Innovating for Digital Inclusion in Cities: Planning Guidance to Implement People-centred Approach to Smart Cities*

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Introduction

Much of contemporary planning in cities urges us to understand how cities can be technologically responsive to urban challenges while being more efficient and inclusive. Between the climate and pandemic crisis and the ongoing threats of war and natural disasters, cities continue to reckon with a pace of change and unpredictability across all dimensions of the social, economic and environmental spectrum.

At the same time, the world is both urbanising and digitising at a rapid pace. Digital technologies have great potential to assist many stakeholders in their efforts to achieve sustainable urban development and help deliver the widespread prosperity envisaged by the United Nations' Sustainable Development Goals. The 'smart city' approach is considered key to connecting not only these two global mega-trends but also as providing an entry point for planners and other urban practitioners to imagine the promise of technologies and innovation in cities for development. The smart city approach is seen to foster positive transformative change by harnessing information and communication technologies (ICTs) and digital technologies to improve urban efficiency, quality of life and, ultimately, sustainability.

Whilst digital technology can have enormous transformative potential for positive change, it can also perpetuate existing social and economic inequalities. In recent years, research suggests that for all the change and hype about technology, there are significant spatial, global and city-level inequalities in terms of who can access the transformative digital infrastructure and who cannot. In addition, technology has been applied uncritically in many smart city projects. The focus has been on supply rather than demand, what the private and tech entrepreneurs can deliver and what tech alone can be harnessed for a significant impact. As a result, smart city planning often fails to fully consider stakeholders with diverse needs and interests in cities, including the different governance arrangements and roles of local authorities. In addition, the importance of place is often not considered sufficiently. Where people live in cities impacts their capacity to make use of the technology and innovation promised by a smart city approach. In some cities, the smart cities approach

* Note that this paper re-purposes much of the material published in the following references: UN-Habitat, *Centering People in Smart Cities*; UN-Habitat, "People-Centered Smart Cities."

appears stuck in a semi-permanent pilot project mode, where few innovations scale or effectively engage and benefit the poorest and vulnerable.

At the same time, many national and local governments lack the capacity and knowledge to identify and procure appropriate technologies that meet their needs. While Covid-19 has shown that digital technologies are an even more fundamental pre-condition to accessing services such as health and education, many governments have struggled to re-purpose their skills and resources for the smart city approach, address the digital divide in their towns and cities, and manage any strategic digital transformation.

The United Nations' Secretary General has made a strong case for human rights in digital spaces in his 2020 *Road map for digital cooperation.*[1] The document lays out critical areas for action, including universal connectivity, promoting digital public goods, and ensuring trust and security in the digital environment. However, the key questions are: What does an inclusive and people-centred approach look like in practice? How do planners and other urban practitioners grapple with the digital divide, the capacity gaps around tech and the aspiration of the smart city to ensure it works for more? How can the aspiration of a people-centred approach to smart city development be delivered?

Drawing on the most recent work of UN-Habitat on the topic of people-centred smart cities,[2] this paper explores the key ingredients, as proposed by UN-Habitat to ensuring smart city approaches are also people-centred. Three innovative approaches are suggested:

- Re-framing smart city to be people-focused, including driving the tech from a human perspective
- Adopting a multi-dimensional approach to the human-centred focus
- Adopting an integrated and holistic approach to ensure that all facets of the smart city approach are connected

These are different to conventional approaches to smart city development, but form part of the fundamental building blocks for an inclusive smart city, one that considers both people and places. Their starting points and underlying features are briefly elucidated below.

Putting people at the centre of smart city practices

Currently, smart city development is increasingly recognising the importance of processes to engage local and national governments and foster their role in a more proactive approach to shaping the digital transformation, rather than considering them simply users of technologies. Such a proactive approach includes ensuring a comprehensive and functioning regulatory environment that builds the trust of investors and citizens, using procurement to steer technological innovation and providing enabling environments for technological development. Simply put, cities themselves are slowly starting to take back the control of the smart city vision.[3]

[1] UN, *Road map for digital cooperation,* 14.

