

Urban governance and smart future cities in Nigeria: Lagos flagship projects as springboard?

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Introduction

Lagos colony emerged from the creation of a geographical entity known as Nigeria, through the amalgamation of the southern and the northern protectorates by the British in 1914. This, supposedly, set the stage for the building of a prosperous and egalitarian society. Agunbiade and Olajide (2016: 1), note that the ‘quality of physical form, socio-economic structure and governance outlook of what later became of Nigerian cities are products of many interacting forces over time and space’. The historical and political development of Nigeria can be generally categorised into three eras – pre-colonial (years before 1861), colonial (1861–1960) and postcolonial (1960 – present). Agunbiade and Olajide (2016) further discuss the political dimension of governance in Lagos, in time and space, as well as the implications on urban development and service delivery.

In the early years of Nigeria, there was less need for infrastructure development. In addition, the governance arrangement remained effective in meeting the needs of the indigenous society. The period of colonial administration, particularly from 1900, has been described as a period of rapid urban growth and metropolitan expansion. Major cities like Lagos, Port Harcourt and Kano experienced dramatic changes in population. For example, the population of Lagos increased marginally from 25 518 in 1871 to about 40 000 in 1901, and subsequently to 267 407 in 1953 and was projected to have risen to 662 246 by 1963 (Mabogunje 1961). As noted by Decker (2010), this, however, led to several social problems and corresponding poor urban management. The consequences of these included inadequate social infrastructure, poverty and massive rural-to-urban migration that could not be effectively managed or contained within the regulatory capacity of the government.

The structure of government since Nigeria's independence in 1960 has been that of three distinct administrative levels – national, state and local government areas – each with defined spheres of jurisdiction and constitutional functions. Lagos region emerged as one of the federating states in 1967 and has since dominated the country's socio-political landscape despite its relatively small land area, the smallest in the country.

The country's political trajectory, shortly after independence in 1960, ended in jagged governance systems. Since independence in 1960, Nigeria has witnessed political and economic instability occasioned by continuous military interference in the political and governance system. As noted by Gandy (2006), the successive military governments reinforced the earlier colonial forms of social, economic, political and spatial inequality. The military interrupted the political structure in 1966 and ruled from 1966 to 1979 and once again between 1983 and 1993. Thereafter was a mix of military and civilian rule until 1999. In all, the military had ruled Nigeria for a total of 34 years. The military ruled without respect for the rule of law and no specific political will to pursue any meaningful development agenda (Agunbiade & Olajide 2016).

At the close of military rule in 1999, Nigeria had declined politically and economically. While most other countries in transition and with similar economic prospects and a natural resource base were advancing and aiming at developing productive cities, this was stymied by vandalism, lawlessness, and grossly inadequate infrastructures in many cities in Nigeria. However, in a relatively short period of time, commencing precisely from year 1999, Lagos went from a basket case to one of the examples of a well-run African city with promising prospects. The potential of Lagos was always framed in terms of its potential and capacity to become 'world-class'.

From this perspective, reformers have been heavily influenced by specific examples of urban efficiency and prosperity, for example, Dubai, Singapore, etc. There is a desire to become Africa's main financial services and economic hub, a key node in the locational dynamics of economic globalisation. To achieve this, determined political leaders have embarked on ambitious policy reforms and flagship projects. In the more recent years this modernisation agenda has been framed by the smart cities discourse, manifest most acutely in fashioning the character of Dubai. In order to explicate one aspect of how the global manifests in the local, the chapter focuses on the relevance and impact of smart city discourses on governance and policy priorities of Lagos, using the transition from neglect to proactive urban management as context.

Transition from neglect to proactive urban management

At the turn of the millennium, owing to the long period of infrastructure and services neglect, Lagos already demonstrated signs of urban decay and inefficiency in all its sectors. This resulted in a chaotic mixture of socio-economic and environmental problems, manifested in high incidence of slum formation, inequality, poverty, unemployment, overcrowding, crime, violence, pollution and urban disorder. Evidently, these are contrary to the ideology of a smart city, which seeks to improve the efficiency of infrastructure and services and, in turn, the quality of life of the citizens. The emerging nuanced discourse of smart cities in Lagos is a combination of many factors including political stability and a steady development policy framework backed

by visionary leadership, political will and strategic spatial planning mechanisms. Also important to recognise is the tremendous improvement in the city's economy and government revenue base. The improvement of the revenue base stemmed from effective reform of taxation systems which brought considerably more resources into the public purse.

From the available data, Lagos currently generates about 75% of its income from internally generated revenue (IGR) and is unarguably the most financially viable state in Nigeria today. The increase in the state government's revenues resulted in huge investment in urban development plans (model city plans, regional master plans and integrated transportation master plans), transportation facilities, new housing schemes, new industrial and commercial districts (Lekki Free Trade Zone and Eko Atlantic City), healthcare facilities, city beatification and slum regeneration efforts. These are tagged as flagship projects (Table 1 on p. 136). Several of these projects have attracted global acclaim and interest while serving as potential platforms for advancing smart city initiatives. Taken together, they are expected to provide an opportunity to examine the intersection of ICT, digital Spatial Data Infrastructure (SDI) and sustainable good urban governance in the smart city aspirations of Lagos.

Conceptualising urban governance, smart city and flagship project

There seems to be some commonalities or overlaps between good urban governance and smart city debates as presented by some scholars, such as Dirks and Keeling (2009), Hatzelhoffer et al. (2012), Komminos, Pallot and Schaffers (2013). From the views presented by these scholars, it could, however, be argued that every city with good urban governance is not necessarily smart, but every smart city has good urban governance components. To advance this argument, it will be necessary to put in proper perspective what urban governance is and how it relates to the smart city.

