Local smart initiatives to enhance sustainable settlement

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Abstract. The New Urban Agenda (NUA) will focus on the Smart City and Sustainable City as influential forces within urban development over the next 20 years. What constitutes a Smart and Sustainable reflects the peculiarities of contexts, needs, interests and approaches to urban development in different countries and regions of the world. Indonesia, for example has adopted a fairly broad approach to smart and sustainability, which extends beyond ICT infrastructure to include local development and community initiatives that aim to improve urban environments, economics and lives. Yet, none has examined the relationship between the model of Smart and Sustainability in the context of settlement-built environment. This paper is based on results of an interdisciplinary research project on “Kampung Innovation in Support of Smart City”. In the project, architects and anthropologists are collaboratively investigating creative and innovative ventures initiated by Kampung communities in Surabaya. In this paper, we present data gathered to date through participant observation and interviews, and discuss its analysis using six components of the Smart City which highlights the Human Driven Approach (HDM) approach. Findings reveal that these kampung communities are making important contributions to Surabaya’s development as both smart and sustainable city through creative and innovative approaches to meeting local economic, social and cultural needs in their settlement.

Keywords: smart initiative, sustainable settlement, Surabaya

1. Introduction

In general, smart city is equated with the use of technology and information in order to maximize existing resources. By building an appropriate intelligent infrastructure, it is expected that services to citizens will become more effective and efficient. For example, Bakici et al. [1] recommend that cities should base their Smart City models on three main pillars: infrastructure, human capital and information, while the Smart City initiative should be a composition of various organisations and departments. Additionally, a city becomes “smart” by being environmentally friendly with green open space, efficient use of energy including smart public transportation, and the application of appropriate technology and additional infrastructure in order to make its usage easier, more efficient and flexible [2].

However, the Smart City concept is not only concerned with the use of technology, information and physical aspects, but it is equally important to include and understand non-physical aspects, such as people’s usage understanding of the concept. Thus, a city needs to increase its social services, its
social and economic value, social interaction, health care, and it has to educate the public about the concept of a "Smart City". Recently, the study of the Smart City has been widely explored and examined from different angles.

Liu et al. [3] discusses mutual influences in ten smart cities in China using social network analysis. The research reveals that, as human-city interaction is at the core of the Smart City, public participation should be strengthened in China as it can be attributed to the significant top-down driven governance model in China. Manitiu and Pedrini [4], on the other hand, discuss a set of smartness and sustainability indicators applicable to European cities regarding the implementation of the Europe 2020 strategy. Their research suggests that policies at different levels should not only be implemented in core urban areas, but the potential of small and medium cities outside the core regions should also be considered. Additionally, groups of very diverse cities become smart in the cultural domain, side by side to groups of urban areas with significant environmental and social developments. In Indonesia, several cities have adopted the smart city concept, such as Bandung, Balikpapan, Makassar and Surabaya. Bandung City Government agrees to develop Bandung Techno-Polis on 400 hectares of land that will become a prototype Smart City in Indonesia. Additionally, Bandung has provided internet access in public places by installing 5000 wi-fi, social media-based services, etc. Meanwhile, Surabaya has steadily applied an approach through the development of information technology-based services, ranging from the collection of population data, health services, transportation management etc. Internet facilities are provided not only in the city’s public places, but also in the settlements (kampungs). In 2011, the City of Surabaya won the Smart City Award 2011 in the category of Smart Environment, Smart Living and Smart Governance [5].

