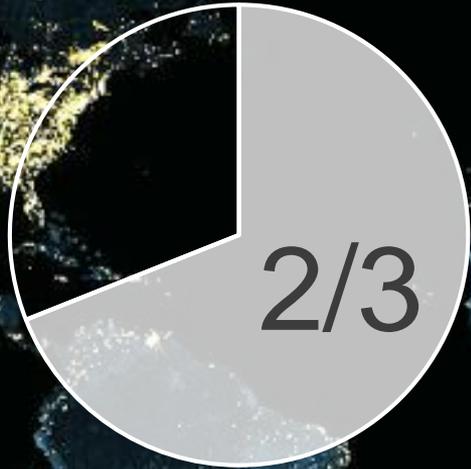


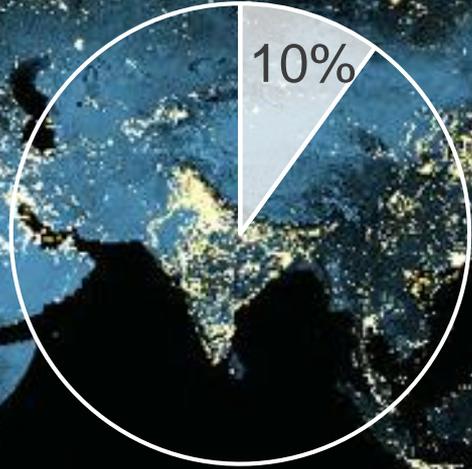
Lessons from European Cities

Putting data to work for our common future





2020 -> 2040

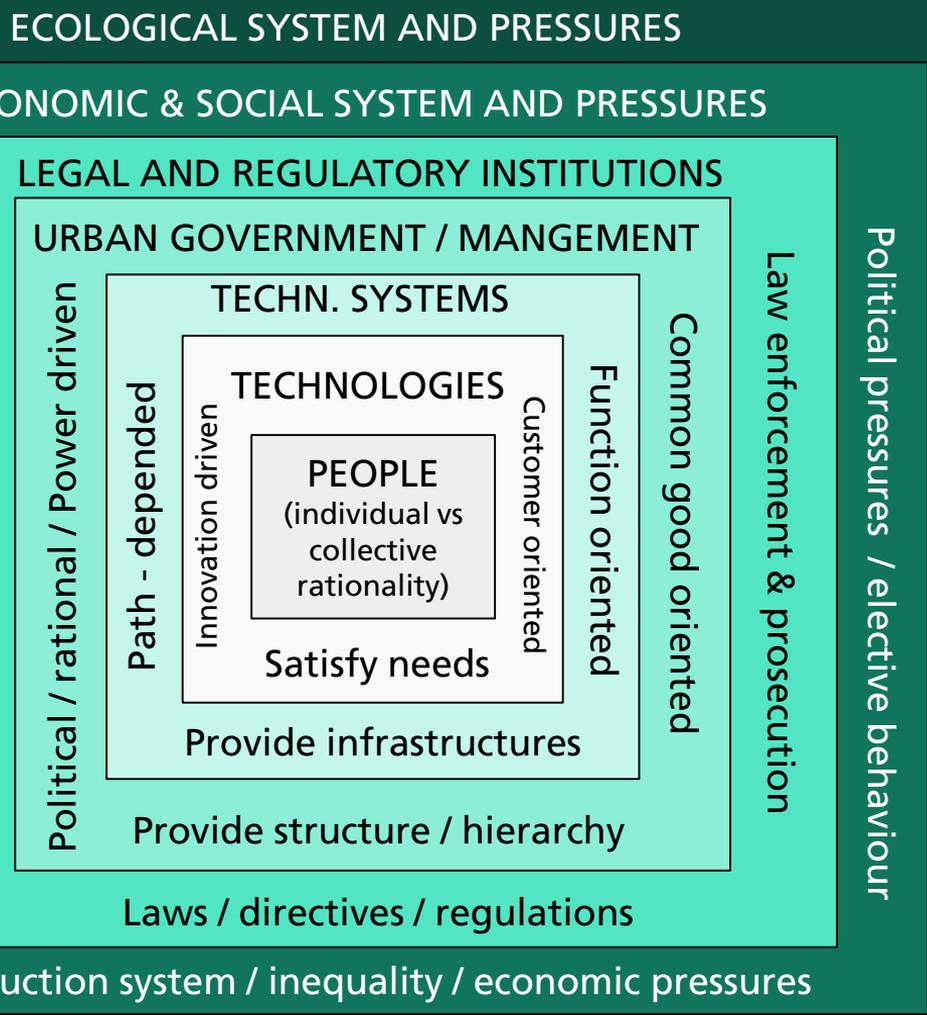


Transforming cities is a wicked challenge:

Managing change across complex socio-technical systems

Available Natural resources (land / land use, water etc.)

