smart GRIDTEC CHINA

ITEMS International
Smart Grids in Smart Cities perspectives

Hervé Rannou - herve.rannou@smartgridsconsulting.com
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16, rue Kléber – 92442 Issy-les-Moulineaux – France
www.items.fr

Offices
PARIS : 70 rue Amelot – 75011 Paris, +33 (0)1 43 38 66 48
Marseille, Rennes, Brussels, London, Stockholm, Washington

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Strategic Consulting In a Digital World

Challenges for Cities
Twenty-first Century Cities and climate stakes

Today ***50%*** *of the global population lives in cities. It will be* **70%** *in 2050*

By 2050 the urban population will almost double from **3.3 billion to 6.4 billion**

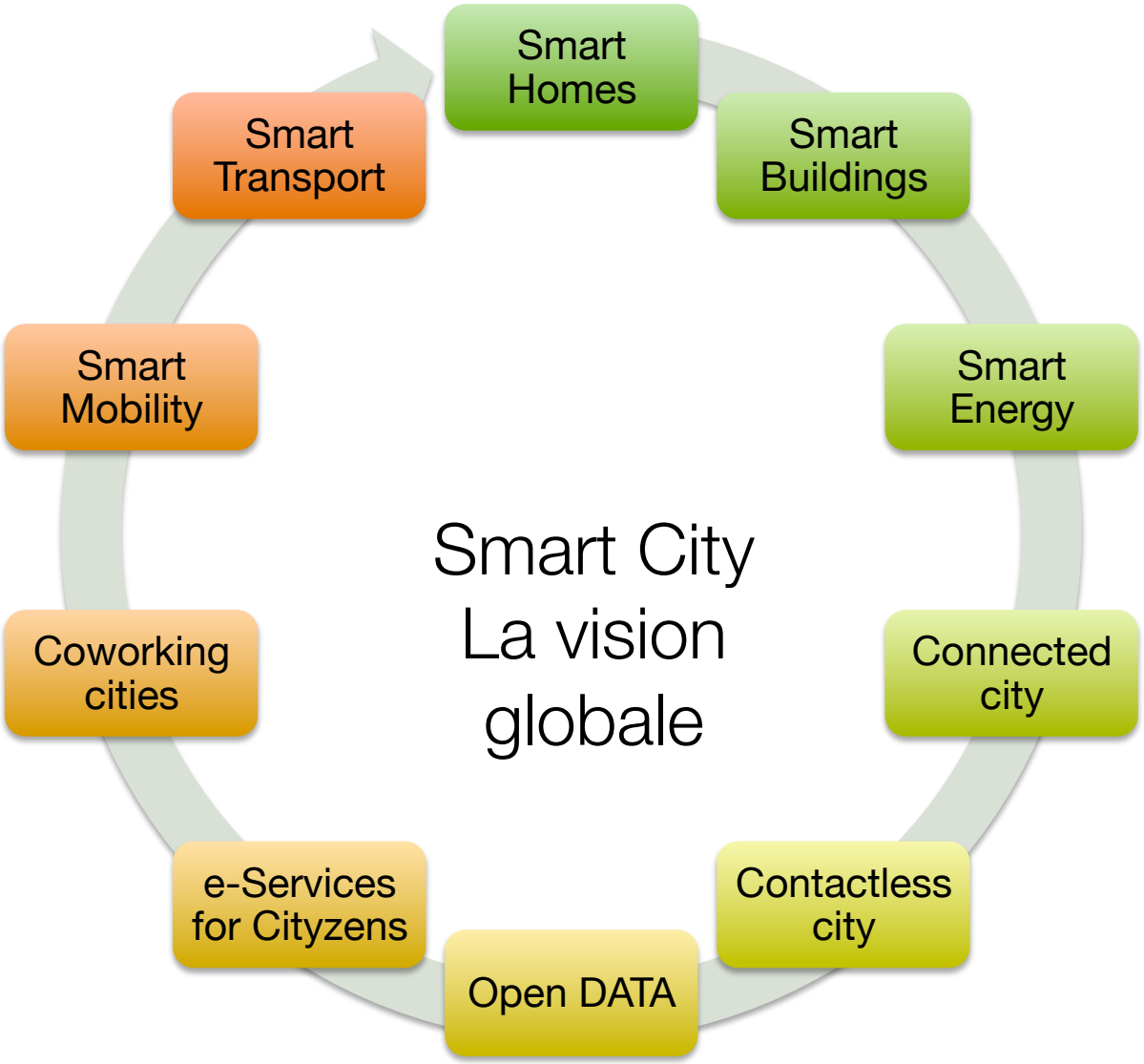
Cities are responsible for **75% of global energy consumption** and **80% of all greenhouse gas emissions**.

