ISSUES NOTE

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1st OECD Roundtable on
Smart Cities and Inclusive Growth

OECD

About the OECD Centre for Entrepreneurship, SMEs, Regions and Cities

The OECD Centre for Entrepreneurship, SMEs, Regions and Cities provides comparative statistics, analysis and capacity building for local and national actors to work together to unleash the potential of entrepreneurs and small and medium-sized enterprises, promote inclusive and sustainable regions and cities, boost local job creation, and support sound tourism policies.

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About the 1st OECD Roundtable on Smart Cities and Inclusive Growth

The 1st OECD Roundtable on Smart Cities and Inclusive Growth kicks-off CFE's Programme on "Smart Cities and Inclusive Growth", which aims to:
redefine the concept of smart cities around the contribution of digital innovation to better lives for all people;
measure how smart cities perform and ultimately deliver well-being outcomes for citizens; and;
guide local and national governments in their efforts to reshape city governance, business models and stakeholder engagement.

About this document

This document summarises the main issues and questions around three key areas that will be discussed at the 1st OECD Roundtable on Smart Cities and Inclusive Growth, taking place on 9 July 2019 at the OECD Headquarters.

Find out more about OECD work on Smart Cities: **oe.cd/sc-rt** #SmartCities

SESSION I. SMART CITIES AND INCLUSIVE GROWTH: HOW TO BRIDGE EFFICIENCY AND EQUITY OBJECTIVES?

At its inception, the "smart city" concept was largely supply-driven and focused on initiatives that use digital and ICT-based innovation to improve the efficiency of urban services and generate new economic opportunities. More recently, while multiple definitions of smart cities co-exist, and digital divides persist, greater attention has been paid to the distributional effects of smart cities on people, planet and places, and the need to spread the benefits of smart cities across all segments of society.

The smart city concept is evolving and still subject to debates. There is **a range of definitions for "smart cities"** across OECD countries and institutions ("What is a smart city? Selected definitions" box). In most cases, smart cities have been defined as initiatives or approaches that use digital innovation (including digital-enabled innovation) to improve competitiveness in a community and efficiency of urban services.

While digital innovation remains central to the smart city concept, a key question is whether investment in smart technologies and digital innovations ultimately contribute to improving the well-being of citizens. This is why **the OECD defines smart cities** as *initiatives or approaches that effectively leverage digitalisation to boost citizen well-being and deliver more efficient, sustainable and inclusive urban services and environments as part of a collaborative, multi-stakeholder process*.

This definition stresses:

- the need to better document the contribution of smart cities' to improving the **life of people** while continuing to deliver solutions to some of the most common urban challenges in a sectoral or multi-sectoral fashion;
- the importance of **citizen engagement** and collaborative partnerships to boost civic engagement (citizen participation and feedback; co-creation and co-production models; citizen-centred services and engagement platforms);
- the value of experimentation with public access to **open data** and collaboration within/between cities; private-public-people; national-regional-local scale; and
- the need for an **integrated, holistic approach** to addressing urban challenges through digital innovation in a city's governance, planning, and infrastructure investment.

What is a smart city? Selected definitions

National governments

Denmark: The Ministry of Transport, Building, and Housing and the Danish Business Authority considers "Smart City" an evolving concept: "Initially, the concept was only used in a narrow and governmental context especially in relation to environmental, energy and infrastructure issues in terms of how information and communication technologies can improve urban functionality. Subsequently, virtually all other areas of welfare started working with Smart City, for example in business development, innovation, citizen involvement, culture, healthcare and social services, where the use of data and digital platforms help smart new solutions"

Korea: The Ministry of Land, Infrastructure and Transportation defines a smart city approach as one that "makes use of opportunities from digitalisation, clean energy and technologies, as well as innovative transport technologies, thus providing options for inhabitants to make more environmentally friendly choices and boost sustainable economic growth, enabling cities to improve their service delivery". It also states: "smart cities are a tool for solving urban problems and improving the quality of life by applying ICTs and new technologies to cities."

Latvia: The Ministry of Environmental Protection and Regional Development defines smart city as a city that implements a strategic package of measures to address the most pressing challenges and boost the competitiveness of the area, providing solutions for citizens and entrepreneurs.

