

BARCELONA SMART CITY

The vision, approach and projects
of the City of Barcelona towards
smart cities

An aerial photograph of a dense urban area with many buildings and red-tiled roofs. In the center, there is a large, colorful, abstract architectural model or map overlay. The model features various shades of red, orange, yellow, and green, suggesting different zones or projects. It has a wavy, organic shape that fits into the urban grid. The text 'TRANSFORMING A RUNNING CITY' is overlaid on the top right of the image.

TRANSFORMING A RUNNING CITY

- The vision
- Key points
- 10 Projects

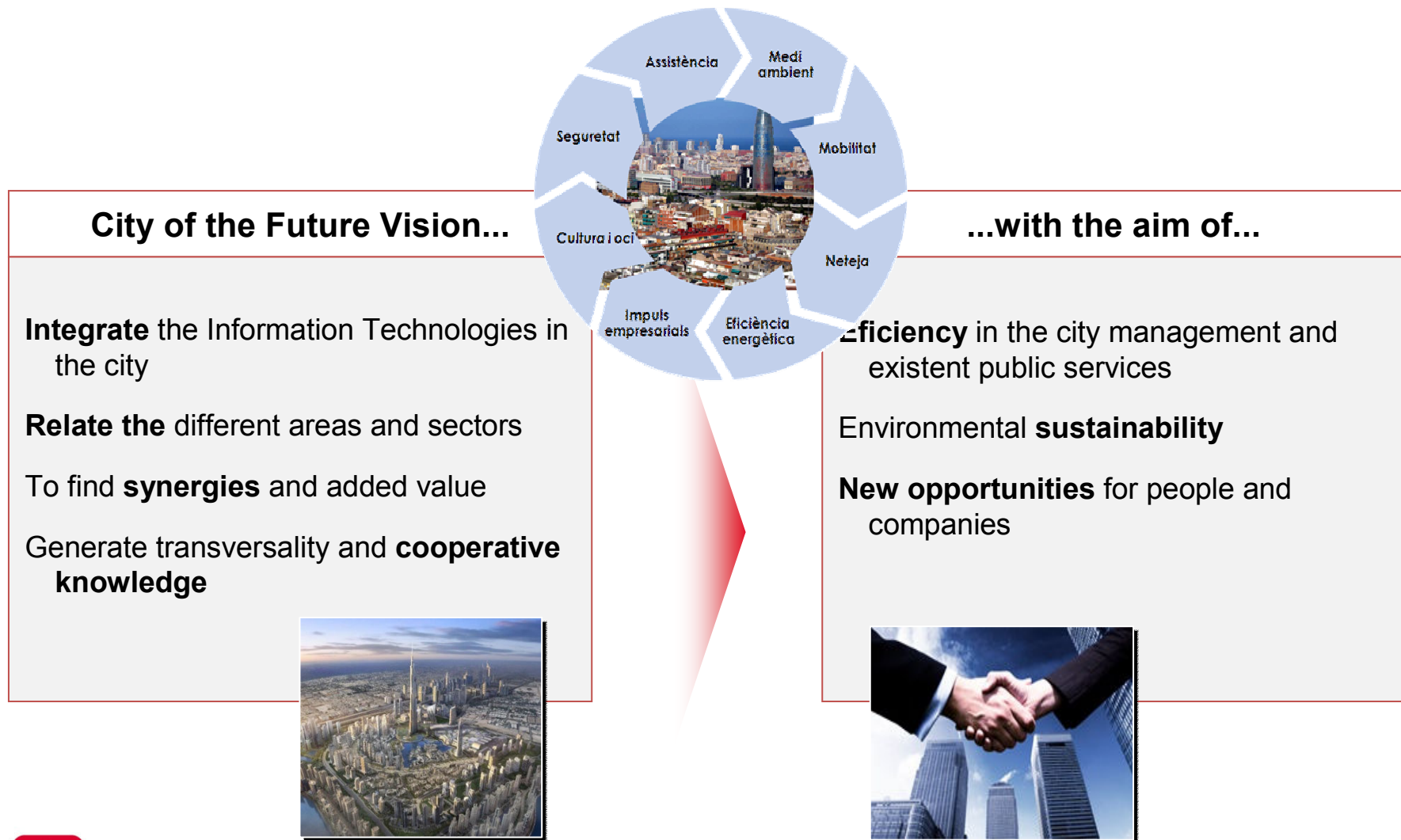
The mantra

“Productive districts at human speed inside a hyper-connected and zero emissions city”

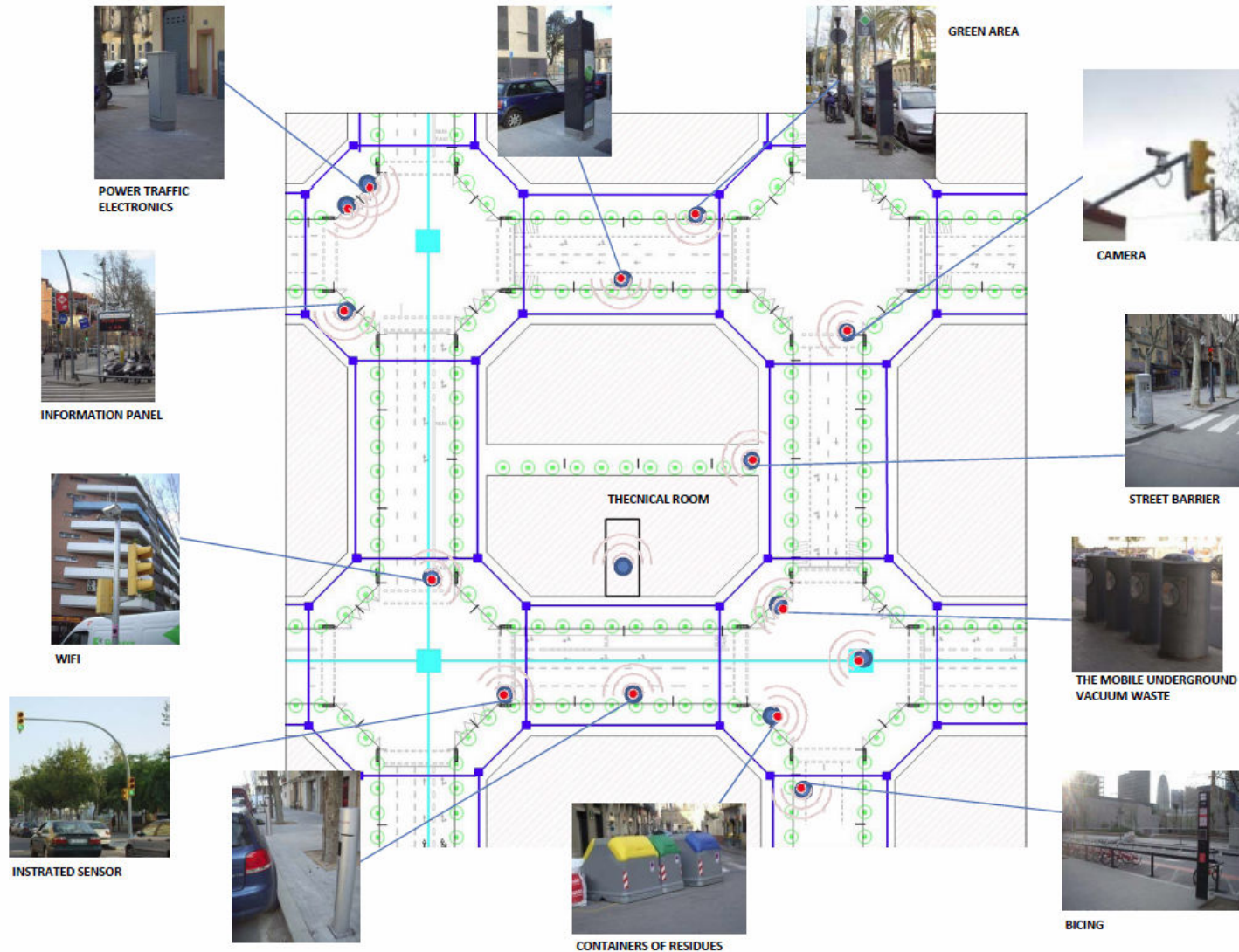
“Many slow cities inside a smart city”