Urban population occupies only **2% of the world's land area**

5 billion people *will be living in cities in 2020*

Although cities occupy less than **2% of the landmass of the earth**, *urban residents consume over* **3/4 of the world's natural resources**.

Smart City
10 dimensions of ‘smartness’ in ITEMS vision



Smart City : Diversity of projects and initiatives

Smart Homes

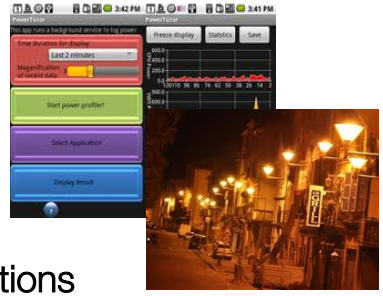
Smart Buidings

Energy efficiency

Smart Transports

Waste & Sewer systems

Monitoring



Supervision

Territoire sans contact

Water

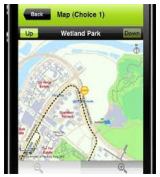
Communications

Open Data / Big Data

Lighting Trafic

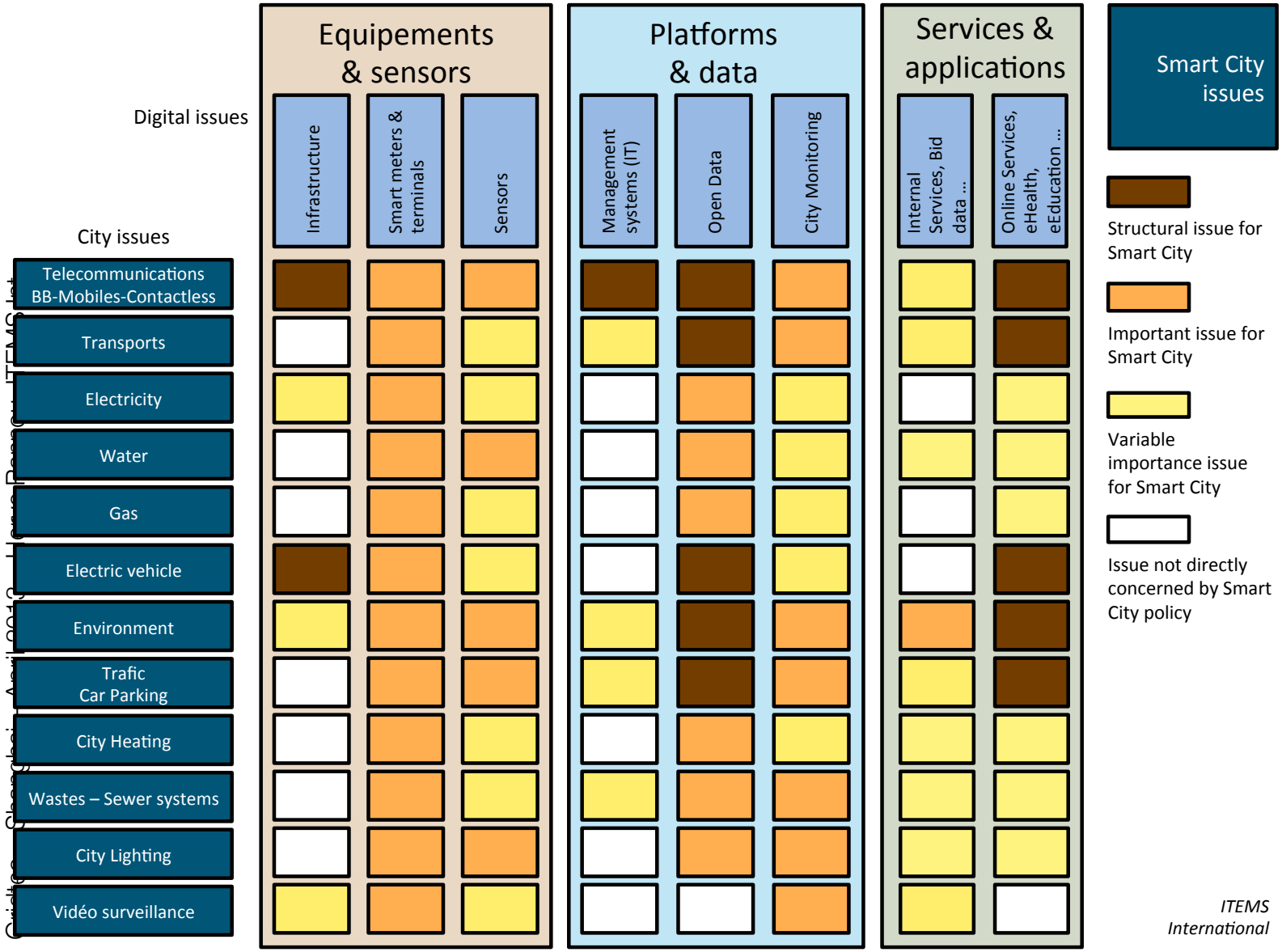
Green Data Center

e-Services



Video Monitorting

Smart City: The global view – ITEMS Layout



Cycle de Shanghai - Avril 2012 - Usages Report - ITEMS.ppt

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Smart building : the need of energy efficiency for buildings

Building in generals

40% of the world's total primary energy consumption

24% of global carbon dioxide emissions

EU : 50% of these values corresponds to the demand for space heating and cooling

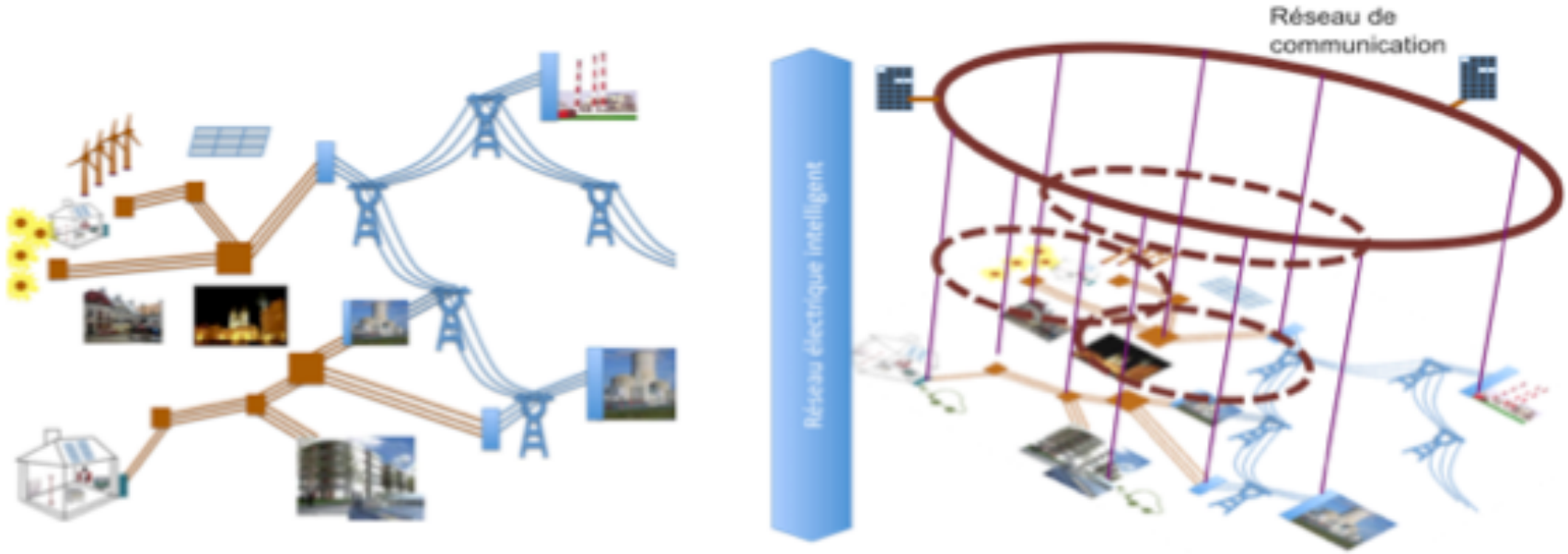
Important to optimize energy efficiency and energy performance of buildings

