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# European technology in smart cities inspiring Indian cities

Leuven, March 15, 2016



**4**  
**Policy Cells**

**1700**  
**members**

**6** **Expertise**  
**centra**

Innovation

Talent & Labour market

Ruling and Standardisation

Energy

Environment

Social

**11**  
**Business**  
**Communities**

ICT

Building Technology

Contracting

Materials Technology

Subcontracting

Production Technology & Mechatronics

Transport Systems & Solutions

Energy Systems & Solutions

Environment Systems & Solutions

Aeronautics, Space, Security, Defence Technology

International Business

**1** **Horizontal**  
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**Smart Cities**

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# Smart Cities in a nutshell



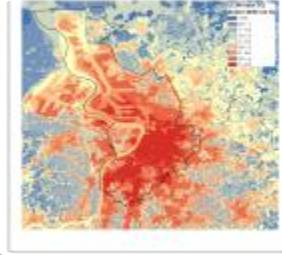
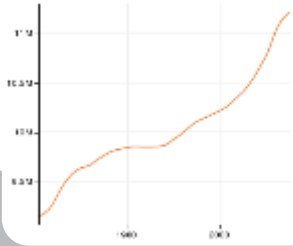
# India's smart city mission

The objective is to promote cities that provide core infrastructure and **give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions**. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities.

“India Smart Cities Challenge”



# Drivers for smart cities



## Demographic growth

Increase of population of 15 to 30 % in Belgian Cities by 2060

Multicultural population

## Demographic change

Increase of % 65+ with 27% and 85% by 57% in Belgian cities by 2060

## Climate change

Further increase of temperature in Belgian cities with 2 to 4 °C by 2030

## Mobility

Belgium number one in loss of hours per year due to traffic jam: 51 hours per year (2014)

Effect on air quality

## Digitalisation

Hyperconnected, digital lifestyle: 54% of Belgian people use Internet via mobile devices

Digital technology: cloud, big data analysis, IoT, wearables, ...

40% of India's population in cities by 2030

# Role of Agoria

- Improve dialogue between cities, policy makers and the technology industry
- Offer a platform to start the strategic process
- Provide information and advice over technology trends and solutions
- *Single point of access* for the technology industry
  - Exhaustive international knowledge
  - Experience with new financing and business models
  - Offering the complete technology value chain



# Focus on 4 domains

- smart energy
- smart mobility
- smart digital communication/infrastructure
- smart building/living and working environment



4 working groups  
70 active companies







# INSPIRATIEGIDS

voor Belgische steden en gemeenten



# GUIDE D'INSPIRATION

pour les villes et communes belges



# The core infrastructure elements in a Smart City – India Smart City Challenge



- I. adequate water supply,
- II. assured electricity supply,
- III. sanitation, including solid waste management,
- IV. efficient urban mobility and public transport,
- V. affordable housing, especially for the poor,
- VI. robust IT connectivity and digitalization,
- VII. good governance, especially e-Governance and citizen participation,
- VIII. sustainable environment,
- IX. safety and security of citizens, particularly women, children and the elderly, and
- X. health and education.

