability, and technology and innovation for openness and accountability – critical aspects of what can be considered as principles of open governance (OGP

2012). As per the Open Government Partnership (OGP) guiding document, these four areas are defined as follows:

1. *Transparency* – access to information and the disclosure of governmental activities at every level of government.
2. *Accountability* – the highest standards of professional integrity.
3. *Citizen participation* – the public participation of all people; equally and without discrimination.
4. *Technology and innovation* – the use of technology for information sharing, public participation, collaboration and innovation.

The OGP characterisation of open government comes from a sound conceptual base. In a review of the historical evolution of the concept, Yu and Robinson (2012) argue that at the very core, open government denotes accountability, which can be the result of transparency. Harrison et al. (2011) argue that the basic concepts of transparency, participation and collaboration which characterise democratic theory all underpin the foundations of open government. However, are these open government principles reflected in the conceptualisation of smart cities?

As can be seen in Table 1, there is no mention of any of the principles of open governance as a key feature in smart governance; specifically transparency, accountability and citizen participation. Access to data by citizens is considered as part of the process, but this has only happened at the most advanced level in smart governance. Likewise, there is no mention of public accountability – though the overarching thought behind why smart cities are conceptualised as end-states or as strategies is to be responsive to citizens.

When viewed as a continuum, data, with accessibility and not necessarily openness, are only available at advanced stages in smart governance, while early stages only denote data use by government, without necessarily making this available to the public. This is because the smart city, as an operational construct, is largely predicated by the notion of efficiency within government, while in more advanced stages (i.e. smart urban collaboration), the involvement of stakeholders beyond government is contemplated. However, this is not akin to the open government principles where the participation of all – equally and without discrimination – is assured. Thus, it can be said that within the early stages of smart city initiatives, public consultations (and other activities that promote citizen involvement in smart city processes) are not an important and necessary process. Likewise, citizen access to information is not a fundamental factor either.

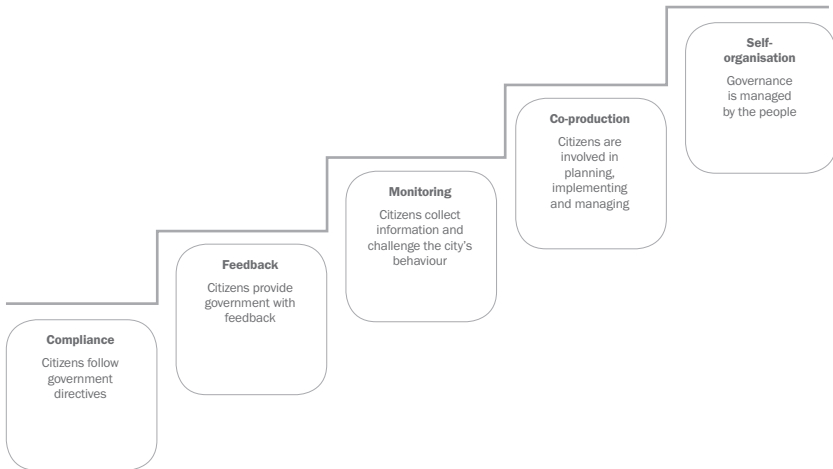
Meijer and Bolivar's (2015) analogy seems to suggest that cities strengthen their internal processes first (hence the term 'internal transformation' at the third level) before they actually open themselves for public participation and scrutiny (referred to as 'external transformation').

In proposing a theory of smart cities, Harrison and Donnelly (2011) highlight

that people-systems are at the topmost layer of the urban information model – this represents a person’s experience of the city, and part of this experience is citizens’ ability to participate in the city’s management and governance (Chourabi et al. 2012). The smart city should allow this process of communication between citizens and government, as well as among citizens, to improve the quality of urban life, and for citizens to contribute and exercise full control over their data, and have access to data that matters to them (Batty et al. 2012). As such, Meijer and Bolivar (2015) argue that the smart city discussion should not only focus on technology and its associated impacts on city residents’ convenience, but also on how it affects the distribution of social power.