Smart Buildings

Internal systems featuring a high degree of interoperability thanks to ICT and connections to the smart grid.

Renewable energies are going to move grids to decentralized & two-ways design

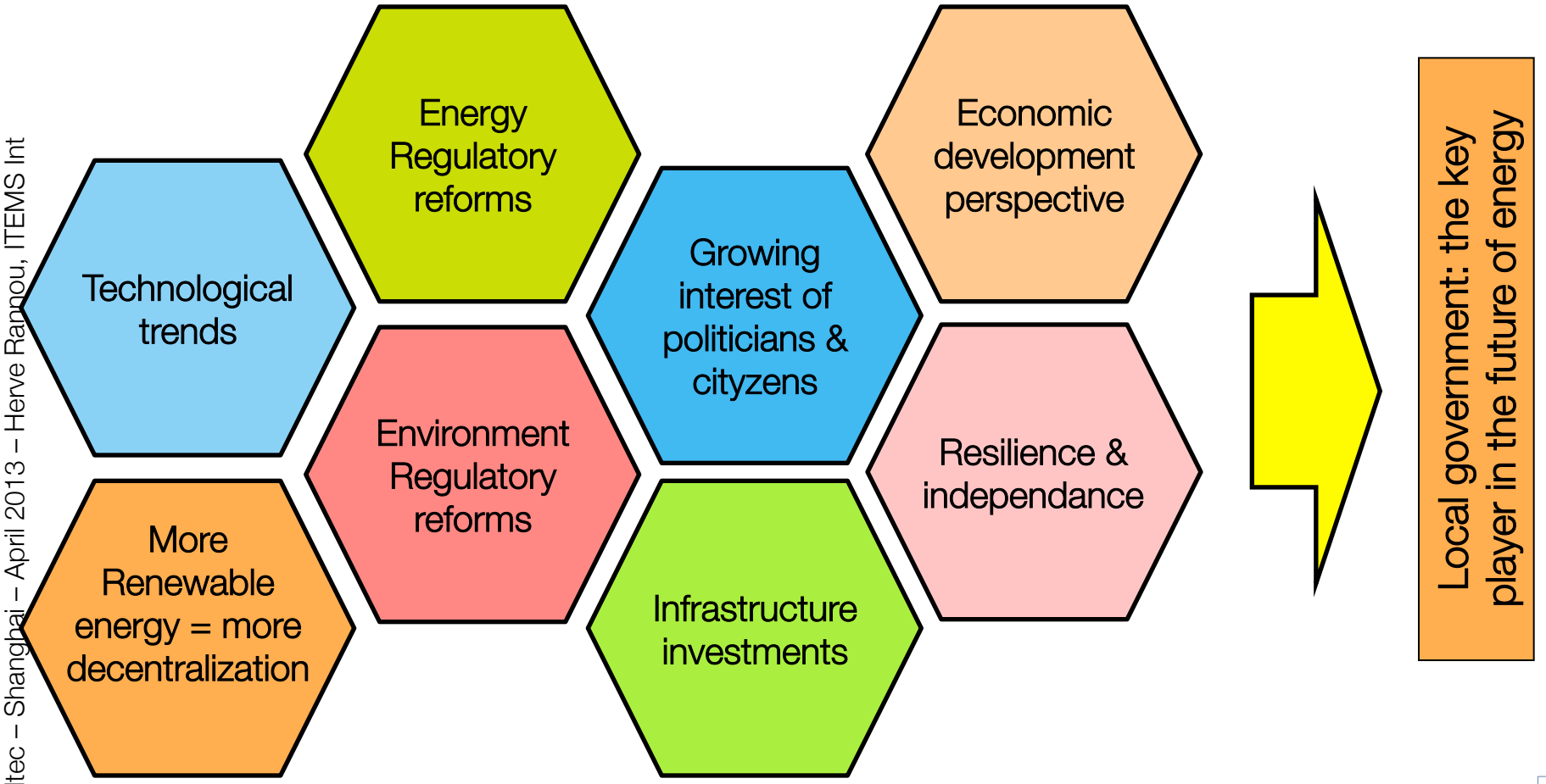
More then 50% of energy should come from decentralized sources of production. Grids which are designed for distribution have to evolve tu support gathering of energy.
Smart grids have to include virtual energy networks, energy rooming …