| S.no | Component                                                                           | Cities                                                                                                                              | Count |
|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1    | Centralised command and control centre                                              | Bhubaneshwar, Surat, Kochi, Ahmedabad, Jabalpur, Visakhapatnam, Davanagere, Indore, Coimbatore, Belagavi, Udaipur, Ludhiana, Bhopal | 13    |
| 2    | Transit operations system (maintenance and tracking)                                | Bhubaneshwar, Pune, Jaipur, Ahmedabad, Indore, Solapur, Davanagere, Indore, Kakinada, Udaipur, Guwahati                             | 10    |
| 3    | Smart parking system                                                                | Bhubaneshwar, Pune, Jaipur, Davanagere, Indore, Kakinada, Udaipur, Guwahati, Chennai, Bhopal                                        | 11    |
| 4    | Common card (payment and operations)                                                | Bhubaneshwar, Jaipur, Surat, Ahmedabad, Indore, Guwahati                                                                            | 7     |
| 5    | Area based traffic control                                                          | Bhubaneshwar, Pune, Ahmedabad, Indore, Coimbatore, Kakinada                                                                         | 7     |
| 6    | Leak identification system (SCADA/ and AMR)                                         | Pune, Ahmedabad, Solapur, Udaipur                                                                                                   | 6     |
| 7    | Platform for citizen engagement and all citizen services; city dash board           | Kochi, Visakhapatnam, Davanagere, Indore, Bhopal                                                                                    | 6     |
| 8    | Traffic mobile app                                                                  | Pune, Jaipur, Ahmedabad, Guwahati                                                                                                   | 5     |
| 9    | Smart metering (water)                                                              | Pune, Kochi, Ahmedabad, Coimbatore, Belagavi, Udaipur                                                                               | 8     |
| 10   | CCTV surveillance                                                                   | Pune, Ahmedabad, Indore, Coimbatore, Guwahati, Bhopal                                                                               | 7     |
| 11   | Emergency response                                                                  | Bhubaneshwar, Ahmedabad, Visakhapatnam, Coimbatore, Udaipur                                                                         | 6     |
| 12   | Public Information system                                                           | Pune, Davanagere, Indore,                                                                                                           | 4     |
| 13   | Public transit and traffic operations and management centre                         | Ahmedabad, Devangere, Vizag, Indore, Belagavi, Udaipur                                                                              | 8     |
| 14   | GPS tracking and optimisation of routes of garbage trucks                           | Jaipur, Indore, Kakinada                                                                                                            | 4     |
| 15   | Wifi- IT connectivity                                                               | Surat, Kochi, Coimbatore, Belagavi, Guwahati                                                                                        | 6     |
| 16   | NMT infrastructure                                                                  | Davanagere, Belagavi, Udaipur, Guwahati, Chennai, Bhopal                                                                            | 6     |
| 17   | LED street lighting                                                                 | Coimbatore, Guwahati, Chennai, Bhopal                                                                                               | 4     |
| 18   | Traffic analysis of roads and video surveillance inside bus using CCTV surveillance | Pune, Indore, Kakinada                                                                                                              |       |
| 19   | Mobile app based SWM and cleanliness monitoring                                     | Jaipur, Jabalpur, Indore                                                                                                            |       |
| 20   | Fleet management system                                                             | Jaipur, Ahmedabad, Indore,                                                                                                          |       |
| 21   | Automatic fare collection system (transport)                                        | Bhubaneshwar, Jaipur, Surat, Ahmedabad, Indore,                                                                                     |       |
| 22   | Variable message sign boards                                                        | Ahmedabad, Indore, Bhopal                                                                                                           |       |

