# The Making of Smart Cities: Working Together


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IEEE Smart Cities Committee


ITU/UNESCO Forum on Smart Sustainable Cities
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# Defining Smart Sustainable Cities


Source: Barcelona City Council

| AREA | GENERAL AIMS | INTERVENTIONS |
|---|---|---|
| **Information** | • Increasing the **transparency** of municipal management.<br>• Encouraging social use of **public data**.<br>• Promoting **innovation** and the economic fabric. | • **Sensorisation of urban elements**, i.e. Traffic: installation of cameras in public spaces; magnetic loops and Bluetooth sensors to control the volume, speed and flow, etc.<br>• Creation of a unified platform for management: administrative procedures through electronic applications such **as e-Contracte, e-Document, e-Signature, inspection, e-files**, licensing work files, etc.<br>• **OpenData** BCN project: a platform which makes all municipal government data available to everyone, except those aspects of information subject to privacy. |
| **Infrastructure** | • Providing direct access to the network and, also, to information and services managed through the **online platform** —ubiquity—. | • **Special Infrastructure Plan**: 325 km. of **optical fiber,** mainly used for internal communications —both data and voice— by the **local police, the fire department and municipal buildngs**, as well as traffic management.<br>• **Free public WiFi service** offered through 416 access points located inside municipal facilities. |
| **Smart Services** | • Provision and management of **public services via internet-based applications** and devices. | • Barcelona **virtual office**: website to sort out administrative procedures for citizens and companies.<br>• **iBicing**: application for mobile phones to help users of the public rental bicycles service to locate bike stations and verify the availability of units. |
| **Human Capital** | • To **attract talent** and companies in the Knowledge Based Economy (KBE) related industries. | • Urban transformation of the **22@ district**. |

Policies. Source: Gavaldà & Ribera-Fumaz (2012)

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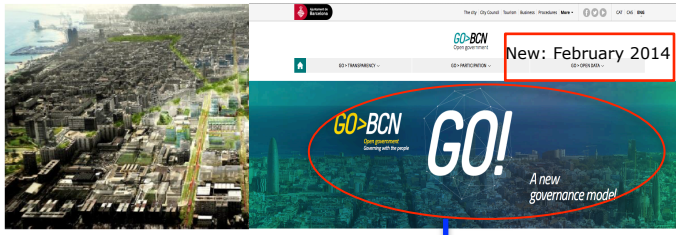
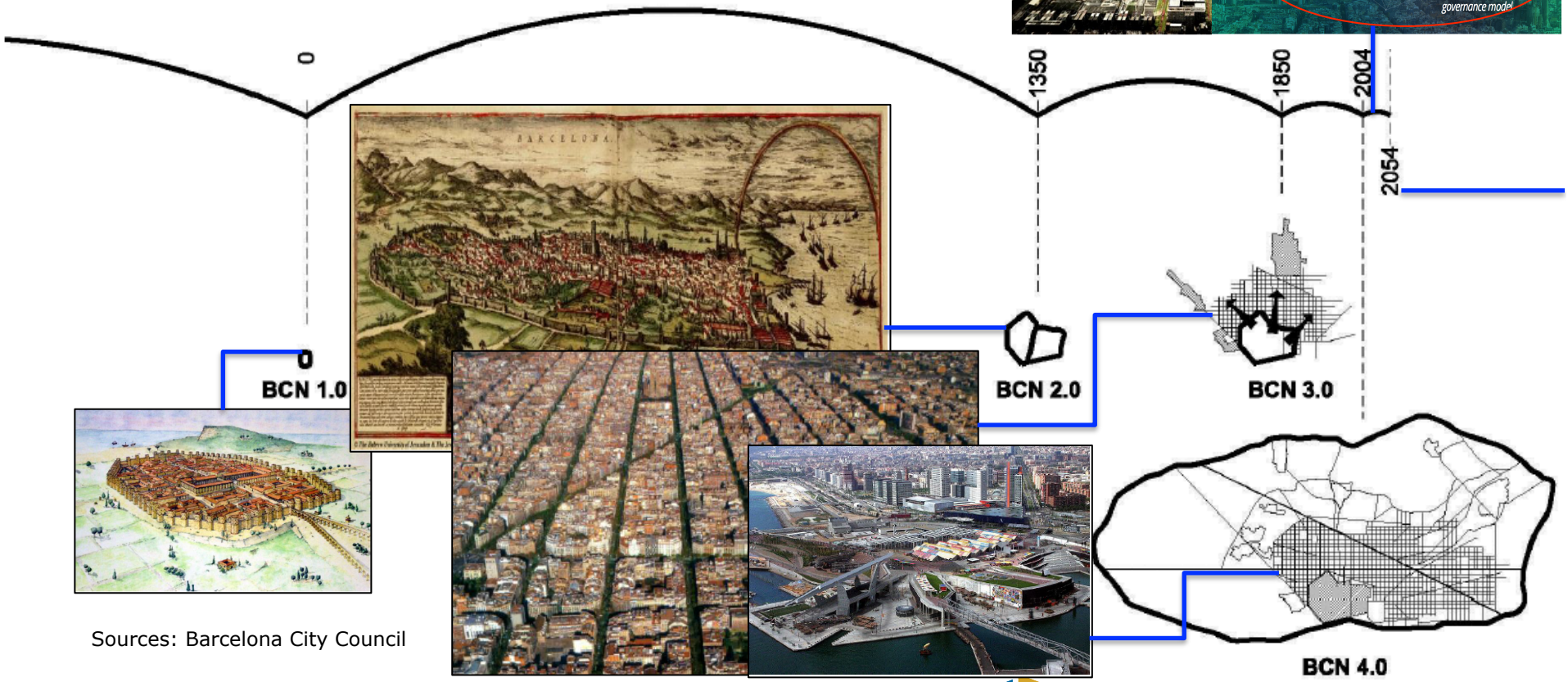
# Defining Smart Sustainable Cities