In a review of smart cities and the role of citizen participation, Offenhuber (2015) presents five layers through which citizens participate in smart cities. He presents what he calls the ladder of participation in civic technologies. The concept is presented in Figure 1.

Figure 1 Ladder of participation in civic technologies (adapted from Offenhuber 2015)



The lowest forms of participation – those of compliance, feedback and monitoring – position the citizen as an outsider to the smart city process. In these levels, they are sources rather than users of data, and are end-receivers of government information. But for citizens to be able to assert how the smart governance of their city should take shape, they should have access to data and be able to use it. As stated earlier, for smart urban collaboration to work at the highest level in the smart governance process, citizens, civil society organisations, the private sector, media and other stakeholders need to have access to data that government collects and aggregates. Without this access, citizens are but outsiders to the smart city process.

A framework for open cities

As shown in the section above, there is a need to introduce a framework of openness to the smart city narrative. But how can this be done? The International Open Data Charter – launched in 2015 and adopted by 10 national governments and 12 local governments, and endorsed by 28 international organisations – can play a significant role. The Charter has six principles, namely: open by default; timely and comprehensive; accessible and usable; comparable and interoperable; for improved governance and citizen engagement; and for inclusive development and innovation. Table 2 shows what these principles mean and their implications for a smart city narrative.

Table 2 International Open Data Charter Principles

Principle	Meaning
Open by default	All government data should be open to the public, except those where not opening up is justified.
Timely and comprehensive	Release of data without delay, in its original form, disaggregated to the lowest levels, with opportunity for user comment and feedback, and with complete documentation of the process of collection and publication.
Accessible and usable	Data are published on a central portal, in open formats, free of charge and in unrestrictive licence, and without the need for payment or registration. Users should be made aware of and capacitated to engage with the data.
Comparable and interoperable	Data should be easy to compare with, and between, sectors; and presented in structured and standardised formats.
For improved governance and citizen engagement	Open data should allow the space for civil society organisations, private sector, media, research institutions, and other stakeholders to strive for better governance, transparency and accountability.
For inclusive development and innovation	Open data can be used to stimulate innovation and promote inclusive development and this requires collaborative work with different stakeholders including multi-lateral institutions, civil society organisations, schools, research institutes, technologists, among others.

As indicated earlier, there are at least three areas where the concept of smart governance of smart cities is wanting – transparency, accountability and citizen participation. Adopting the principles of the International Open Data Charter can hasten this process, starting off by making data about how the smart city is governed accessible to the public – in open formats, and for citizen use and reuse. This could be a building block in ensuring that smart cities are not only about public service delivery, but also about citizen engagement, better governance and inclusive development. But the disclosure of data is only an initial step – more is required.

Table 2 suggests that opening up smart cities requires the broadening of smart city goals – from the rather individualistic and personal experience of living in a city to more inclusive development and governance processes. This

requires that governments not only be responsive to citizens' complaints, but that they are obliged to answer questions too – things that citizens can only ask if they have access to data and information (*transparency*). It requires that initiatives are designed not only to provide citizen information or opportunities to provide feedback, but also to ensure that citizens are given a space to define what their cities, smart or not, should look like (*citizen participation*). It requires that technology is not just used for the purposes of 'smartness' or efficiency, but for making governments more transparent and accountable to citizens (*technology and innovation*). Finally, it requires that governments provide citizens in a smart city with the information on how its officials adhere to the highest standards of professional integrity, and how its systems and processes are making this happen (*accountability*). In summary, how the smart city is visualised, how it should be achieved, and what role citizens should have in this process of production needs to change.