Values / Moral beliefs / culture / religion
Boundaries of political autonomy

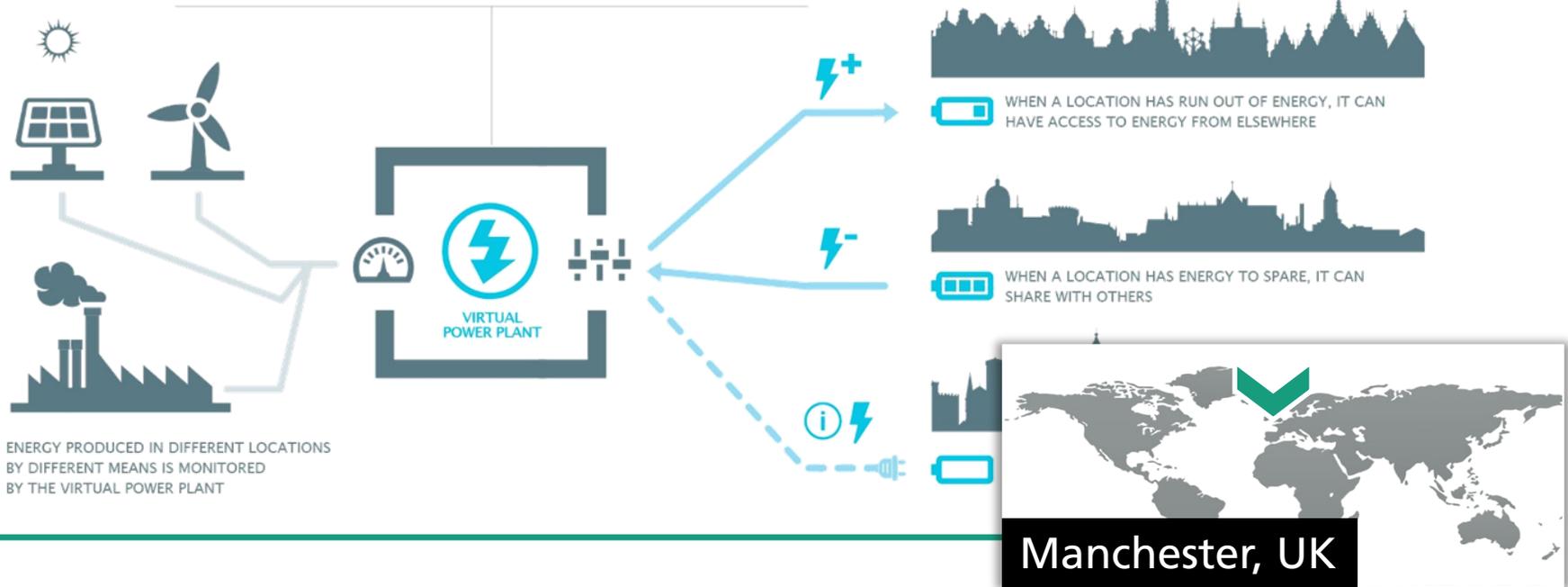


Political pressures / elective behaviour
Law enforcement & prosecution
Climate / Natural Events / Climate change