Urban governance

There is extant literature relating to the definitions of governance (World Bank 1989; McCarney, Halfani & Rodriguez 1995). The World Bank (1989: 60) defines governance, at the national scale, as the exercise of power in the management of a nation's affairs. Within the context of this paper, focusing on the urban scale, governance is described as the relationship between civil society and the state; between rulers and the ruled; and between the government and the governed (McCarney, Halfani & Rodriguez 1995). Governance involves a variety of actors – formal and informal/traditional, local and international – who share responsibility to govern and exercise power through a multiplicity of instruments. Central to this exercise of power are the people: the government and the governed. This is usually shaped through continuous interactions. In this regard, the quality of relationships amongst the various stakeholders (rulers and the ruled) and the instruments involved are critical.

The outputs of governance within the urban systems is a product of many interacting forces resulting from diverse decisions taken by city administrators (state) and a spectrum of people (agency). These decisions are informed by the desire to satisfy certain motives. Depending on what these motives are, the society

is continuously shaped and modified by the outcomes. Some scholars (Beall & Fox 2009; Harvey 1989, 2007; Vliet 2002), have commented on the political economy implications of injecting neoliberal ideology into spatial planning and development to support corporate capital accumulation and foreign investments in most developing countries, especially in Africa. These days, urban administrators are being guided by the contemporary events and fashionable policy discourses circulating around the world. Some of the significant ones being issues, discussions and conventions around: climate change, sustainable development, smart city initiatives, city deals, and the internet of things.

It is not unusual for thinkers to suggest that developing countries can jumpstart their socio-economic development by aligning local policies to leverage contemporary global thinking and development trends, for instance, green economy (UNEP 2011); and ICT for development (Pieterse 2010). However, beyond the rhetoric and buzzwords, as Watson (2004) termed some of them, there are some fundamental issues that need to be considered when discussing these trending issues. The focus of this chapter centres on smart city initiatives and good urban governance. Governance in this respect is considered to be an *institutional* factor in the smart city initiative. In other words, the motive of city administrators will determine the depth and perception of smart city initiatives and how these are translated to policies, especially with regards to flagship projects being embarked upon by government.

Smart city

The smart city is conceptually defined as ‘an urban space that is surrounded by or is embedded with smart systems or a city with ideas and people that provide clever insights’ (Anthopoulos 2017: 7). Eremia et al. (2017: 14) noted that ‘the term incorporates elements of sustainability and social inclusion, at the same time being suited to the evolutions of the new internet technologies.’ However, Albino, Berardi, and Dangelico (2015) observed that it remains a fuzzy concept. Clearly, there are conceptual variants of the term as some scholars have replaced smart with alternative adjectives like: digital (Shin & Kim 2012), intelligent (Komminos 2008), knowledge (Yigitcanlar, O’Connor & Westerman 2008), ubiquitous (Leem & Kim 2012). Albino et al. (2015) observe that, in the urban planning field, the term is treated as a normative claim and has an ideological dimension, that is, being smarter entails having strategic direction. Governments and public agencies now use ‘smart city’ as one of the contemporary master signifiers for urban development programmes and policies which aim to achieve sustainable development, sound economic growth, and better quality of life (Gunder & Hillier 2009).

Since the emergence of the sustainable development principles in the *Brundtland Commission Report of 1987*, the concept and practice have witnessed several transitions. The evolution and application of the concept has also been expanded to accommodate the digital and development realities of the last three decades. From the theoretical grounding and applications of the concept in the 1990s; to the Millennium Development Goals (MDGs) experience of the 2000’s, and now the Sustainable Development Goals (SDGs), the core principles have not only survived, but they have also shaped most global development discourses since their emergence. During the

same period, the smart cities movement was also developing and the digital realities of today have fuelled the sustained relevance and nexus of both concepts.

While precursors to the smart city concept first appeared in development discourse during the early to late 1990s, the conceptual evolution is traced to different terms ranging from digital city to future city and more. Although the article by Graham and Aurigi (1997) on *web or virtual city* is widely cited as one of the pioneer literature related to the present-day smart city concept, Anthopoulos (2017) showed that different cities around the world were gradually transitioning into future and digitally smart city approaches as early as 1994 but all took different pathways in their evolution. The different individual baby steps of those days (including basic efforts such as map digitisation, geographic information systems, e-commerce, e-government, e-library, e-books, computerisation of work processes, wireless broadband and databases etc.) have now collectively crystallised to drive the current ICT-focused smart city agenda.

Today, smart city considerations are increasingly becoming integrated into sustainable development discourse in many cities around the world, including Lagos. For instance, since 2016 the Lagos State Government has been vigorously promoting a comprehensive Smart City Programme that seeks to provide a 24-hour driven economy with recent announcements to install 10 000 high definition CCTV cameras around the state among other future interrelated projects (Onwuaso 2018). This will be expected to build on the reported 'installation of free wifi infrastructure across the city' in 2017 (Raji 2018). While information technology is elevated as the central tool to achieve the smart city objective, it seems the ultimate target is socio-economic development of Lagos and its people.

