

# SmaCStak WEBINAR #2

## 21<sup>st</sup> of July 2016

### SMART CITY INDICATORS



**ESPRESSO**

A systEmic Standardisation apPRoach to Empower Smart citieS and cOmmunties

Sabina Dimitriu, Dorota Kamrowska-Zaluska, ISOCARP



This project has received funding from the European Union's Horizon  
2020 programme for research, technological development and  
demonstration under grant agreement No 691720



# Today's Agenda

- Introduction
- A case for standards
- City Information and Indicator Platform
- Q&A



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# The road to smart cities

A Smart City is first and foremost a city that **understands its needs** and addresses those in an intelligent manner, adopting a „**system of systems**” view to adapt to changes.



On the path to „becoming Smart”, cities have a lot of key ingredients to consider: Leadership, Vision, Data, Participation, Communication, Innovation and **Standards**.



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# Why do we need standards?

**Standards** as the building blocks which support the different systems coming together, creating:

- A common understanding
- Shared values and language
- The possibility to track performance and progress
- Confidence in smart solutions
- Efficiency and effectiveness in investments
- An instrument to better communicate the city vision to investors and citizens alike



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# ...to measure performance.

It is crucial to specify a **standardized integrated framework** which can be used to build Smart City Solutions more scalable, replicable and efficient.

**ESPRESSO is setting up a City Information and Indicator Platform**, to give cities the possibility to measure their performance while implementing smart city strategies and solutions.



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# ESPRESSO

## City Information and Indicator Platform

- not only a portal to collect and share data required for indicator definition; also a **tool for city self-assessment.**



- online tools where cities easily can test the maturity of their strategies for creating “smart places” and smart urban development through the proposition of innovative and effective services at urban scale.



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# Measuring Smart City performance - application of standards by cities

- application of standards by cities is still in early stage;
- though cities across the world working closely with leading standards authorities;
- first step on this way is the implementation and use of indicators to measure level of application of smart city initiatives and **general “smartness” of the city**



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# Criteria for indicators selection

<b>comprehensive</b>	Indicators should cover all the aspects of and Communities
<b>relevant</b>	Taking into account technology areas relevant to development of smart cities and communities
<b>available</b>	Platform should be based on data which is available at different departments of the cities
<b>measurable</b>	Indicators should be formulated so as to express unambiguously the degree of their implementation
<b>independent</b>	Dependency between indicators might disproportionately strengthen impact of single phenomenon on the overall performance indicators
<b>achievable</b>	The goal of KPIs should be achievable for smart and sustainable cities
<b>simple</b>	Concepts of indicators should be simple, easy to understand and its definition should be widely-accepted
<b>timely</b>	The value of the indicators should be expressed in time



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# Key sectorial systems of smart city as indicators' categories

1. **Smart Education:** data literacy, innovative teaching systems, e-learning, institutional integration, knowledge base for innovation;
2. **Smart Energy Management:** intelligent systems and integrated communication infrastructure;
3. **Smart Environment:** environmental protection, sustainable resource management, livability;
4. **Smart Transport / Mobility,** integrated transport systems;
5. **Smart Healthcare,** independent living
6. **Smart Governance, Participation and Planning;**
7. **Smart Security / Safe City;**
8. **Smart Buildings;**
9. **Smart Infrastructure, wastewater, water and sanitation systems.**