For that reason, further investigation for Smart City’s implementation is important to find how the issue can be approached from a broader and more diverse perspective. In the case of Surabaya, a holistic approach to city development is essential to contribute Smart City’s implementation. Moreover, Surabaya city is supported by the existence of “kampung” as living settlement that facilitates cultural diversity of the community. Hence, Smart City concept needs to be further elaborated in a multitude of creative and innovative ways to its implementation. This paper is the result of a project in which the research team of the Department of Architecture at ITS has combined both approaches in a complementary way that allows interdisciplinary research in cooperation with the team from Anthropology Department of the University of Vienna. The architectural research approach identified the physical form and aspects of innovations and technical approaches derived from the relationship between the communities and the kampung settlements. On the other hand, anthropology’s field of research was small-scale rural societies. The urban environment has increasingly gained importance on a two-fold level: firstly, cities are places where different groups or communities can be studied and, secondly, they are environments with their own specific characteristics in terms of geography, economics, politics, social organization, etc. which need to be studied in their dynamic interrelations [6,7]. By focusing on small settlements (kampung) within the metropolis of Surabaya, we have searched for the characteristics of the innovative society whose contributions to both Smart City developments can be taken as a reference for other regions in Indonesia to enhance sustainable settlement. We have investigated how new ideas, strategies and technologies have been developed by the local communities or been introduced by outsiders and have been accepted and implemented or rejected by the local society. Research contributions have expanded and enriched the theoretical framework of the Smart City concept in the context of kampung settlements and the “innovation society’s” role in these kampung settlements to work towards enhancing sustainable settlement goals.

2. Methods
The study was based on qualitative research where the reasons why and how people develop and create smart initiative were explored to boost the quality living and environment of the kampung more sustainable. Field study observation and conducting on-depth interviews were applied to collect primary data. The research followed series of stages of study; first, study literature to define the factors and indicators of smart city that can be used to investigate the kampung’s characteristics; second,
collection of primary data through observation and interviews with kampung community; and last, processing and analysis of qualitative data based on factors and indicators and parameters. Synthesis of the results of literature review, observation and interviews was elaborated into data triangulation to define the characteristics of the innovation community.

Since the study explored the recent phenomena that could not be tracked and manipulated by the researcher, case study strategy was applied [8]. Therefore, specific perspective based on in-depth research in kampungs was carried out and supported by study literature and using macro perspective of kampung as urban settlement in urban city of Surabaya. Moreover, relevant macro data about large-scale development in the city of Surabaya that has led to its status as a smart city were included in the analysis. Kampung Maspati was selected as one of old kampung that recently achieves several national and local recognitions for its innovation. The kampung has advanced its environment and society to higher level as tourism and historical attraction [9]. Selecting Kampung Maspati as case studies may reveal strategies used by the people to develop innovation to be better quality of life and environment.

3. The development smart city theory

Although most research about ‘smart cities’, their underlying concepts and implementations has been carried out during the past decade, the phenomenon is not as new as this may suggest. The term ‘smart city’ was first introduced in the 1990s along with the rising of ICT (information and communications technology) to enhance the modern infrastructure within cities. Smart city is also associated to ‘digital’ and ‘intelligent’ city [10]. While technology, and especially ICT, is still a central parameter, the label ‘smart city’ and its underlying ideas and concepts have taken on a broader and more holistic understanding. Thus, rising major points of criticism are that its operations are more technical, government-oriented and a top-down approach that presented only a very reductionist and non-inclusive view of urban development and progress. If smart city’s concept is suggested to provide an advance solution for more sustainable everyday lives and urban living, then it is necessary to view the smart city as a concept that is not only limited to the development of ICT on infrastructure and urban services, but also as further collaboration with all sectors (such as scientists, economists, socialists, anthropologist, planners, architects, political and environmental experts) is necessary. Consequently, industry, university and government become the main ‘actors’ [11] to develop and promote its concept and practice. Recently, for smart city application, according to Kummitha and Crutzen [12], there are two approaches that are the Technology Driven Method (TDM) and the Human Driven Method (HDM). Technology Driven Method carries out most theories in smart city, which are advanced technology (ICT) development as solution for urban problems to improve the quality of life. Whereas, Human Driven Method defines humans/citizens as significant components in life improvement, which means ICTs alone could not contribute to it.