However, a closer look at different stakeholders confirms that this is being viewed from divergent perspectives and thus, it means different thing to different people. For instance, Nigeria's National Information Technology Development Agency (NITDA) adopts what it calls a 'multi-stakeholder approach' to help drive the smart city project in Lagos' while establishing the Nigeria Smart City Initiative (NSCI) in February 2016. The agency's primary vision is to champion e-governance in Nigeria but the trick is to align and balance social goals with private business opportunities for the ultimate public good.² With Lagos' reputation as Nigeria's centre of innovation and business excellence, it is only to be expected for the agency to view the Lagos smart city project as requiring public-private collaboration. Some urban development professionals, on the other hand, think there is a 'missing link' between the future smart city aspirations and the core infrastructure required for Lagos to survive.³

Ekwealor (2016) contends that while a smart city 'has digital technology embedded across all of its functions', Lagos is currently facing a deluge of debilitating infrastructural challenges including energy shortage, and the absence of basic databases required to run a smart city. Similarly, Raji (2018) noted that despite problematic infrastructure

1 <http://tmclonline.com.ng/cyberafrica/2015/10/22/our-multi-stakeholder-approach-will-make-lagos-smart-city-project-world-class-nitda/>

2 <https://sunnewsonline.com/smart-cities-stakeholders-advocate-public-private-sectors-synergy/>

3 <https://www.tribuneonlineng.com/148140/>

and unpredictable tax systems in Lagos, the smart city aspirations are not misplaced, but cautioned that it may be better to pursue Lagos as a smart ecosystem of which the government smart city initiative is only a component. Abiodun (2016) noted that Dubai had laid the foundations for essential infrastructure of a smart city starting in the 1990s. Therefore, promoters of the Lagos smart city project must understand that there is no shortcut around it. Rather it is an incremental development process, gradually evolving out of a strategic plan with specific elements of achievable targets.

Some scholars, like Bakıcı, Almirall and Wareham (2012); Marsal-Llacuna, Colomer-Llinàs, & Meléndez-Frigola (2015) and Zygiaris (2013), consider a smart city as a city that *innovatively* and *creatively* builds on its *resources* and *assets*, with a view to achieving a healthy environment, better living conditions, retain and enhance local economy, efficiently use city resources. Others, such as Caragliu, Del Bo and Nijkamp (2011) and Giffinger et al. (2007), argue that a smart city should not be limited to the integration of various ICT systems and solutions to manage the city resources, but that due consideration should be given to the people; hence, its human and social capital.

Caragliu et al. (2011: 50) observed that a city can be defined as ‘smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory action and engagement’. Put differently, a smart city not only possesses ICT, but also deploys it in a manner that impacts the local community and the environment positively. Furthermore, it should positively enhance regional competitiveness, transport, and information and communication technologies, economics, natural resources, human and social capital, quality of life, and participation of citizens in the governance of cities (Giffinger et al. 2007). In this regard, Albino et al. (2015: 4) argued that consideration should be given to strategies that enhance and ‘enable transportation linkages, mixed land uses, and high-quality urban services with long-term positive effects on the economy’.

In spatial planning and development discipline, smart city is often considered as an ideology which prioritises and integrates investment in critical infrastructure and human capital through institutional strategic policy directions (Nam & Pardo 2011; Albino et al. 2015). Drawing on this understanding and to allow for a better structuring of thoughts, this chapter considers flagship projects within the context of smart city plans based on three pillars: smart policy, smart investment, and smart technology. These are further expanded into six dimensions: *smart economy*, *smart mobility*, *a smart environment*, *smart people*, *smart living*, and *smart governance* and how each of these are related to different aspects of urban life and urban living as presented by Giffinger and Gudrun (2010) and Lombardi et al. (2012).

Shapiro (2006) argues that smart cities start from the human capital dimension: governance and policy, rather than assuming that ICT can automatically create smart cities. From this perspective, Giffinger et al. (2007) conceptualises a smart city as one with positive outcomes in the aspects of *governance*, economy, mobility, environment and patterns of living. With this view, it could be argued that for a city to be smart, the governance structure and policy thrust should equally be smart. In other words, a smart city should have a strong governance-orientated underpinning that emphasises the role of social and human capital as well as good interactions to facilitate urban

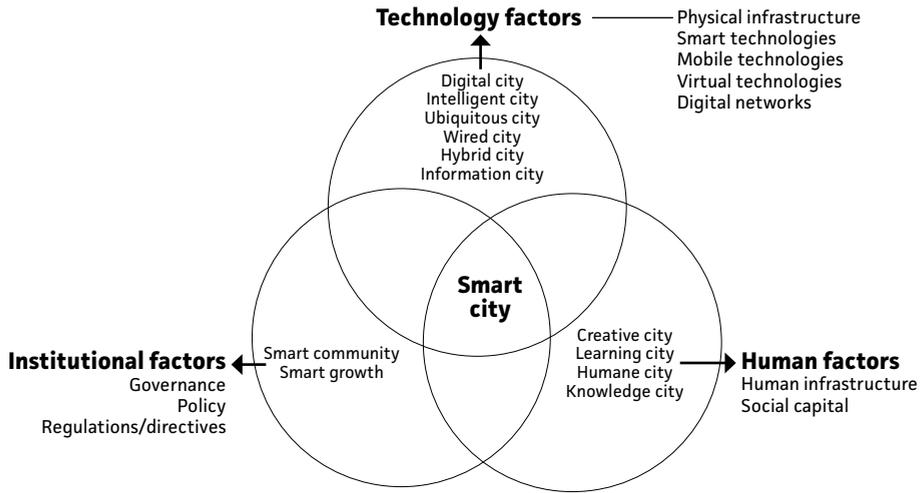
development. In addition, it must be able to deliver city deals of a shared vision for the city's productivity and livability. This will be achieved through coordinated investment and a collective plan for growth in the given city underpinned by suitable regulatory reforms and policies.

