



Republic of Namibia

Smart technologies and the city of the future

Speech by

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It is my greatest honour and pleasure to address this business gathering on the smart technology and the future of cities.

Development and advancement of technology bring a paradigm shift in the design, structure and operations of cities, from traditional city lifestyles to smart cities. The elements of smart technology in respect of cities include, but not limited to information technology, renewable energy, transport, technical infrastructure and sustainable resource management. The level of development and corresponding modernity of these elements define the smartness of cities.

To understand the essence of smart technology and the city of the future, it is important to first comprehend the concept of smart cities. There is no uniform definition, as academic literatures on smart cities reveal that different cities give various meanings to smart cities and smart technologies. For example, some concentrate on environment and climate change and others concentrate on high-technologies and innovative commerce. Well known smart cities of our time include Singapore, on top of the list, Barcelona and London, just to mention, but a few. In their discourse titled *What does "smart city" mean for African municipalities?*, Pieter Crous² et al. defined smart cities as follows:

Smart Cities broadly defined are cities which use technology for the management and monitoring of infrastructure, customers, personnel, finances, and systems within the city. Smart Cities make use of technology to do more with less...Smart Cities ... refer (*sic*) to an integrated city which minimises waste within resources and fruitless expenditure.

Smart technology requires energy efficiency transport carriers, advanced road network, high-quality roads and subways and their efficiency in transporting a large number of people within a possible short time in a city. Many of the cities are using closed-circuit television (CCTV) cameras to monitor crimes. These devices also serve the purpose of monitoring the movement of persons and cars during peak hours and inactive hours, with a view to plan efficient public transport systems. Accordingly, Evans E. Woherem and Mayuri Odedra-Straub³ put forth in their discourse title *The potentials and challenges of developing smart cities in Africa*, that:

Monitoring road systems can inform road users about best routes to a destination in real time. It can also provide a means (*sic*) of managing traffic lights in order to reduce congestion to its minimum.

It is a well-known factor that many cities in Africa experience traffic congestions that delay business activities. Some cities constructed bypass roads, for road-users who do not need to make stop-overs in the respective cities. This only lessen the congestion of transport to a minimal extent, as it only serves the purpose of road-users from outside cities, travelling from one place to another. For road-users who are residents of a city and need to commute from residential areas to the central business district, an increasing number of vehicles pose a great challenge to a timely arrival to their respective destinations. Smart technology in modern cities should develop a transport management system that identifies illegal cabs and other public transport operators. It

² Crous, P., Palmer, G. & Griffioen, R., 2017. What does "smart city" mean for African municipalities, Investigating the current status, enablers and restraints, and the future of smart city adoption in Africa. *Paper delivered at IMESA Conference*, pp. 51-54.

³ Woherem, E. & Odedra-Straub, M., 2017. The Potentials and Challenges of Developing Smart Cities in Africa. *Circulation in Computer Science* , 2(4), pp. 27-39.

should be noted that public transport is not a solution to transport challenges in cities, *albeit* it partly assists. This is because some city residents live at the outskirts, far from public transport reach.

The UN Habitat report⁴ on African cities underscores that African cities face the challenges of rapid urbanisation at a pace that does not match the development of infrastructure. Among these is the public transport system. Cities in developed countries use subways as a result of smart technology. The question is: Do African cities have the necessary resources to advance the concept of smart technology and the city of the future in the public transport arena? While pondering on this question, it is important to state that even if African countries do not excel in smart technology in respect of public transport, there are other areas where they can concentrate.

One area where African cities can focus is waste management. In order to live up to environmental efficiency, cities are required to have smart waste management systems, characterised by effective fleet management systems to transport waste. Environmental friendly waste containers should be used to maintain sustainable use of resources. While acknowledging that some of the smart waste tools are costly to be acquired by residents, large companies could be encouraged to acquire these, like the technological-advanced trash bins instruments that compress wastes. Further, cities should allocate resources for waste recycling. Similarly, the importance of green environment should be underscored. Sustainable development in cities requires strict observation of international environmental law and programmes. Accordingly, our cities should regularly embark upon plant-a-tree campaigns to mitigate climate change effects.

Smart technology should further focus on the use of energy efficiency. Renewable energy reduces the emission of CO₂. Its sources include biomass, hydro-, wind and solar power, among others. Smart grids should be promoted in our cities and there should be sufficient power supply to address power failure and load-shedding, which affect commercial activities. The use of LED lights should be promoted to save energy. The acquisition of power outage detection equipment by power utilities should be prioritised. Similarly, a number of high and low-tech solutions for efficient environmental management facilities like solar water heaters, composting toilets and bio-gas processors are recommended.

Smart technology and city of the future is affected by rural-urban migration. This migration exerts pressure on urban centre, in terms of accommodation and public logistics. In this regard, the infrastructure installed in the city and the level of technological advancement do matter. Delivery and supply of goods in city centres are hampered by lack of parking facilities and overall transport congestion, which impact negatively on urban freight distribution systems. Key stakeholders in this sector include retailers, warehouse companies and carriers and indeed customers of these commercial institutions.

Urban logistics should consider unhindered traffic flow and the burden of related externalities to the city environment, particularly clean air. It is, therefore, recommended that urban logistics should be optimally utilised that players in the urban freight industry should consider direct deliveries to customers. Town planners should consider smart city and technology concepts, in

⁴ UN-Habitat, 2014. *The State of African Cities 2014. Re-imagining sustainable urban transitions*. Nairobi, United Nations Human Settlements Programme.

designing the locations of warehouses, in order to prevent transport congestions in central business districts. Smart technology requires that logistic hubs in the cities should be located at the periphery in order to allow for smooth traffic inflow to the city centres.

Smart technology further requires that cities should have adequate information and communication infrastructure. Communication technology furthers the cause of smart technology and smart city. The development of digital information system that can expeditiously disseminate information serve the purpose of collecting data, for the purpose of planning and maintenance of public transport, telecommunications, water and energy supplies to boost the efficiency of commercial activities, in the fields of information technology, the financial sector and manufacturing industries, among others. Information communication can further be used to provide information to road-users to monitor traffic congestions, in order to choose alternative routes that will enable them to reach faster to their respective destinations and avoid worsening traffic congestions in affected routes. A creation of databases for housing needs enable cities to effectively plan additional townlands and creation of new residential areas.

Another useful smart technology in the cities is the availability of free wi-fi, a trend that is observable in the city of Johannesburg, South Africa. This allows for smooth digital interface between a City Council and its citizens. Digital governance is strongly recommended by scholars of information and technology. Through e-governance, cities disseminate information to residents in a cost-effective manner. Paperless billing and newsletter distribution are not only cost-efficient in terms of saving a city from postage expenditure, but it also contributes to preserving a green environment. However, lack of access to public wi-fi could pose a challenge to residents to adopt smart technology and communication.

In conclusion, I should re-iterate that the unfolding developments in the cities reveal that their future is destined for smart technology and the strategic thinking and mind-set of city development planners should accommodate this trend in the development of city programmes and infrastructure.

I thank you.