Due to the vast body of literature on smart cities, there is no shortage of definitions as Albino et al. [10] have shown in their list of definitions based on an in-depth literature review. According to Nam and Pardo [13], for instance, technology, people and institutions are important components of a smart city. Key factors in people’s contributions are creativity, diversity and education. Albino et al. [10] agree that “[…] the label ‘smart city’ should refer to the capacity of clever people to generate clever solutions to urban problems … [T]he spirits of e-governance in a smart city should be citizen-centric and citizen-driven.” Cohen [14] has developed the “Smart Cities Wheel” model, contains six key components and three drivers for each component which are Smart Economy, Smart Environment, Smart Governance, Smart Living, Smart Mobility, and Smart People.

Smart cities wheel model by Cohen has limitation in discussion about the factors of each key component. Meanwhile, Giffinger [15] gives more factors to identify the smart cities concept (Table 1). They have different terms in defining the smart cities factors, which are for Cohen, factors are named six key components and for Giffinger named six characteristics despite of similar definition. Giffinger has explained six characteristics of smart city more specifically and comprehensively. The list of fields where, according to Giffinger [15], smart solutions could or should be applied is extensive and includes the production and transfer of knowledge as well as the conditions and processes of
learning, both of which are relevant for the acceptance of ICT infrastructure, including e-government services. It has been argued that investments in human and social capital would lead to a stronger economy and higher standard of living as well as to a participatory involvement of the local populations and to the protection of natural resources [15]. Therefore, new concordant within several theorists propose ‘smartness’ includes the smart initiative and innovation from the society and their participation to resolve wider range of environmental, social, and economic challenges. This is reflected in the wide acceptance and application of the following six characteristics of a smart city developed by Giffinger et al. [16].

Table 1. Characteristics and factors of smart city

| Smart Economy (Competitiveness) | Smart People (Social and Human Capital) |
|---------------------------------|----------------------------------------|
| • Innovative spirit             | • Level of qualification               |
| • Entrepreneurship              | • Affinity to life long learning       |
| • Economic image & trademarks   | • Social and ethnic plurality          |
| • Productivity                  | • Flexibility                          |
| • Flexibility of labour market  | • Creativity                           |
| • International embeddedness    | • Cosmopolitanism/Open-mindedness      |
| • Ability to transform          | • Participation in public life         |

| Smart Governance (Participation) | Smart mobility (transport and ICT) |
|---------------------------------|-----------------------------------|
| • Participation in decision-making | • Local accessibility         |
| • Public and social services    | • (Inter-)national accessibility |
| • Transparent governance        | • Availability of ICT-infrastructure |
| • Political strategies & perspectives | • Sustainable, innovative and safe transport systems |

| Smart environment (Natural resources) | Smart Living (Quality of life) |
|---------------------------------------|------------------------------|
| • Attractivity of natural             | • Cultural facilities        |
| • Conditions                          | • Health conditions          |
| • Pollution                           | • Individual safety          |
| • Environmental protection            | • Housing quality            |
| • Sustainable resource management     | • Education facilities       |
|                                      | • Touristic attractiveness   |
|                                      | • Social cohesion            |

Source: Giffinger et al [16]

Regarding smart city implementation approach by Kummitha and Crutzen [12], those six characteristics of smart city has comprised both technological driven method (TDM) and human driven method (HDM). For example, in smart living, several factors describe the quality of life that relate to the human aspects and needs. It means those factors represent the HDM smart city implementation approach in which social, economic and cultural dimensions are further investigated and developed. Meanwhile, several factors’ characteristics represent the TDM such as, ICT-infrastructure, sustainable and innovative and safe transport systems (Smart Mobility), which are technology-related initiatives.