From an investment and economic perspective, smart city is expected to be structured to deliver long-term economic returns to all stakeholders. This, according to the Government of Australia (2016), involves: prioritising projects that meet broader economic objectives; treating infrastructure funding as an investment wherever possible; getting involved early to ensure rigorous planning and business cases; and increasing investment. This is, however, a contested issue in highly unequal societies, like many sub-Saharan African cities, where the majority struggle to cope with basic needs. From this perspective, there is limited general public support for investment in the smart city (Downs 2005), despite its normative ideology that it will promote social equity and inclusionary governance (Scott 2007). The implementation often shifts development benefits away from the majority through the exploitation of market mechanisms of capital accumulation (Scott 2007; Gunder & Hillier 2009). Therefore, arguably, contrary to its normative ideology, smart cities often promote social inequality and exclusionary governance through predominant market forces (Scott 2007). Paradoxically, while the market mechanisms of capital accumulation are enhancing the development of smart cities, they are also becoming barriers for socio-economic sustainability and inclusive development owing to higher cost of living (Anthony 2006; Scott 2007).

The third pillar is *smart technology*. Thinking about technology has been the interest of most governments and investors with regards to smart city initiatives. As cities evolve and new technologies emerge at a very high rate, cities are expected to leverage these technologies. For example, this means that cities should take advantage of open and real time data to drive the use of energy efficient technologies, especially with regard to investing in smart intermodal public transport systems. Considering these, therefore, the role of spatial data infrastructure in smart future cities is very fundamental. Harrison et al. (2010: 1) observe that the term denotes an 'instrumented, interconnected and intelligent' city. As described further by Harrison et al. (2010), *instrumented* is the capability of acquiring and integrating real time data through the use of sensors and devices. While *interconnected* refers to the integration of these data into a computing platform for better utilisation through various city services. To be *intelligent*, however, denotes there will be complex analytics, modelling, optimisation, and visualisation services to make better operational and policy decisions. These are the technical underpinnings of an evidence-based approach to urban governance which is something the smart city promises to achieve.

Urban governance, technology and smart city: The intersect

As illustrated by Nam and Pardo (2011), the three main dimensions of a smart city are: technology, people, and institutions (Figure 1). Significant in this equation are data that assist city administrators to make informed decisions about human settlements. Examining the connections between these factors, a city will be considered smart when investments in human/social capital and IT infrastructure stimulate sufficient

Figure 1: Fundamental components of a smart city

Source: Nam & Pardo (2011)

sustainable growth and enhance better quality of life, through participatory governance (Caragliu et al. 2011). This intersect could potentially find expression in flagship projects.

Flagship projects

For a better understanding, it is important to contextualise flagship projects within the smart city initiatives. In this regard, it will be reasonable to know what constitutes a flagship project and how this is connected to smart city initiative. Most importantly, how significant are these projects within an urban setting? What role do they play in shaping the future growth and development of our cities? How are they helping to improve the quality of life of residents?

The first approach is to see this from the lens of *new urbanity*. As argued by Harvey (1989), new urbanity is achieved through recreating the urban space by relying on large-scale and symbolic projects, largely describing the evolution of the neoliberal city in which the state relinquishes its service provision role and assumes that of a collaborator in an entrepreneurial activity. The twin approaches of globalisation and liberalisation, as described by Swyngedouw et al. (2002), influence the production of new forms and scales of governance and the relationship between flagship projects and political, social, economic power relations in the city.

While Lagos may still lack the advanced institutional systems and structural capacities of similar megacities of the global North, the conception, design, financing

and implementation of the selected flagship projects are modern, ambitious and global in outlook. As the next sections will show, proponents of these projects mostly envisaged them as iconic and, in some cases, uncommon on the African continent. Financed through public-private partnerships, the political leadership in Lagos has attracted local and foreign private investors to participate in urban redevelopment activities while guaranteeing returns on their investment. To achieve this, the local power relations rely on a delicate balance of political compromise and patronage. De Gramont (2015: 1) summarised these unique processes thus: 'governance transformation in Lagos was driven by a technocratic vision of a modern megacity but relied on creative policy proposals that also served multiple political interests'. The next section discusses the methodology for analysing the Lagos case study.

Methodology for Lagos case study

There are many approaches and schools of thought for developing knowledge. As described by Kitchin and Tate (2000) these include: empiricism, positivism, behaviouralism, idealism, realism, postmodernism and feminism. The realist approach is considered consistent with the central issues discussed in this paper. This involves the investigation of underlying mechanisms and structure of the social relations while still using a scientific approach. This is in addition to content analysis of available documents; newspaper articles, to understand the space in which discourse has emerged and in which it acquires meaning. Hollands (2008) identified three different discourses in the definitions and criteria that are selected to describe *smart cities* in African cities: infrastructure-based services; business-led urban development; and social inclusion, learning and development. It is believed that these different views will assist in understanding different assumptions about cities and their inhabitants.

The empirical analysis presented in this paper is underpinned by 'smart city' definition as presented in the earlier section. In other words, the broad considerations are: investments in human and social capital; the use of modern (ICT) communication infrastructure; a wise management of natural resources; participatory action and engagement. This approach is also consistent with the categorisation of Hollands (2008), as highlighted above. The focus is to bring out smart city initiatives within the flagship projects, emphasising the institutional dimension of participatory governance. It is apprehended through an analytical focus on: institutional capacity, inclusiveness, accountability, and contestation. This builds on the assessment of the context of flagship projects to know whether they reflect being smart investments, embodying smart technology and smart policy.