*From Digital City to Smart City nowadays: Smart City's Strategy in Barcelona has been "embedded" in the progressive ICT (and urbanization) adoption along the years.*




Sources: Barcelona City Council

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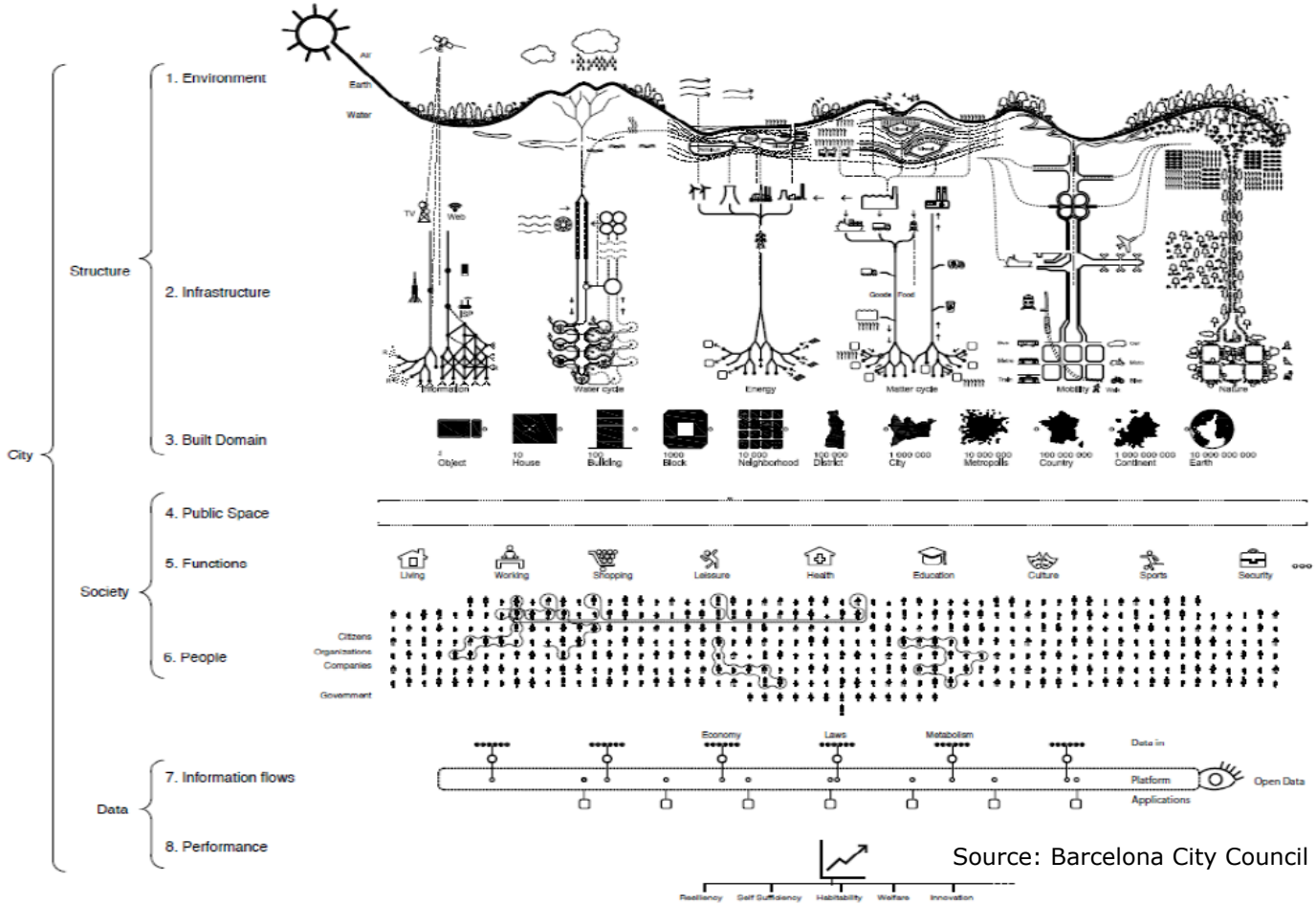
# Defining Smart Sustainable Cities

- Balanced and Optimized "System of Systems"

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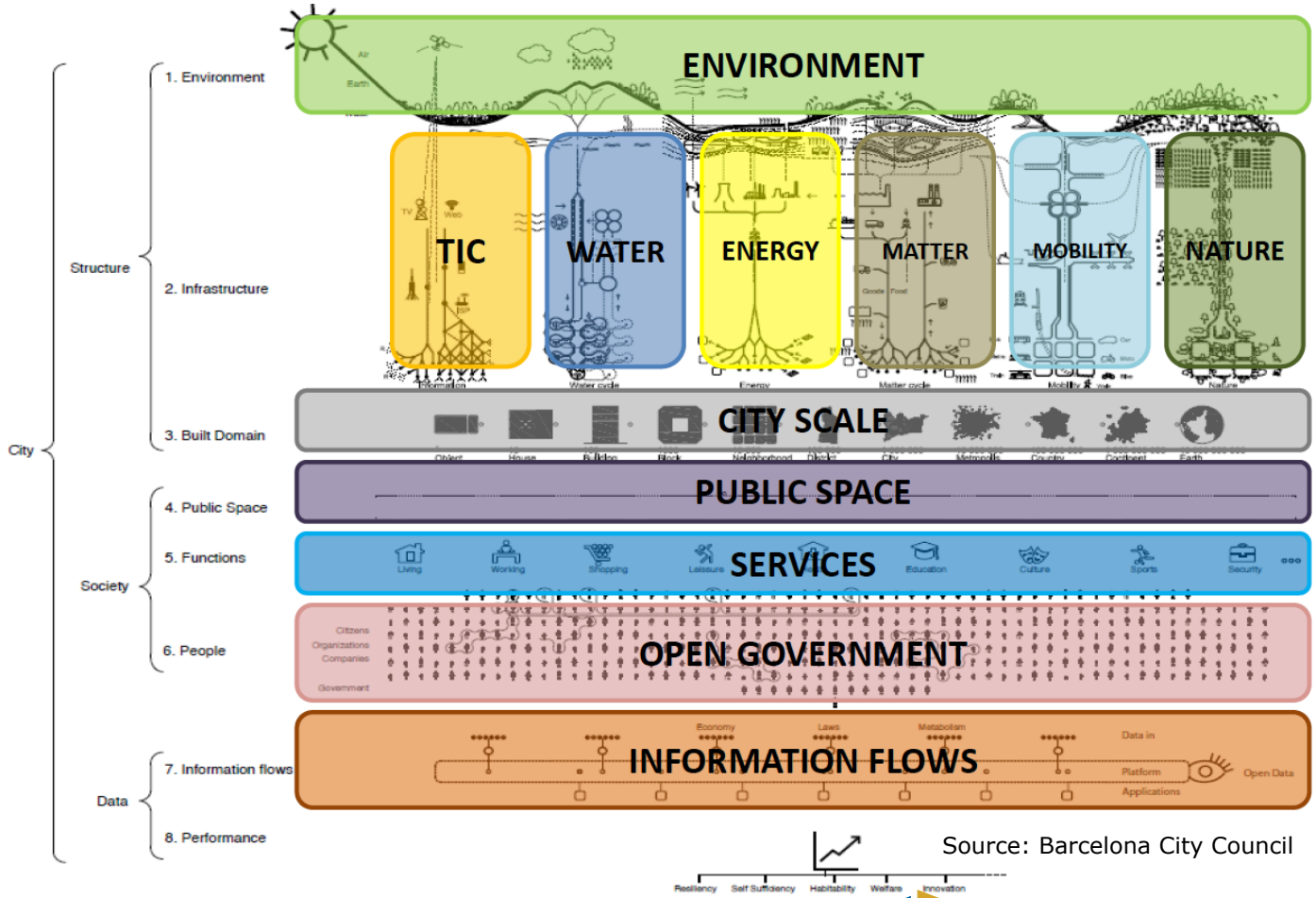
# Defining Smart Sustainable Cities

