SOUTH AFRICAN SMART CITIES FRAMEWORK

LAUNCH:

THE NATIONAL ROLL OUT OF THE MUNICIPAL INNOVATION MATURITY INDEX (MIMI)

SIYANDA NKEHLI: 21 JULY 2021

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BACKGROUND

BACKGROUND

❑ During the June 2019 **SONA**, the President expressed his dream of building a South African smart city. In the February 2020 **SONA**, the President announced more concrete plans to develop a smart city in the country. These statements provoked discussion around the notion of Smart Cities within the South African context.

❑ A "Smart City" could be described as a settlement where-
- investments in human and social capital takes place;
- traditional and modern communication infrastructure fuel sustainable economic development;
- a better quality of life is provided; and
- there is prudent management of natural resources.

❑ To provide impetus to the above, **DCoG** has, in collaboration with **CSIR,** developed a South African Smart Cities Framework (SCF).

❑ Noting that **a framework is merely a conceptual structure,** the SCF is intended to-
- share learning on Smart Cities and perceived limitations of these types of interventions;
- outline a set of principles and critical issues to guide decision-making for smart cities; and
- details pre-conditions and enablers when initiating Smart City interventions.

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CONTENTS OF THE SCF

INTRODUCTION

❑ **Purpose of the SCF -**
  - Guide <u>decision-making</u> and provide all role players with a structured approach to identifying, planning and implementing smart city initiatives in municipalities.
  - SCF is **not** instructive; does **not** provide specifications; **nor** prescribe norms and standards.

❑ **The objectives of the SCF include the following –**
  - Share <u>local and international learning</u> to provide all role players with factual information on the benefits and advantages as well as the challenges and disadvantages that need to be taken into account when planning and implementing smart city initiatives.
  - Highlight the <u>South African realities that need to be considered</u> when planning and implementing smart city initiatives to ensure that such initiatives are appropriate to the local context.
  - Assist in developing a <u>common understanding of the concept of a Smart City</u> and propose a South African interpretation of various aspects related to smart city initiatives.
  - Outline a <u>set of principles to provide guidance when decisions have to be made</u> regarding the identification, planning and implementation of smart initiatives and technologies; and
  - Outline the <u>factors to consider, and the steps to be taken</u>, when identifying, planning and implementing smart city initiatives.

UNPACKING THE DEFINITION OF SMART CITY	
SMART	**CITY**
Term **"smart"** is generally associated with a range of technological and digital concepts and interventions, especially ICT. There also seems to be a particular focus on **4IR** (4th Industrial Revolution) technologies. However, **in addition to this technology-intensive interpretation,** smart could also mean "intelligent", or "knowledge-intensive". The understanding of the term "technology" could be expanded to also include innovative approaches, techniques and processes, as well as non-conventional interventions and scientific innovation.	Word **"city"** has multiple meanings in the smart city conversation. It is a **catch-all phrase that includes various types of settlements, or parts of settlements.** It could refer to any of the following: ▪ Cities, towns and villages of any size, including those in rural locations. ▪ Municipalities (metropolitan, district, local). ▪ A custom-built greenfield development ("city") which may or may not be linked to an existing city. ▪ Large new precinct developments linked to an existing city (e.g. business parks). ▪ Upgrading or retrofitting aspects (e.g. transportation or connectivity) or parts (e.g. an educational precinct) of an existing city or town. ▪ New residential, commercial or mixed-use developments, such as privately developed gated communities.

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❑ **Smart city origins**
- Concept originated in the early <u>1990s</u> with cities starting to label themselves as <u>"smart"</u> upon introducing ICT infrastructure, embracing <u>e-governance</u> and attempting to attract <u>high-tech industries</u> to encourage economic growth.
- Research identified <u>3 dominant discourses</u> -
  - <u>infrastructure-based</u> services, using ICTs;
  - <u>urban development</u>, creating conditions conducive to business development; and
  - <u>social inclusion, learning and development</u> are central to better meeting community needs.

❑ **Smart city promises and opportunities**
- The following are some opportunities which could create and spread public value:
  - More effective, <u>data-driven</u> decision-making;
  - Reduced <u>environmental footprint/impact</u>;
  - New <u>economic development</u> opportunities;
  - Improved <u>quality of life</u>;
  - <u>Safer</u> communities;
  - <u>Enhanced engagement</u> between municipalities and residents; and
  - <u>Cost</u> savings.

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❑ **Smart city concerns and limitations**

- Interventions are <u>not appropriate</u> to the context;
- Vested corporate <u>interests</u>;
- Technology as a starting point and <u>not an enabler</u>;
- Understanding and <u>defining a city</u>; and
- <u>Ethical</u> concerns.