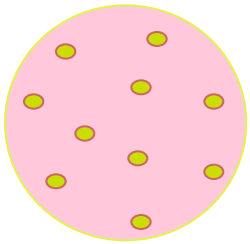
Hierarchical Grid → Smart Grid

Energy is today one of the most top issues for local governments

A conjonction of trends makes the energy to become the main driver of change in the next future



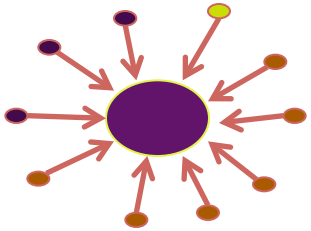
Smart Meters: An underestimate role for innovation in Smart Services



A proprietary type model

- major player in a country that would provide all global, coherent and compatible solutions « on the shelf »
- Partnership ecosystem

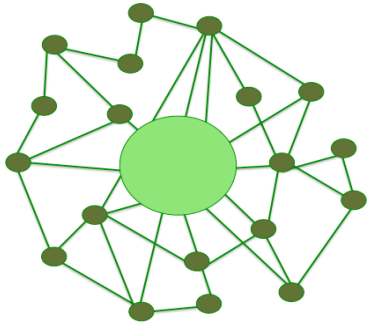
Most common in Smart Meters



A platform mode

- major player that manages and controls a platform of elected services provided by third parties
- Platform ecosystem

Exemple: iTunes



An "externality" type model

- player that is the engine and the reference of a ecosystem where each one does what he wants to do … and reinforces the key role of this player
- Open ecosystem

Exemple: Google

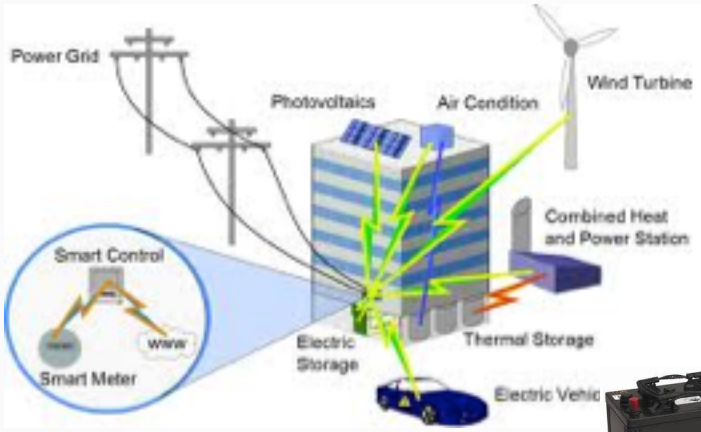
Open APIs are absolutely needed to let the Smart Grids economy to really enter in the digital era