Siemens – 2017

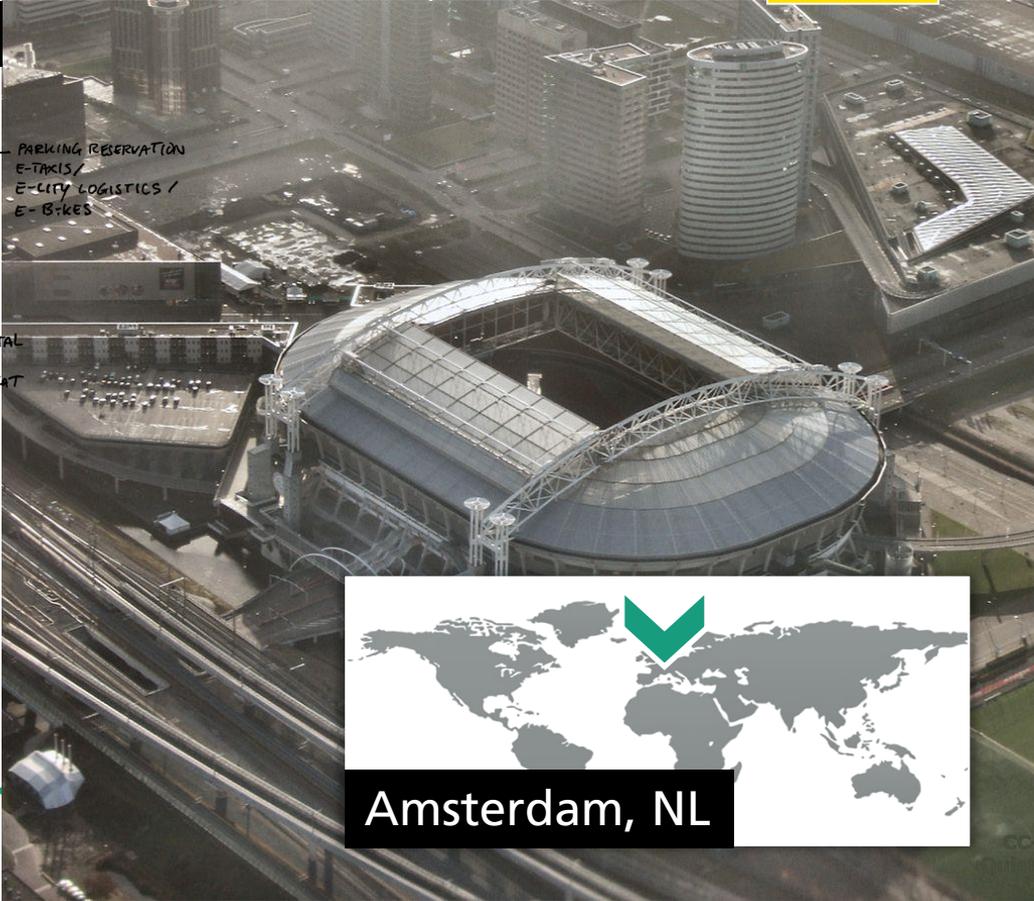
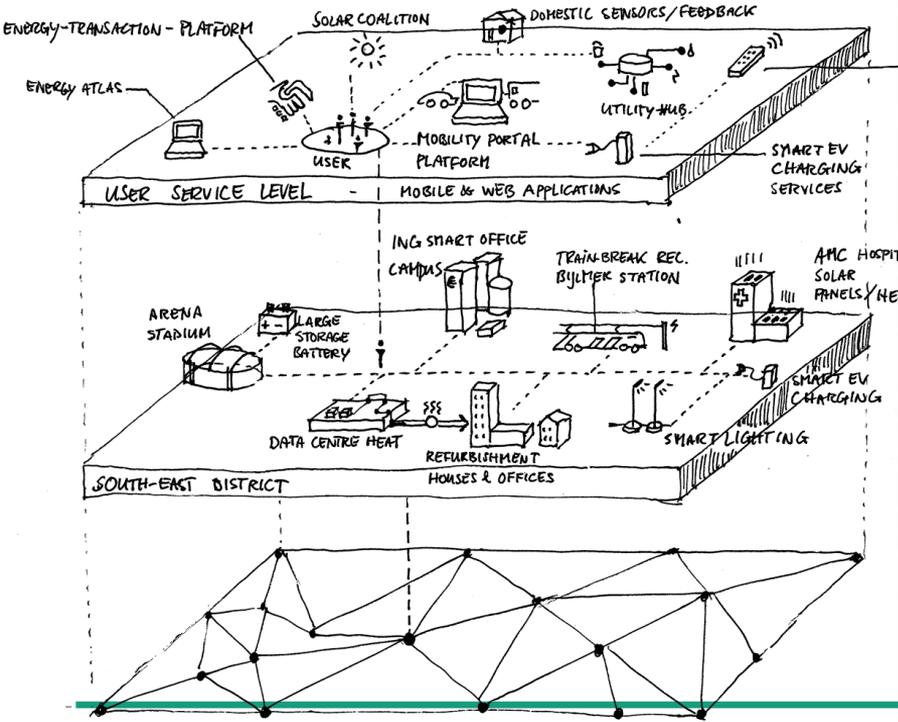
THE VIRTUAL POWER PLANT APPLIES THE FINANCIAL TRADING MODEL TO GREEN ELECTRICITY BY DEFINING BUY/SELL OPPORTUNITIES AND IMPROVES PROFITABILITY



Energy Arena Amsterdam



Alliander / Ajax 2019



PARKING RESERVATION
E-TAXIS/
E-CITY LOGISTICS /
E-BIKES



Amsterdam, NL

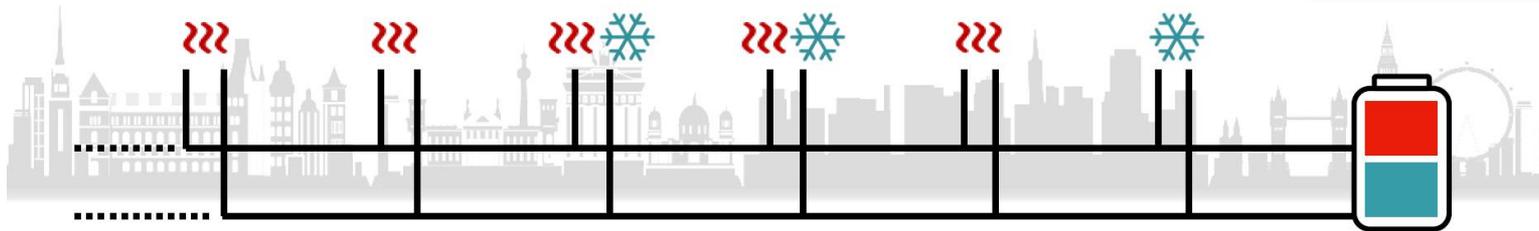
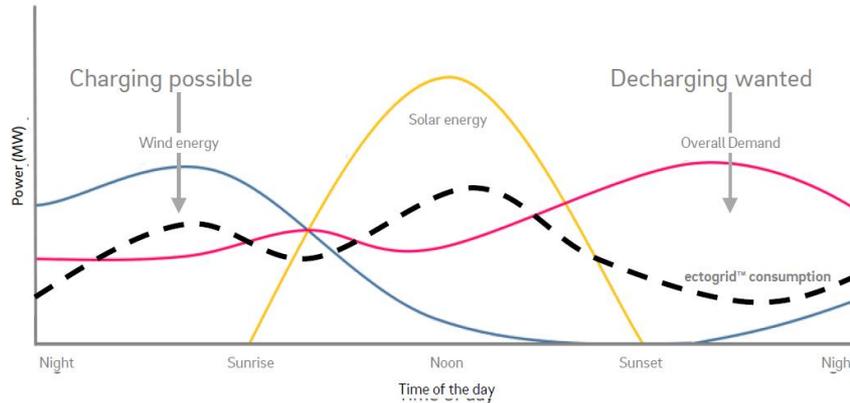
See ENERGY EFFICIENT OPEN SOURCE SMART GRID