New Public Space Management

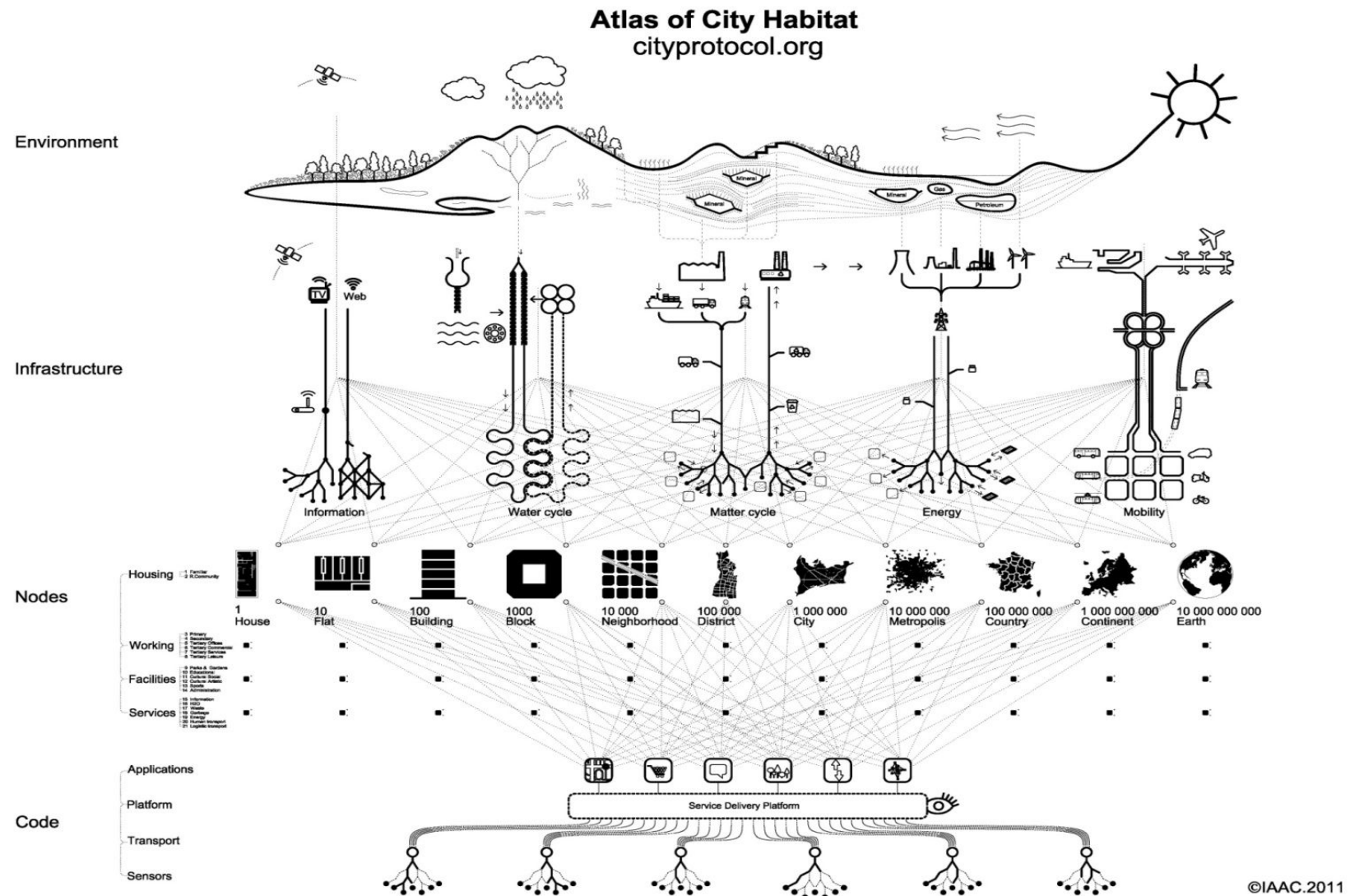
Manage more efficiently the citizens' necessities