Findings and discussion

The shortage of basic infrastructure and the need to bridge the widening gap have remained a common urban management challenge for many African cities. Hence, recent reforms and the onset of a seeming Africa urban renaissance are the focus of attention. Lagos is one of the African cities with several flagship projects, as summarised in Table 1.

Table 1: Selected Lagos Flagship Projects and Initiatives

| Description of Flagship Project | Urban Sector | Timelines | Status |
|---|--|---|---|
| Eko Atlantic City | Planned City Development | 2003–2005 (Feasibility Study Conducted) | Currently under construction |
| Lagos Strategic Transport Master Plan – Lagos Bus Rapid Transit – Lagos Rail Mass Transit Network – Lagos Cable Car Project | Urban mobility/ transport | March 2008 (Phase 1) 2008 (Blue Line) 2013 (Terminus Sites) | Implementation ongoing Under construction Sites secured |
| Lagos Home Ownership Mortgage Scheme | Housing | February 2014 (Project launch) | Under construction / delivery ongoing |
| Lagos Tax System Reform | Revenue/finance | November 2005 (Commenced structural change of the LIRS) | Implementation ongoing |
| Lekki Free Trade Zone | Industrial Growth Pole | 2006 (Master Plan initiated and document developed) | Under construction |
| Badagry Port and Free Zone | Industrial Growth Pole | Early 2018 (Planned soft start) | Pending construction |
| Some Major Road Infrastructure – Lagos-Epe Expressway Rehabilitation – Lekki-Ikoyi Link Bridge Construction – Lagos-Badagry Expressway Upgrade – Ikorodu Road Expansion Project | Urban mobility / transport | May 2008 (Contract) May 2013 (Launch) April 2009 (Launch) August 2012 (Launch) | Almost completed Completed Under construction Almost completed |
| Some Commercial Development Projects – Tejuosho Market Redevelopment – The Palms Shopping Mall, Lekki – Actis Shopping Mall, Ikeja – Expansion of the Palms Mall, Lagos | Modern market Retail shopping Retail shopping Retail shopping | August 2014 December 2005 December 2011 December 2016 | Completed Operational Operational Under construction |
| Lagos City Beautification Project | Environment/ landscape | | Continuous Project |
| Lagos Waste Management Reform | Environment/ sanitation | | Continuous Project |
| Lagos-Dubai Smart City Project | Infrastructure and technology | June 2016 | In progress |

Motivation for the design and conceptualisation of flagship projects

It was noted that the main motivation was the commitment to transform cities and *invest beyond the conventional budgetary allocation* thereby responding to the noticeable signs of urban decay in all sectors. The question then is: are these configured to adopt smart city initiatives?

It could be argued that most of the projects were motivated by *infrastructure-based service provisions*. These have significantly altered the pace of development and are observed to be ‘turning Lagos around’, but there is still much more to be done in the journey to a ‘smart’ destination. So, if the concept of a smart city is viewed from an *infrastructure perspective*, it could be asserted that though many of these projects are not originally structured to satisfy smart city initiatives, they certainly have the potential to key into the broad policy direction.

Other significant drivers of change that have contributed immensely to smart city

initiatives in the present political dispensation – the fourth republic – in Lagos, include: a clear vision and determination by the government; high improvement in the city's economy within a relatively short period, with potential for further improvements. Most importantly, there is apparent political stability and a functional policy direction backed by political will, conscious urban planning and management mechanisms. All these variables set the scene for a smarter city. These have been underpinned by the financial transformation triggered by a significant change in the taxation system. This motivated major urban development initiatives by the government and bolstered the confidence of private investors to participate in the process.

Analysis of specific flagship projects in Lagos

As initially noted, the understanding of flagship projects in Lagos is framed through the lens of participatory governance to establish the connections between the institutional, technological and human factors; being the three key dimensions of smart cities. The analysis is also based on the ways in which these projects have been promoted, how they link up with national or global smart city plans or policies and how they have been implemented on the ground; the perception of local people regarding the understanding of the flagship projects, limits and possibilities of smart cities in Lagos, in particular, Nigeria and Africa in general.

Lagos was once described as a 'self-service city' by Gandy (2006), where the residents had substantially given up any expectation of services being provided by the government. Gandy noted that the residents had developed several alternative means to provide necessary physical and social infrastructures. It is common knowledge that provision of physical and social infrastructures had degenerated to an unprecedented level in most cities in Nigeria, including Lagos. The concerns of city administrators to address this critical shortage led to deliberate efforts at developing large-scale projects as solutions to the problems facing Lagos. The next sections provide a more detailed assessment of these projects from the perspective of smart city initiatives.

Eko Atlantic City Project

The Eko Atlantic city project was conceived first as a mitigation measure to the perennial ocean surge along the bar beach area of Victoria Island, Lagos. Today, it is considered one of the most ambitious new city development projects, in terms of technology, cost and innovation, in the sub-Saharan Africa region. Substantial work had been carried out with regards to retaining walls and the land filling of the site. At the moment, a city is gradually rising from the depths of the Atlantic Ocean, as one of the strategic flagship projects in Lagos. This is one of the initiatives aimed at creating technology-enabled modern living and working spaces. Lagos State Government is collaborating with the private sector to build Eko Atlantic city on the southern tip of Lagos, abutting the Atlantic Ocean, as a massive futuristic living and business complex which is intended to become the financial centre of Nigeria.