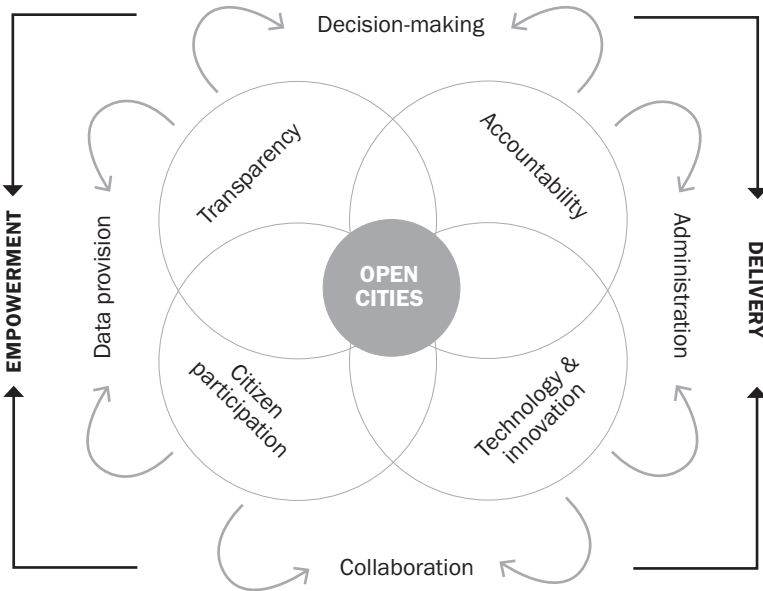
This chapter sets out to lay the groundwork for developing a framework for open cities. The rhetoric of smart cities, despite its popularity, has become centred on the use of technology and in making the governance of the city more efficient. While it does seem that the argument on opening up cities is data-centric, as illustrated in the previous sub-section, it can be argued that opening up cities needs to target citizens as the ultimate outcome. The underlying reason why we want open cities is to, in the aspirational words of the OGP, 'foster a global culture of open government that empowers and delivers for citizens' (OGP 2012).

Accordingly, open cities are those cities that deliver services to and empower citizens. This definition firmly places the political dimension of the city into the discourse, as well as the city's responsibility to the constituents it is supposed to serve. It puts the purpose and responsibility of a city and city governments over and above the means by which such purposes are achieved. Citizen empowerment is not only about providing the tools (technology), but also the resources (data) and the capability (skills) to engage in an open space where debate and contestation are invited and encouraged. Open cities would then deliver relevant services and public infrastructure – because citizens are asked how they would like their cities to take shape and are involved in the manner in which the vision will be implemented.

Figure 2 shows open government principles as the core concepts of open cities, intertwined with open data and smart city principles. Data provision and, in this case, open data, should be undertaken in the name of transparency to encourage citizen participation. Government decision-making should be conducted in a transparent and accountable manner. Government administration should be accountable, harnessing the power of technology to encourage reform and innovation. Finally, citizen participation is required to allow meaningful collaboration in the use of technology to improve governance, recognising that governments do not have a monopoly on innovation and insight. Moving

the discussion further, transparency and citizen participation are essential preconditions for empowerment while accountable governments make effective and efficient use of technology and innovation to improve service delivery.

Figure 2 Open cities: A framework



Nam and Pardo's (2011) three dimensions of smart cities – technology, institutions and the human – can aptly apply to this conceptualisation, but the emphasis is largely on how people can effectively and efficiently participate in using technology to build stronger institutions. Technology, in this case, should not be regarded as superior to other dimensions, and its use should be fit for purpose and appropriate to context. Moreover, the processes and the means used to make cities liveable should be couched in the terms and principles of openness – the use of open data, deployment of open technology and the use of open processes – that allow the participation of different sectors and stakeholders in order to achieve the goals which citizens themselves have identified.

This initial step at conceptualisation is intended to challenge current thinking on how urban spaces (cities) are organised. In the same way, this step continues to question the conceptualisation and popularity of the smart city concept, which, as this chapter suggests, is more government-centric than focused on citizens. While far from perfectly iterated, this chapter and the proposed framework hopes to start the debate on how smart cities, as they are shaped now, can be made more open in the future.