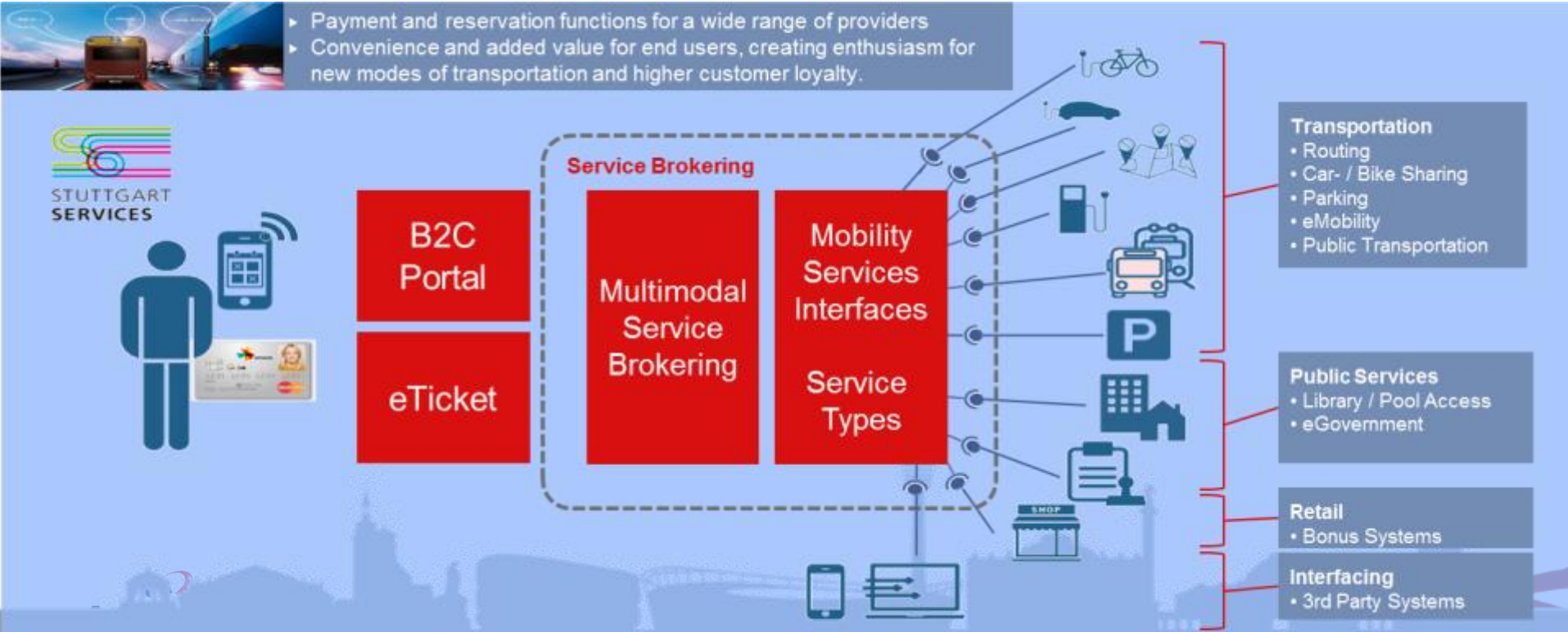
<http://smartcities.gov.in/>





# Inspiring use cases

# Stuttgart - Multimodal Transport Services

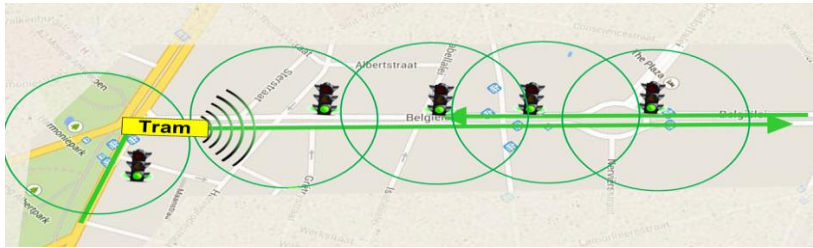


# Antwerpen - Dynamic greenwave for Trams & Cars

This green wave solution for the “Belgielei” is working following the advisory speed principle. It is very simple and flexible. On the basis of detectors at the crossing points, the system calculates which gives the smoothest flow. It may for example decide to

keep the traffic lights slightly longer green or red. The result is a very smooth flow for both trams and cars as well as a very low investment for the city.

Once the tram enters the avenue, he will get an advisory speed. At 40 km/h, he can pick up on the green wave for the whole avenue. The standard speed is 27 km/h. When getting a 10 km/h advise, the driver will know that he best already slow down for the next intersection's red light.