- Balanced and Optimized "System of Systems"




Source: Barcelona City Council

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# Defining Smart Sustainable Cities

- Strategy and plans (continuity)
- Mechanism to use ICT strategically
- Technology as enabler
- Layers: People/Information/City Structure
- Transversal projects (intelligent data…)
- Vertical projects (open government…)
- Collaboration (Public, Private and People…)
- Test in Laboratory (Tech Urban Labs…)

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# Questions…

- Some questions:
  - Are we measuring and evaluating?
  - If yes… what are we measuring?
  - What metrics are we using?
  - Do we have a maturity model?
  - What we know about our technologies?
  - Do we have standards?
  - Are we having the highest knowledge level about the options?
  - Will we interoperate?
  - Do we have security?
  - Are we educating?
- Some answers….

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**1990:**

**The IEEE Standard** Glossary of Software Engineering Terminology (Std 610.12-1990, The Institute of Electrical and Electronics Engineers, New York) **defines**

**Interoperability**

As "*the ability of two or more systems or components to exchange information and to use that has been exchanged*"


IEEE Internet of Things

IEEE SMARTGRID

IEEE greencom

IEEE Intelligent Systems

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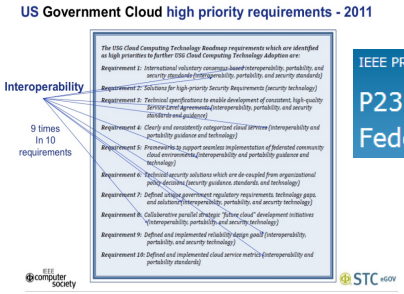
IEEE TryComputing.org