Integrated Urban Services Planning

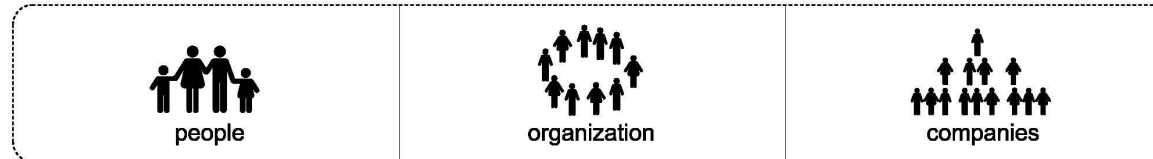


Our Model: The City Atlas

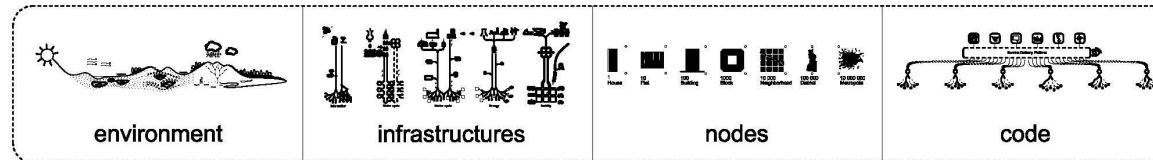


City Services Model

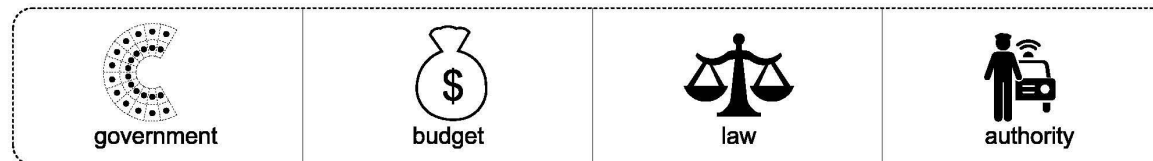
Civitas services



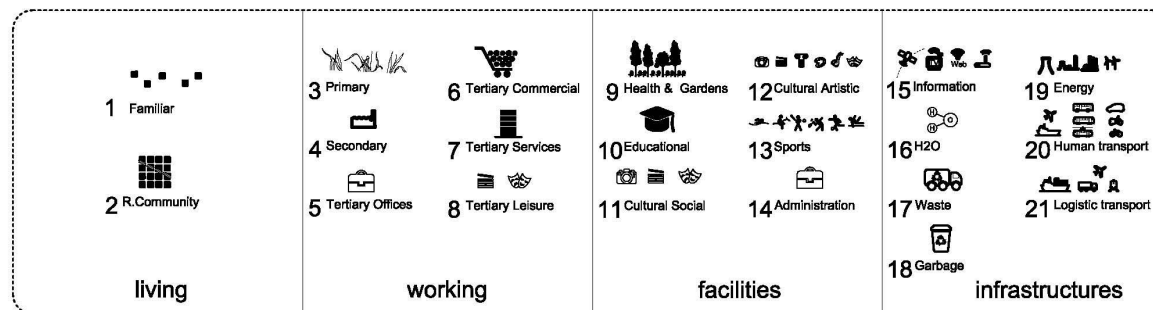
Polis services



Governances services



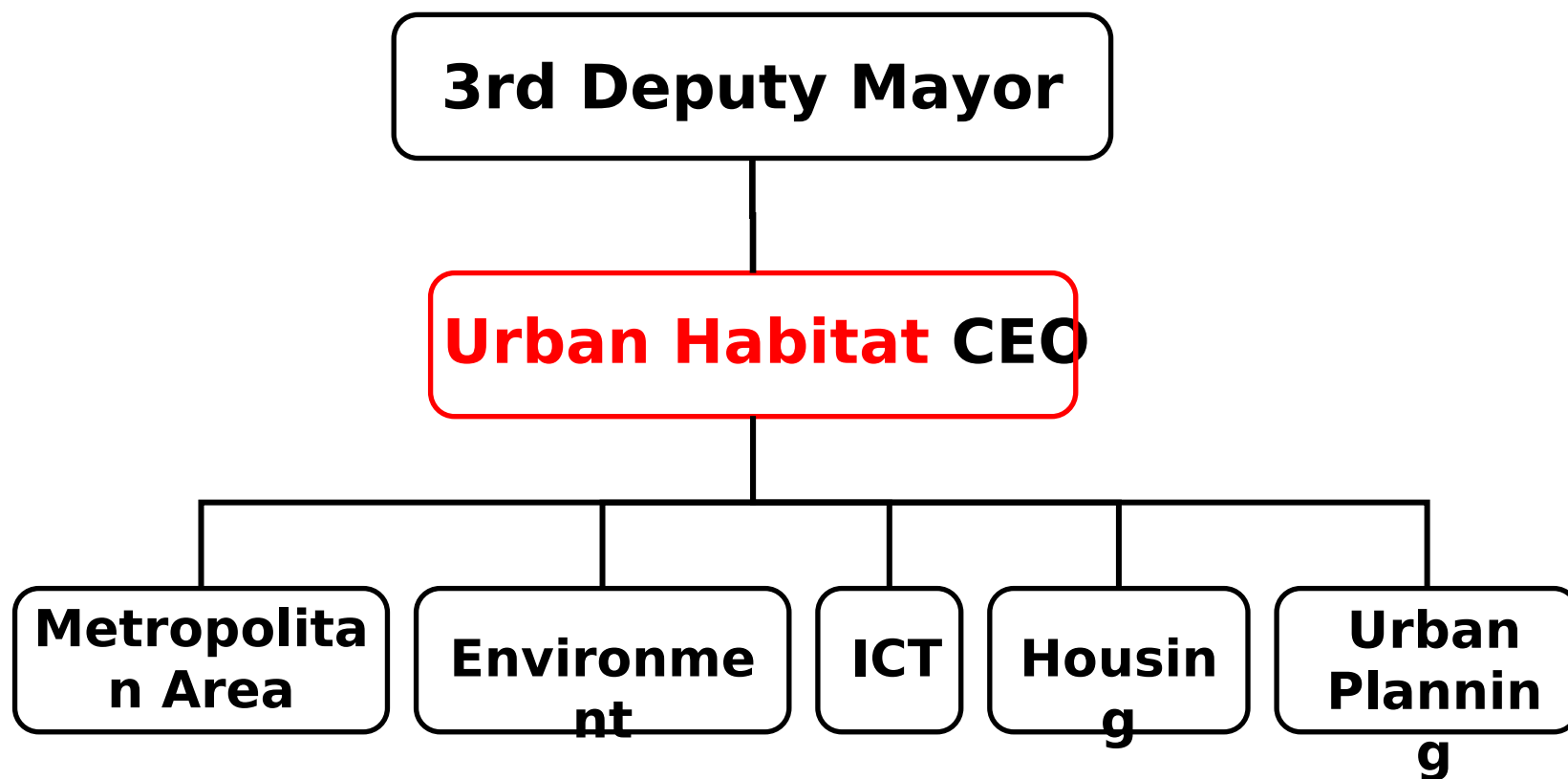
Functions services



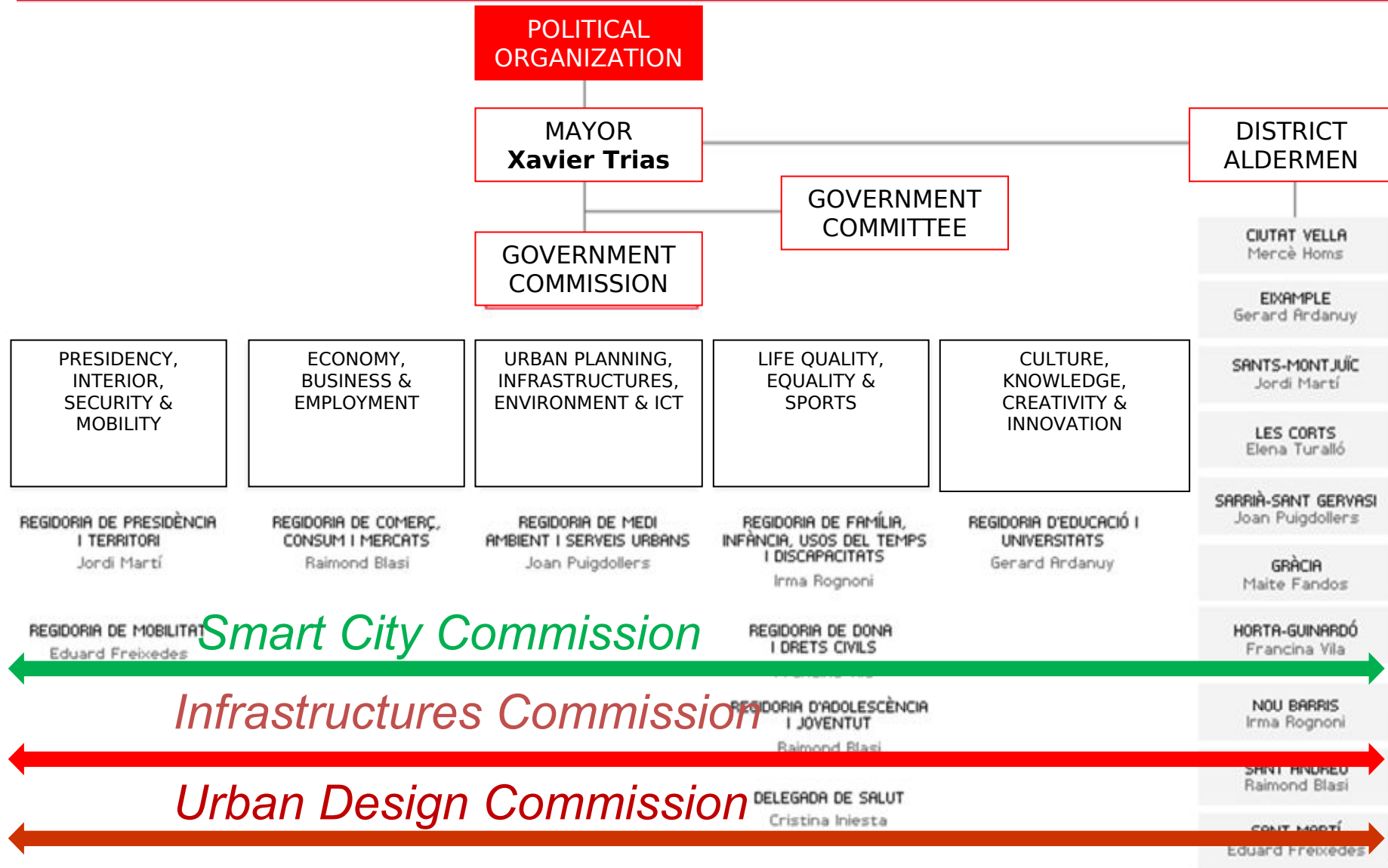
Key Points

- A new organization targeted to Smart City principles and objectives
- Legal framework for ppp to flourish
- Urban area for ppp to settle and grow
- Feed the urban innovation ecosystem
 - Living lab, development of a community of citizens, developers
 - Facilities for SME experimentation
 - Opening new opportunities for citizens to be more active and participative
- Strong international linkages

An Adhoc Organization



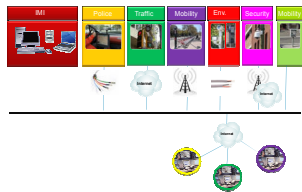
Strong Political Sponsorship



A Transversal Approach

Implementation of a new urban management model...

