



FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

"Geospatial Information for a Smarter Life and Environmental Resilience"



NIGERIA SMART CITY INITIATIVES (NSCI): THE GEOSPATIAL PERSPECTIVES

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NIGERIA SMART CITY INITIATIVES (NSCI): THE GEOSPATIAL PERSPECTIVES

PRESENTATION CARRIES US THROUGH

- INTRODUCTION: CONCEPTS OF SMART CITY
- SMART CITY VS TRADITIONAL CITY
- BASIC REQUIREMENTS FOR SMART CITY
- BENEFITS WHEN CITY GOES SMART
- THE NIGERIA SMART CITY INITIATIVES
- ENABLERS/DRIVERS OF NCSI
- THE GEOSPATIAL PERSPECTIVES OF NCSI
- RECOMMENDATIONS

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INTRODUCTION

The concept of smart city is tied to the purpose for which adaptation of smart technologies in management of a city are meant to serve.

- **Leapfrogging in technology** to match rapid pace of urbanisation with provision of relevant urban infrastructures needed by the citizens – developing countries
- **Application of smart technologies** for management, optimization and maintenance of existing urban infrastructures affordability, efficiency and sustainability – developed countries
- **City Upgrade** from dysfunctional city to a state of efficiency through deployment of smart technologies in renewal and management of the city
- **Digital cities** cities that run on big data, connected on to the net and managed on Internet of Things

BROAD DEFINITION OF SMART CITY: while smart city consists of all of the four above, broadly a smart city is an urban area that has effectively integrated its human, physical and digital environments into its workflow in a seamless and systematic manner to provide intelligent solutions to everyday challenges posed by living in the city

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SMART APPROACH TO CITY MANAGEMENT

- Smart approach to management of cities arose from two disruptions that characterised 21st century: unprecedented urbanization and the extraordinary opportunities offered by 4IR
- **CHALLENGES**
- Global 51% Urbanite and 80% by 2050; Nigeria, China and India 37%; Nigeria 50% of its 500 million urban by 2050. Cities highest consumer: 80 % of global physical and social resources.
- Provision and Management of basic infrastructure and services
- Slums management and associated problems
- Crowd control and traffic management
- Environmental and ecological challenges
- Urban economic contradictions and social segregations
- Security: terrorism, violent crimes, traffic in human beings, drugs and child abuse

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OPPORTUNITIES

4IR

- Big data and super processing: data generated in the last 10 years greater than in the entire sum in history of mankind, IOT and Cloud Computing
- more than 3.7 billion internet population 75 % growth since 2016
- AI and machine learning
- Cities melting point of ideas and innovation hubs
- High purchasing power and economies of scale
- Democratization in public decision making and governance
- Global and Regional Actions SDGs

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DISTINCTIONS BETWEEN TRADITIONAL AND SMART CITIES

TRADITIONAL CITY

- Mostly unplanned; spatially ill defined, services difficult to come by
- Management and administration are usually manual, analogue and tedious
- Data poverty: absence, inaccurate and insufficient data
- Poor dissemination/ loss of information
- Interaction btw city administration and citizen is minimal and physical.
- Weak institution and governance

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DISTINCTIONS...contd

SMART CITY

- Information driven cities with digital platforms in multiple subsystems
- Smart cities offer greater satisfaction for citizens
- Efficient multi-model infrastructures and services
- Smart solutions to everyday issues
- Transparent and strong institutions and governance
- Liveable and secured environment
- Short time response to citizens demand especially in emergency situations
- Democratic decision in matters affecting the city and its citizens

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IDEAL FRAMEWORKS FOR SMART CITY

The PESTEL frameworks (political, economic, social, technological, environmental and legal conditions) must be set right.

- Enough budgetary provisions for smart technologies & the political will
- Real time interactive digital maps
- Broadband internet services
- Computer literate population
- Transparent democratic governance
- Competitive free market economy
- Freedom of information
- Functional urban infrastructure – roads, schools, hospitals, 24/7 power supply etc
- Strong institutions – security, judicial, regulatory agencies

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IDEAL FRAMEWORKS..contd

- PPP in investment and management of the city
- Responsive and interactive citizenry and
- Basic purchasing power – ability to purchase smart devices/android phone and maintain it etc

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BENEFITS WHEN CITY GOES SMART

- **Wealth Creation Improved economic status** - New businesses and customers, wealth generation, increase in government revenue, reduces travel time, save man hours
Digital maps in Nigeria (2017) reduced travel time by about 8% saving over Naira 190b (\$530m) annually and generated average of N22,131 per year per user/ N1781billion (\$5billion) per year for all users in the country.
- **Improved revenue and property taxation**
- **Improved Security** -Smart technologies aid law enforcement: Licence Plate Recognition, RFID, Gunshot Detectors, Spy, Body And Vehicular Cameras
- **Informed decision making in management of city**
- **Efficient use and distribution of public utilities** enables city actors to monitor spatial distribution of services and channel such services where most needed.