Accreditation.org

TryNano.org

TryEngineering

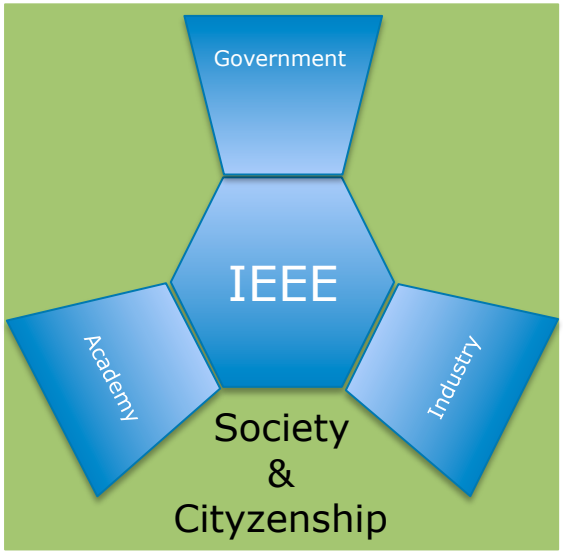



IEEE PROJECT

P2302 - Standard for Intercloud Interoperability and Federation (SIIF)

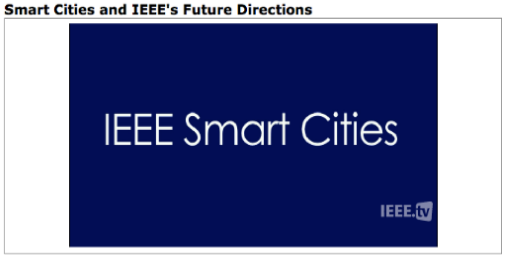
IEEE STANDARD

2030-2011 - IEEE Guide for Smart Grid Interoperability of Energy Technology and Information Technology Operation with the Electric Power System (EPS), End-Use Applications, and Loads




**Smart Territories' Governance: ...When Interoperability Meet Open Government**

**Smart Cities and IEEE's Future Directions**




**From Big Data to Extreme Data**

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TECHNOLOGY MANAGEMENT IEEE

The IEEE holistic view:
strategy, standarization, alignment, education, evolution, SUSTAINABILITY

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# IEEE Smart Cities

- Some highlights…
  - Technology as a tool, not as an end (defined targets)
  - Standards and aligned systems' plans. Strategy, planning and evaluation. (management)
  - E-Government (Open-Smart) & e-Governance
  - $P^4$:Public, Private & People Partnership (collaboration)
  - Education (Institutions have to be educated too)
  - Continuity, even if political changes (evolution)
  - Citizens' & city needs: target (citizen involvement)

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# IEEE Smart Cities

- IEEE is assisting in managing transition to Smart City in Key Partnership with ITU:
  - Funding Municipalities' Projects
  - Educating & Teaching: Technologies
  - Assisting & Advising: Standards & Technologies' alignment
  - Promoting P4 (Public, Private & People Partnership)
  - Holistic Knowledge & View
  - …



