

# UNIVERSIDAD TECNOLÓGICA NACIONAL

Facultad Regional Paraná

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RAMEL, ELÍAS IVÁN – Civil Engineering Student

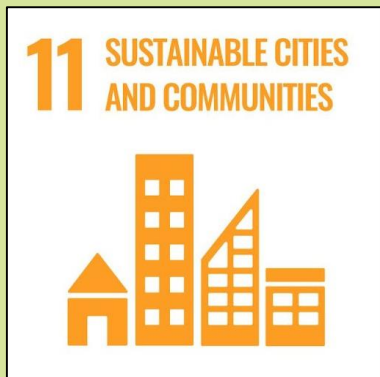
MILDENBERGER, AGUSTINA NOELIA – Civil Engineering Student

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# On the Way to a Smart City: A Viability Analysis of the Transformation Process in Latin America

## INTRODUCTION



UNDP: United Nations Development Program. Sustainable Development Goal #11 - **Make cities human settlements inclusive, safe, resilient and sustainable**



NAE: National Academy of Engineering. Grand Challenge #6  
**Restore and Improve Urban Infrastructure**



## MAP OF THE PRESENTATION

- I. The Foundations of a Smart City
  - A. *Information and Communication Technologies*
  - B. *Efficient Urban and Construction Planning*
  - C. *Improvement of Environmental Sustainability*
  - D. *Sustainable Urban Mobility and Transport*
  - E. *Open Data*
  
- II. The Construction and Operation of a Smart City  
*Management and Global Working of the Key Elements*
  
- III. The Route to Smart Latin American Cities

## I. THE FOUNDATIONS OF A SMART CITY

### WHAT IS A SMART CITY?

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A territory with great capacity for learning, innovation, and creativity

+

Research and development institutions

+

Digital infrastructure and communication technologies

+

Human and social capital

+

Sustainable development

+

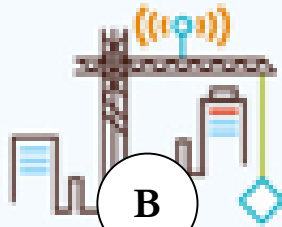
The citizen participation in its system of government

## SMART CITIES AND THEIR KEY ELEMENTS



A

*Information and  
Communication  
Technologies (ICT)*



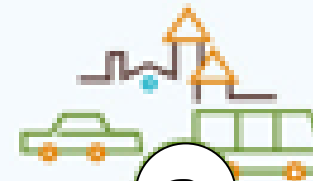
B

*Efficient  
Urban and  
Construction  
Planning*



C

*Improvement  
in Environmental  
Sustainability*



D

*Sustainable  
Urban Mobility  
and Transport*



E

*Open Data*



## *A- Information and Communication Technologies (ICT)*

- ICT does not need further justification.
- It is an indispensable requirement for cities to be interconnected.
- Think of a person or society that does not make use of digital communication services = **IMPOSSIBLE**.
- “IoT” (Internet of Things) is absolutely a fact.
- “Transform behaviors and social structures to make them interrelated and intelligent”.
- ICT applications for the smart cities have become a new model for municipal cooperation between government and corporations.