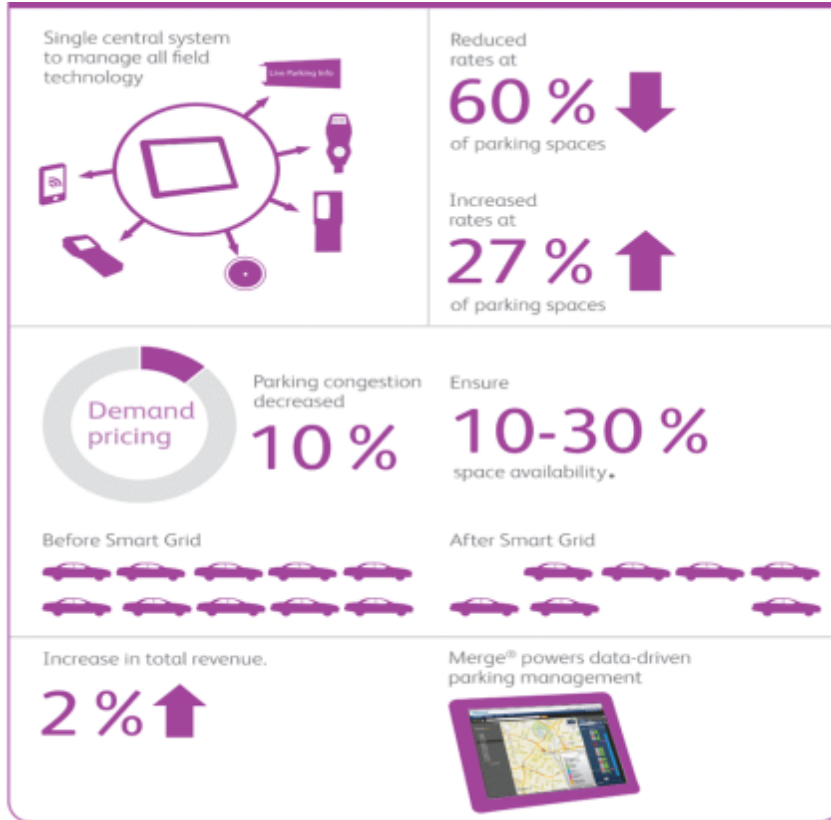


## City of ANTWERP – Dynamic Greenwave for trams en cars

*"Siemens ' traffic engineers knew how to convert our objectives to a clear study. And thanks to their systematic approach, the test phase was already a big success"*  
*Michael Bastiaens, Deputy Coordinator for management and maintenance of the public space at the City of Antwerp (Urban development).*



# Los Angeles– Dynamic on-street parking



- Los Angeles concerned by circling traffic seeking parking spaces
- 6000 sensors in 800 streets
- Dynamic pricing influences driver behavior
- Direct motorists to under-utilised parking spaces
- **Merge** solution manages all the data and provides:
  - A Dashboard overview
  - Real time reporting for maintenance and enforcement
  - A policy adaptive system
  - Political awareness about the power of pricing

# Electric bike and charging systems





# Luxembourg & Namur – fast bus charging systems

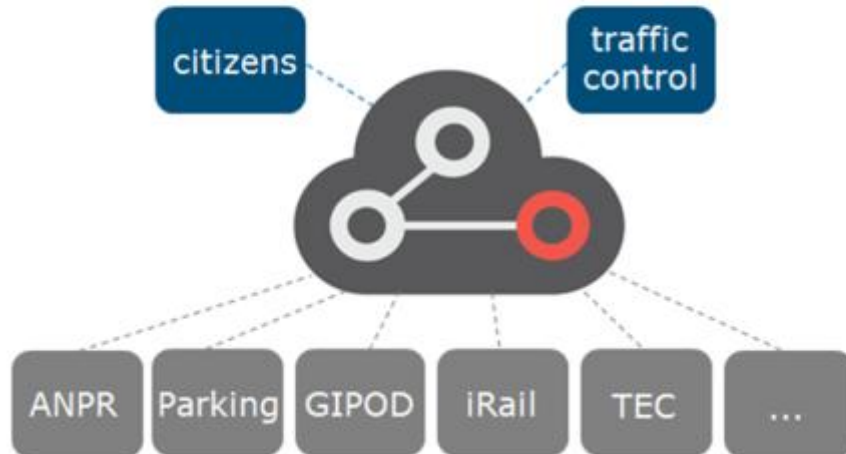


# Electrical city transport produced in Belgium





## Real-time, holistic view on mobility in and around the city



- Combine various sources of traffic information (open data, waze, weather, parking management system, public transport, road works, etc.)
- The platform allows the Ghent traffic control center efficiently use resources: Operators are on stand-by and get notified by SMS when something unusual is going on (e.g. parking lots are full, traffic jam, etc.)
- The system can automatically adapt digital traffic signs and communicate traffic information on social media (e.g. twitter)

### Use Case



### Increase operational efficiency of the traffic control center



Provide real-time mobility info to citizens and visitors, bundled in one place.