❑ **The South African context**

- <u>To make a meaningful contribution</u> to improving the quality of life of all citizens, smart initiatives <u>should address the key problems</u> faced by South African cities and towns.
- <u>To be successful,</u> smart cities initiatives <u>must take into consideration the following factors</u> -
  - o <u>Socio-economic characteristics</u> of South African society (poverty, inequality, unemployment);
  - o <u>Nature</u> of South African cities and towns (apartheid planning);
  - o Municipal <u>realities</u> (functionality, political stability, corruption, competence);
  - o <u>Regulatory</u> environment (International imperatives **(SDGs),** National policies and initiatives **(NDP, IUDF & DDM);** and
  - o Smart-specific <u>policies, guidelines and initiatives</u> **(DPWI** *(Towards a New City for South Africa, 2019);* **DTPS** *(Smart Communities Framework)*, preparing municipalities to become data-driven for efficient and effective service delivery).

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SOUTH AFRICAN INTERPRETATION OF SMART CITIES

For a South African smart city to be inclusive, it should adhere to the below 6 inter-dependent principles (to inform decision-making relating to the identification, planning and implementation of smart initiatives and technologies):

Is smart for all	Initiatives should not be implemented <u>at the expense of, or to the detriment of</u> certain parts of a municipality, or sectors of society.
Uses technology as an enabler rather than a driver	A city is not smart because it uses technology – it <u>is smart because it uses technology to make its citizens' lives better</u> – Smart Cities Council [2015].
Is shaped by, and responds to, the local context	An <u>ideal of a smart city</u> should not drive the planning and implementation of smart cities.
Is informed by the real needs of the community	Active participation of community in the <u>identification, development and implementation</u> of smart city initiatives,
Embraces innovation, partnerships and collaboration	Should incorporate a <u>collection of several projects,</u> initiatives and actions.
Is sustainable, resilient and safe	Complementing <u>SDG 11</u> [cities to be inclusive, safe, resilient and sustainable].

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❑ Following **factors** should inform the planning and implementation of smart city initiatives:

- **The nature and purpose of a proposed smart city initiative**
  - o <u>Thorough understanding</u> of the nature and purpose of a proposed smart city initiative is critical to fully comprehend the role and impact of the particular initiative within the wider city.
  - o Smart associated with ICT, and City has multiple meanings (is it for part, city-wide, or a particular greenfield development?).
- **Alignment of smart city initiatives with existing planning and operations**
  - o Likelihood of smart city initiatives to succeed <u>depends on alignment</u> with existing plans and initiatives in the municipality.
  - o <u>IGR is important</u> and should link to national, provincial (governments and entities).
- **Share smart city experiences**
  - o Smart city initiatives could be <u>enhanced by learning from peers</u> – appropriate customising must be made, without implementing as-is.

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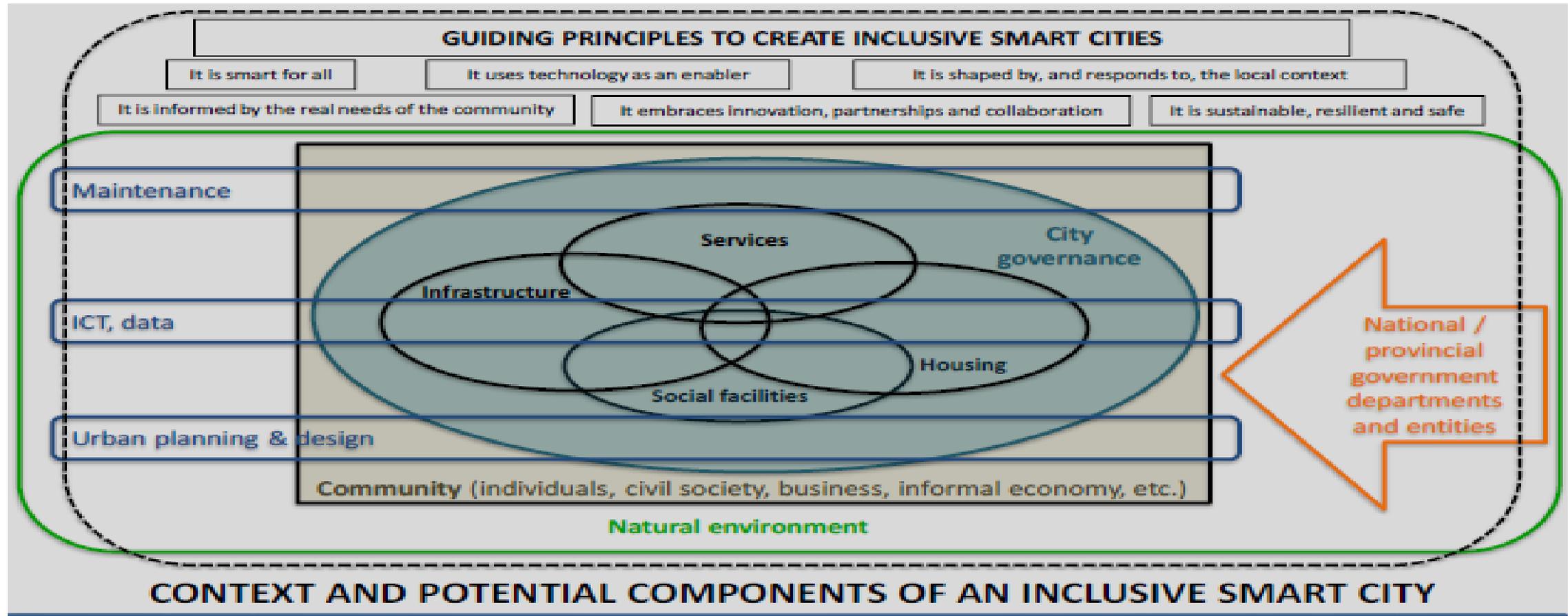
Figure 2: Context and components of an inclusive smart city