Eko Atlantic city is structured to leverage the use of modern technology solutions to better manage traffic and coordinate emergency services in the city (Harrison et al. 2010). Lagos also participated in the IBM Smarter Cities Challenge where the use of technology

was emphasised and reinforced to validate the philosophy of the initiators of Eko Atlantic. However, with regards to the way the project has been promoted, some have argued that it is elitist, with limited participation from the public. At the initial launch of the project, there were several negative comments from the residents and experts. Some of the comments regarding the draft EIA report suggest that the project lacks transparency, participation and does not always adhere to the rule of law (Njoku 2012).

The majority of Lagos residents consider the project to be grandiose and driven by profit-making capitalist motives under the hegemony of neoliberalism. The planning and implementation are considered too exclusive. There are no conscious efforts by either the government or project developers to address these concerns but instead construction continued unabated. The negative public perception of the development processes did not pose enough of a threat to affect neither the progress on site nor its global marketability. Ironically, the project website claims that Eko Atlantic City intends 'to solve the chronic shortage of real estate in the world's fastest-growing megacity'. The reality is, rather, that the project will only provide opportunity for investment and wealth creation for corporations and corporate elites, which some scholars regarded as unadulterated capital accumulation (Harvey 2007; Peck, Theodore & Brenner 2009).

However, with the level of development now, it appears the skepticism is gradually fading away, with many people getting excited at the prospect of this global city becoming the hub of activities in Lagos. The statement below describes the feelings of a few online commentators:

I was dumbfounded such huge project is fast developing [and] becoming a reality. The visit to the city was a real push, I have been inspired, motivated, enlightened, educated and exposed beyond dots and lines ... At the completion of the project I see a city that will change the face of Africa and probably transform Lagos to a successful mega-city. It's going to be the source of great national pride for our country (Nigeria) ... Kudos to the city planners and developers for this great vision ... Looking forward to its completion. (Mustapha Holasunkanmi Yusuf, Eko Atlantic, 28 March)

I think Lagos State has always produced thinking governors who are innovative, who believe in the impossible, who have gone beyond culture, tradition, religious and tribal politics, and instead are focused in transforming the state into a place where everybody will be welcome and be proud to call their home. (Esene Prayer Henry, Eko Atlantic, 3 May)

In total, out of 603 reviewers, as on 14 July 2017, 425 rated the project five out of five, and another 98 rated it four out of five.⁴

However, to sustain the good rating, Eko Atlantic will need a city manager, a mayor-type position, who is capable of running a city-within-a-city. In other words, there will be a need for a bespoke governance structure that will recognise the importance of effectively conducting the day to day running of the city. This would mean that

4 https://www.facebook.com/pg/EkoAtlantic/reviews/?ref=page_internal

Eko Atlantic city should operate under high standards of transparency and good governance consistent with similar cities around the globe.

Municipal waste management and urban greenery

Municipal waste management and urban greenery gained momentum in the last decade. Waste management that was initially the greatest nightmare of city administration has been turned into money-making ventures. Waste is now being recycled from the source. Viewed from the perspective of environment, one can argue that Lagos is becoming smart. As presented by Banire (2008), the Lagos beautification process commenced with the 'direct sponsorship, landscaping and beautification of open spaces, roundabouts, recreation parks, road medians and verges'. This effort saw the reclamation of encroached road right of ways for use as planting areas.

Several of the beautified public spaces were previously black spots or 'area boys' territories known for crime. Converting these spaces into recreational land uses not only served an aesthetic function, it also provides a solution to some of the city's safety and security challenges. One innovative approach, using a combination of reward and cohesive power, was to redirect the energies of the 'area boys' towards constructive activities including employment opportunities in gardening, traffic control and environmental policing (De Gramont 2015).

Specifically, prior to 2007, Oshodi was a notorious commercial hub in the heart of Lagos, avoided by residents and visitors alike after 6pm and before dawn. It was a permanent site of intense trading activities, as well as pedestrian and vehicular traffic. Daylight robberies were endemic; pickpockets and various other criminals held sway. Government interventions took different forms. First, the traders were cleared from the roads. A task force providing 24-hour security ensured that the place remained free for movement. Also, Oshodi was lit up with halogen streetlights that ensured that felons could no longer hide under cover of darkness to perpetrate their evil.⁵ To ensure this intervention succeeded, there was a delicate balance of politics involving negotiations, concessions and patronage among key stakeholders; major market unions, opinion leaders, as well as local and state government actors. Many displaced traders from the roads and railway lines in Oshodi were resettled in an ultra-modern market constructed close by while the road and railway setbacks were beautified.⁶

Currently, Lagos boasts over 200 landscaped sites and 'over five million trees have been planted across the metropolis which is now wearing a new look as the trees planted some years back have enhanced the aesthetics of the environment' (Ugbodaga 2014). With high quality public spaces that bring people together to exchange ideas and build a sense of community, it could be argued that the environment is more sustainable and liveable. As it is the case in most advanced cities, amenities such as community gardens, public artwork and playing fields, as provided in Lagos, can give people a range of lifestyle options. Also, improved tree coverage and green spaces now provide significant benefits to Lagos residents. These will significantly improve

5 <https://www.vanguardngr.com/2015/02/babatunde-raji-fashola-success-tackling-challenges-head-2/>

6 <http://www.tundefashola.com/archives/news/2014/01/07/20140107No1.html>

the quality of air and reduce the heat island effect, while enhancing general amenity. They also give people greater connection with nature and provide important places for recreation and healthy lifestyles.