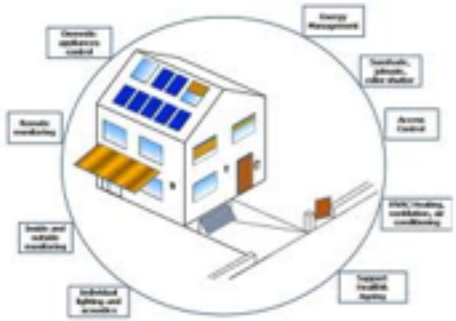
From Smart Buildings to Smart Cities through Smart Neighborhood
The global muti-grid management perspective

ICT network

Broadband **Wireless** **4G / LTE**

Smart buildings





Smart Grid network

Storage

Energy – Gaz -Water – Sewer – Waste …

Urban platform: a tool to give the power to control what happens and where the city goes on

- The city wants today:
  - **TO KNOW** the existing infrastructures in their city: water, telecom, transport, energy…
  - **TO MEASURE** the usages, the traffics and their evolution, the quality of services …
  - **TO BE INFORMED** of what happens (not to be informed by the press the day after that the water have been cut, or that a bus line was stopped …)
- At the end, the city wants to **INTERACT** with third parties operators
- The urban platform is the strategic tool to make this possible

Urban **platforms**: the strategic tool in new governance of utilities

Interact

Awareness

Measure

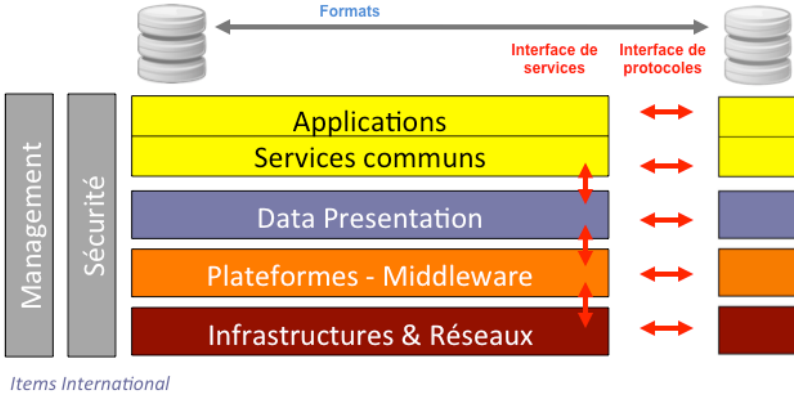
Knowledge

Modèle KMAI © Items

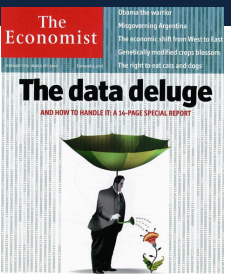
INTERROPERABILITY:
A tricky challenge in the city agenda

- More and more horizontal services :
  - Geographical Information Systems (GIS) : the first layer in Urban Platforms
  - Real time alerts coming from third parties
  - Contactless technologies originally for urban transport that are extended to other city usages
  - e-Services provided to citizen on Internet and Mobile that request integrated services on city portals …

- Interoperability is not a new issue for IT governance … but it is a new one in utilities management
  - Each utility used to be independent
  - Now the systems can remain independent but they need to interoperate.