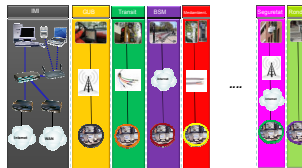
Sharing
information



**Sustainable Growth:
Urban Platform**

- **Optimize urban services management and integration** through urban platform model development
- **Low risk and Technological Trend** existing technologies + advanced municipal infrastructure available (Fiber and Wifi networks - IMI)
- **Efficiency:** Improve Cost / Service delivery quality + Management Accounting
- **Scalable:** allow to face connections growth and take advantage of Internet of things market opportunities

Multiple and
separated networks



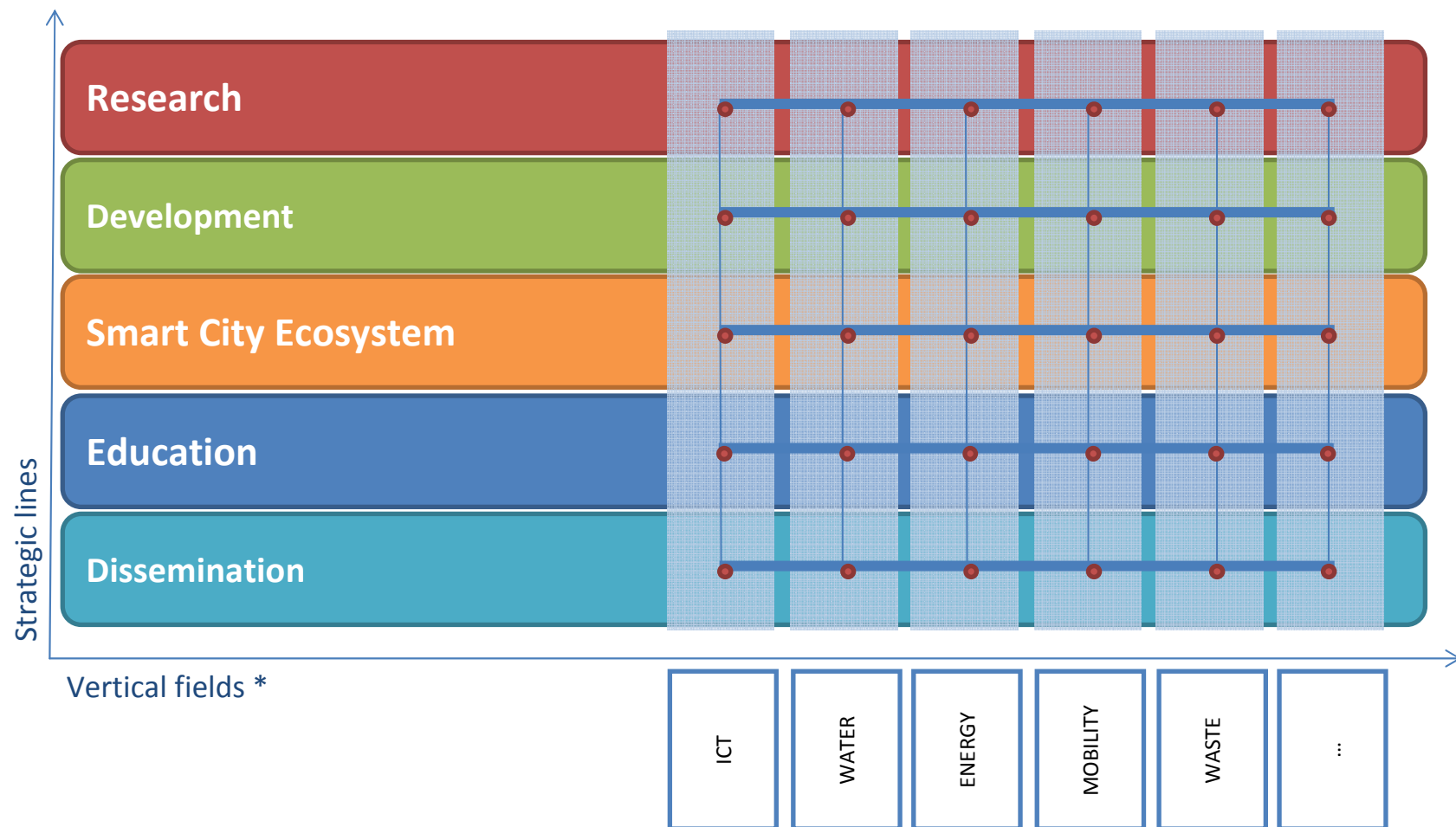
**Unsustainable
Growth**

- **Minimum integration of urban services**
- **Dependency of the growing telecom costs** against appropriate and optimized use municipal network capacity
- **Complexity of management** due to diversity of technologies, lack of a standard communication protocol and a model for service creation
- **Limited services production capacity** due to lack of shared information and high telecommunications rates

Based on a Urban Space Value Chain



BIT for the Habitat (BITH)



Barcelona Smart City Campus

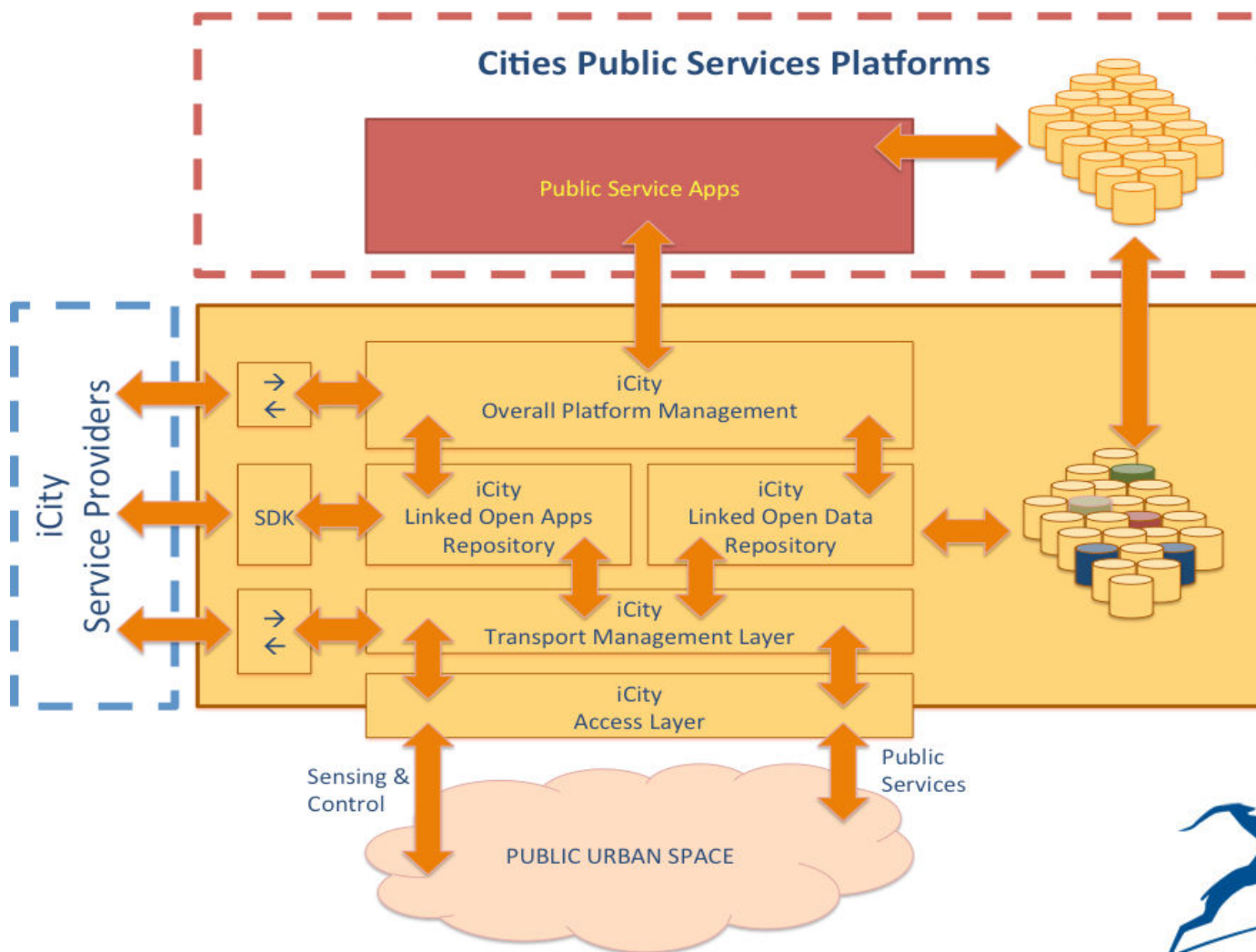


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iCity: opening public infrastructures