Our own literature review has shown a great awareness of the importance of the ‘smart people factor’ among all authors. However, this does not always correspond with the views held by government institutions and actual smart projects. Many scholars, therefore, still take a rather critical position towards smart city policies. Hemment & Townsend [17], for instance, lament the continuing emphasis on top-down solutions with efficiency, innovation and transparency as urgent priorities while the aspirations, anxieties and abilities of individuals, communities and small businesses are still neglected. This corresponds to Shepard & Simeti’s [18] critique of the view that “[…] optimisations and efficiencies will inevitably make for a better life”. Their answer is, “Maybe, maybe not, or at least: neither always nor everywhere, and rarely for everyone” [18]. Hill’s [19] call for a fundamental shift
towards bottom-up innovation and collaboration with the ‘smart citizen’ as co-creator suggests far-reaching changes in people’s identities, their roles in society and even the meaning of citizenship.

Since Giffinger’s et al. [16] model of smart city characteristics, which includes 31 factors and 74 indicators, the search for appropriate indicators has been a primary concern. Nonetheless, Caragliu & Del Bo [20] criticise the lack of adequate evaluation of the relationship between urban smartness and smart policies despite the obvious attraction of smart city concepts to policy makers. Their research was based on a sample of 314 European Union cities and the results suggest that “[…] Smart city policies are more likely to be designed and implemented in cities that are already endowed with smart characteristics. [Their] findings also point to a higher probability that Smart City policies are implemented in denser and wealthier urban areas” [20]. As Shepard & Simeti [18] critically remarked, smart developments do not always serve those most urgently in need but rather an already well-established and technologically skilled middle-class. In his study of Italian cities that seem to be fully committed to smart urban policies, Vanolo [21], too, concludes that in the production of smart citizens, there is little room for the technologically illiterate, poor or marginalized citizens. By drawing on Foucault’s concepts of power and governmentality, he sees the development of ‘smartmentalities’ as a strategy to discipline cities and their inhabitants. Similar concern is expressed by Kitchin [22] when he says that the smart city concept is neither apolitical nor non-ideological. He agrees with Shelton et al. [23] that it is not a completely novel approach but has its roots in high modernist urban planning of the mid-20th century and urban cybernetics of the 1970s, with a strong focus on smart growth and new urbanism [22].

Kitchin is not the only author who bemoans the lack of critical approaches and in-depth studies that include qualitative research methods like ethnographies and interviews that may dispute official statistics and throw light to grassroots developments. Ylipullu’s [24] critically analysed socio-cultural processes that have shaped the design and adoption of new urban technology. A key question in her work was if the technology fitted into everyday practices and flows of a northern city. Like Cossetta & Palumbo, Giffinger, Townsend and others, Ylipullu acknowledges the importance of place in her research [11,15,24,25]. This is in accordance with all critical authors who see one of the main problems in universal definitions and indicators of a smart city that pay too little attention to local differences and the diversity among cities.

4. Sustainability and sustainable settlement

For the time being, sustainability becomes a basis of development in every single area. Our Common Future, stated in Brundtland Report, defined sustainable development as strategies that meets the present needs without compromising the ability of future generations to meet their needs. According to Nair [26] ‘meet the present’s needs’ refers to sustainability of development aspect, i.e. economic, social, cultural and political issues. Whereas ‘without compromising the ability of future generations to meet their needs’ refers to environmental aspect.

New Urban Agenda (NUA) and SDGs have similar spirits in enhancing city and community development. Sustainable Development Goals (SDGs) help many countries in defining their actions with their 17 goals, which are targeted to be achieved by 2030 [27]. One of the goals (Goal number 11) is sustainable cities and communities which has targeted in making cities and human settlement inclusive, safe, resilient and sustainable [28]. Housing as one of human basic needs is able to portray the quality of people’s life. Therefore, housing is central to sustainable development, which is seen as multidimension process that links environmental protection with economically, socially and culturally sound development [29].