Ecto-Grid – a smart low temperature grid saves up to 80% of energy



E.ON 2018

Renewable production and consumption in defined area



Ecto-Grid – a smart low temperature grid saves up to 80% of energy



District heating/ District cooling

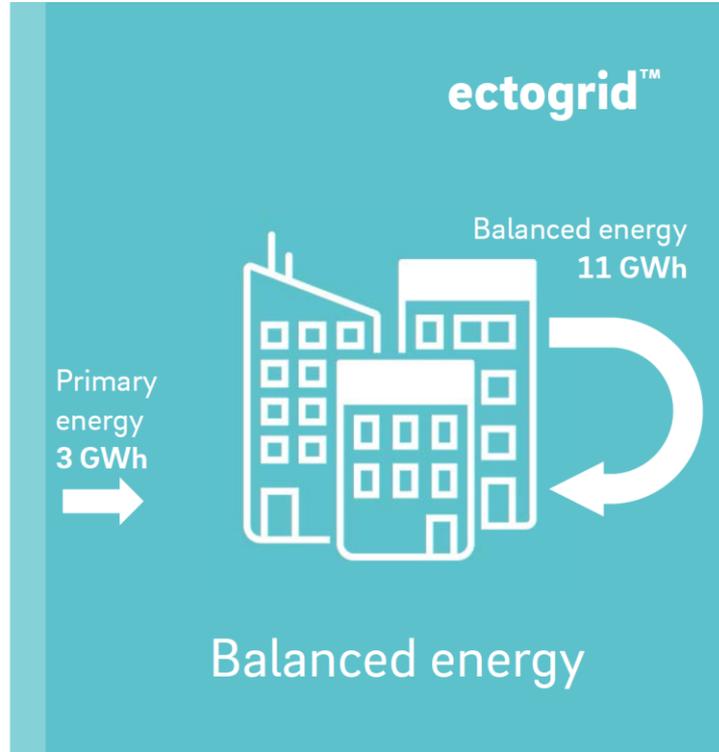
District heating
10 GWh



District cooling
4 GWh

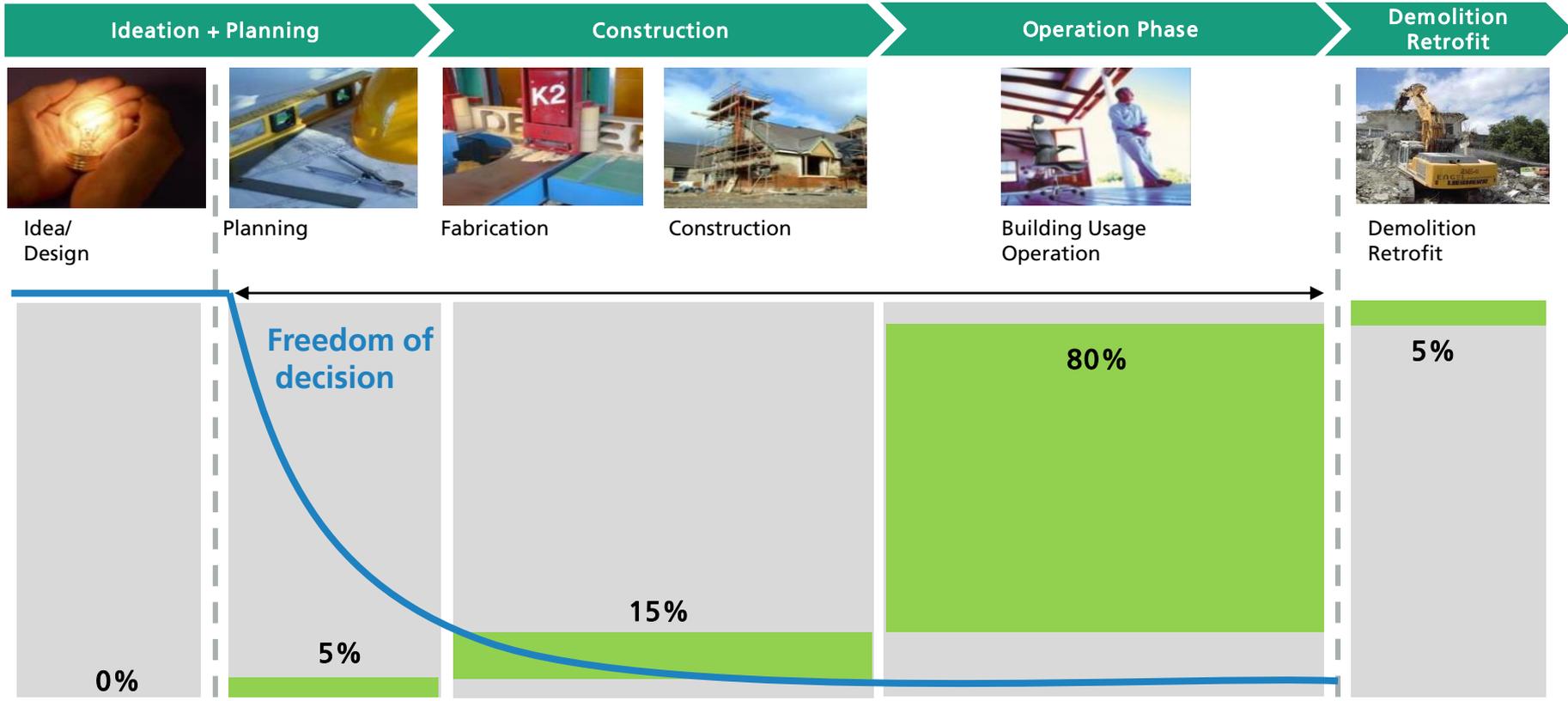


Primary energy



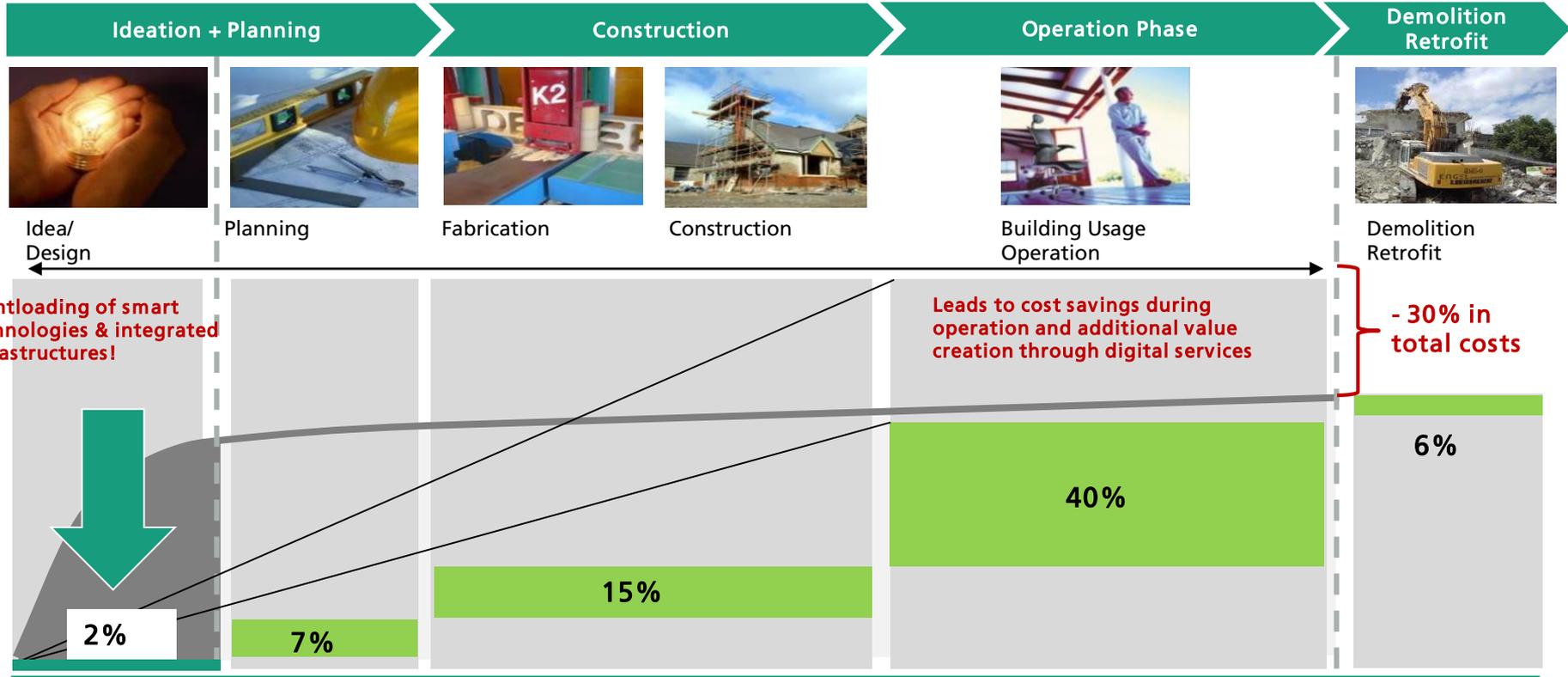
Smart Districts need to build on new business models