Methodology

To explore the concept of the smart city and its relationship to an openness, the quantitative and qualitative data used in a case study conducted by the Center for Innovation Policy and Governance (CIPG) on the Smart City Programme of Jakarta, Indonesia, was used (see Putri et al. 2016). The analysis was supplemented by profiling the Smart City Programme through interviews and focus groups. The results were analysed qualitatively using the lens of the Open Government Principles and their intersection with Meijer and Bolivar's (2015) conceptualisation of smart governance, as elucidated in the proposed Open Cities Framework presented in Figure 2. In analysing the levels of participation within the Jakarta Smart City Programme, Offenhuber's (2012) ladder of participation in civic technologies was used.

The primary questions of interest are the following:

1. How does the Jakarta Smart City Programme allow citizen participation in the implementation of its projects and activities?
2. How do open government principles of transparency, accountability, technology and innovation, and citizen participation fit into the Jakarta Smart City narrative?
3. What options are available for the Jakarta Smart City Programme to transition into a Jakarta Open City Programme?

Findings and discussion: The Jakarta Smart City Programme

The Indonesian city of Jakarta has the most integrated public service delivery information system in the country. Jakarta is also one of the first cities to have its own dedicated citizen reporting application. Under the leadership of Governor Basuki Tjahaja Purnama (Ahok), Jakarta has promoted and implemented open government initiatives since 2012 through different activities such as hackathons and the launch of the Jakarta Smart City Programme in 2014.

Initiated in December 2014, Jakarta Smart City was developed to create one platform that provides public information about the city to citizens. The Jakarta Smart City Technical Executive Unit (UPT – *Unit Pelaksana Teknis*) was officially established in January 2015 to coordinate the needs and demands for data from both government and citizens.

One of the first key programmes of Jakarta Smart City was designed to provide information to citizens on traffic conditions, public service delivery and flood occurrence, with data obtained through crowd-sourcing platforms Waze and Qlue, and the twitter account PetaJakarta, respectively. The citizen-generated data from these channels are managed by private companies. Waze collects and reports

data on traffic conditions for motorists. Qlue is a public complaints system that feeds into a complaint–response system on behalf of city government agencies, while PetaJakarta collects and disseminates data on flood conditions across the city. Information collected on these platforms serve the private companies that aggregate them (for Qlue and Waze) and the researchers that initiated the project (in the case of PetaJakarta). These non-public stakeholders share the data collected with government. However, based on a study conducted by the CIPG (Putri et al. 2016), the actual use of the data made available to government is still very low. There are fundamental problems with data governance in the city: a lack of data analysis skills; little appreciation of how data can affect operational decisions or policy choices; and the basic lack of understanding on how to manage and use the trove of data produced through this initiative.

Online platforms such as these are appropriate for Jakarta where internet penetration reaches as far as 56% (APJII & UI 2015), and the mobile-phone ownership is as high as 97.24% (BPS 2015). The three applications mentioned above are all accessible via internet-enabled smartphones.

The results of the survey conducted among users of the different applications indicate that none of them are aware that Jakarta Smart City exists, and that they use Waze extensively as compared to the other platforms. The primary considerations in using the applications are ease-of-use, relevance to citizen interests or needs, and the ability to search for information. It is therefore not surprising that Waze topped the list, considering that traffic is one of Jakarta's worst problems, affecting residents on a daily basis.

Jakarta Smart City and participation

All of the Jakarta Smart City initiatives encourage only low levels of participation. Qlue, Petajakarta and Waze all fall within the feedback and monitoring steps on the ladder of participation.

Qlue is an application that connects individuals with their neighbourhood and city officials by reporting on the conditions of their surroundings. The idea for this application came from the desire to figure out how problems in Jakarta could be managed and solved with citizens' participation. Qlue was launched in December 2014, and it has a sister application called Crop (*Cepat Respon Opini Publik*) that officials use to respond to reports from Qlue. The two applications facilitate the efficient handling of citizen complaints and the required response from the city government. Qlue crowd-sources the data and delivers real-time reports directly to city officials.