Spain: The Spanish government works with the concept defined by the Spanish Association for Standardisation and Certification: "the Smart City concept is a holistic approach to cities that uses ICT to improve inhabitants' quality of life and accessibility and ensures consistently improving sustainable economic, social and environmental development. It enables cross-cutting interaction between citizens and cities, and real-time, quality-efficient and cost-effective adaptation to their needs, providing open data and solutions and services geared towards citizens as people".

United Kingdom: According to the UK Department of Business, Energy and Industrial Strategy, "the concept [of smart city] is not static: there is no absolute definition of a smart city, no end point, but rather a process, or series of steps, by which cities become more "liveable" and resilient and, hence, able to respond quicker to new challenges".

International organisations

European Union: "A smart city is a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses" (European Commission, 2014).

OECD: Smart cities are defined as "initiatives or approaches that effectively leverage digitalisation to boost citizen well-being and deliver more efficient, sustainable and inclusive urban services and environments as part of a collaborative, multi-stakeholder process" (OECD, 2018a).

United Nations: A smart city approach "makes use of opportunities from digitalisation, clean energy and technologies, as well as innovative transport technologies, thus providing options for inhabitants to make more environmentally friendly choices and boost sustainable economic growth and enabling cities to improve their service delivery" (United Nations, 2016).

Inter-American Development Bank: A smart and sustainable city is defined as "an innovative city that uses ICT and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, and environmental aspects" (Bouskela et al., 2016).

The private sector

Smart Cities Council – A collective of several major large corporate firms active in smart city technology (including Cisco, IBM, Intel, and Qualcomm) – proposes the following definition: "a smart city gathers data from devices and sensors embedded in its roadways, power grids, buildings and other assets. It shares that data via a smart communications system that is typically a combination of wired and wireless. It then uses smart software to create valuable information and digitally enhanced services" (Smart Cities Council, 2012).

IBM defines a smart city as "one that makes optimal use of all the interconnected information available today to better understand and control its operations and optimise the use of limited resources".

Cisco defines smart cities as those that adopt "scalable solutions that take advantage of ICT to increase efficiencies, reduce costs, and enhance quality of life".

References: Bouskela et al. (2016); European Commission (2014); Smart Cities Council (2012); OECD (2019); OECD (2018); United Nations (2016)

This session aims to **redefine the concept of smart cities** around the contribution of digital innovation to better lives for all people.

Questions to guide discussion

- How has the concept of smart cities evolved into a buzz term, and how to re-focus its core function and goal towards tangible **well-being** for all citizens?
- How can digital innovation drive more inclusive growth in cities of all sizes, and how to foster **demand-driven approaches** for solutions to the actual needs of people/places?
- Where and how have smart cities initiatives **successfully** contributed to reducing inequality among places and social groups, fostering equity and boosting inclusive growth?

SESSION II. DO INVESTMENTS IN SMART CITIES ULTIMATELY DELIVER BETTER WELL-BEING FOR PEOPLE? WHO MEASURES WHAT, WHERE AND HOW?

Although the literature on smart city measurement is both vast and varied, evidence of impact and outcome assessment is scarce. Where it exists, it is more place-specific or project-based than policy-oriented. A recent **OECD-Bloomberg Philanthropies Survey** across 90+ cities on Innovation Capacity showed that less than 17% of city respondents conduct a systematic and comprehensive assessment of their innovation outcomes, while half report that they evaluate "some" aspects.

In some cases, smart cities initiatives have been evaluated for their contribution to societal, environmental, economical, and institutional improvements. For example, the CityKeys indicators for smart city projects and smart cities, co-funded by the European Commission, breaks down measurement indicators of a smart city into People, Planet, Prosperity, Governance, and Propagation. Under these categories, corresponding indicators have been identified. For instance, a smart city approach related to environmental protection would be evaluated along indicators addressing energy efficiency or climate change mitigation performance. Many scorecards and rankings break down the smart categories further, using terminology such as "smart living", and "smart mobility"': offering indicators on transit systems and ICT-infrastructure, as well as cultural facilities and tourism appeal. As shown in Table 1, however, **a harmonised and comparable framework is yet to be developed** to measure the extent to which digital innovation in cities is delivering better (multi-sectoral) outcomes for residents.