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BENEFITS ..contd

- **Participatory governance improves public service delivery** Modern and intuitive websites, mobile applications, self-service portals, online accounts, government websites and portals, performance dashboards and platforms, social media and live-streaming enables faster, easier and reliable interface between government and citizens
- **Predictive analytics and Smart conservation techniques** - lifespan and replacement time, identify areas of weaknesses in infrastructures, leaks in pipelines reduces risks and expensive cost of repairs monitor inadvertent wastages of water, electricity, gas
- **Transparent and good governance** - Online and open data on revenues, taxations, budget, procurement processes, performance dashboards allows citizens to quantify, evaluate and verify public projects. Reduces incidences of sharp practices in public service

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THE NIGERIA SMART CITY INITIATIVE (NSCI): POLICY FRAMEWORKS

- **The summit:** The Nigeria Smart City Summit Abuja, Nigeria on 8th August, 2017 - actionable plans for transformation of Nigerian cities to modern, efficient, responsive, sustainable cities through Application of ICT and smart technologies in administration and management of cities
- **Hosts:** FGN, Federal Ministry of Communication in partnership with AFRITEX Initiative.
- **Aim:** harness application of smart technologies in provision of better connectivity in transport sector, for secured environment, decent affordable housing, efficient sanitary and waste disposal system, urban regeneration and upgrade in Nigerian cities.
- **Scope:** overambitious; to cover more than 50 percent of all Nigerian urban centres (approx.380 dysfunctional municipalities) within 3 years.

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SOME ENABLERS/DRIVERS OF NCSI

- **Federal Government of Nigeria (FGN) Policies**

Recent rapid and sustained provision of physical and smart infrastructures

Commitment to transform Nigeria to technology hub for Africa

All tiers of Government to key in to NSCI States and LGAs.

E - governance mandatory for all MDAs and Online registration portals

E - learning platform Public Service Learning Management System (PSLMS) aims to create Smart Public Servants.

Government Integrated Financial Management Information System, (GIFMIS), TSA, IPPIS

Drive towards cashless economy

- **Nigerian Digital Literacy Council**

- **The Nigeria ICT Roadmap 2017 -2020:** All public sectors must be ICT compliant and information driven by 2020

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ENABLERS/DRIVERS...contd

- **National Board for Technology Incubation (NBTI)** help start ups develop new technology firms in Nigeria - 10 Technology Incubation Centres, 50 Technology Hubs training millions of young Nigerian entrepreneurs in ICT, smart economy etc
- **National Information Technology Development Agency (NITDA)** regulates Public Information Access (PIA) protocol. Provides provide free internet service in public areas
- **Private participation** 2013 Google Maps for Mobile introduced turn – by- turn navigation. 2015 Real traffic updates. July 2017 Google Map Street View for over 10,000 kilometres of roads in Nigeria
- **Institutional support/Capacity development** Africa Regional Institute for Geospatial Information Science and Technology AFRIGIST; National Space Research and Development Agency (NSRDA); hundreds of monotchnics, polytechnics, universities engage in research, innovations, training and capacity development for millions

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THE GEOSPATIAL PERSPECTIVES OF NSCI

- Implementation of NSCI is predicated on sound geospatial information framework. IGIF is the anchor to which all physical and infrastructural development are tied.
- **Delimitation of city and its levels of boundaries:** For purpose of effective administration, management, revenue generation and general planning of smart city its legal, political and administrative boundaries (extent, shape, size, neighbourhood) and that of its wards, units (4th – 6th levels) must be unambiguously delimited and defined
- **Base Maps the Basis for Smart City Governance and Decision Making**
 - Update mostly 1960s National Topographical Map/1980s city maps and intelligent sheets
 - Conversion of national maps (Topo, township, intelligent) from paper base to digital format, from still to streaming near real- time, from passive to interactive

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GEOSPATIAL PERSPECTIVES...contd

Geospatial Information User Education – sensitize; educate and advocate values of geospatial information for physical planning, security, revenue generation, property valuation, navigation, route analysis, location sharing, smart parking to citizens and policy makers etc.

Geospatial Information: key factor in decision making

Everything is about location and time. Science of “where” is the basis of good plan, sound policies are only possible when the geospatial components of the city are defined

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RECOMMENDATIONS

- Government to clearly redefine scope and content of NSCI
- Sustain the level of investment in smart infrastructure
- All levels engagement in human capacity development
- Streamlined MDAs to eliminate duplication, conflicts and waste of resources
- More Private Participation in the provision of physical and social infrastructure
- Mandatory Professional Development Courses - more rigorous, purpose built and tailored to face the current challenges

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