Smarter Cities of the Future
Working Paper: ICT Innovation & Adaption

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1. **Introduction**

Increasingly, access to information and technology has been viewed as a right for all citizens and one which government entities are focusing their strategies on to address social and economic development.

In navigating the path towards smart and innovative cities of the future, Information and Communication Technology (ICT), and the challenges and opportunities surrounding it, needs to be recognized for the pivotal role it plays in connecting the public, private and social sectors of society. Whilst transforming urban areas into smart cities of the future will require an innovative and inclusive approach towards ICT, emphasis will also need to be placed on the human element.

The following white paper briefly explores the challenges surrounding ICT, or lack thereof within cities, and highlights the practices which cities and their leaders will need to adopt to move beyond their current situation and enter a brave and exciting new world.

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2. **The Challenge**

Despite inroads being made into the development of more information communication technology initiatives within cities, research indicates that ICT has historically been viewed as a secondary operational function within municipalities in South Africa. While low levels of telecommunications infrastructure, underfunding and a skills deficit are amongst the key challenges to ICT's adoption and implementation within cities around South Africa, the fact that many municipal structures operate in isolation and in, at times, a non-uniform manner, means that a large majority of cities are ill-equipped to face up to ICT resource and budget constraints.

Technology has implications for the delivery of all existing services within cities such as administration, education, healthcare, communication, transportation and many more. The successful implementation of ICT's which address the above-mentioned challenges and more will become critical to the advancement of cities in the future with the cost of doing nothing outweighing the costs associated with implementing smart, innovative solutions.

Three critical areas have been identified when it comes to ICT and the challenges that cities are facing with regards to adoption. These include; cost, skills and training and management.

Cost

Cities are accountable for every cent they spend, and with limited budgets need to be **conscious of implementing any new system or process.**

Skills

South Africa is facing a **severe ICT skills shortage** which not only has a negative impact on the public sector but specifically on government departments.

Training & Management

Successful adoption of ICT strategies and processes requires **education, training and buy-in.** Project management of ICT structures and programmes are also essential and, whilst having the right partner involved from the start is essential, it's something which is all too often overlooked.

3. **Solutions**

Society's basic needs such as access to water, electricity, education and healthcare will always remain the same regardless of their location and it's these elements, when working in perfect synchronicity with technology, which make up smart, innovative cities that grow and thrive.

At the epicenter of smart cities of the future lies a city's ability to make the connections between these fundamental human needs and leverage ICT to deliver better services to empowered citizens. The following three concepts focus on the areas in which smart cities and their leaders should implement and engage in as they take their cities and citizens into a new era.

3.1 Merging Of **Minds**

Smart cities are often defined as those with clear processes, connected by innovative technologies, with the objective of fueling economic development by empowering citizens to experience public services with ease. And whilst ICT plays a critical role in the success of this undertaking, it cannot be forgotten that at the heart of the solution are the citizens who make up the city. **Cities of the future will increasingly begin to place their citizens at the forefront of their decision-making process with engagement and collaboration being de rigueur.** Buy-in and commitment from citizens, and the communities which make up these cities, will be imperative to identifying key areas of concern as well as idea generation and skills sharing.

To achieve this, cities will need to engage with citizens at a grass-roots level and whilst having active engagement in terms of their areas of concern, they'll need to empower these citizens to come up with feasible solutions which will not only need to be embraced and elevated to provide for future generations. Whilst ICT will play a critical role in this, it's the human element which lays the critical foundation for the city's success.

Not only will the sharing of ideas between a city and the citizens it serves become a fundamental building block but so too will the sharing of best practices. Operating in silos will no longer be possible as cities and their municipalities strive to create interconnected systems which add value to all citizens within South Africa. The sharing of ideas, successes and failures will empower and upskill more individuals within the municipal structure and encourage **these individuals to ask more questions, think innovatively and engage with their constituents to find solutions which can benefit all.**

3.2 Service **Delivery**

Municipalities are responsible for an inordinate number of services within their city structures, many of which are conducted using time consuming and labour intensive manual methods. Cities of the future will begin to realign their service delivery strategies which will be centered around the digitization of these functions, from revenue optimization and meter reading to waste management and water and sanitation.

Using ICT as a platform, these tasks will begin to open areas of transparency, accountability and dialogue between cities, citizens and third partner contractors and project managers. With the conduit being ICT, critical information will begin to flow from departments within municipal structures out to citizens and back again forming a collaborative and strategically aligned framework for leaders within government to work from.

In addition, as cities of the future begin moving away from manual processes towards automated systems which provide evidence-based results at the touch of a button, **citizens can expect to see themselves playing a more central role in terms of the prioritization of critical service delivery issues.**

3.3 Public Private **Partnership**

Taking into consideration the role which ICT must play in the public sector, it's essential that the right information systems, processes, communication structures and training is put in place. Smart cities have already recognized the need to engage with the private sector in knowledge and resource sharing but will progressively move towards more collaborative relationships in project management and skills development as well.

As more municipal leaders focus on the core undertakings of the municipality, they will also acknowledge the need to engage in shared partnerships with consultants who provide holistic ICT related solutions for the city management and staff. This economy of knowledge sharing will result in people with capabilities which are developed to even higher levels than before, and empower city leaders to demonstrate their understanding and knowledge of proprietary technology processes and procedures.

This collaborative and shared mindset between the public and private sector will not only result in increased digitalized processes which will be manageable and scalable but a new higher output and improved savings on time and money.

4. **Conclusion**

The progress towards inclusive and leading smart cities is hampered by the digital divide between government services and processes. To repair this rift, the **socio-economic, political and cultural aspects of ICT processes, which empower citizens and city leaders, needs to be addressed.**

The solution lies in enabling citizens to work with the public and private sector in identifying smart and innovative ICT solutions which optimize municipal service delivery systems, improve communication and develop strong links back to knowledge and skills transfer.

As a leader in innovative proprietary ICT solutions and with extensive experience in working with multiple municipalities in South Africa, Boffin & Fundi are adept at highlighting significant trends which will influence the direction in which cities of the future are moving.

Boffin & Fundi are committed to making progress within communities throughout South Africa through the provision of proprietary ICT services which enable local and provincial municipal entities to focus on their core business.

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6. **Acknowledgements**

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