The Lagos State Home Ownership Mortgage Scheme (Lagos HOMS)

The Lagos State Home Ownership Mortgage Scheme (Lagos HOMS) is an initiative to address the problem of providing 'affordable' housing. It was aimed at developing a mortgage culture and institution in Lagos. It was also aimed at urban redevelopment through densification and infill of residential development across the metropolis on lands hitherto underutilised and otherwise prone to slum growth. The Lagos HOMS initiative was an outcome of a process of housing problem identification. Considering the structure for implementation, one of the requirements involves the digital registration of potential beneficiary as residents of Lagos state. This is considered as one of the ways to develop data infrastructure that is needed to facilitate efficient city governance. With regard to inclusiveness, the low-income groups and those who work in the informal sector, who are disproportionately affected by housing deficit, are excluded because of eligibility criteria. Thus, the initiative is largely considered as neither inclusive nor affordable. It could also be argued further that the Lagos HOMS specifically targets a particular economic group – the middle class who are working in the formal sector or those who have traceable income in the informal sector.

However, the process of allocation, through a public draw which goes through various stages, reasonably ensures transparency and accountability. Notwithstanding that homeownership through mortgage finance is a good approach to empower people, there are tensions and contradictions regarding the cost and economic capability of the majority of the targeted group. This makes the initiative fail the inclusiveness test. In response to these criticisms, the government recently introduced a rent-to-own option in the programme and is about to initiate incremental-development as another option. There are two big challenges that can potentially limit the sustainability of this programme. One is the capacity to sustain the programme's achievement and improve on the transparent processes. Also, the prospect of replicating this programme in other Nigerian cities and on an even larger scale will be critical to a lasting success. The first issue speaks to the need for building strong institutions in Lagos while the other will depend largely on how successful and popular the programme can become to attract interests from other cities in Nigeria. However, Lagos is no stranger to setting the pace of development as well as exporting successful ideas around the country.

The Bus Rapid Transit (BRT)

In the last decade and a half, Lagos has witnessed a significant improvement in urban transport development. This includes the development of major road infrastructure and improvement projects such as the expansion and modernisation of major roads like the Lekki-Epe Expressway. The estimated value of this project was about USD 450 million and was conceived as a Public-Private Partnership (LSPPP 2010a), in what could be described as smart investment.

More recently, Lagos state government has involved private organisations to develop

the Bus Rapid Transit (BRT), as an important element of the city's changing public urban transport system. The vision of the Lagos public transport, as described by the state governor, is to develop 'the Strategic Transport Master Plan (STMP), which is already being implemented, a 30-year plan. Ultimately, the plan is expected to deliver to Lagos a truly world-class integrated public transport system with 6 rail lines, 1 mono-rail, 14 BRT corridors, 3 cable car corridors and 26 developed water routes' (Ambode 2015).

The goal of the BRT, as part of this integrated transport plan, is to provide 'significant socioeconomic benefits, especially for the low-income population' of Lagos. Therefore, the project is considered inclusive in conceptualisation. The successful engagement of the transport unions as well as other local stakeholders in the planning and implementation of the BRT project is a powerful example of the project's inclusiveness. The BRT project planning stage benefitted from inclusive measures of local and foreign consultations that eventually improved the final product.

The ongoing expansion of the BRT project to other districts as well as the parallel deployment of the Bus Franchise Scheme (BFS) allows a larger portion of the metropolitan population access to better public transport. When viewed through the lens of smart city, the BRT project is founded on sound technical and intellectual grounds, considering the composition of key technical experts in Lagos Metropolitan Area Transport Authority (LAMATA). In terms of strategic direction, it qualifies as a smart transportation vision for Lagos. LAMATA is manned by qualified personnel and the agency has an institutional structure that allows it to carry out its statutory responsibilities. The operating environment of LAMATA was acknowledged as productive and world-class while importance of local and foreign technical partners was emphasised as crucial to the agencies' capacity to deliver the BRT project.

With regards to accountability, its revenue collection system promotes financial accountability and provides comfort for local banks while introduction of electronic ticketing is expected to further improve the system. From the governance and institutional perspective, separation of power among government agencies involved in transport-related functions promote democratic relations with LAMATA while minimising the risk of conflict. However, the perception of local people regarding the understanding of the concept was put to the test, with the idea having been initially resisted. The informal transport union represents a major stakeholder identified as a potential impediment to the BRT project and was, therefore, engaged from the planning through implementation stages. LAMATA later made substantial efforts in the area of producing precautionary documentation and interaction with the project stakeholders to address contested issues

In terms of value addition, the BRT project has delivered a range of benefits for Lagos. These include: improved connections to employment and services, reduced congestion and increased productivity. Overall, it combines smart investment with smart policy and smart technology seamlessly.

The Lekki Free Trade Zone (LFTZ)

The Lekki Free Trade Zone (LFTZ), located 65km east of Lagos metropolis, is part of the overall multi-use development plan for a new city on the Lekki peninsula. The

development objective of the LFTZ project is to 'establish a free economic zone and an international city with multi-functions of industry, commerce, trade, tourism, recreation and residence to attract foreign investment, create employment and expedite economic growth' (CCECC-Beyond International Investment and Development 2009).

From the investment perspective, the LFTZ is a major public-private economic investment and industrial development project, which targets different types of activities. This industrial zone encompasses hubs for oil and gas, logistics, light and medium scale industries, hospitality and resort, engineering and infrastructure support services, commerce, retail, real estate development for urban services, finance, trade, hotel, recreational, business and residential facilities, and information and communication technology (LFTZ 2014; LSPPP 2010b). The project is based on smart investment that enables partnerships between governments and the private sector. The global lesson is that cities collaborate to compete. Success requires all tiers of government, the private sector, and community, to work together towards shared goals.