Opening public sector data

Barcelona has put at 3rd parties disposal information data sets to facilitate the products's and services's development

The project offers the most relevant data and information obtained from the own city management itself

OpenData BCN

Servei de dades obertes de l'Ajuntament de Barcelona



TERRITORY

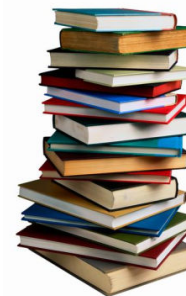


POPULATION

**MANAGEMENT
AND
PROCESSING
OF
INFORMATION**



DOCUMENTS



**URBAN
ENVIRONME
NT**



**Ajuntament
de Barcelona**

Urban Lab: the city as a lab

Testing in local for a global market

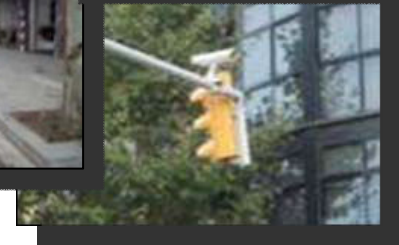


Some results :

- Started in 2008
- 43 pilot proposals
- 14 pilots tested
- Environment, Mobility, Telecom,...

Some of the pilot projects that have been trialed to date are:

- **Street lighting** points from Eco Digital with LED technology
- **Charging points** for electric cars
- **Electrically and solar powered motorbikes**
- **Traffic control** cameras
- Gas, electricity and water **smart metering**
- FTTH
- **Bicycle** lanes
- Sensors for public **parking** areas
- Noise sensors



Smart City Expo World Congress



Smart society for innovative and sustainable cities

November 2012 - FIRA de Barcelona

Barcelona is hosting the first **SmartCity Expo & World Congress**:

- a meeting point for companies, public administrations, entrepreneurs and research centres.
- a place to learn, share experiences, make contacts and find inspiration for developing the cities of the future.



<http://www.smartcityexpo.com/> Twitter: @SmartCityexpo



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International Cooperation



European Projects

- FIREBALL
- OPENCITIES
- iCity
- Commons4EU
- CitySDK
- Open-DAI



Working with the most advanced cities in the world

- METROPOLIS
- UCLG
- EUROCITIES
- Covenant of Mayors
- World eGovernment Organization
- Major Cities of Europe

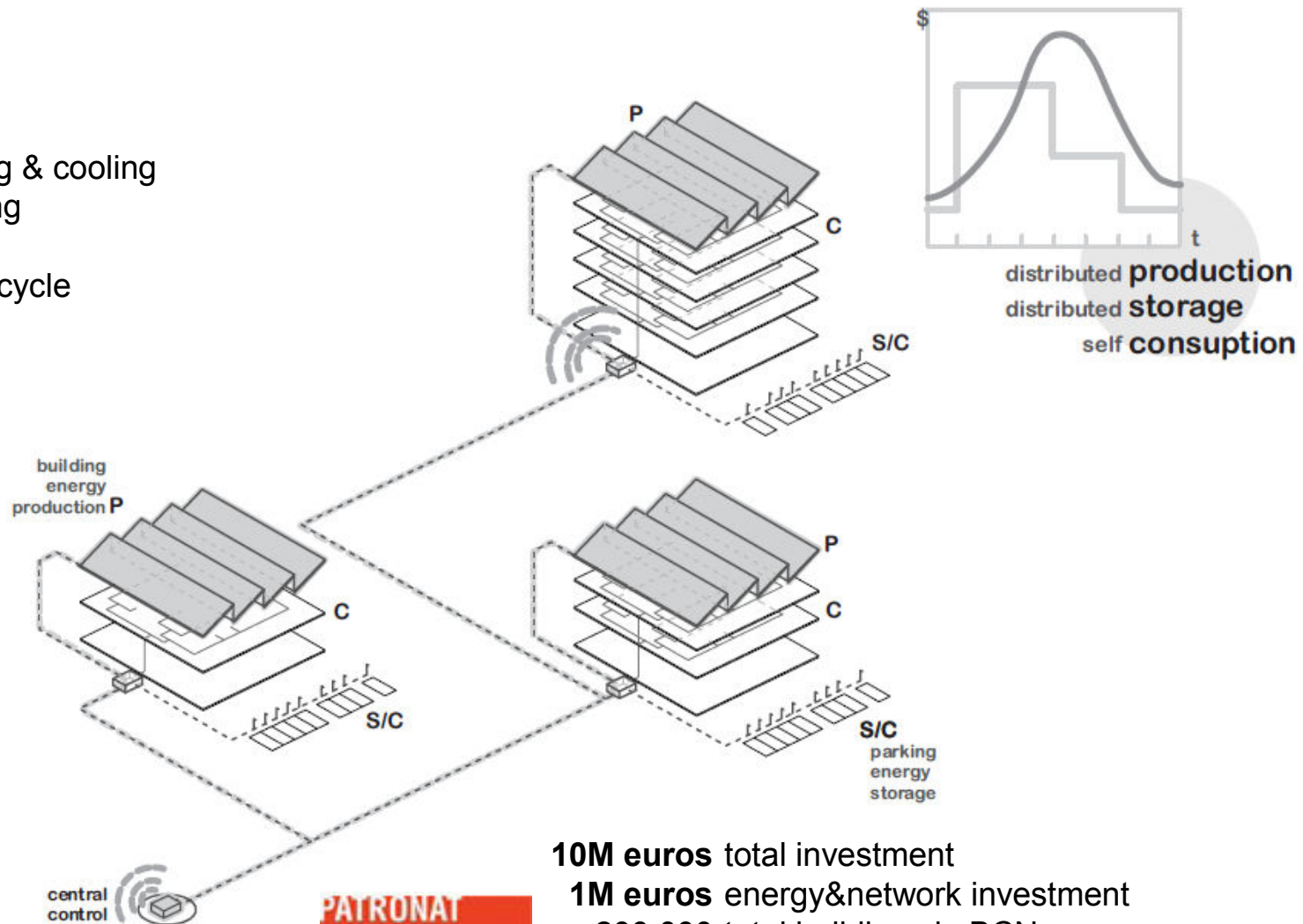
10 Key Projects

1. Zero energy blocks
2. Energy efficiency in buildings
3. Smart parking
4. The orthogonal network of public transport
5. Pay per Lighting
6. Rain water management
7. New tools for a new waste management
8. Situation room
9. Service delivery platform
10. New generation network for the municipality



Self-sufficient Buildings Network

Solar roof
Mixed uses
District heating & cooling
Water recycling
Electric car
Electric motorcycle