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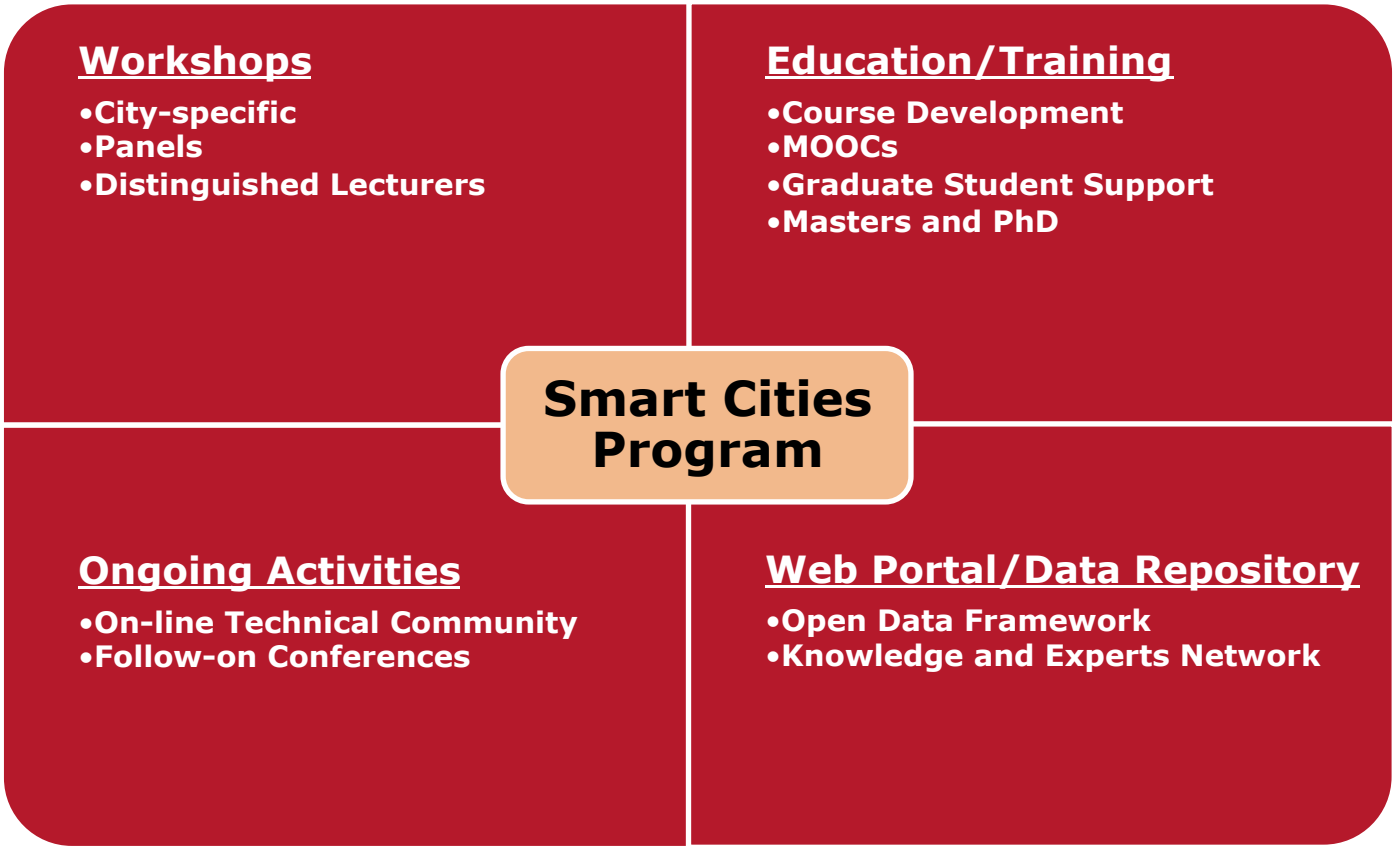


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# IEEE Smart Cities

- Measuring Smart Cities
- Qualitative and quantitative approaches
- Neutrality. No seconds intentions
- Sharing criteria and results
- Partnership
- Educating and training
- Free of cost advisory for institutions

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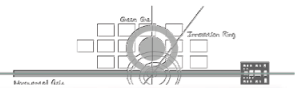
# IEEE Urbanization Challenge: Guadalajara

- Has a concrete plan and funds to become a Smart City
- Local constituency welcomes IEEE involvement
- Local authorities have interest in sharing experiences at the international level and becoming a path leader
- Local IEEE Chapter and Section has assumed local responsibility for the project
- Local university interested in working the Smart Cities space as well as some form of local industry commitment

GUADALAJARA
CIUDAD CREATIVA DIGITAL



**CCD LOCATION:**

- In **Guadalajara's Historic** center
- Around **Parque Morelos**
- It is part of a Comprehensive strategy for the **revival** and **regeneration** of the main city area
- CCD core area is **40 hectares+ Parque Morelos**
- Area of direct beneficial influence is **380 hectares.**
- **DUIS certification** is a prerequisite for the Digital Creative City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# IEEE Urbanization Challenge: Guadalajara

- **Workshop - Pilot event**
  - 29-30 October 2013; Guadalajara, Mexico
  - In collaboration with Ciudad Creativa Digital (CCD), IEEE Guadalajara section, and the local IT industry chamber
  - FDC funded
  - Program content
    - 4 Panels, 8 talks, 6 whitepaper working groups
    - Topics include: physical infrastructure, information infrastructure, big data, data visualization, societal impact, cyber security, public policy….
  - Attended by 70 people from academia, industry and government
    - Participation of ITU and EIT ICT LABS
    - Agreed talks recorded and slides available on web site:
      - http://smartcitygdl-ieee.org/media.html
    - Several ideas and issues emerged through working teams
    - Creation of a White Document under progress. Expected public availability in January 2014. To be presented at the Guadalajara Municipality and State Government
  - Potential to become an Open Air – Live Lab

