LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Smart cities Symposium international

# THE LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY

— Thomas Kallstenius, CEO


One Team

UNIVERSITY OF LUXEMBOURG

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

LUXEMBOURG INSTITUTE OF HEALTH

LISER LUXEMBOURG INSTITUTE OF SOCIO-ECONOMIC RESEARCH

Luxembourg National Research Fund

RESEARCH LUXEMBOURG

Digital Lëtzebuerg

Nationwide Digital Testbed


Window to Europe

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

## ENVIRONMENTAL RESEARCH AND INNOVATION (ERIN)

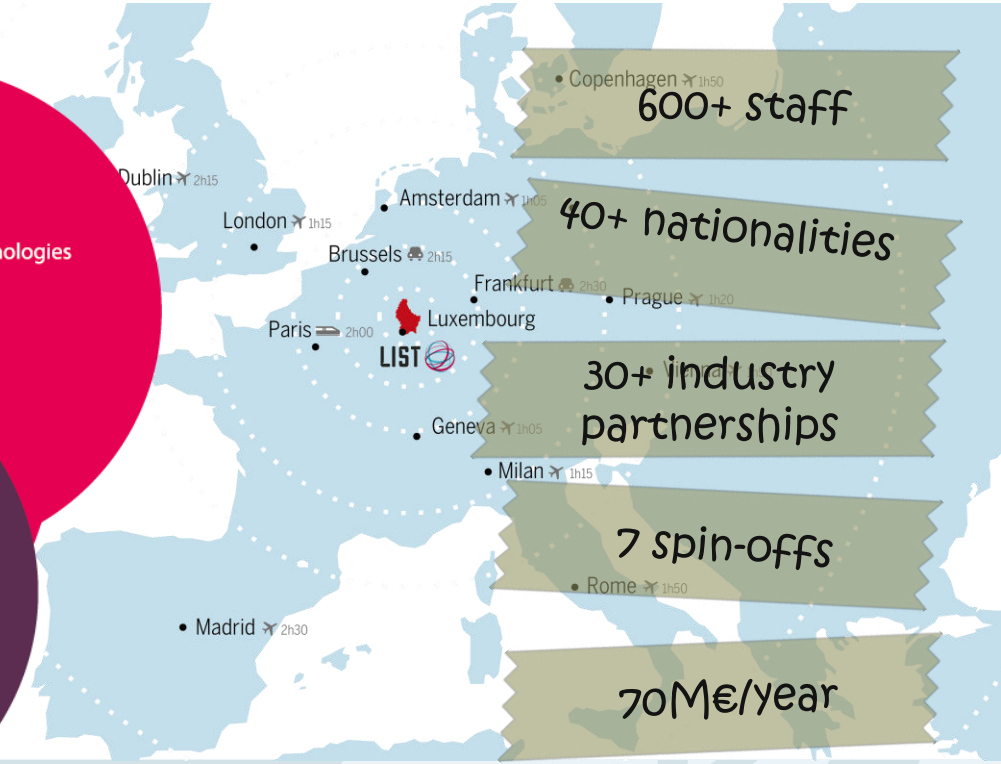
- Water security and safety
- Plant Science and biotechnologies
- Life cycle sustainability and risk assessment
- Analysis and visualization of environmental scientific data

## MATERIALS RESEARCH AND TECHNOLOGY (MRT)

- Nanomaterials and nanotechnologies
- Composite materials

## IT FOR INNOVATIVE SERVICES (ITIS)

- Decisional knowledge dynamics
- Trusted service systems
- Service engineering with impact




600+ staff

40+ nationalities

30+ industry partnerships

7 spin-offs

70M€/year

# Smart Nation:
# What is the problem?

LUXEMBOURG
INSTITUTE OF SCIENCE
AND TECHNOLOGY
LIST

# THE AVERAGE CAR MOVES JUST 5% OF THE TIME.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Reference: The Economist, April 2017