However, the major challenges with the LFTZ included the legal and institutional framework, as well as land resettlement issues and infrastructure. The legal framework is a hurdle to all development zones in Nigeria; therefore, it needs to be tackled with great urgency. There are strong policy and infrastructure rationales behind establishing a Special Economic Zone like the Lekki Free Trade Zone. International experience has shown that successful SEZs have compelling business cases, enabling legal/regulatory frameworks, effective management arrangements and enjoy strong political support at all levels of government. In addition, they are well integrated with the local economy and have clear ownership and accountability arrangements.

The World Bank (2010) specified some of the more specific attributes of SEZs to include: the articulation of physical planning and development of infrastructure to allow for integrated, multi-use development and effective IT systems and networks. From an investment perspective, it also encourages a demand-driven, as opposed to policy-driven, approach. However, from the policy consideration, it encourages imposition of neoliberal ideals and expectations, but promotes national economic growth strategy through public-private partnerships or the private developer builds/owns/operates on a cost-recovery basis. Another good intent of SEZ is the support for reform and efficiency. Best practice regulatory frameworks and stable business environments are targeted at multi-markets and not just for exports. Therefore, a wide range of activities are permitted, which ensures environmental compliance. Most often, SEZs are promoted by emphasising an institutional framework that is based on the establishment of a single administration for efficient regulation, while MOUs with stakeholders govern relationships and public-private partnership arrangements. This often aligns with the smart investment consideration of a smart city.

However, contrary to these putative benefits, this study shows that the implementation of the Lekki Free Trade Zone has largely not delivered the socio-economic benefits assumed to be associated with this kind of development for the local communities. At the core of this development paradox is the issue of land governance which permitted local resource grabbing through large-scale land acquisitions. The project became a tool for displacement, exclusion, conflicts, dispossession of livelihoods capital, corruption and loss of livelihoods. Essentially, in its implementation benefits were significantly shifted in favour of corporate and elite investors.

Lagos-Dubai Smart City project

Lagos-Dubai Smart City project was conceived in 2016 through a partnership between Lagos state government and Smart City Dubai, to develop sustainable, smart, globally connected knowledge-based communities that drive the knowledge economy. According to Raji (2018), to achieve this objective, a memorandum of understanding was signed between the Lagos state government and Dubai Holdings LLC, owners of Smart City Dubai LLC, in June 2016.

The proponents have argued that the motive for establishing the Lagos Smart City initiative, like other similar projects, is to bring multi-billion dollar investments to the State to create jobs and transform the Ibeju-Lekki axis in particular. Governor Ambode added that the motive of the Lagos state government 'is a deliberate attempt to establish a strong convergence between technology, economic development and governance' (Ambode 2016). The governor added that Lagos 'will become an important centre for innovation in smart technologies, wellness and destination for green tourism.' By the time the Lagos Smart City is completed, it will have, among other features: 'a 12-lane road, hotel resorts, world-class technological education facilities, and a rail metro line' (Ambode 2016).

The question, however, is how these will be possible when electricity generation is actually falling in the face of geometrical higher demand for energy? In May 2016, the Ministry of Power released figures that showed national power output reduced significantly from a peak 4 500MW to 2 500MW; which is nearly half of the original capacity being generated (Ogundipe 2016). There is a huge electricity supply deficit in the state, as it only gets about 20% of the 5 000MW it currently requires to attain stable power supply.

Conclusion

Prior to the inception of the current political dispensation, the notion of smart cities in Lagos State, as conceived in this paper, was significantly constrained by inadequate infrastructure, lack of integrated transport plans, inadequate knowledge of investment strategies, inadequate technology and poor urban governance and the corresponding poor government policies.

This brief overview of a number of dynamic flagship initiatives in Lagos during the past decade, supported by technologies and governance structure, has laid a strong foundation for future smart city initiatives. Furthermore, the flagship projects arguably provide a *platform* to start sustainable inclusion of spatial data infrastructure in the urban agenda. This is very significant in a context where arbitrary policy-making was the norm. We also observe an opportunity to build and develop digital data infrastructure to improve the operation and maintenance of the flagship projects, creating a precedent for other developmental projects.

However, it is imperative that Lagos State must, as a matter of necessity, come up with its own unique smart city approach. In this regard, Lagos cannot afford to copy themes from other countries. It must evolve its own because of its uniqueness. Thus, its aspiration should be different. However, the obsession with Dubai is probably not a good sign that this is indeed happening.

Beyond the rhetoric of developing a smart city, as is being presented by the government, substantial challenges are noted that urgently need attention as these projects are being implemented. The major ones are electricity supply and mobility. Notwithstanding that most of these projects propose to have built-in power supply systems, the more fundamental imperative is that the entire city of Lagos should be well integrated and connected, drawing from a constant power supply across the state (i.e. outside the targeted enclaves such as Eko Atlantic).

It is logical to argue that a smart city cannot be a reality when over half of the city residents do not have access to basic social and physical infrastructures like electricity, reticulated water, good roads and drainages. Adequate availability of these infrastructures is meant to be a pre-requisite for smart city development. As it stands now and as it will be in the near future, the initiation and sustainability of smart city initiatives should be closely linked with the residents' ability to have access to the basic necessities of life, in an environment that promotes civil engagement and smart solutions.

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