10M euros total investment

1M euros energy&network investment

200.000 total buildings in BCN

400 buildings to be done next 5yrs

3.000.000.000 buildings in the world

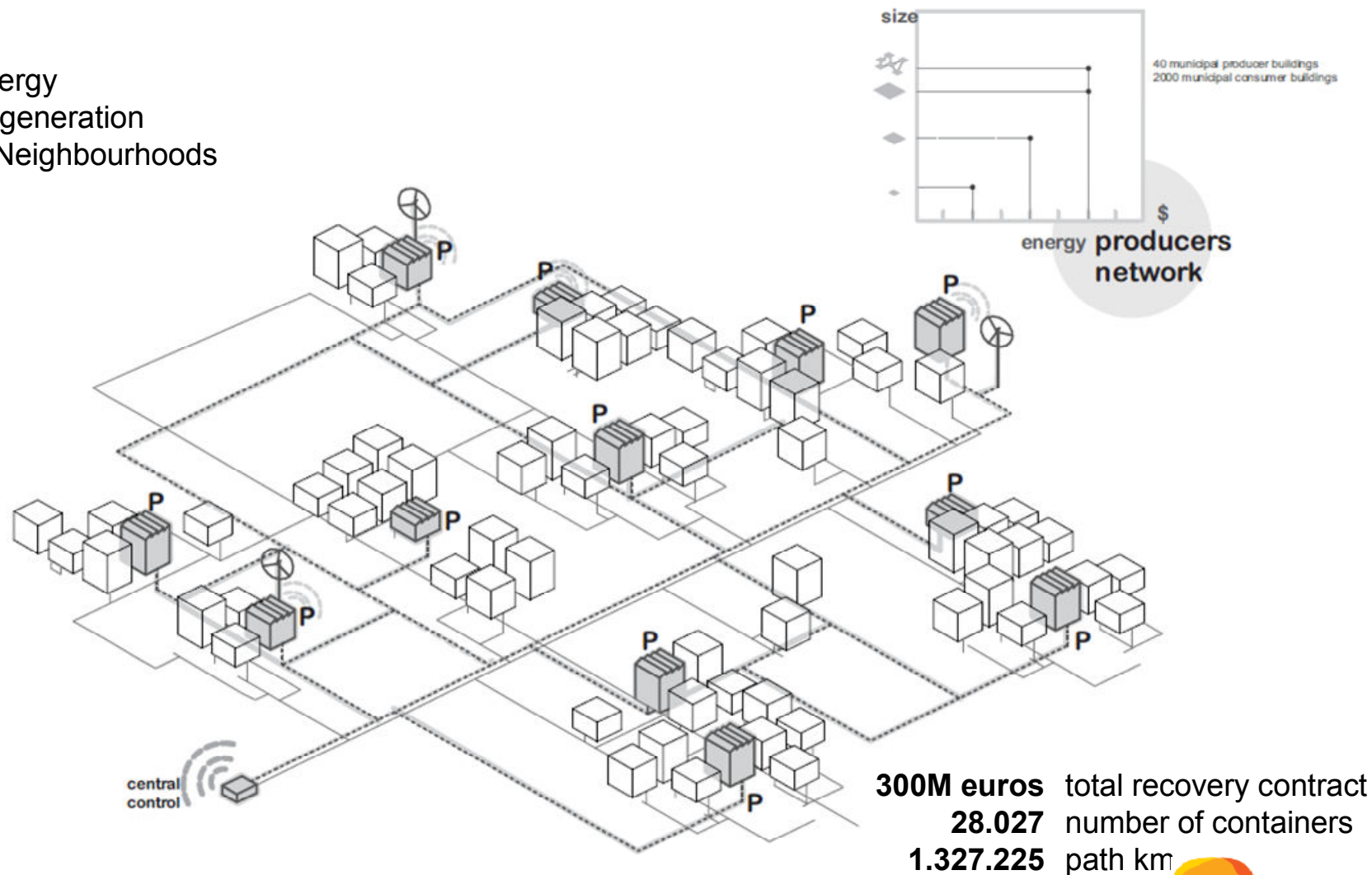


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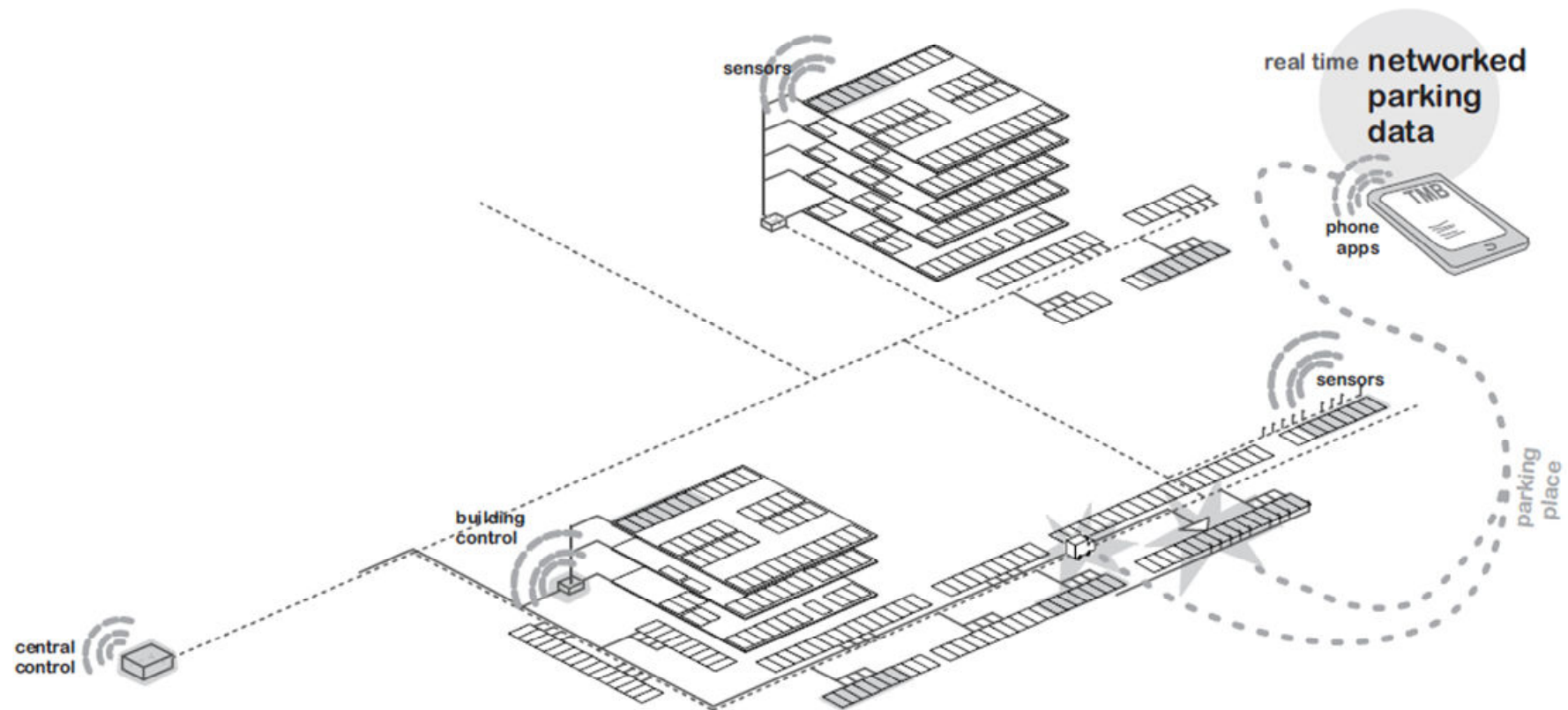
PATRONAT
MUNICIPAL DE
L'HABITATGE