[2] UN-Habitat, *Centering People in Smart Cities.*

To realise this, governments need to put in place regulations and policies that govern smart city development, including on issues such as equality and inclusion, interoperability, procurement, public-private partnerships, and issues to do with privacy and security raising from the use of digital platforms and data collection. To build trust, governments need to enact privacy laws that respond to the concerns of citizens and investors in relation to security breaches, the handling of personal data and surveillance. Clear frameworks and institutional arrangements for data collection and data sharing should be put in place, especially in relation to data collected from different sources. These governance frameworks need to set out ethical standards, including who has the right to data access and ownership and who should benefit from the profits generated by data. Here it is important that the public sector, as the custodian of citizens' rights, assumes its full governance responsibility. For many local governments, this is a completely new area, and digital policy and governance capacity needs to be significantly strengthened or built from scratch.

For UN-Habitat, the use of digital technologies in cities and by cities must be appropriate to ensure that the prosperity they bring is shared among urban residents, cities and regions. Ultimately, the deployment of technology needs to be grounded in the real needs of people and in fact, driven by the human dimension of cities. It should pay particular attention to underserved populations to address inequalities and bridge social and spatial divides.

Local governments and communities faced with disruptive digital transition will benefit greatly by having a plan or strategy in place and specific guidance on how to negotiate digital rights. An effective smart cities or digital transformation strategy will enable local governments to take control of the digitalisation process and ensure that they are proactively engaging with new technologies and establishing the right data governance frameworks.

Connected to the strategy work, it is crucial that cities understand where they are in the digital transformation process. UN-Habitat is therefore developing a smart city readiness assessment process that builds on many years' experience of city assessments through the City Prosperity Initiative and Key Performance Indicators for Smart and Sustainable Cities.[4] UN-Habitat promotes an approach that starts with identifying the challenges, aspirations and priorities as identified by a range of urban residents, communities and urban residents, considering inclusion, the challenge of places (where one lives in a city) and respecting human rights. In addition, it is become more evident that smart city planning focuses on solving specific sustainability problems and key missions such as climate change, reducing poverty, while at the same time engaging with a strong inclusion agenda. A sectoral, industry or technology driven, approach would not be appropriate.

What does people-centred smart city approach look like?

To generate a more people-centred approach to smart city development requires a fundamental commitment to people and how governments use innovation

[3] UN-Habitat, "People-Centered Smart Cities."

[4] United 4 Smart Sustainable Cities, *Collection Methodology for Key Performance Indicators for Smart Sustainable Cities.*

and technology to improve their quality of life. This requires orientating the new ideas, new partnerships and testing tech, and not just adopting it without a rigorous set of questions asked from the people's perspectives – their aspirations, challenges and needs. It requires re-framing the notion of a smart city to be people-focused, including driving the tech from a human perspective. Practitioners wanting to innovate on a people-centred smart cities approach need to adopt a multi-dimensional people-centred framework that puts the following practices at the heart of the planning work:

- **Empowering people:** Centering smart city activities on people's needs by grounding smart city infrastructure and services in a commitment to human rights, and maximising community participation, representation, transparency and control. Smart cities should provide digital public goods that are open, transparent, accessible and interoperable.
- **Making access to technology equitable:** Building a foundation of universal access to affordable internet, digital skills and digital devices.
- **Responsibly managing data & digital infrastructure:** Improving the convenience and accessibility of services through digitalisation and by creating a framework that sets standards and responsibilities for effectiveness, accountability and inclusivity.
- **Building trust by securing digital assets:** Safeguard public trust by putting cybersecurity measures in place that protect data and infrastructure.
- **Building multi-stakeholder capacity:** Collaborate with diverse stakeholders to build smart city projects, infrastructure and services. Expand the capacity of city staff for digital transformation. Evaluate the need for technology and address equity, environmental justice and social justice in smart city initiatives.