The conventional model creates 80% of lifecycle costs during operation

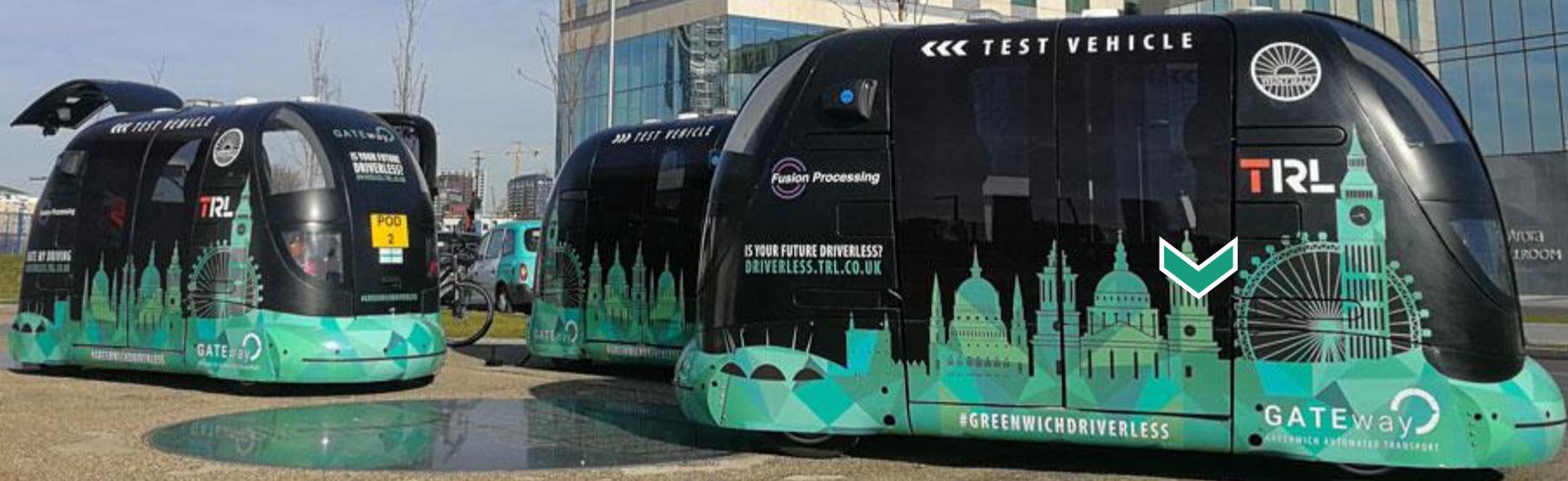


The business case for smart districts

2% of overall invest into the design phase will leverage up to ~30% of cost reductions in operation and enables additional value creation



...urban mobility is becoming connected, autonomous, electric and shared



Muji / Sensible 4, 2019



Helsinki, Fi

Same-day delivery + predictive shipping has strong implications for inner-city retail ...



