Smart City:
an assessment model

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What is a smart city?

➢ It's a city with a large, efficient and widespread technological network that fosters dialogue between citizens and everyday objects

➢ It integrates the huge amount of information available to generate intelligence and *improve daily life in a lifestyle that is increasingly "**smart**"*

➢ It combines **innovation** with the environment, mobility and **quality of life**

➢ It is a new phenomenon, complex and rapidly changing. Technological innovation moves in **several directions** (*green buildings, smart mobility, e-health, e-government* ..)

Statistics and KPIs

➢ A **great quantity of statistics** is needed to study and monitor the Smart Cities

➢ The Smart City's **KPIs** (Key Performance Indicators) have to be *reliable, timely and repeated periodically*

➢ Special attention should be paid to build up a few simple KPIs to support the decisions of policy makers.

➢ The KPIs are used to **compare the different policies** adopted in the countries to evaluate their effectiveness, the r**elationship between incentives and results**, and an **analysis of cost reductions**

Conceptual framework

➢ Smart City is a **multidimensional** phenomenon

➢ Model based on 6 main **dimensions** of development (*Economy, Environment, Governance, Living, Mobility and People*)

➢ 4 main **aspects** of analysis (*Use, Supply, Network and* Degree of expertise)

➢ Developed in accordance with the methodological indications provided by the Focus Group "*Smart Sustainable Cities*" of International Telecommunication Union and the Group of Experts "*Benchmarking ICTs in the health sector*" of OECD

Dimensions

Economy

Environment

People

Smart Cities

Governance

Mobility

Living
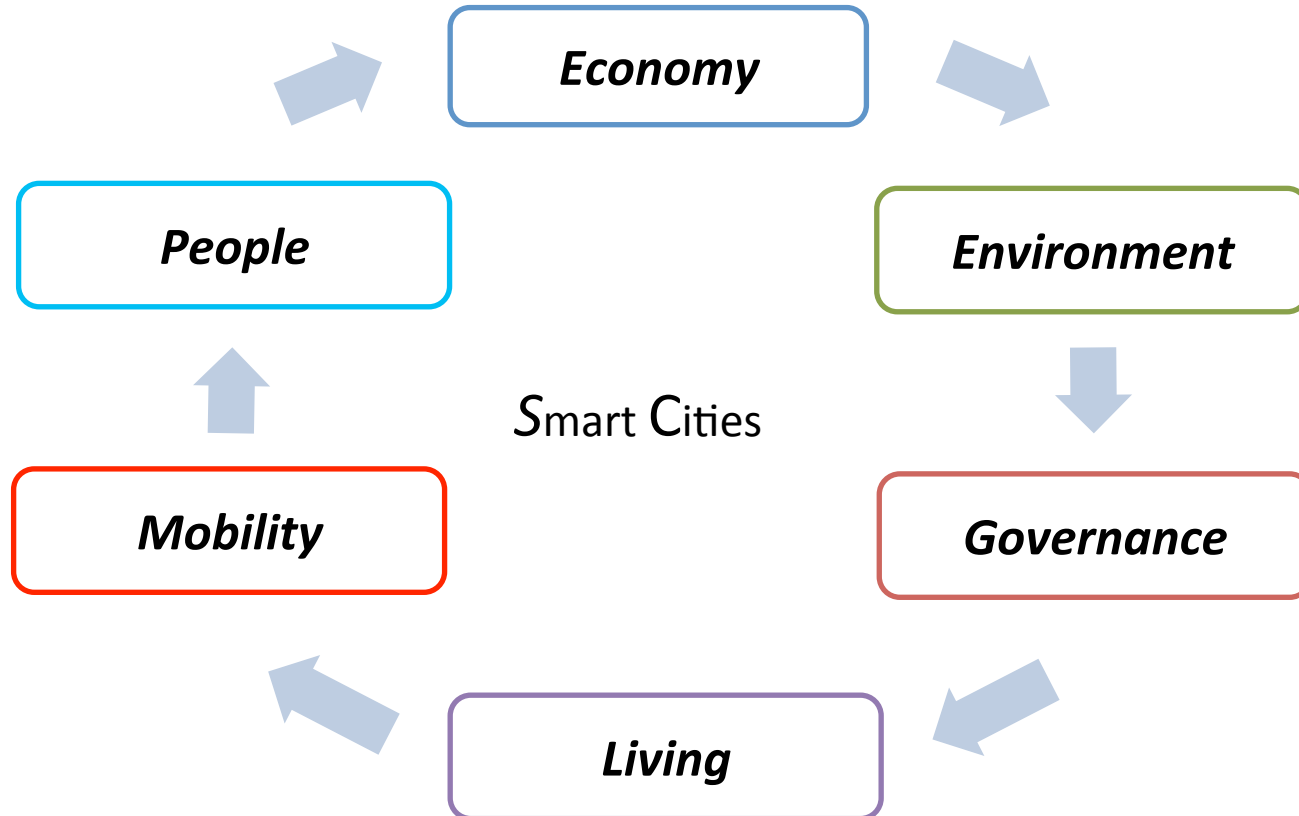
Dimensions 1

➢ **Economy:** ability to create employment, the presence of innovative companies, good quality universities and advanced research institutes