Energy efficiency in buildings

Energy
Regeneration
in Neighbourhoods



Smart Parking Network

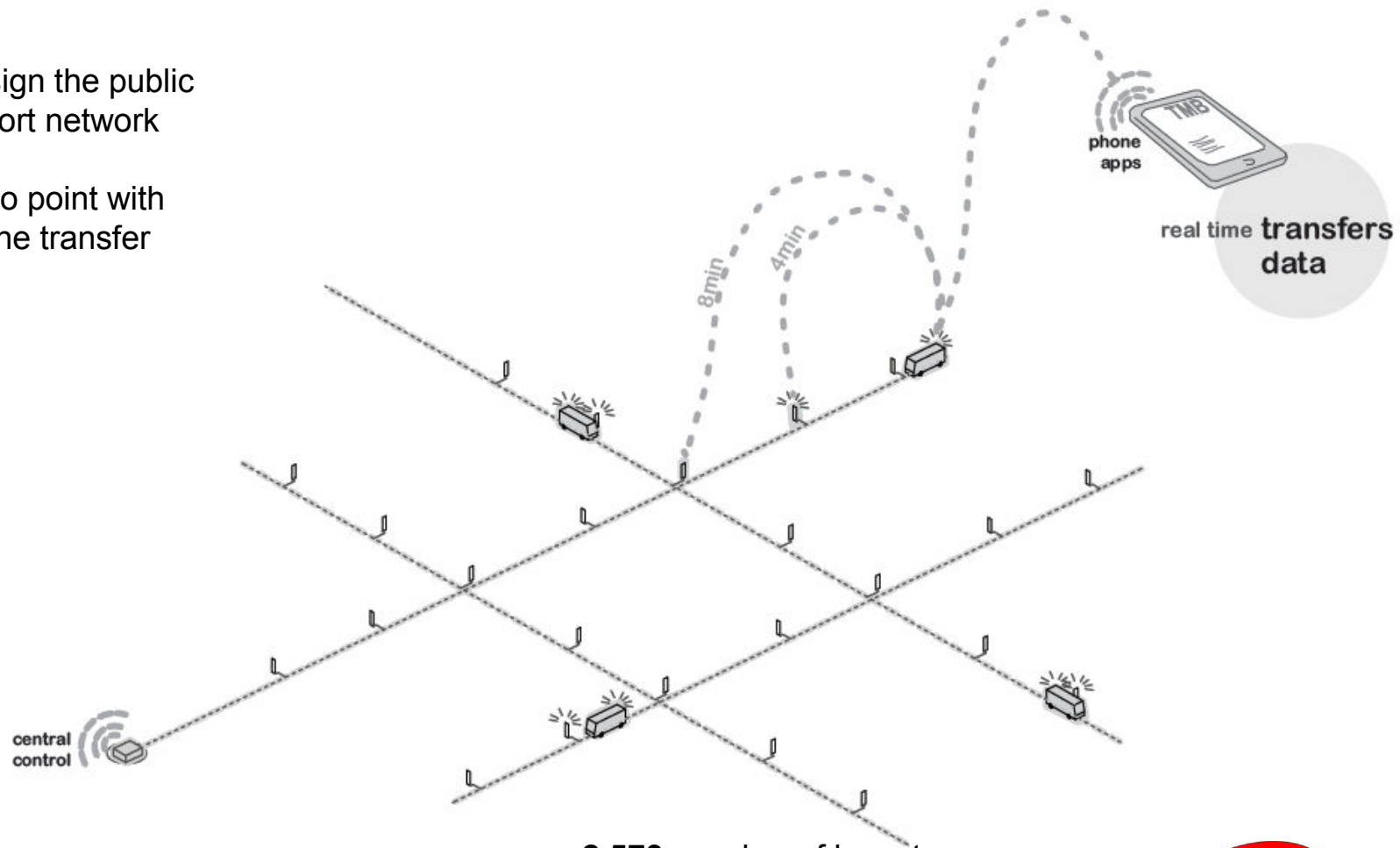


17.000 municipal public parkings
50 number of parking places
22 green/blue parking areas
50.000 green/blue parking places

Orthogonal Bus Network

Redesign the public transport network

Point to point with only one transfer



2.573 number of bus stops

1.080 number of existing buses

4 number of orthogonal network bu



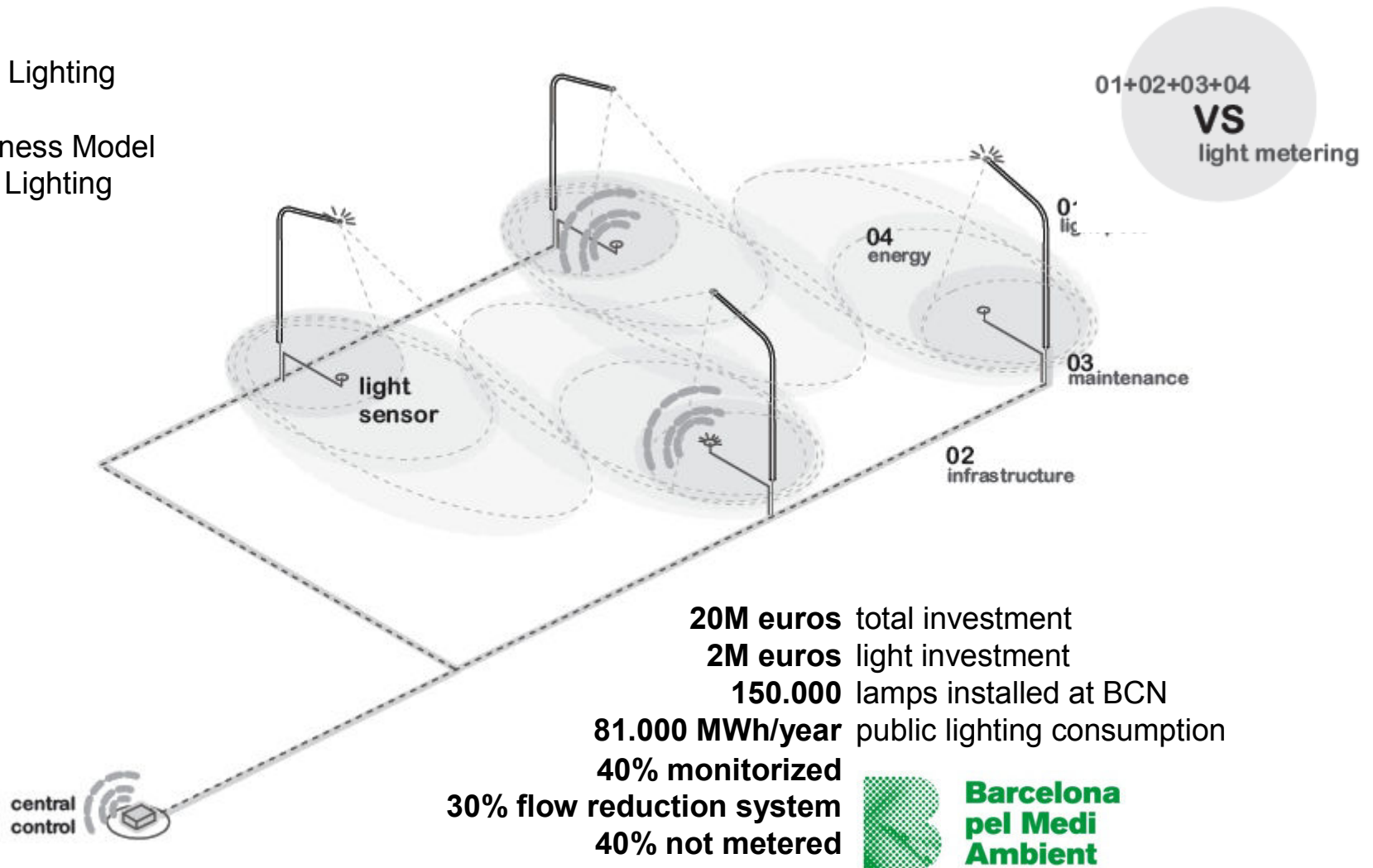
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Pay Per Lighting