Amazon Dash Button, 2016



...district logistics gain in importance

Hermes / Starship Roboter, 2017



Hamburg, Deutschland

Schaeffler - Biohybrid, 2019



Continental – vision of autonomous distribution, 2019



Fraunhofer Project „LogSpaZe“



Streetlights become the backbone of urban connectivity

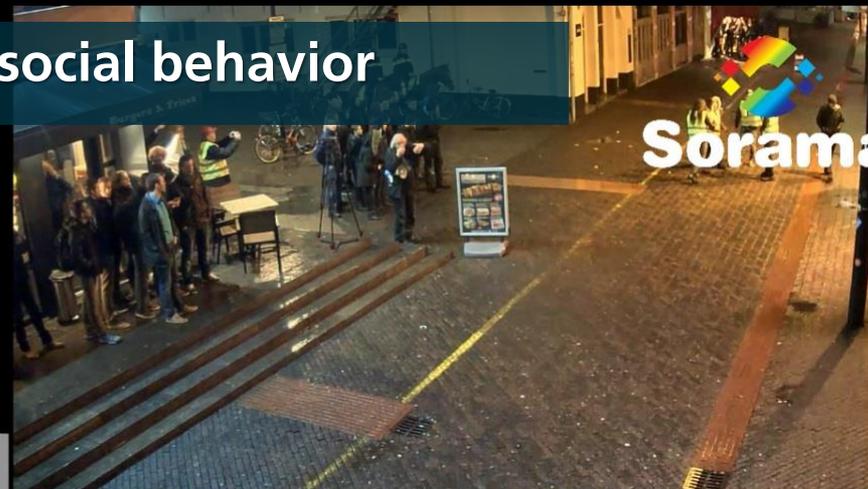
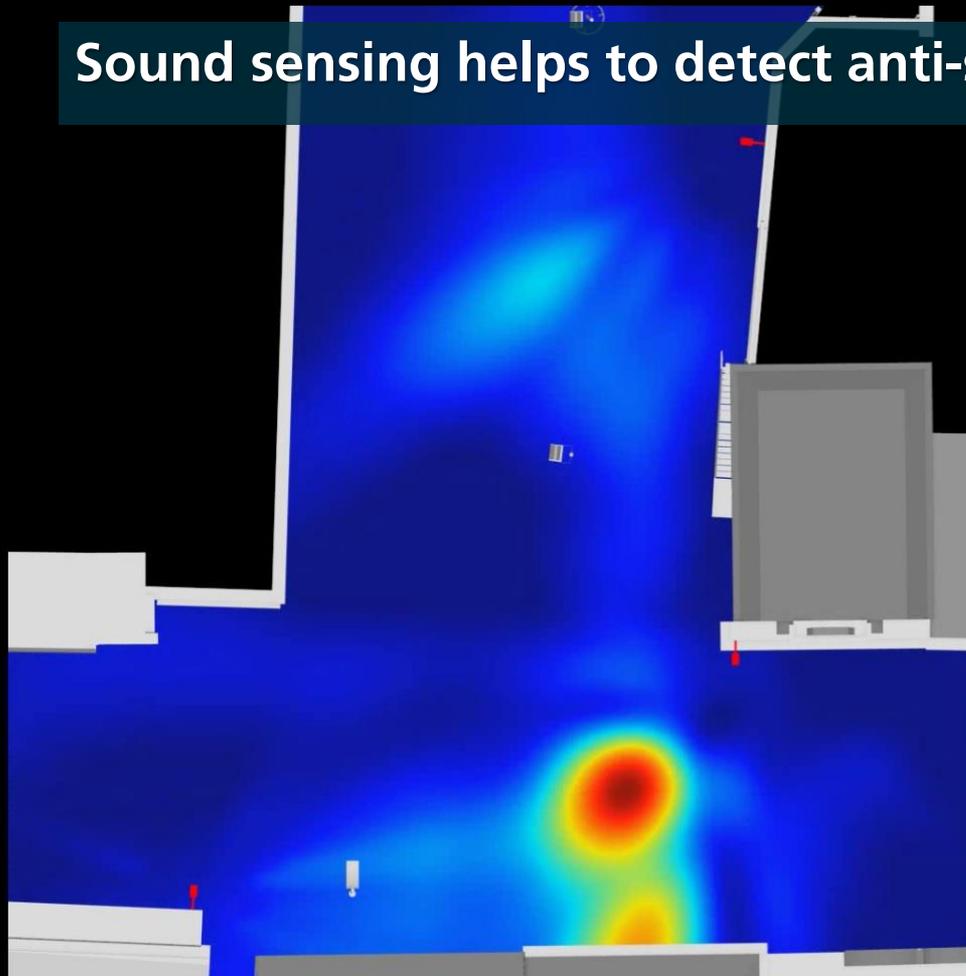


Strijp S, 2017



Eindhoven, NL

Sound sensing helps to detect anti-social behavior



The digital urban economy

“The Price of everything and
the value of nothing...”

- *Oscar Wilde*



The platform economy as benchmark

2018

RANK	COMPANY	FOUNDED	USBn
1.	 *	1976	890
2.	 *	1998	768
3.	 *	1975	680
4.	 *	1994	592
5.	 *	2004	545
6.	 腾讯 *	1998	526
7.	BERKSHIRE HATHAWAY	1955	496
8.	 *	1999	488
9.		1886	380
10.	J.P.Morgan	1871	375

* Companies based on the platform model

2008

RANK	COMPANY	FOUNDED	USBn
1.	 PetroChina	1999	728
2.	 EXXON	1870	492
3.		1892	358
4.	 中国移动 China Mobile	1997	344
5.	 ICBC	1984	336
6.	 GAZPROM	1989	332
7.	 Microsoft	1975	313
8.		1907	266
9.	 SINOPEC	2000	257
10.	 AT&T	1885	238

Sources: Bloomberg, Google

Key enablers of the urban data economy



20% - 50% cost savings against taxi

Personal Value

e.g. lower cost, time saved

2.5 bn US\$ in 2018

Private value

e.g. ROI

Public Value

e.g. taxes, jobs, environmental quality

+ local jobs as drivers

+ local taxes paid (??)