   (Main measuring Areas: innovation, productivity, good quality universities and research institutes, advanced telematics infrastructure, electronic business processes)

➢ **Environment**: the intelligent use of resources promoting a sustainable development based on recycling and the waste reduction

   (Main measuring Areas: air and environment quality, green buildings, green energy, green urban planning, integrated management of waste)

➢ **Governance:** adoption of policies for boosting territorial development and inter-municipal networking capacity

   (Main measuring Areas: democratic processes, transparency and open data, e-government, digitalization and simplification of administrative procedures)
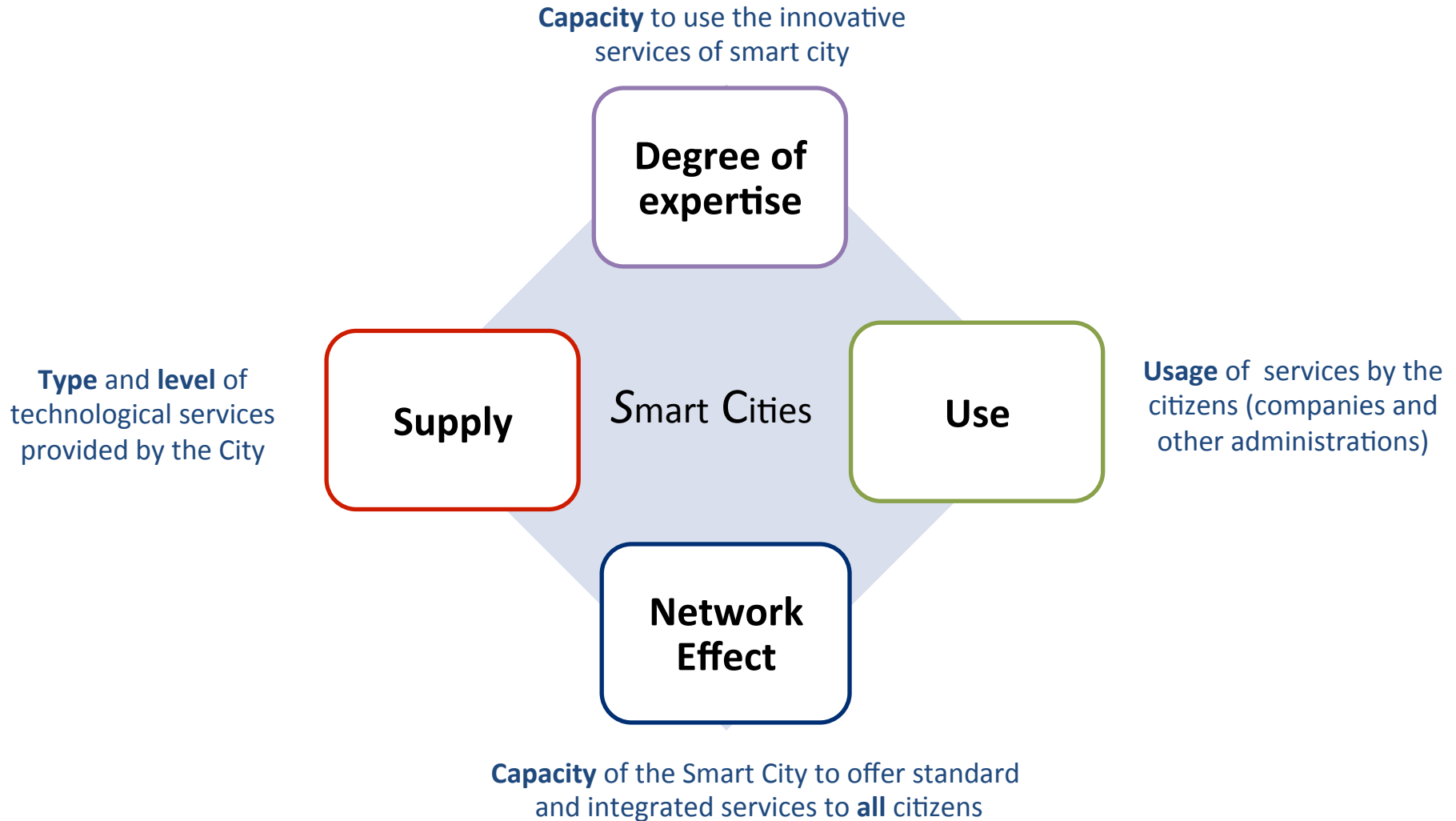
Dimensions 2