*B- Efficient Urban and Construction Planning*

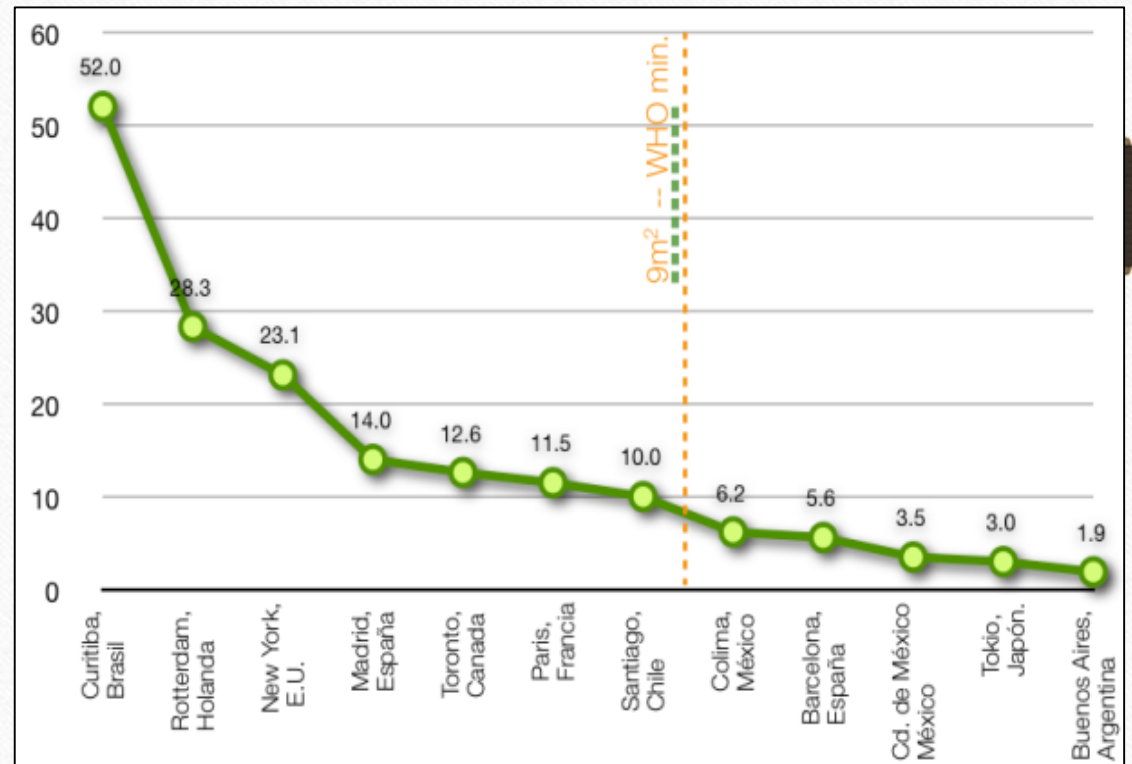
- Combination of efforts, perseverance, methods and organization.
- Projects that boost social, economic and environmental sustainability.
- Local development, citizen's participation, nature resources conservation and 'urban metabolism'.
- Presumption of cities like **ecosystems**.



## C- Improvement of Environmental Sustainability



- Smart cities need to optimize energy consumption.
- Observing its indicators: air quality, availability and quality of **green spaces**, carbon footprint, ecological footprint, water footprint, and emphasis on waste treatment and recycling: “9 m<sup>2</sup> of green space per person”.





## *D- Sustainable Urban Mobility and Transport*

**1. Reduction of the need for motorized transportation; reduction of emissions.**

**2. Potentialization of the use of alternative transportation**

**3. Development of clean transportation systems; vehicles with low emissions and use of alternative fuels.**

**4. Improvement of transport efficiency; reduction of environmental impacts through control of vehicular flows, organization and management of traffic.**



## *E- Open Data (OD)*

- Easy access and within reach
- Creation of plans or complementary services
- Open Governments's role

### *Free access – Feedback*

- «OD ecosystem»
- User-friendly in terms of use and adaptation
- Dynamic feedback loops

### *Political role*

- OG
- ✓ Transparency in action and execution
- ✓ Accessibility of all data
- ✓ Active listening towards citizens and involvement
- ✓ Coordination in decision-making





## II. THE CONSTRUCTION AND OPERATION OF A SMART CITY

### Management and Global Working of the Key Elements

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Dimensions:

- 1) Smart Economy
- 2) Smart Mobility
- 3) Smart Environment
- 4) Smart People
- 5) Smart Living
- 6) Smart Governance