# Led street lighting – multisensor technology



Wavre  
Mechelen  
Viroinval

# Aerial thermography: district heating

## Lille - Monitoring of hot spots in a district heating network

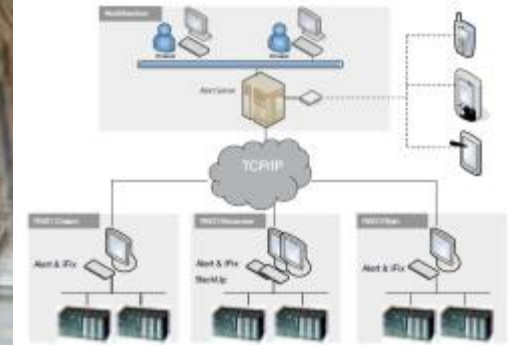


*Red line = assumed trajectory of the district heating network ; Yellow line = mapped trajectory of the network using aerial thermography*

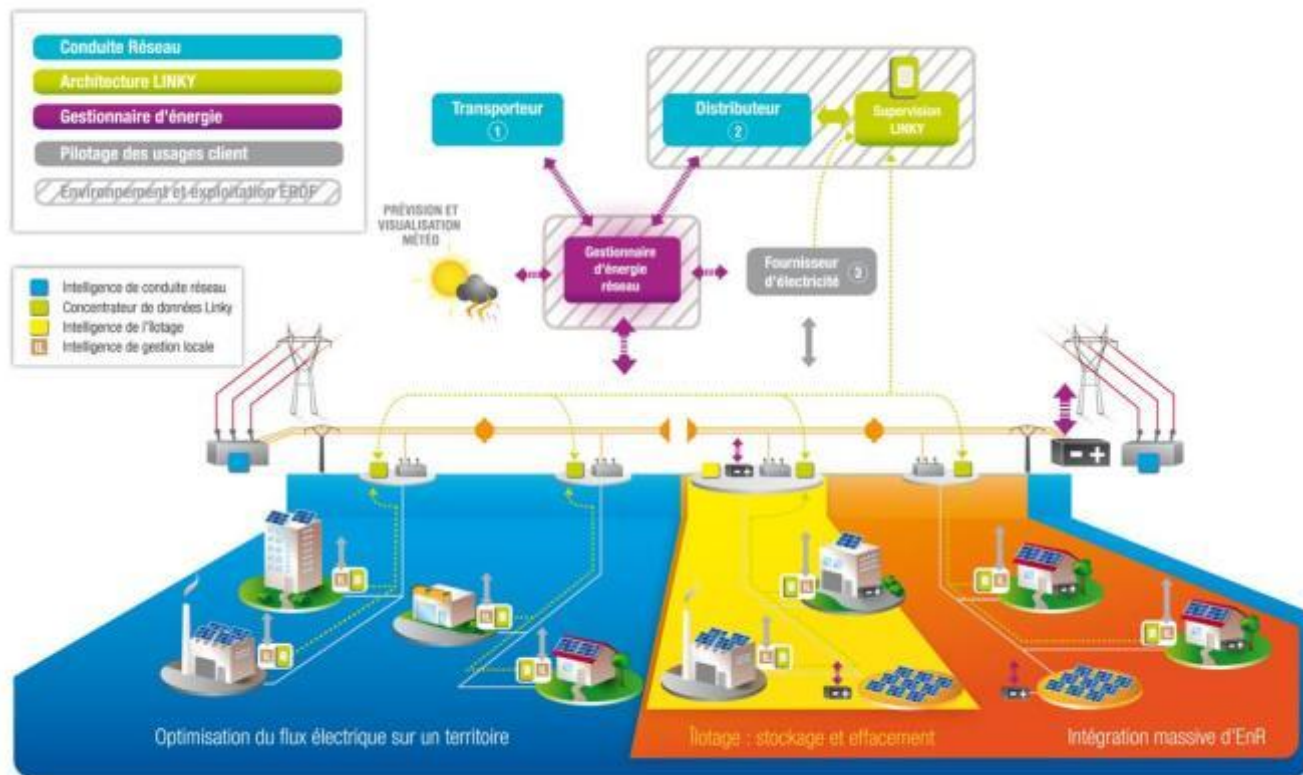


*Analysis of hot spots (red areas) in the network as a basis for field inspection*

# Waterschap Brabantse Delta – Water Management using alert signals



# Nice – Energy Grid





# Kalasatama becomes the Smart City