However, there are important limitations to measuring the extent to which a city is "smart". Some relate to a **government's structure** and **operations**, which could result in differences in how departments collect and produce data, resulting in the data being **incompatible**, or **difficult to incorporate** into a broader urban systems framework. Some data can easily be collected, where the capacity exists at the city level to extract measurable and meaningful feedback on how the city is working. However, some data are outside the capabilities of municipal administrations. For example, a city may be able to measure ridership and access to its public transit system using data it collects from ticket sales and swipes, and even through manually counting; but there still remains a lack of knowledge about whether each rider's needs are actually being met, and if the transit offer takes them where they need to go.

Desirable smart city measurement frameworks should encompass select policy sectors and focus both on the effectiveness (how well the intervention is performing against its goals) and efficiency (whether the intervention is the right course of action to achieve the desired impact), since smart city efforts span a range of urban dimensions. Ultimately, frameworks should be able to help mobilise the city's resources in an efficient and effective way to i) address the needs and improve the lives of residents, ii) enhance and optimise the city's economic output, iii) responsibly and sustainably use natural resources and protect the environment, and iv) help the management of its systems and governance.

This session aims to take stock of existing attempts to measure smart cities' performance, while proposing **a tentative indicator framework** that helps local and national governments assess the extent to which **digitalisation delivers better results and impact for citizens.**

Table 1. Selected indicator frameworks for smart cities

Dimension	The CITYkeys indicators (2017)	European Smart Cities platform indicators (2007)	New KPIs for a Smart City (2016)	McKinsey Institute (2018)
Economy	Employment; Equity; Economic performance; Green economy etc.	Entrepreneurship; Economic trademarks; Productivity; Ability to transform etc.	Cost performance	Jobs; Cost of living
Environment	Energy and mitigation; Materials, water and land; Climate resilience; Pollution and waste etc.	Attractiveness of natural conditions; Pollution; Environmental protection; Resource management etc.	Environment/natural resource; Energy	Environmental quality
Society & People	Health; Safety; Access to services; Education; Diversity; housing etc.	Affinity to lifelong learning; Social and ethnic plurality; Flexibility; Creativity etc.	Accident; Disaster; Crime; Information security; Health; Stress; Barrier free etc.	Health; Social connectedness; Safety
Governance	Multilevel governance; Community involvement	Participation in decision-making; Transparent governance etc.	-	-
Mobility	-	Accessibility; Innovative and safe transport systems etc.	-	Time and convenience
Satisfaction	-	-	Citizens' degree of satisfaction	-
Propagation	Scalability; Replicability	-	-	-

Source: OECD elaboration based on Bosch et al. (2017), Hara et al. (2016), MGI (2018), and European Smart Cities website.

Questions to guide discussion

- How to measure the "**smartness**" of a city and assess how investment in digital and ICT-based innovation helps a city better use resources, plan, deliver local public services and engage citizens?
- What are the **strengths and limitations** of the methods, data and indicator frameworks used so far? Where are the knowledge and data gaps?
- How can digital, geospatial and private sources of data support better measurement and strengthen governments' **accountability** while safeguarding citizens' privacy?
- What should governments do to accelerate the **systematic evaluation** of smart cities' performance, ensure value for money and guide decisions accordingly?

SESSION III: DIGITAL INNOVATION AND DISRUPTION TO CITY GOVERNANCE: REVISITING BUSINESS MODELS AND CITIZEN ENGAGEMENT

Despite its numerous benefits, digital innovation can disrupt the way cities are governed and financed. Without an integrated, multi-sectoral, and whole of government perspective at national and local levels, digital innovations can upend legal and regulatory frameworks safeguarding affordability objectives, but also consumer protection, taxation, labour contracts and fair competition. They can jeopardise citizen data, privacy and safety, and shake the decision-making powers and modalities in the era of real-time – and often asymmetric – information. Equally important, they can deepen inequality among digitally marginalised groups unless local governments recognise that tech-driven solutions are as important to the poor as they are to the affluent.

Figure 1. Policy implications of digital innovation in cities

Source: OECD (2019), Enhancing the Contribution of Digitalisation to the Smart Cities of the Future.