Waze is an application that provides a mapping service to enable its users to share real-time traffic and road information. Traffic information provided by Waze circulates mainly among citizens. In this case, direct interaction between citizens and the government is not necessary. Citizens report traffic and road conditions to other 'wazers' (the term used to identify a Waze user). In return,

they get an aggregated map with traffic information and use the information according to their needs. But Waze provides access to its data to the Jakarta Smart City team for its use while at the same time providing external validation of the data that the city government collects on road and traffic information.

Finally, the motivation behind PetaJakarta is to use an existing platform (in this case Twitter) to spread useful information on flood conditions. During monsoon season, citizens actively share information on flood conditions through Twitter. When citizens observe flooding, they can tweet using the hashtag #banjir and mention the Twitter account @PetaJakarta. The administrator of PetaJakarta will confirm the report to the respective citizen/Twitter user. Once the report is confirmed, it is retweeted by PetaJakarta and automatically displayed as a flood map. Citizens can access this flood map and the tweets in order to monitor flood conditions in the city. The disaster agency also monitors this flood map as some of the tweets are requests for help and evacuation support.

In these applications, citizens are not participants in co-creation. In the case of Qlue, citizens are treated as sources of feedback and complaints, while in the case of both Waze and PetaJakarta citizens collect or provide a third-party organisation, which later provides government, with information on traffic and flooding respectively. While not necessarily intended to challenge government behaviour, the participation of citizens in providing information on traffic or flooding condition challenges the city government in transport and spatial planning, to avoid heavy traffic congestion in the case of Waze and incessant flooding in the case of PetaJakarta.

Jakarta Smart City and notions of openness

Using the experience of the Jakarta Smart City Programme as a concrete example of the operationalisation of the smart city concept, it can be argued that for the early stages of smart cities, openness is not necessarily a factor. This is fundamentally because, as argued above, the conceptualisation of what makes a city smart is about transforming internal processes within the bureaucracy. What makes the Smart City Programme in Jakarta impressive, however, is the collaboration between government and researchers (PetaJakarta) and the private sector (Qlue, Crop, Waze). However, such collaboration, which is a feature of advanced smart cities, is largely initiated by external stakeholders rather than by the city government.

Using open government principles as a lens, the prominent feature of the Jakarta Smart City Programme initiative is the use of technology and innovation. However, it lacks the important elements of transparency and accountability. While accountability is sought using Qlue and Crop, it does not go beyond the concept of public service delivery to consider difficult questions such as corruption in public spending and the outsourcing of public services, or how the government prioritises investment in public service delivery.

Reflecting on Meijer and Bolivar's (2015) characterisation of smart governance, the Jakarta Smart City Programme is still stuck at the level of 'governance of a smart city', where the focus is largely on the promotion of smart city initiatives. The different initiatives were viewed as ways to enhance public service delivery by responding to citizen reports (for example, *Qlue* and *Crop*). At its current stage, *Waze* remains unutilised within city government, especially with regard to reconfiguring transport planning to solve current traffic problems. Similarly, there is no evidence to show that *PetaJakarta* is used to solve persistent flooding problems in the city.

As indicated above, the lowest forms of participation – those of compliance, feedback and monitoring – position the citizen as an outsider to the smart city process. At these levels, they are sources rather than users of data, and are end-receivers of government information. But for citizens to be able to effectively assert how smart governance of their city should take shape, they should have access to data and be able to use them. As stated above, for smart urban collaboration to work at the highest level in the smart governance process, citizens, civil society organisations, the private sector, media and other stakeholders need to have access to data that government collects and aggregates. Without this access, citizens are outsiders to the smart city process.