UN HABITAT [29] divides sustainable policies into three scale of scope, i.e. macro scale (region, city), meso scale (neighbourhood, settlement/suburban) and micro scale (parcel/household). Micro scale policies help in developing the meso (neighbourhood, settlement/suburban) and macro scale (region, city). Hence, this paper discusses specifically the sustainable housing policies in micro scale. The sustainable housing policies in micro scale have similar goals and parameters of smart city’s, which are as follows: (1) Environmental dimension, includes ensuring energy efficiency, green design,
using local materials, improving resilience and adaptation of homes; (2) Social dimension, includes enhancing public participation, providing access to infrastructure and public spaces; (3) Cultural dimension, includes improving aesthetics, diversity and cultural sophistication of the built environment, helping community creativity; and (4) Economic dimension, includes providing adequate residences to raise labour productivity, supporting domestic economic activities and enterprise.

5. Result and discussion
According to Susanto [2], the city of Surabaya faces similar challenges as many other cities in developing countries to adopt and implement the Smart City concept to its development. During the past decade, the government has invested large sums to design and implement the e-government public services. However, hardly any data is available about their usage and success rate because only few local authorities have evaluated their services. Kampung in the city of Surabaya occupies 30% of built up area and holds more than 70% of the population of the city, so the existence of the kampung is an important part of urban development [30]. The existence of kampung with the communities and quality improvement program in Surabaya still persist in efforts to adapt to modernization and globalization [31]. Public awareness on environmental development in Surabaya, through creative innovations, makes the kampung as a livable settlement for the people’s lives. Currently, the kampung in Surabaya indicates the phenomenon not just as a place to life but also as a place for the inhabitants to actualize themselves economically and socially [9,32]. Therefore, kampung should be able to adapt to survive as a livable settlement toward the sustainable development goals. Although kampung, which is home to a large low-income people, has environmental problems in general, through creative innovations of the community with the support of the city government, the kampung in Surabaya is able to transform to be green kampung with green economic activity [33]. This effort has been recognized widely when Surabaya City in 2015 was awarded as the best city in applying the concept of smart cities. It shows that the development of Surabaya comprehensively meets the satisfaction of the urban development goals and its people.

Located in the center of Surabaya, Kampung Maspati is home for 350 families comprising of 1350 people. Kampung Maspati has launched itself as an old kampung and is worth to be one of the tourist destinations in Surabaya offering the tourism attractions, such as old settlement, building and traditional living experiences [9]. Therefore, supported by local government, Kampung Maspati has sought and developed their potential in supporting Surabaya’s tourism agenda. The development of Kampung Maspati comprehensively has able to enhance the value of socio-economy of the community and physical kampung’s infrastructures. This kampung has its own specific characteristics and approaches to improve the sustainable human settlement. By using, the model of smart city’s parameters proposed by Giffinger et al [16], Kampung Maspati is discussed by using six key components and the indicators, which are Smart Environment, Smart People, Smart Living, Smart Economy, Smart Mobility and Smart Government.

Smart Environments play a crucial role in shaping people’s health and life quality and are strongly interrelated with the Smart Living and Smart People sphere of Cohen’s 2012 Smart Cities Wheel. Kampung Maspati’s key strength lies in its design and application of Smart Environment concepts. Maspati has successfully implemented an innovative garbage management system that centrally organizes the collection and selling of reusable waste, like plastic and metals via Garbage Bank, and pays shares to its contributors. Several waste management innovations are applied, including using composter, Waste Bank and Wastewater Treatment Plant (IPAL) (Figure 1 & 2). Moreover, kampung Maspati has exposed its building’s preservation and cultural heritages as tourism attraction, which not only promotes the kampung living, but also raises the environmental and living quality. Giffinger et al [16] also note that key factors of smart environment include Attractiveness of natural conditions, lack of pollution, environmental protections and sustainable resource management.
Kampung Maspati shows great strength in lifelong learning – best exemplified by their adaptation of new skills and behaviours. Inclusiveness of citizens becomes social capital to support the kampung development. The inclusiveness of people also shows from how they manage the environment and building heritage to support the historic building preservation and environmental, social, and economic activity protection. In addition, the innovation of creativity in building preservation and socio-economic activities has enhanced the role of Kampung Maspati in supporting Surabaya’s city development. For example, Maspati people introduce local music with traditional instruments (patrol music) as special attraction for the visitors. Every Sunday, they perform music patrol, cultural events and traditional living as tourism attraction that increase the economy of the kampung residents (Figure 3 & 4). It shows that those initiatives support the Smart People parameters of what Giffinger et al. [16] remark: social and ethnic plurality, flexible, creativity, and participation in public life.
Figure 3. Inclusiveness of kampung community as social modal by preserving kampung heritage and social activity