- jobs of taxi drivers lost

- costs on infrastructure

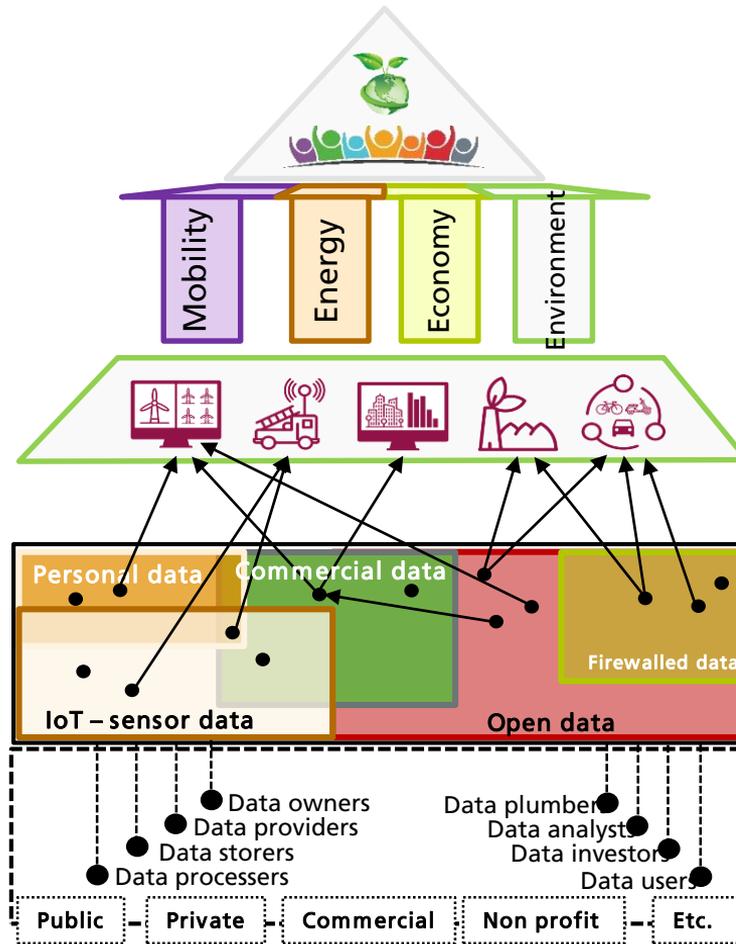
- costs on environment

The daisy chain of urban data

The blind spot of the urban data economy



- **Value capturing:** knowledge about the potential impact of the data
- **Win – win – win:** fair sharing of revenues between personal, private & public level
- **Smart contracts:** Agreements on data exchange across institutions & types of data
- **Trusted broker**



Infrastructures & Services



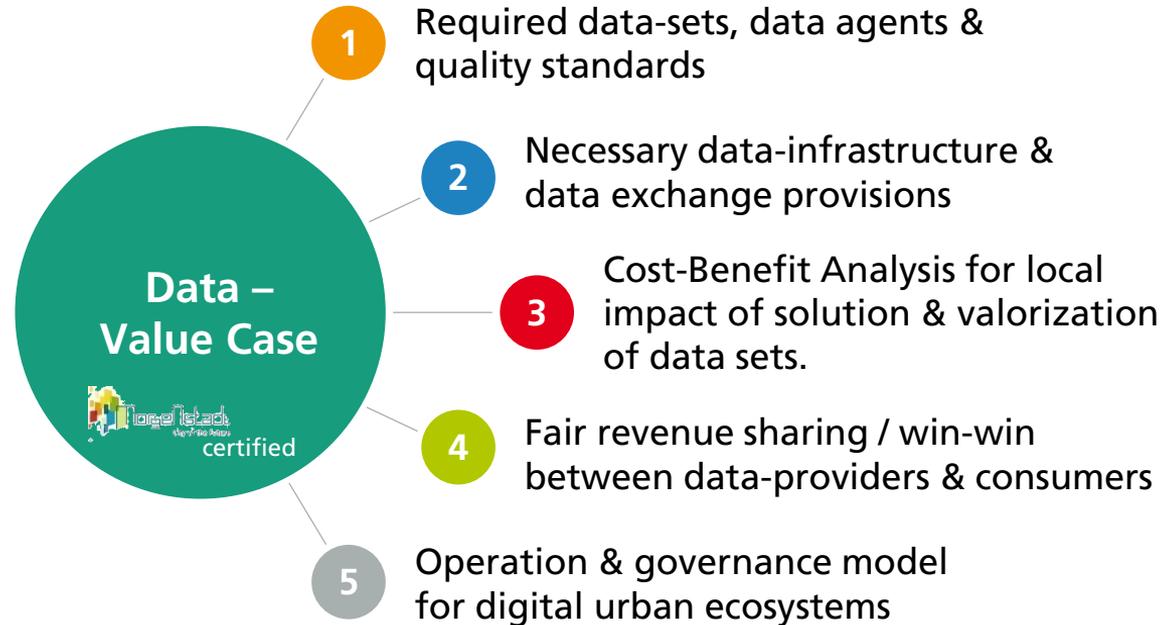
Packaged Solutions for Smart & sustainable cities
(Interoperability & quality standards)

Data-sets



Stakeholders & Institutions

THE GOAL: Create Data–Value-Cases for urban solutions





Dr.-Ing Alanus von Radecki
Head of Urban Governance Innovation
Tel: +49 (0)711 970-2169
alanus.radecki@iao.fraunhofer.de

Future-proof your city!

<http://www.morgenstadt.de/en>