# WORLD RECORD: GERMAN CITY OF FREIBURG

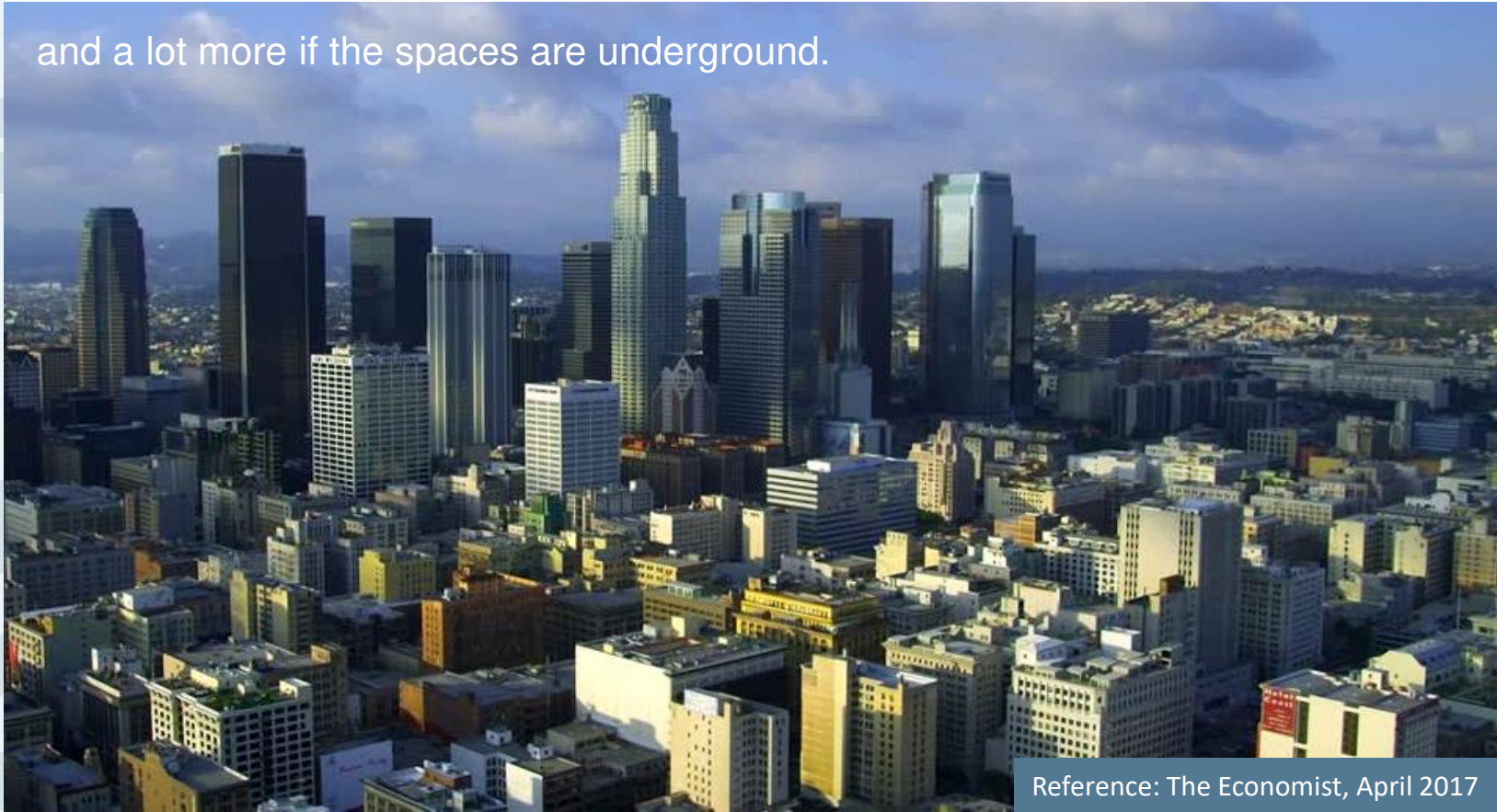
## 74% OF THE CARS LOOKING FOR PARKING

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Reference: The Economist, April 2017

# LOS ANGELES: PARKING +67% COST OF BUILDING A SHOPPING CENTER

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST



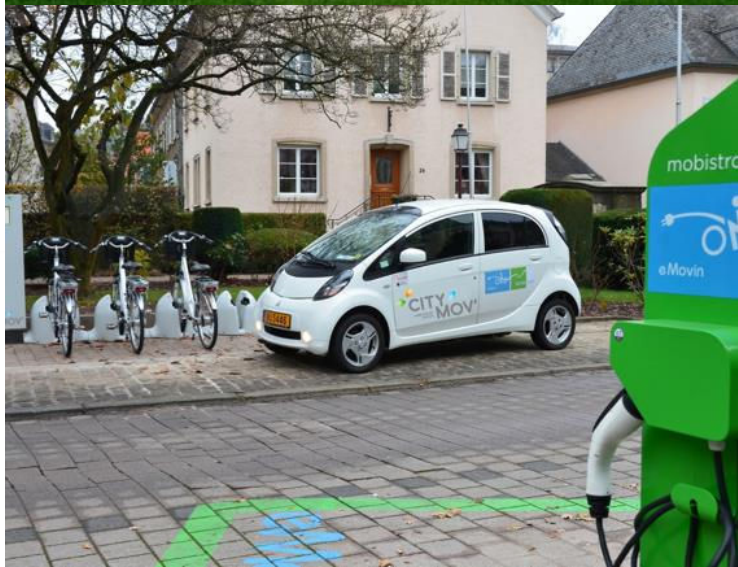

Reference: The Economist, April 2017

# LIST TECH FOR SMART CITIES:
# 1. “MAKE GREEN CARS GREENER”

- Enable localized use of renewable energy, so electric vehicles can be charged with 100 % renewable energy offered at an optimum price.
- Intelligent Energy Management System monitors and optimises the system 24/7
- Prototype could be implemented across the EU, managing districts, small cities, or major metropolitan areas.
- More effective energy management, allowing for further uptake of renewable energy, limit fossil fuel requirements and thus reduce greenhouse gas emissions.