Innovative ways to approach integration

A people-centred approach also requires adopting an integrated and holistic approach to ensure that all facets of the smart city approach are connected and that the approach considers key aspects like space, place, different sectors and groups of people. Taking a people-centred smart city approach requires coordinating with multiple levels of government and integrating across multiple stakeholders including social entrepreneurs, community advocacy groups, local activists, communities and the private sector. It also recognises the different governance configurations in different parts of the world acknowledging that some local authorities have more responsibilities, decision-making capacity, and power than others. Finally, this approach embraces the role each stakeholder plays in the development of smart city technologies, initiatives and policies.[5] In its essence, a people-centred approach demands the public sector to be active in pursuing multi-level governance. More precisely, instead of the public sector's traditional role of the customer, regulator and 'market fixer', mostly intervening to correct the shortcomings of the market when it fails to provide equitable services, in a people-centred smart city approach, the public sector triggers innovation by

[5] UN-Habitat, *Centering People in Smart Cities.*

identifying participatory models that allow greater stewardship of outcomes benefiting the public.

National and local governments can provide overarching leadership and key messages on the value of people-centred smart cities to include prosperity and growth, and finance major infrastructure that provides critical funding to support local governments in smart city endeavours. Local governments should be the primary stewards of community engagement that drives improved services and connectivity for residents. They can also leverage procurement standards, local ordinances, municipal codes and policy for people-centred outcomes and make important local by-laws and develop strategies that support the transformative potential of a smart city strategy. First nations and tribal groups also have an important role to play in smart cities. The digital sovereignty of these groups is important for maintaining and growing culture connections, promoting educational attainment, achieving economic development goals and enacting sovereignty.

Community groups are also important stakeholders in a people-centred smart city. Often these groups provide important contextual information and galvanise public support for smart city initiatives and approaches. In addition, civil society plays multiple roles in smart city development. Non-profit and non-governmental organisations are critical partners for local governments seeking to develop a localised plan for building people-centred approaches to smart cities, as they have intimate knowledge of the communities they serve. For example, civil society typically works to improve access to ICTs, or advocate for critical issues in equitable smart city development within their communities.

In a traditional smart city approach, the private sector is seen as the primary driver of innovation, technology development and delivery. A people-centred smart city approach emphasises the collaborative role private sector actors can play as partners with governments and communities. The private sector can provide substantial investment in infrastructure and services, often through a public-private partnership (P3).[6] They can also provide consulting services to support the development of digital infrastructure, and develop innovative solutions and approaches to problems articulated in participatory processes. Small businesses, local companies and startups can support local innovative approaches to using emerging technology.

Finally, academic community (schools, universities, colleges, and research organisations) can offer facilities, personnel and technical expertise about the digital divide to local governments. Research organisations and institutions are instrumental partners for local governments that seek scientific expertise, advice and support in the technology and urban planning domains. Local governments can work with academic institutions to establish smart city research centres, devoted to studying urban dynamics, digital human rights or developing new participatory approaches.

[6] UNDP, “Singapore Global Centre: Smart Cities.”

Planning approach to the people-centred smart city: Innovative practices

In reviewing smart city models around the world, UN-Habitat notes that five pillars underpin a people-centred approach to smart cities. These provide practical entry points for planners to adopt in order to achieve smart city.

The Community Pillar

This pillar addresses how local governments can work to place people and their needs at the centre of smart city development.

Activity 1: Focus any smart city conversations and actions towards a strategy on people's needs and future aspirations.

Activity 2: Ground smart city infrastructure and services in Digital Human Rights by maximising community participation, representation, transparency, and control.

Activity 3: Provide digital public goods that are open, transparent, accessible, and interoperable.

The Digital Equity Pillar

This pillar addresses how to build equitable access to ICTs with a focus on internet connectivity, digital skills, and digital devices.

Activity 4: Build a foundation of universal access to affordable internet, digital skills and digital devices.

The Infrastructure Pillar

This pillar addresses how to create a framework that sets standards and responsibilities for effectiveness, accountability and inclusivity.

Activity 5: Improve the convenience and accessibility of services by digitising them.

The Security Pillar

This pillar addresses how local governments and national governments can work in unison to achieve secure smart city assets including data and infrastructure in order to improve public trust.