Figure 4. Innovation of creativity by introducing traditional instruments (patrol music) and traditional games

According to Cohen [14], Smart Living is manifested in culture (well-being), safety and health. Smart living related with culture, social and physical conditions of life of its people who have manifested physically in their settlement can be seen directly. Giffinger et al [16] also add that several characteristics/factors including cultural facilities, individual safety, housing quality, touristic attractivity and social cohesion must be promoted for sustainable and smart living. In Kampung Maspati, many cultural and social interactions are reflected in their daily lives that prove the smart living in their people. Since the Dutch colonialism, Kampung Maspati has been in a conservation area, which is now known as Bubutan district. The settlement characteristics and architectural buildings are influenced by colonial architecture and Chinese architecture (Figure 5). Those also represent mix ethnic community who is shaped by cultural and social diversity background. However, the old building has recently been shifted and gradually changed into modern building due to lack of its preservation and maintenance. Yet, others are continually preserved despite its lack of financial supports and ownership issue in order to hold their identity as one of oldest kampung societies in Surabaya [9]. Regardless of historical buildings as cultural facilities to support Smart Living characteristic, Tony Mulhall criticized that smart city standard must favour the architectural heritage in order to market benefits in the creative reuse of buildings and the regeneration use for it [34].
In kampung settlement, the community optimizes the alley space as a public space where social interactions and activities commonly take place. The alley space is not only to accommodate the socio-economic activities, but also to become a place for expressing their cultural diversity backgrounds. When children actively play in the alley, while watching them playing, the elders also interact with their neighbours. Social gathering and communal space for residents, and even for spiritual or wedding ceremony events and domestic activities, such as drying clothes, have also taken place in Kampung’s alleys. These events highlight that Kampung Maspati has strong social cohesion and neighbourhood safety, which are supported by community’s participation and its traditional social-cultural interaction systems.

Smart Economy is often defined and understood in terms of competitiveness and embeddedness in (international) markets with key characteristics, such as innovative spirit, entrepreneurship, economic image and trademarks, productivity and flexibility of the labour market [16,21]. Kampung Maspati residents developed successful enterprises and income generating activities that are directly related to (and dependent on) its status as a Smart Kampung, in particular to its environmental guidelines and the production of local food, drinks and recycled handicrafts Fig.7).
Figure 7. Local commodity value developed to support economic image

The (with the help of/in cooperation with the city government) neighbourhood develops a successful model for Smart Environment and Smart Living attracting local and international tourists who come and study Maspati’s idea of a Smart Kampung. This touristic success allowed the development of more new enterprises who could benefit from the enlarged sales market. To enhance their commodity product value, the people create snacks and foods that have high customer demand with unique packaging box (Fig. 8). Moreover, some alleys of Kampung have been transformed not only as circulation area for pedestrians but also as impermanent street vendors every Sunday morning.

Figure 8. Unique packaging box and local promotion in Maspati

The people also promote kampung’s socio-economic activities and tourism attractions in several social media, such as Whatsapp, Facebook, Instagram, and website. WhatsApp media is used for social communication within the kampung’s inhabitants to inform the social and tourism activities, as well as for forum to discuss complaints, suggestion, updated news in order to organize and develop the kampung. Another media such as Facebook, Instagram and website are used to inform the social and tourism activities in Maspati kampung, where suggestions, messages or comments from both domestic and foreign tourists who have visited Maspati are freely posted and read. According to Cohen [35], ICT and e-Government, Transparency and Open Data enable supply and demand side policy as core areas of Smart Governments. Giffinger et al., [16] further stress the importance of participation in decision-making, public and social services, and political strategies and perspectives. At least in theory, e-government systems increase the efficiency of administration, accountability and transparency of its services, while at the same time enabling more people to access them and increasing trust in them [36]. The use of information technology service is necessarily designed and implemented at the macro level.
using top-down approaches. Nevertheless, bottom-up capabilities, opportunities for citizen representation and participation remain crucial factors for a successful implementation and acceptance of the offered services [37].