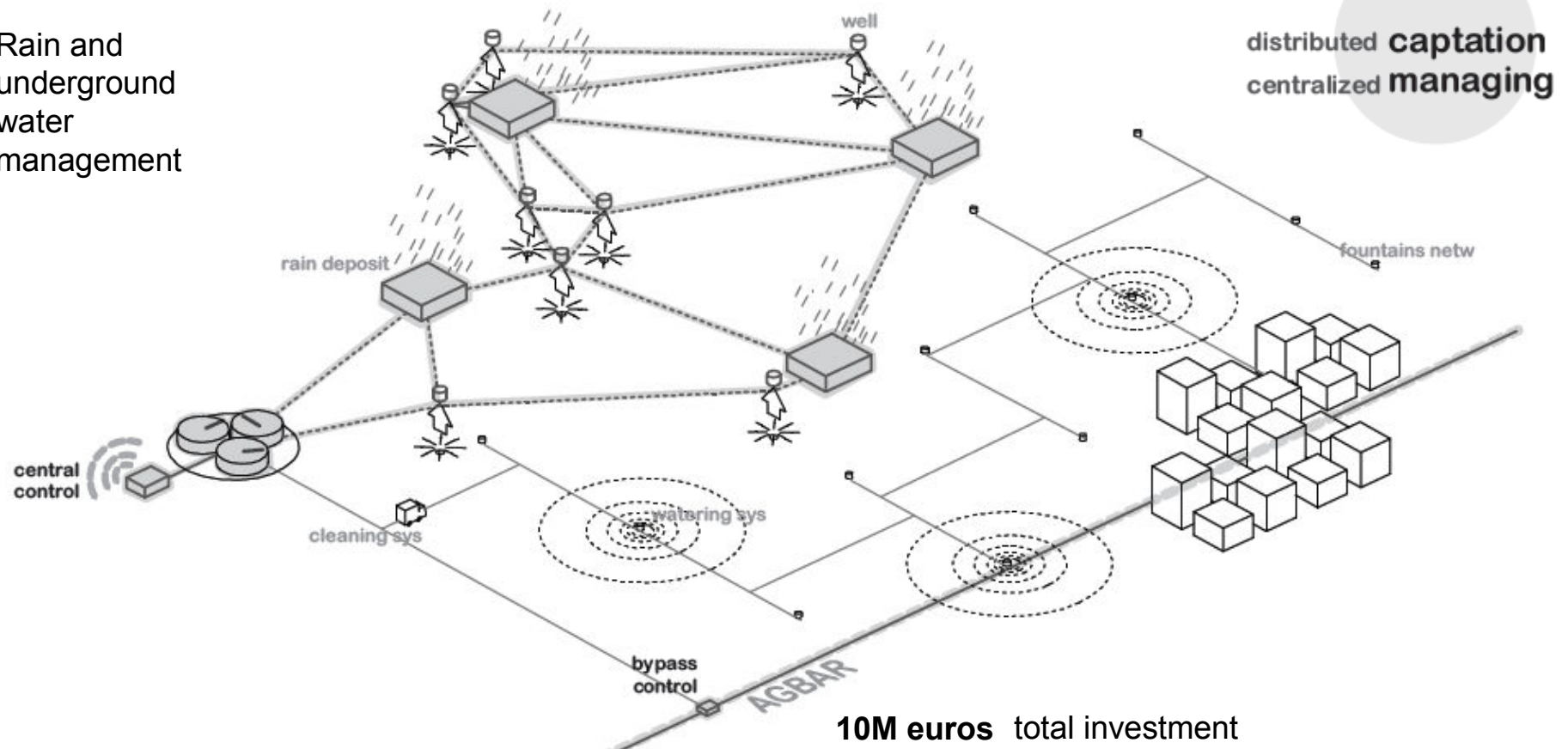
Intelligent Lighting

New Business Model
for Public Lighting



Municipal Water Network

Rain and
underground
water
management



10M euros total investment
1.000.000 m3/yr...52 km freatic network flow&length
10% of BCN consumption relative percentage

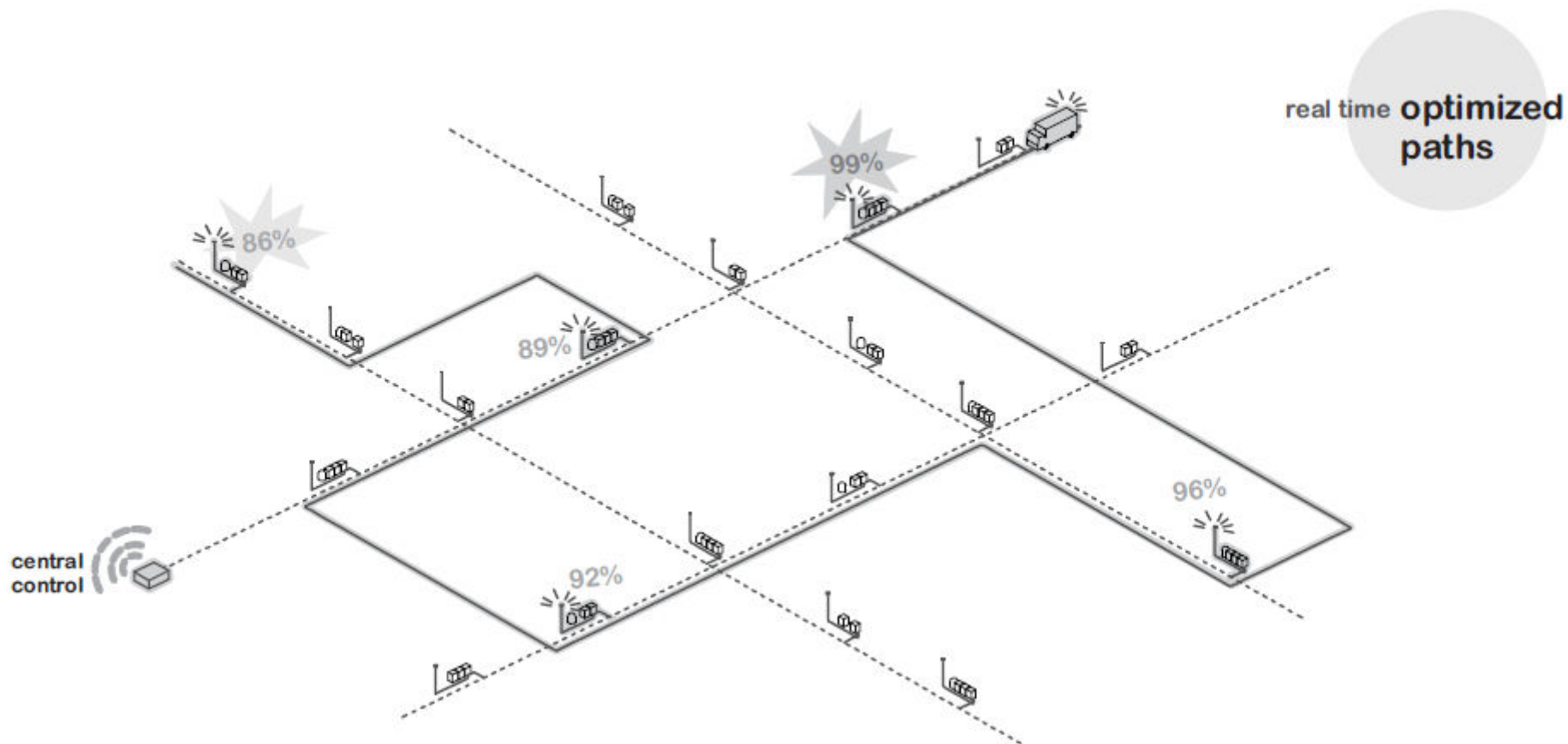


12 number of rain deposits
18 number of wells
18 number of control points



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Garbage Recovery Optimization



300M euros total recovery contract
28.027 number of containers
1.327.225 path km

Situation Room



Service Delivery Platform



New Generation Network



Thank you!

βarcεlō²n@

Benestar

Aigua

Residus Ciutat

Energia

Logística

Aire

Natura

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