Benefits from digital innovation have the potential to reconfigure business models, citizen engagement, and increase well-being for all urban residents. However, they can also be a disruptive force, pushing cities to change the way they are governed and financed in order to respond to potential risks. Although digital innovations can contribute to making urban environments more livable, they can be disruptive and come with a range of **challenges**, **trade-offs** and **hidden costs** (Figure 1). Indeed, digitalisation can serve as a "double-edged sword", which may either improve the public policy response to other transformative megatrends, such as globalisation, demographic shifts and climate change – or, on the contrary, reinforce their destabilising effects.

The digital revolution provides a unique opportunity for policy makers to recalibrate local policies from the ground up. Digital revolution brings opportunities for ground-breaking innovations in **urban design**, **policymaking** and **infrastructure**. Many cities are already tapping into this potential, often with the close involvement of the private sector. Around the world, governments are making cities "smarter". They are using data and digital technology to help tackle climate change and to improve administrative processes by searching for efficiencies, cutting red tape, delivering better value for money and engaging citizens. Many sector-driven technologies have also contributed to new social initiatives, climate change actions and green growth in cities across a range of areas, through energy, water, clean air and other environmental benefits. Opportunities afforded by digital innovation in cities include **efficiency gains**, improved **public service delivery**, opportunities for more integrated **urban services**, lower barriers to entry for **entrepreneurs and SMEs**, greater **citizen participation**, as well as more **transparency and accountability** in the public sector.

Without an integrated, multi-sectoral, and whole-of-government perspective, digital innovations can disrupt urban governance. A key characteristic of smart cities is the **wealth of data** generated through digital tools, which can also raise challenges. The governance challenges of smart cities are many and include issues of digital **inclusion**, inclusive service delivery, and new forms of **participation** in the decision-making or **transparent governance**, among others. Digital innovation will pose challenges to skills and employment policies, since not all cities have the human, technological and governance capacity (within local governments) to adapt to new business models in technologically driven environments. Furthermore, cities face challenges in creating policy and regulatory frameworks for platforms that – due to network effects – may be seen as **natural monopolies** and may have great influence over audiences and consumers. Finally, enhancing innovation capacity within cities administration requires **reliable sources of funding**.

To ensure that digitalisation does not deepen inequality or contribute to further citizen discontent and a backlash against public institutions, the human element should not be forgotten. Not all technology trends are beneficial for societal health or personal happiness. In the case of smart cities, public and private action have to be viewed through the lens of their value to society since social costs may arise through digitalisation, in particular during the transition period. Smarter investment in human resources, such as in life-long learning and more generally ensuring that people have the skills for future work, including digital literacy, will need to be available in all cities and regions, and should be viewed as an investment rather than a cost.

Opportunities and challenges of digitalisation need to be responded to largely at regional and local level. Regional innovation strategies can help local economies seize business opportunities from emerging disruptive technologies in order to boost productivity and growth while supporting diversification. This requires strategy development, innovation in firms, access to finance, effective stakeholder engagement, leadership and foresight at all levels of government. It also requires extra efforts to ensure firms, particularly SMEs, fully benefit from digital innovation.

This session aims to **reconsider urban governance models and methods** in the face of disruption through digital innovation.

Questions to guide discussion

- What **incentives and mechanisms** can facilitate the transition from sectoral smart city solutions or projects to more integrated and multi-sectoral policies and contracts at the appropriate scale?
- How can **public procurement** be conducive to smart cities and inclusive growth now and in the future? What is the untapped potential for **SMEs** and which new forms of PPP should be fostered?
- What **technical, human, and financial capacity** needs to be built within cities of all sizes to seize the potential of smart cities and facilitate greater citizen engagement in policy and decision-making?
- How to address the dreaded questions of **data ownership, privacy, usage and disclosure** in a shared responsibility across levels of government, public, private and non-profit sectors?

Contacts

Soo-Jin Kim | **Head of Urban Policies and Reviews Unit**

OECD Centre for Entrepreneurship, SMEs, Regions and Cities (Soo-Jin.KIM@oecd.org)

Aline Matta | **Policy Analyst**

OECD Centre for Entrepreneurship, SMEs, Regions and Cities (Aline.MATTA@oecd.org)

Baesung Kim | **Policy Analyst**

OECD Centre for Entrepreneurship, Regions and Cities (Baesung.KIM@oecd.org)

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