Fig. 9. Social multimedia platforms are used to promote the kampung for tourism purpose (retrieved from https://www.kampunglawas.com/id [38])

While we still lack data on the usage of Smart Government services in Kampung Maspati, Susanto [2] provides us with an evaluation of e-government progresses in 37 public sector departments in Surabaya. His results demonstrate that e-government services show a usage of less than 7% of all potential users, thus they are significantly under the expected target. But many of these public-sector departments did not even properly monitor their e-services and could not provide any numbers at all, which gives reason to assume even much lower user percentages. Smart Government services have the potential to support citizens in their daily life and to make their interaction more transparent and efficient. To better understand the reasons for their rather low acceptance and usage, additional data needs to be collected. In this regard it will be crucial to identify all relevant Smart Government services available and to evaluate Kampung people’s knowledge/awareness of them. Using qualitative research methods, we should be capable of identifying the reasons for/against the usage of available Smart Government services, their usage behaviour and specific suggestions for improvement.

Fig. 10. Social cohesion and mobility activities are allowed using the kampung’s alley
Smart Mobility is widely understood as a means of transportation (sustainable, innovative and safe), local and (inter)national accessibility, as well as the availability of integrated Information and Communication Technologies (ICT) [16,35]. These complex areas are generally addressed at a macro level and are the responsibility of city governments and private ICT providers. A growing amount of ICT solutions are developed at grassroots level, but they rarely find integration at city levels [39].

The struggle with urban traffic, chronic traffic congestions during rush hours and the lack or deficit of well operating public transportation alternatives are well known challenges for many Asian cities. With most citizens of Surabaya relying on private vehicles for their daily commute (predominantly motorbikes and cars), this city is no exception and the traffic problems are all too familiar. Improved public transportation and ICT-based traffic regulation could hold potential solutions to these problems. ICTs generally show great potentials for facilitating people with disabilities, forecasting weather, monitoring climate change and contributing to emergency preparedness and response as well as, among others, improving health-care services and education. To manage safe kampung environment, Kampung Maspati has strict rule for residents and visitors to ride their vehicles, including motorcycle and bicycle, slowly inside the kampung alley. Besides that, instead of parking their car inside the kampung, the resident must park their car in the rental area which is provided and managed by its community, yet motorcycles and bicycles are still allowed to be parked in kampung’s alley (Fig. 9).

6. Conclusion
Regarding the acceptance and continuous usage of community services by its citizens, participatory and people-centred approaches have promised more successful results than top-down approaches. Smart Citizens are at the very core of all Smart City activities and inseparably connected to the success or failure of Smart Cities that make the city more sustainable and resilient. This is why social sciences, and social and cultural anthropology in particular, can deliver important insights about the needs for and the usefulness of services and technologies, as well as the circumstances and preconditions required for their acceptance and usage. Finding new perspective and definition for smart city concept is important to formulate right strategy for its implementation in developing countries. The local smart innovative and initiative by local community and government help creating a new approach to integrate the urban development and the smart city concept. Kampung Maspati, one of old kampungs in Surabaya, shows that it is a challenge to implement the smart city concept that only focused on specific parameters in Technology Driven Method (TDM), especially for which still has lack of information and communication technology parameter. Thus, this paper proposes “smart cities” as environments of open and user-driven innovation based field trip observation for further urban development that integrates the local potential aspects including local innovation strategies for the environment, people, living and building heritage which is closer to Human Driven Method (HDM).

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