district of Helsinki

The goal: to manage resources so intelligently that residents will gain an extra hour of free time every day.



# Vienna - aspern Seestadt Smart City District



## Objective

"My clear goal now is to become the greenest city in the world."

Michael Häupl,  
Mayor of Vienna

## City infrastructure

- Market drivers
- Customer needs
- Power networks
- Building technology

## Smart Grid / Smart building

- Electrical engineering
- Power storage
- Smart meters

## Smart City Cockpit

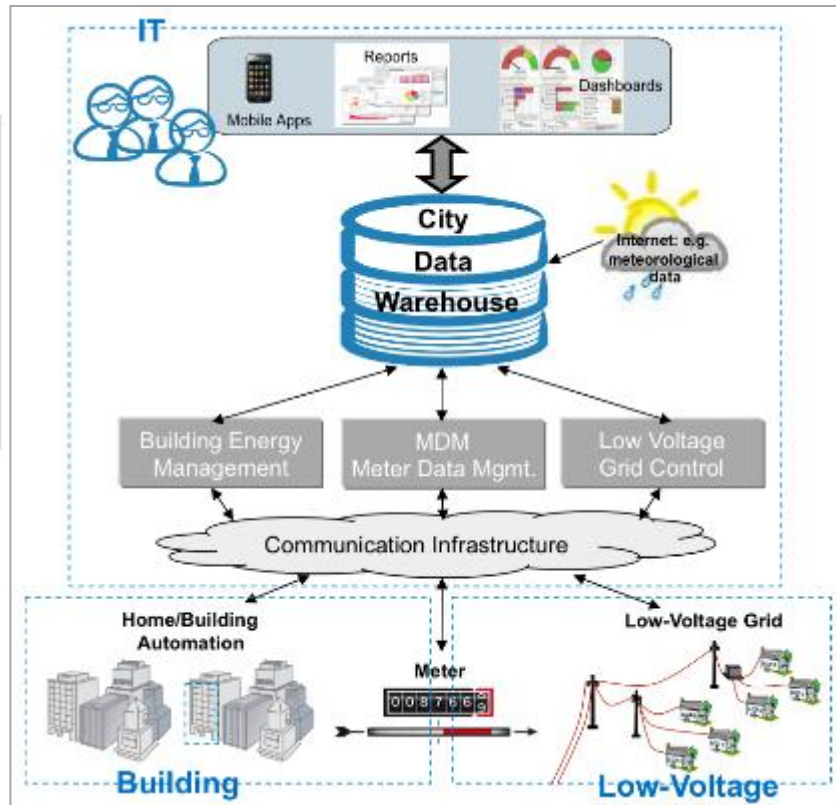
- Integration of smart grid, smart buildings, water and mobility
- Analytics dashboard