Activity 6: Safeguard public trust by protecting smart city assets.

The Capacity Pillar

This pillar addresses how to develop multi-stakeholder partnerships and build organisational capacity that better facilitates people-centred smart cities.

Activity 7: Collaborate with diverse stakeholders to build smart city projects, infrastructure and services.

Activity 8: Expand the capacity of city staff for digital transformation.

Activity 9: Evaluate the need for technology and address equity, environmental justice and social justice in smart city initiatives.

Key steps to developing people-centred strategy of urban development

Some practical guidance for the local officers on the components that are more likely to produce a people-centred strategy for smart cities includes the following.[7]

[7] UN, *Road map for digital cooperation*; UN-Habitat, *Centering People in Smart Cities.*

1. **Identifying a leadership structure.** Obtain leadership support and buy-in for digital transformation. Establish key roles such as a Chief Technology Officer or Chief Digital Officer, that are endowed with leadership capability needed for successful digital transformation at the organisational level. Align the efforts with an independent certification process, an executive order, or through the mayor, city manager or city council members depending on the form of local government.

2. **Building the capacity to deliver the plan.** Determine what financial, staffing, or infrastructural resources are required to be successful. Identify opportunities for existing staff to build the necessary digital literacy or technology skills. Show how the people-centred strategy is connected to other key local plans (such as economic development, education, community development plans) and relevant national policies and initiatives.

3. **Creating standards for inclusive participation.** Establish standards for public participation processes that are transparent, inclusive, respect privacy, and demonstrate the results of participating. Make sure that diverse categories (based on education, gender, age, nationality) of public are involved and equally treated during the participatory process.

4. **Identifying key partners from a range of sectors.** Identify what national and local organisations can support the people-centred strategy including community organisations, local advocacy groups, potential P3 opportunities, NGOs, regional or national government programmes and offices. Also, identify the missing but critical stakeholders to be involved.

5. **Building a digital equity framework within the strategy.** Early in the strategy, work towards establishing a digital inclusion plan for inclusive access to connectivity, digital skills and devices.

6. **Building a management and operations ecosystem.** Establish how the people-centred programmes will be managed and supported especially through digital infrastructure. This includes identifying finance strategies, building Information technology systems including data platforms and cybersecurity architecture, identifying supportive legal frameworks at the regional and national level and identifying opportunities to operationalise human rights through municipal code, ordinances, policies and procurement.

7. **Creating a plan for data.** Data is a critical asset in a people-centred smart city, that should be owned and accessible by the public. Establish an IT

plan for data, complemented by an interoperable smart city platform, in addition to a Data Governance Policy, Open Data Policy, Privacy Policy or a Digital Bill of Rights.

8. **Building a programme design and implementation plan.** Begin to identify key programme offerings, pilot projects and other initiatives that will be supported by all the items identified in previous steps. These offerings should directly address needs expressed by communities as identified through public participatory processes.

9. **Creating an evaluation framework.** Decide how to measure success using Key Performance Indicators and create a strategy for collecting data about progress. If using surveys, be sure to include a representative sample of the population, use inclusive survey language, and take steps to address the digital divide by surveying people in person.

10. **Piloting and adjusting.** Test smart city technologies. Begin with deployments or programming at a small scale or with focus groups, identify lessons learned and refine your approach before scaling. If the approach was not successful, identify the reasons why and make the necessary adjustments.

Conclusion

It is critical to remember that technology is not a solution in and of itself. Rather, it can be a powerful tool if it responds to the lived experiences of the people it serves. Under the people-centred smart city approach, technology is evaluated for its ability to address the needs determined by the people it serves and in the space and places where they live. In this approach, people are empowered to intervene and shape interventions in collaboration with the government, and human rights are at the core of all activities.

Finally, taking a people-centred smart city approach requires a conscious and consistent shift in culture within a local government on several issues. Culture change may include shifts in how city staff understand, use and manage data, how they think about their roles in technology and process development, raising awareness about human rights and privacy issues and changing how they perceive the role of residents in strategic planning and policymaking.