Data : Governance, rights, access



Huge amounts of data on cities, infrastructures, services, usages … and citizens

Many souces of data: potential … and complexity

Open Data: A new way to develop services in cities

City Dashboard: Assesment and Anticipation

Open questions on real ownership of data

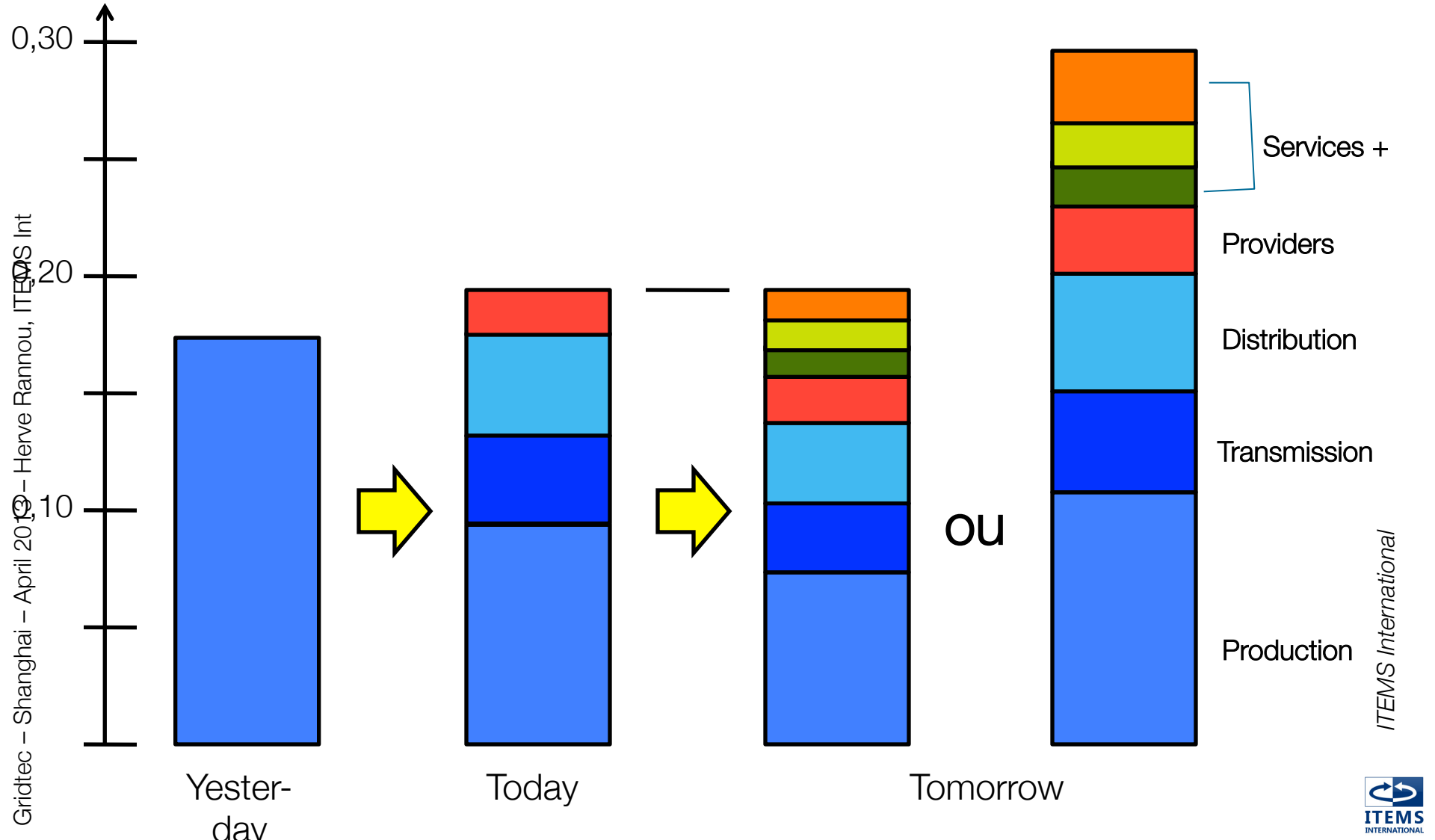
Green Button Download My Data

The « Green Button » effect

Privacy

Cybersecurity

A new and complex value chain in which new entrant want to get a place



The impact of use cases

Energy, Environment

Amsterdam, ND