The Jakarta Smart City Programme benefits from information largely provided by citizens through getting real-time information on flooding conditions as well as interventions needed for more vulnerable areas; generating feedback in the delivery of public services and providing the appropriate response; and in determining bottlenecks and problems in traffic and roads for use in the planning and management of traffic. In these cases, citizens are mere providers of data, with little opportunity to use or reuse the data they contribute to smart governance. Indeed, citizens, have access to the user-interface capabilities of *Waze* and *PetaJakarta*, meaning they will know the traffic conditions or flood conditions in a particular area, but they will not have access to the data that will help them either analyse other things – such as the connectedness of flooding and traffic, the plans and resource allocations related to flooding and traffic – or conduct a comparative analysis of flooding or traffic across geographical space and time.

One dataset that the Jakarta government has used extensively is the public reporting/complaint data gathered through *Qlue*, and which is subsequently relayed to concerned government agencies through *Crop*. While citizens can submit complaints and check their status, they do not have access to all the other complains posted to *Qlue*, or to government responses posted through *Crop*. The government-to-citizen interaction is limited to an individual level, and *Crop* and *Qlue* data are only available for use by government and no one else.

This chapter argues that there is a strong value proposition in opening up datasets collected, acquired or gathered through smart city initiatives for three primary reasons. First, the data that smart city initiatives have been able to

collect are citizen-generated data, and citizens should have right of access. Second, opening up data from smart city initiatives allows for public scrutiny and deeper transparency. In the case of the Jakarta Smart City initiative, for example, restricting access to Qlue and Crop data to government will not allow people to see government's level of responsiveness or allow them to develop a sense of accountability. Finally, data use will likely become more pervasive if widely shared. There is sufficient evidence to show that once data are opened publicly, they can become a vital resource in empowering citizens, improving government, creating opportunity and solving public problems (Verhulst & Young 2016).

Conclusion

Using the Jakarta Smart City Programme as a test-case for analysing whether a smart city mirrors principles of open governance, this chapter has shown that the current conceptualisation is not leading to greater transparency and accountability, and while the smart city initiative uses technology and innovation to presumably make public services better, it limits the participation of citizens in decision-making processes, making them passive participants in defining what their cities should look like.

What does it take to inject openness into smart city discourses? It requires that all data collected, produced and aggregated by smart city platforms, including those that were generated through third-party agreements should be published in real-time, with meaningful disaggregation and with complete documentation, in open format, free of charge and with an unrestrictive licence. Users should have the opportunity to interact with the data and provide feedback, and to do this, the city government should actively promote awareness and capacity, not only in using smart city applications, but also in accessing and using the data that are generated by these applications. In the same way, city governments should strengthen accountability mechanisms to ensure that those agencies that are at the back-end of these platforms and applications will be responsive to citizens' demands and aspirations.

Smart city initiatives should not only endeavour to achieve goals of convenience, liveability and smartness of infrastructure, but also the better participation of citizens in governance and the increased accountability and transparency of governments. Smart city initiatives should harness the power of multi-stakeholder collaboration to solve urban challenges, promote equal access to opportunities and spur innovation. Benefits of smart city initiatives should not only accrue to those already empowered but to all residents of the city, especially those who are excluded in the development process.

While these observations have arisen from a single case study of the Jakarta Smart City initiative, the critique that it presents is not peculiar to this case alone. Others have written, using other case studies and country contexts, that smart

cities as they are planned and implemented ignore the principles of social justice and inhibit the participation of excluded groups in, say, India (Datta 2015), and ignore the underlying power dynamics that make the poor more powerless in, say, African cities (Watson 2015), and reproduce the same kinds of narratives in urban formation that place a premium on technology rather than on people and human networks and relationships (Soderstrom et al. 2014). An area of future work is to apply the same frame of analysis used in this chapter to other similar cases in the Global South in order to widen the discussion on how smart city initiatives can be influenced to transition towards greater openness.

About the author

Michael Cañares is Open Data Lab Jakarta's Regional Research Manager for Asia. He is a graduate of law and accountancy at Holy Name University and holds an MSc in Development Studies from the London School of Economics and Political Science. Before joining the Lab, Michael taught for over ten years, served as a monitoring and evaluation specialist for infrastructure governance and local economic development, and managed various open data research projects in the Philippines.

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