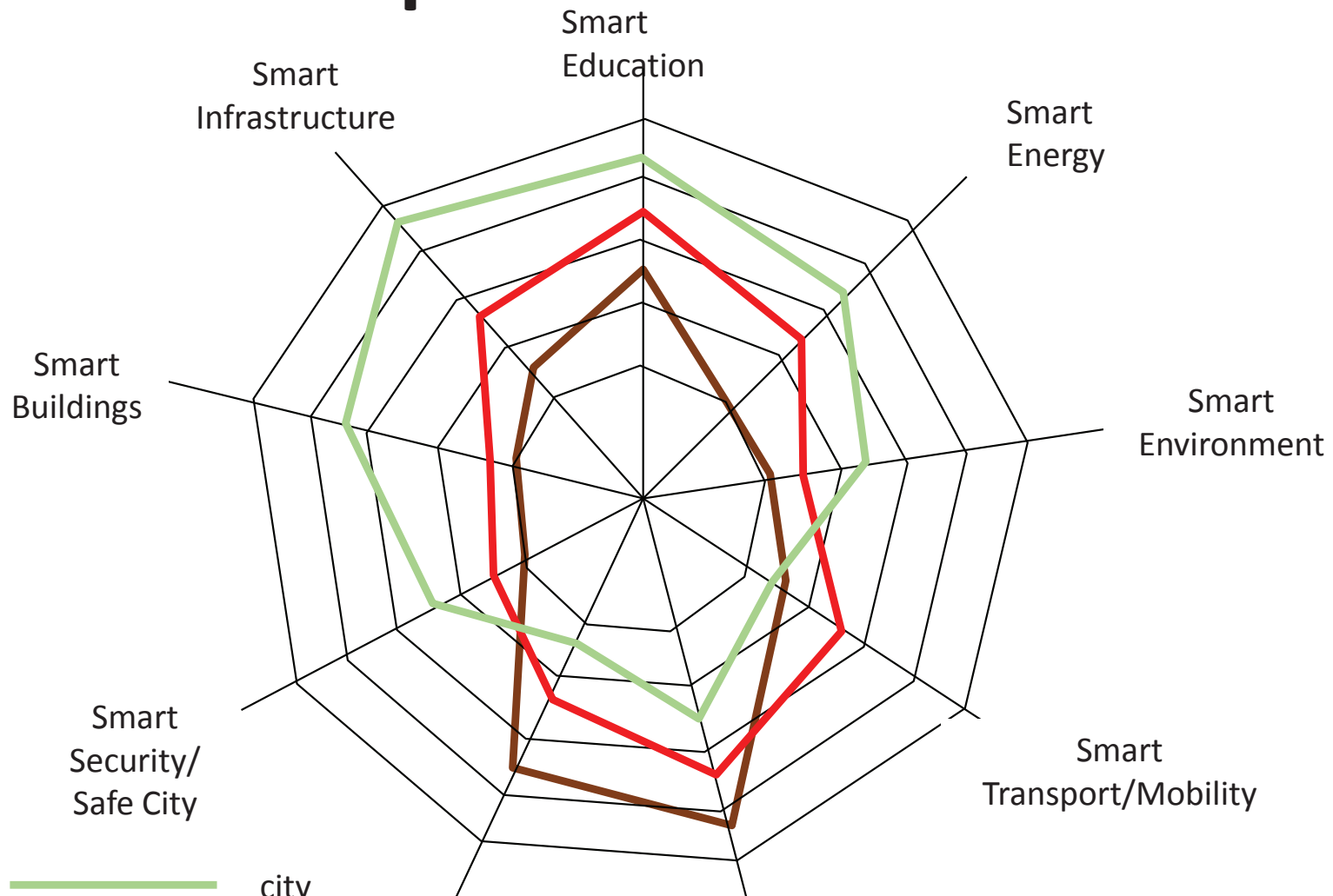


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# Multi-criteria analysis of different smart development dimensions



— city  
— citv  
— city



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Smart Governance, Participation and Planning

Smart Healthcare

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# Indicators

Indicators for the platform are divided into two main categories:

- 1) Profile indicators** allow to compare on the basis of objective data, e.g. population features , economic factors or climate;
- 2) Key performance indicators (under the 9 Sectorial Systems);**
  - 34 core indicators;
  - 18 support indicators.



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# Profile indicators

1. City population
2. Population dependency ratio
3. Density (per square kilometre)
4. Minimum wage (Euro, yearly)
5. Value of municipality's GDP per capita (Euro)\*
6. Climate\*\*



\*if not available please use the immediate upper level date available

\*\*<https://www.britannica.com/place/Europe/Land#toc34547>



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# Two options of assessment

1. If possible (reliable data available), the city enters the measurable and objective **values of indicators**.
2. If the city doesn't have the indicator data, it can be invited to opt for a **Likert scale for assessment** instead



***Likert scale** - a five point scale which is used to allow the individual to express how much they agree or disagree with a particular statement.*

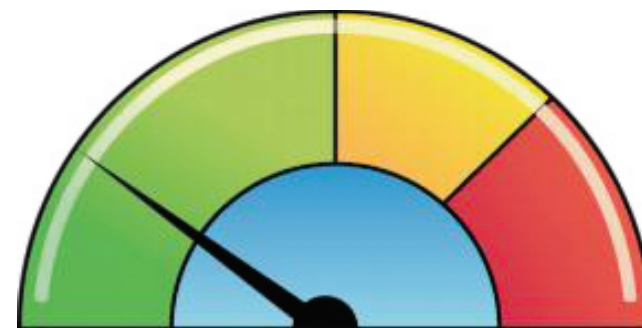


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# KPIs descriptions – example



<b>Indicators category</b>	<b>Smart Education: societal demands and future needs data literacy, innovative teaching systems, e-learning, institutional integration</b>
<b>Indicator title</b>	Percentage of students/pupils with classroom access to ICT facilities
<b>Core/support indicators</b>	Core indicator
<b>Indicator definition</b>	Students/pupils with classroom access to ICT facilities to total students/pupils enrolled in schools *100%
<b>Indicator unit</b>	%
<b>Source</b>	UNECE-ITU standard, ITU-T ICT



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# Q & A

In order to set up the self-assessment, we invite you today to share with us your opinions:

- 1. Are the indicator sets useful to you? Complete?*
- 2. Would you be willing to perform the self-assessment in exchange for your own Smart City Profile and scoring reflected on the ESPRESSO Atlas?*
- 3. Would you be interested in using this set of indicators, open and free, to assess your city strategies or the degree of implementation of Smart City solutions?*



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