## One of the biggest Smart City Projects in Europe

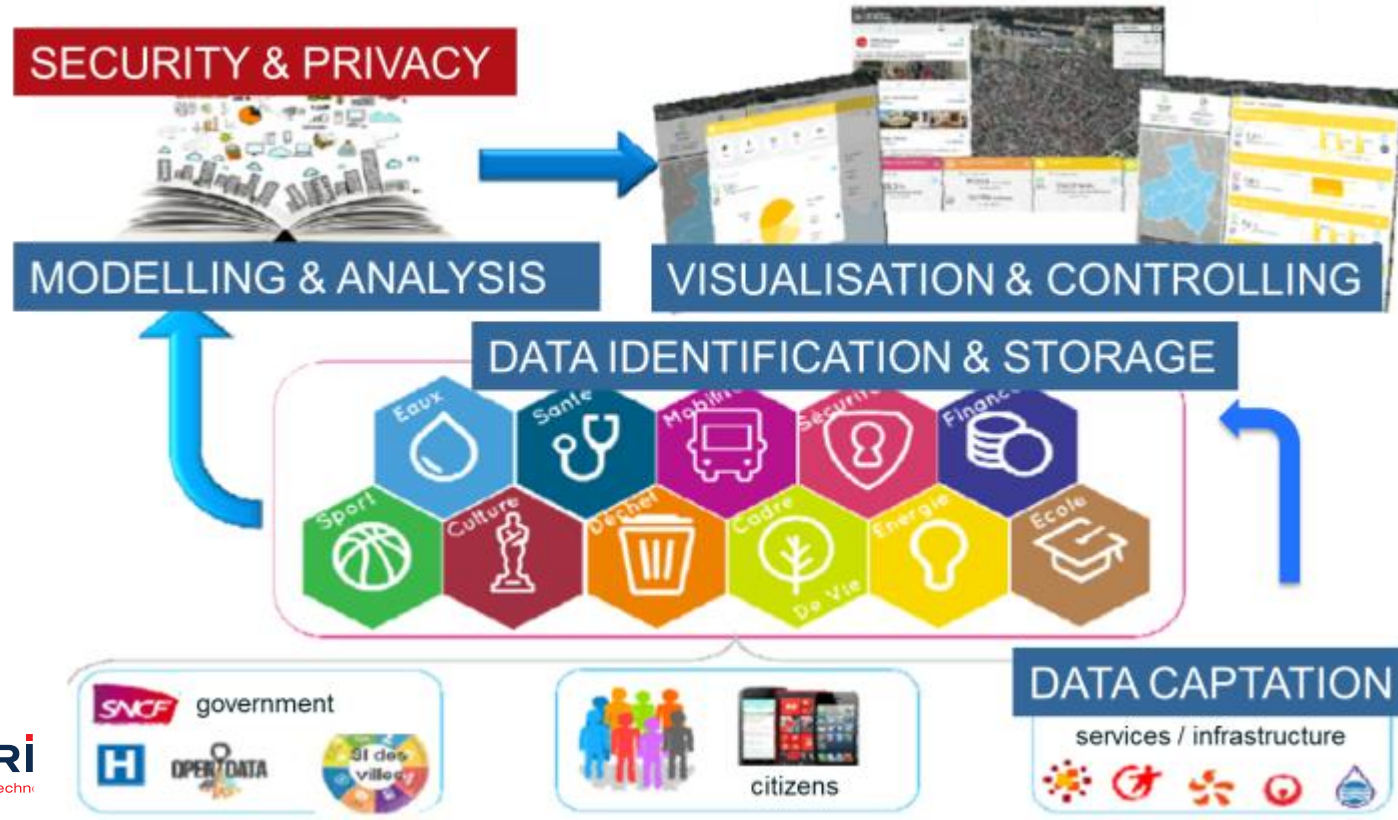
Apartments for  
20.000 inhabitants and  
20.000 work places until 2030  
Size: 240 Hectare

## Manifold utilization generates economic impulse and provides quality of life, ideal "living lab"

New, multifunctional city district including apartments, offices, business and research quarters and a school campus.



# Mulhouse and Courbevoie – Digital Platform for city and citizens







**Thank you for your attention**