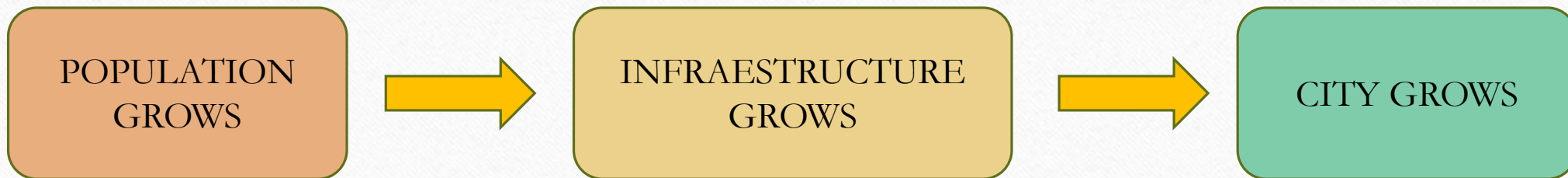
- There is no smart city without smart people
  
- The conversion and/or adaptation into a smart city is a continuous process

### III. THE ROUTE TO SMART LATIN AMERICAN CITIES



#### SMART CITIES...

- Represent a process
- Require not only physical-urban but also organizational-economic infrastructure
- Vary around the world, given the context in which every country is immersed





# Smart cities in LA requires the intervention of three groups of **actors**:

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- **Technology companies:** needs technological solutions to address urban problems, solving them and seeking to improve quality of life and reduce costs, where companies present themselves through campaigns and justifiably necessary investments.
- **Multilateral organizations:** UN through their well-known interventions and studies and others such as the World Bank and the Inter-American-Development Bank (IDB) that provide financing as well as technical assistance in pursuit of development.
- **Urban governments:** represent the real decision-makers.

# Is it the same to make a smart city in LA as in other regions of the world?

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As Cacace have stated:

With problems of poverty, crime and lack of access, Latin American cities face a much greater challenge than their counterparts from other regions of the world when designing smart city projects. Large cities such as Buenos Aires, Medellín or Rio de Janeiro are making budgetary efforts to modernize both their urban infrastructure and the services they provide to citizens, from smart traffic lights to improve mobility, and the installation of surveillance cameras to improve public safety. [13].

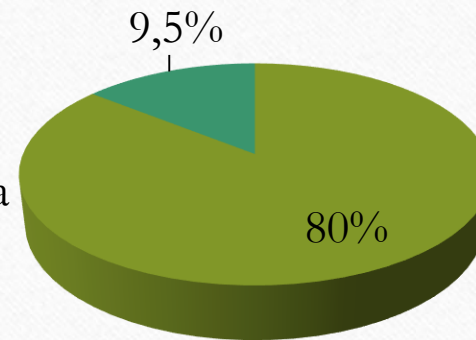


## And between Latin American cities?

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- Thinking about the Internet-access parameter in Latin America and the Caribbean, statistically one in two people does not have access of any kind.
- Within LA, there are great differences between countries: while in Argentina almost 60% of the population has access, in Cuba it does not reach 10%

- Population with internet access in Latin America
- Population with internet access in Cuba



## Examples of cities that are becoming cleaner, efficient, innovative and smart in Latin America:

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- Santiago (Chile)
- México (México)
- Bogotá (Colombia)
- Buenos Aires (Argentina)
- Rio de Janeiro (Brazil)
- Curitiba (Brazil)
- Medellín (Colombia)
- Montevideo (Uruguay)



# Rio de Janeiro, a good example

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RJ built the Rio Operations Center (COR), where it provides:

- Traffic surveillance.
- Security
- Weather forecasting
- Electricity and gas providers

It achieves a total **physical and virtual union**  
of the **city** and **what happens to the city**.

# Río de Janeiro...

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- Won an international recognition as one of the seven most important and relevant smart cities in the world.
- Expanded the local government telecommunications network, which has intensified the government's presence throughout the city.
- Allowed IDB to promote the action of the two technology companies, financing the COR through economic resources.