Communication, Data, Cloud, Energy

Boulder, US

Energy

The impact of use cases

Lyon, FR

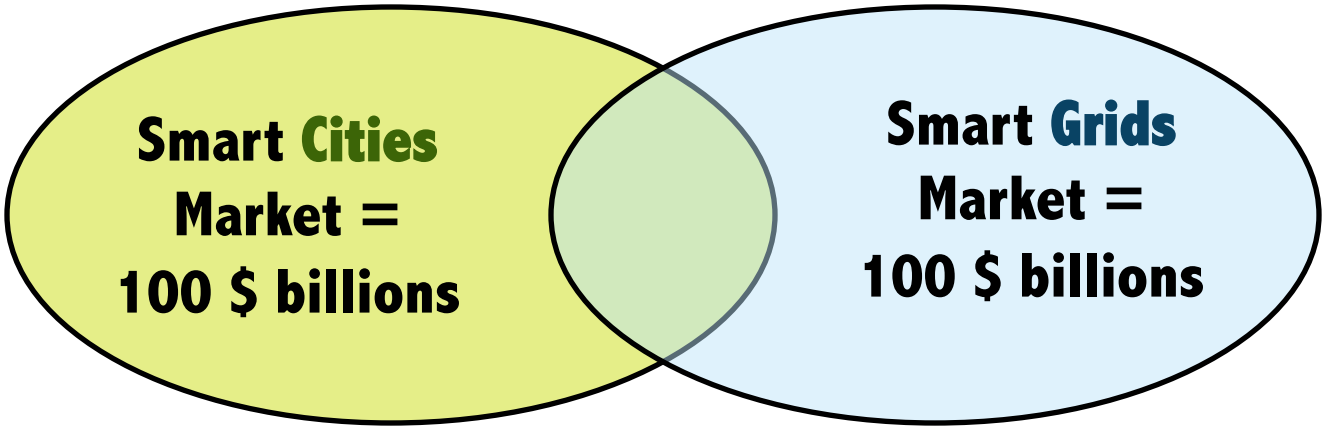
Energy, Mobility
With NEDO (Japan)

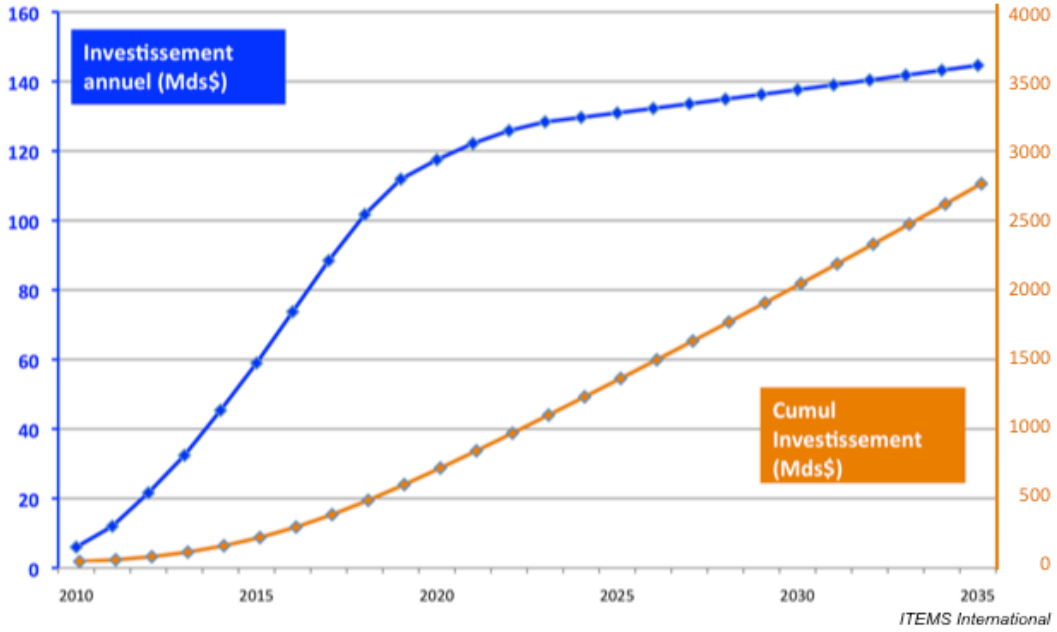
Rio de Janeiro, BR

Environment, data

Paredes, PT

Market landmarks: Smart Cities Market and Smart Grids Market to meet 100 $Billions both in 2020





A larger market than expected

Smart Cities: « Crossing the chasm »

- The market is in cities
- Our future in innovatio is there
- Many R&D has to be done
- The tools for collaboration exist
- Many barriers remain