❑ **<u>The motivation for becoming a smart city</u>**

- ▪ Any Smart City initiative should be informed by answers to at least the following questions:
  - o <u>Are the people living in our city or town satisfied with the services</u> we (as local government) provide? If not, **<u>improving the delivery of basic services should be the first priority,</u> rather than a Smart City initiative that may not satisfy people's most pressing needs.**

  - o <u>How can the city become smarter</u> and use smart technologies <u>to enhance the effectiveness and efficiency of the services we deliver</u> to **<u>improve the quality of life</u>** of those we serve as a local government?

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❑ **Assessing the smart-readiness of your municipality**

▪ The decision-making framework summarised below provides municipalities and other role players with guidance on the planning of smart cities:

○ **Pre-conditions for becoming smarter:**
First step is to assess the municipality and the current situation to gain an understanding of the ability of the municipality to provide services under current conditions. The intention is to establish whether there is a strong foundation on which to build a smart city initiative, or, phrased differently, whether the basics are in place.

○ **Enablers for implementing smart city initiatives and technologies:**
Second step is to assess where the municipality could improve its ability to deliver services. The purpose of this assessment is to establish whether the municipality has the means and ability (or can acquire the ability) to harness and leverage smart technologies and initiatives to improve the effectiveness and efficiency of the services delivered.

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INITIATING SMART CITY INTERVENTIONS

PRE-CONDITIONS FOR BECOMING SMARTER		ENABLERS FOR IMPLEMENTING SMART CITY INITIATIVES AND TECHNOLOGIES	
Institutional and organisational arrangements	• Need to consider — robustness of current governance structures, levels of intra- and extra-cooperation, policies and by-laws, vacancy levels	**A smart city plan**	• Coherent effort across municipality • What is the intention of the plan?
		Digital infrastructure	• Is there physical assets to operate technologies? • How can 4IR technologies be exploited?
Existing infrastructure	• Involves an assessment of existing infrastructure, facilities, amenities — for example, w.r.t. housing, quality or condition, quantities or number per population, age, distribution, backlogs, and planned developments	**Skilled people**	• Is the people with the right skills and abilities in the right places (and not just the right technology)? • Will upskilling be an option? • What skills will be required in the future?
Capacity of government officials and communities	• Are skilled people available to utilise the infrastructure? • Factors to consider include people's knowledge, skills, competencies, experience, qualifications, attitudes, values and past performance, as well as possible re-skilling and training programmes • Do communities have capacity to participate in and contribute to smart city initiatives?	**Partnerships**	• Who should take ultimate responsibility? • How do all Units contribute meaningfully? • How is performance and impact of cross-cutting initiatives measured?
		Community involvement	• Community could refer to all stakeholders (residents, business, universities, government, industry)

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CONCLUSION

❑ To have impact, the SCF has to be applied in practice. Municipalities would require **support from DCoG, provinces, SALGA and other National Departments** with the implementation of the SCF. This could involve assistance with assessments to establish the smart-readiness of a municipality, the development of a local smart city strategy, and the planning and implementation of smart city initiatives.

❑ A **capacity building** programme to empower local government officials, councillors and other role players would also be of value to ensure appropriate, inclusive smart initiatives are implemented. In addition, a platform needs to be provided for the sharing of smart city learning amongst all role players. This would assist in creating a strong learning culture, establishing communities of practice, and building the national capacity for smart city planning and implementation.

❑ We need to imbue our planning processes with a set of principles and values upon which we can all build solidarity, commitment and unity. **This SCF outlines a set of principles that supports these ideals and could be used to measure our collective progress in creating inclusive smart cities.**

RECOMMENDATIONS

❑ **It is recommended that –**

- ▪ **The contents of the South African Smart Cities Framework be noted; and**

- ▪ **The implementation of the SCF be supported when it is required.**

THANK YOU

Ngiyabonga | Re a leboga | Ndo livhuwa | Nndza nkhensa | Ke a leboha haholo | Dankie | Enkosi

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The Launch of the National Rollout of the Municipal Innovation Maturity Index (MIMI) (A tool to measure innovation in municipal

Academy of Science of South Africa (ASSAf)

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