# So, these factors are needed in Latin America

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- Political



- Business



- Economic



# What about Buenos Aires?

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- Is a city that has all the skills and elements to become smart, and already acts in search of it.
- For example, gives positive steps in terms of construction for urban growth, promotion of green transport, measurement of traffic for its intelligent improvement...
- Need a significant investment in ICT, like RJ, to see a broader, faster and smarter transformative growth.

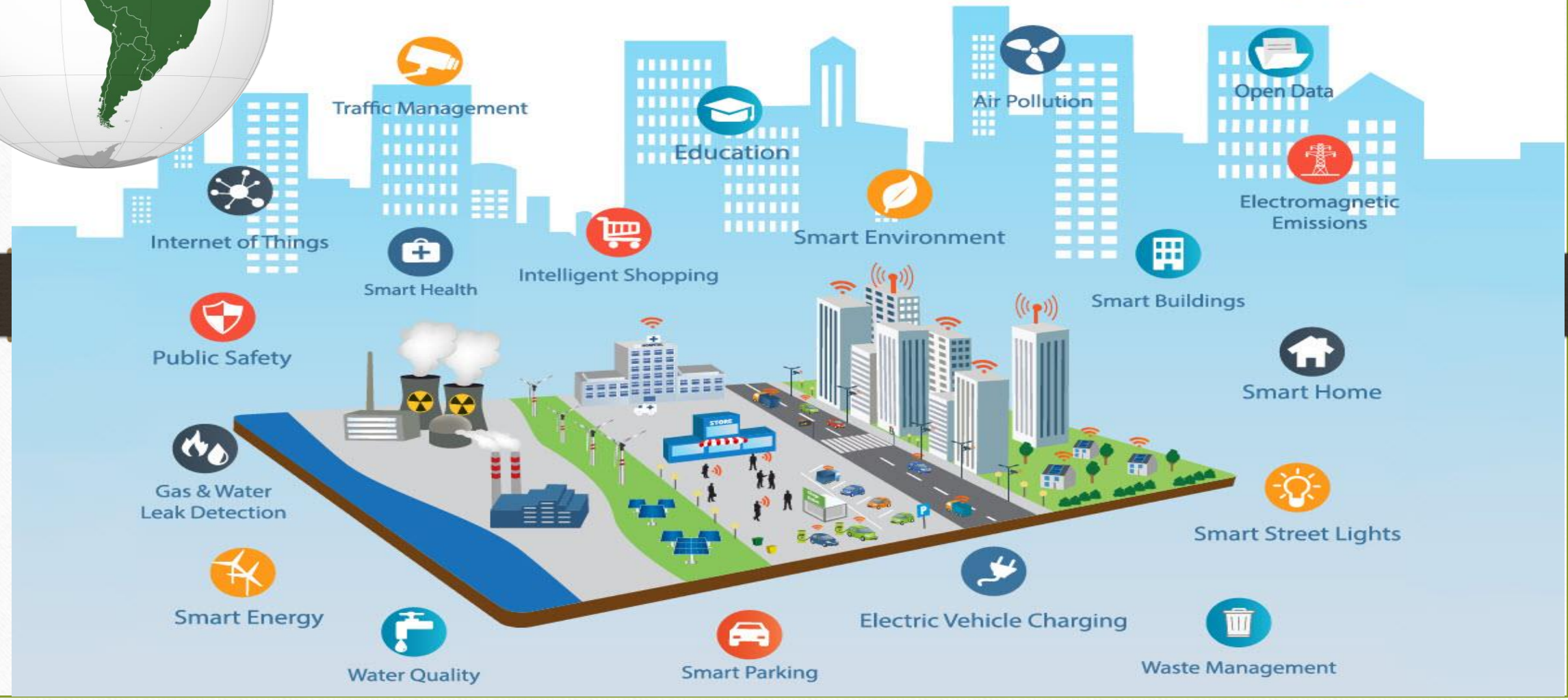


# So, how a city can be smart?

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- A city can be smart only starting with a project, resources and well-executed strategies.
- With smart people: Politicians, Citizens and Investors.
- Following the “dimensions”, which can change according to social, economic, cultural and political contexts.

# CONCLUSION





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