➢ **_Living:_** advanced services for improving the quality of life

(Main measuring Areas: e-health, culture, childcare and aged care facilities, safety , smart home and smart building)

➢ **_Mobility:_** an innovative and efficient system of public transport

(Main measuring Areas: vehicles with low environmental impact, car sharing, car pooling, car-bike, teleworking, ...)

➢ **_People:_** the citizens of a city are active and participate in public life

(Main measuring Areas: inclusive society, political participation, e-education...)

Aspects of analysis

Capacity to use the innovative services of smart city

Degree of expertise

Type and level of technological services provided by the City

Supply

Smart Cities

Use

Usage of services by the citizens (companies and other administrations)

Network Effect

Capacity of the Smart City to offer standard and integrated services to all citizens

Indicators

➤ Model measures technological progress using a **statistical indicator** for each aspects and for each dimension being analysed

➤ The indicators can be calculated at **different levels** (territory, city, region)

➤ Each indicator is calculated by combining a number of **sub-indicators** that focus on a single technological area

Dimensions	Indicators			
	Supply	**Use**	**Network Effect**	**Degree of Expertise**
Economy	eSupply	eUse	eNet	eDE
Environment	nSupply	nUse	nNet	nDE
Governance	gSupply	gUse	gNet	gDE
Living e-Health Smart building ……………………	lSupply l_hSupply l_bSupply ……………	lUse l_hUse l_bUse ………	LNet l_hNet l_bNet ………..	lDE l_hDE l_bDE ……….
Mobility	mSupply	mUse	mNet	mDE
People	pSupply	pUse	pNet	pDE

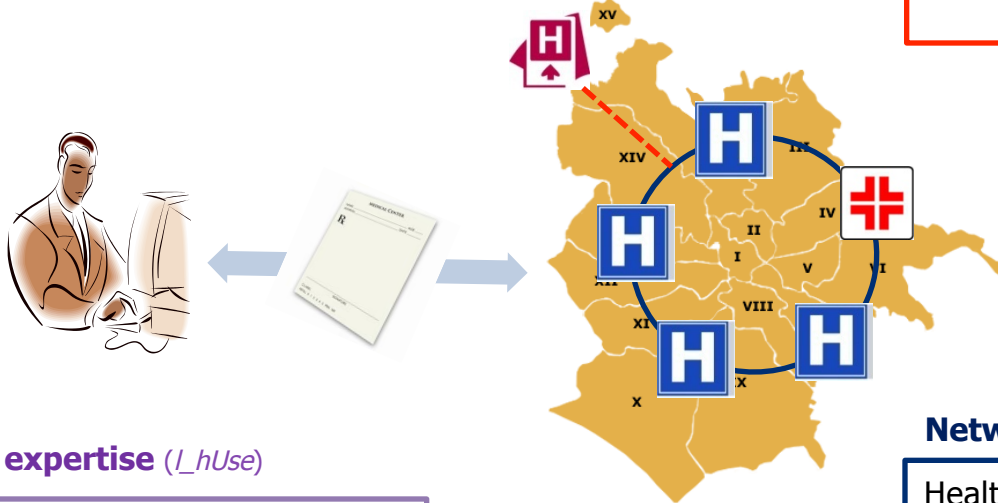# E-health indicators

Use (*I_hUse*)

Are the services used?
Are the citizens satisfied?
Are the services centered to citizens' needs?

Supply (*I_hSupply*)

Type of services (telemedicine, HER, online bookings and payment, medical reports, communications)
Technological level (telephone, web, smartphone)

Degree of expertise (*I_hUse*)

Degree of *technological expertise* among *citizens* and *medical staff* (ability to use internet, use of digital signatures and certified email, ...)

Network Effect (*I_nNet*)

Health center, pharmacies and GPs connected to the network.
The Network Effect is crucial for provision of quality digital services access to all citizens in all the city's area.

Conclusions and future developments

➢ Select the measuring areas and the indicators to be applied

➢ Define the statistical procedures used in setting up the indicators

➢ Validate the model's effectiveness

➢ Apply the model to the selected best practice cases

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Thanks for your attention!!!

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