Workshop

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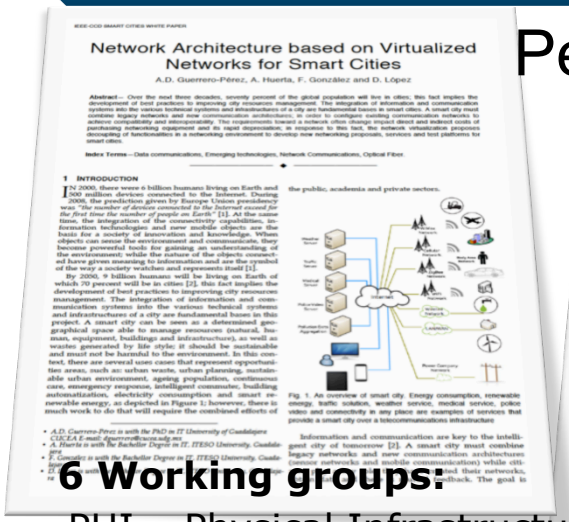
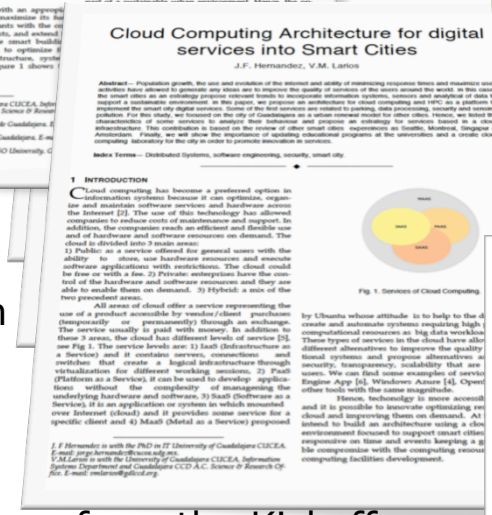
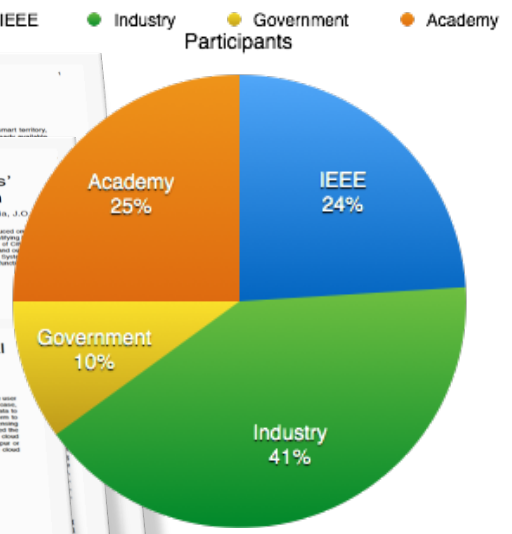
# IEEE Urbanization Challenge: Guadalajara




Peer review process..





**6 Working groups:**

- PHI – Physical Infrastructure
- IOT – Internet of Things
- ODF – Open Data Framework
- DAV – Data Analytics & Visualization
- MTX – Metrics for Smart Cities
- EDU – Education for Smart Cities

First goal to **achieve the whitepapers** from the Kickoff

- **Focus to Identify local pragmatic & social impact issues for each working group**

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# Building Smart Sustainable Cities

- If you are thinking on building a Smart Sustainable City
  - Strategy
  - Plans
  - Partnership (Academia+Industry+Government+IEEE)
- IEEE Smart Cities is looking for municipalities to continue ahead. Maybe yours can be interested?

## Contact us!

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# Thank you

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http://www.computer.org/eGov

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