Partner GEMEENTE Arnhem

with London, Schwabisch Gemund, Nottingham



# LIST TECH FOR SMART CITIES: 2. “DIGITAL TWIN NATION”

Work on Luxembourg’s digital built environment of the future:

- Machine learning and ever cheaper sensor technology is making it possible to understand cities in unprecedented detail.
- Combining a host of infrastructure, transport, socioeconomic, demographic and spatial data into detailed digital copies of cities or a nation
- Real-time simulations of traffic flow, water, air pollution etc.

Examples of partners

# LIST TECH FOR SMART CITIES: 3. “NO TIME TO WASTE…”

- Co-design and co-build an intelligent waste collection platform
- Combining business, client and operational criteria with data generated by sensor technology, directly integrated into waste containers
- Better forecasting and multi-objective optimization (routes, targeted services etc.)

- Prototype expected to pave the way for new partner business models


Partner POLYGONE votre partenaire

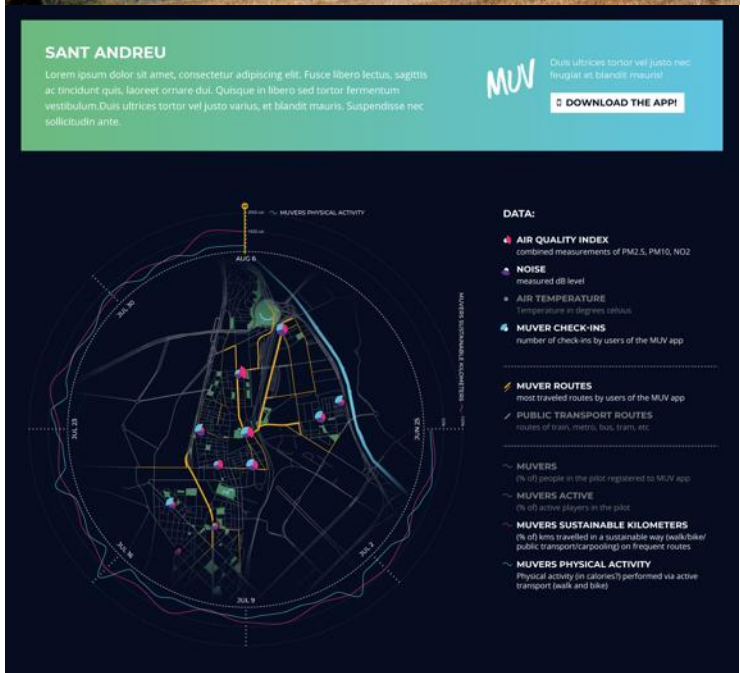
# LIST TECH, SMART CITIES:
# 4. “GAMIFYING AWARENESS”

Make people shift to more sustainable and healthier lifestyles by raising awareness on the positive effects of green mobility and encouraging the use of shared mobility:

- Mobile and wearable app
- Distributed network of environmental monitoring stations
- Scalable cloud platform to collect, aggregate and analyse data.
- Gamification approach and site-specific reward schemes
- 6 pilot cities across Europe

Local partner

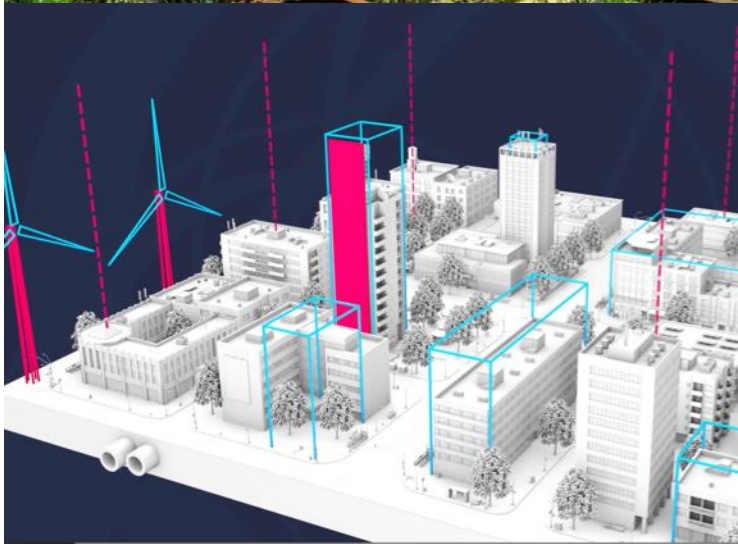
DIDDELENG
VILLE DE DUDELANGE



# LIST TECH FOR SMART CITIES: 5. “RE-NATURING CITIES”

- Quantify positive impact through world-leading life cycle assessment.
- Help bring more and more diverse natural features and processes into urban agglomerations (Urban forests, green roofs, city farms etc.)
- Requires new governance models and financing schemes.
- Support local authorities and urban planners in the sustainable development of urban areas and infrastructure through new tools

EU Project NATURE 4 CITIES



LUXEMBOURG

LET'S MAKE IT HAPPEN

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST