DANISH TECHNOLOGICAL INSTITUTE

Third Millennium Governance
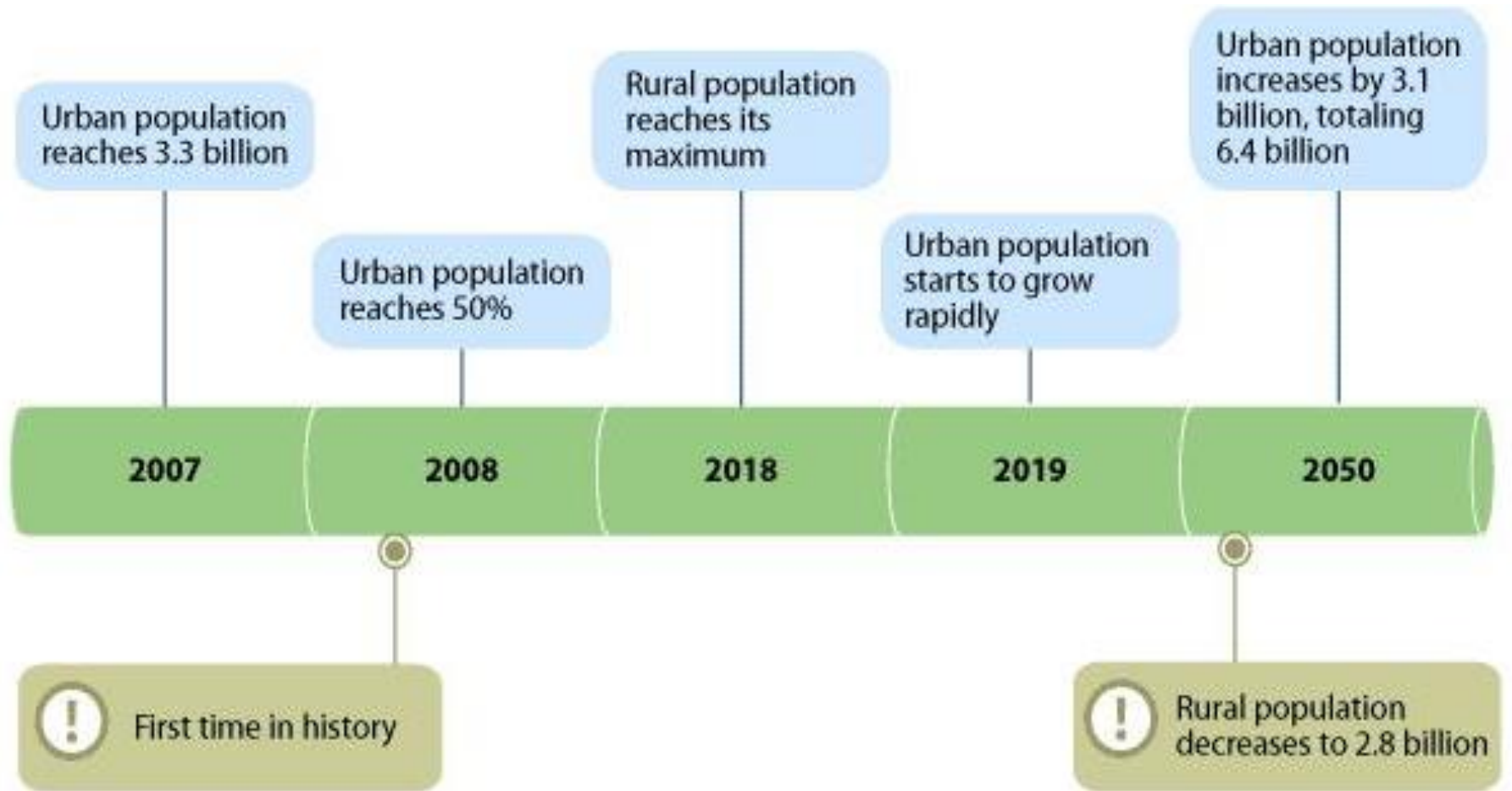
Rethinking smart cities

Jeremy Millard

Senior Consultant, Danish Technological Institute

Director, Third Millennium Governance

jeremy.millard@3mg.org

The urbanisation challenge

Urban population reaches 3.3 billion

Rural population reaches its maximum

Urban population increases by 3.1 billion, totaling 6.4 billion

Urban population reaches 50%

Urban population starts to grow rapidly

| 2007 | 2008 | 2018 | 2019 | 2050 |

First time in history

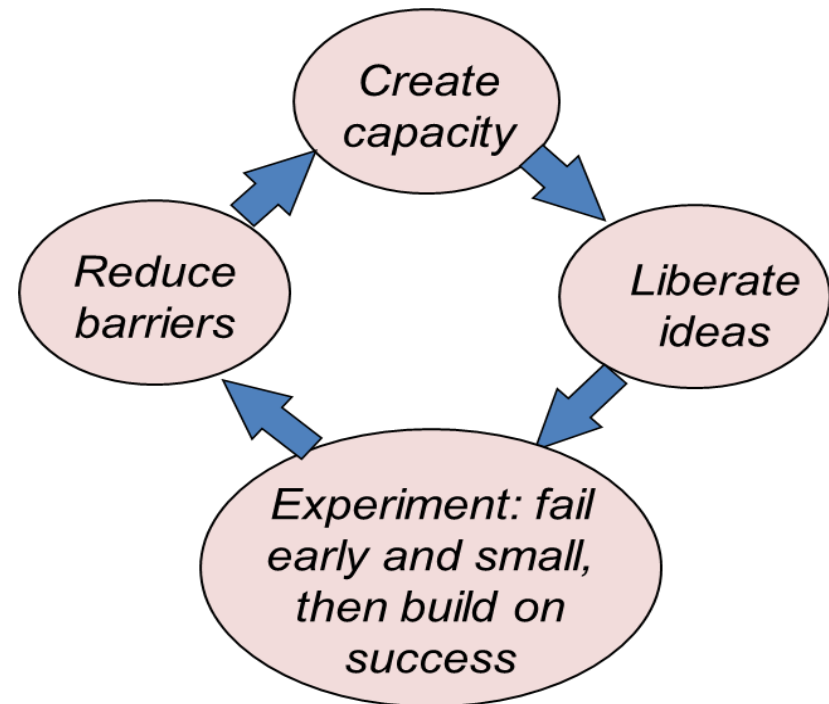Rural population decreases to 2.8 billion

Cities are at the 'sweet spot'

- Large enough to have real power and impact

- Small enough to be close to real lives

- The **'sweet spot'** between centralised and de-centralised **GOVERNANCE** models

City scale is a good scale to EXPERIMENT

➜ recognise the success of failure

Create capacity

Liberate ideas

Experiment: fail early and small, then build on success

Reduce barriers

Percentage of smart cities of total cities across the EU (2015)

Smart city definition (2014):
a city seeking to address public
issues via ICT-based solutions on the
basis of a multi-stakeholder,
municipally based partnership
(European Parliament)

76% - 100%
51% - 75%
26% - 50%
1% – 25%
0
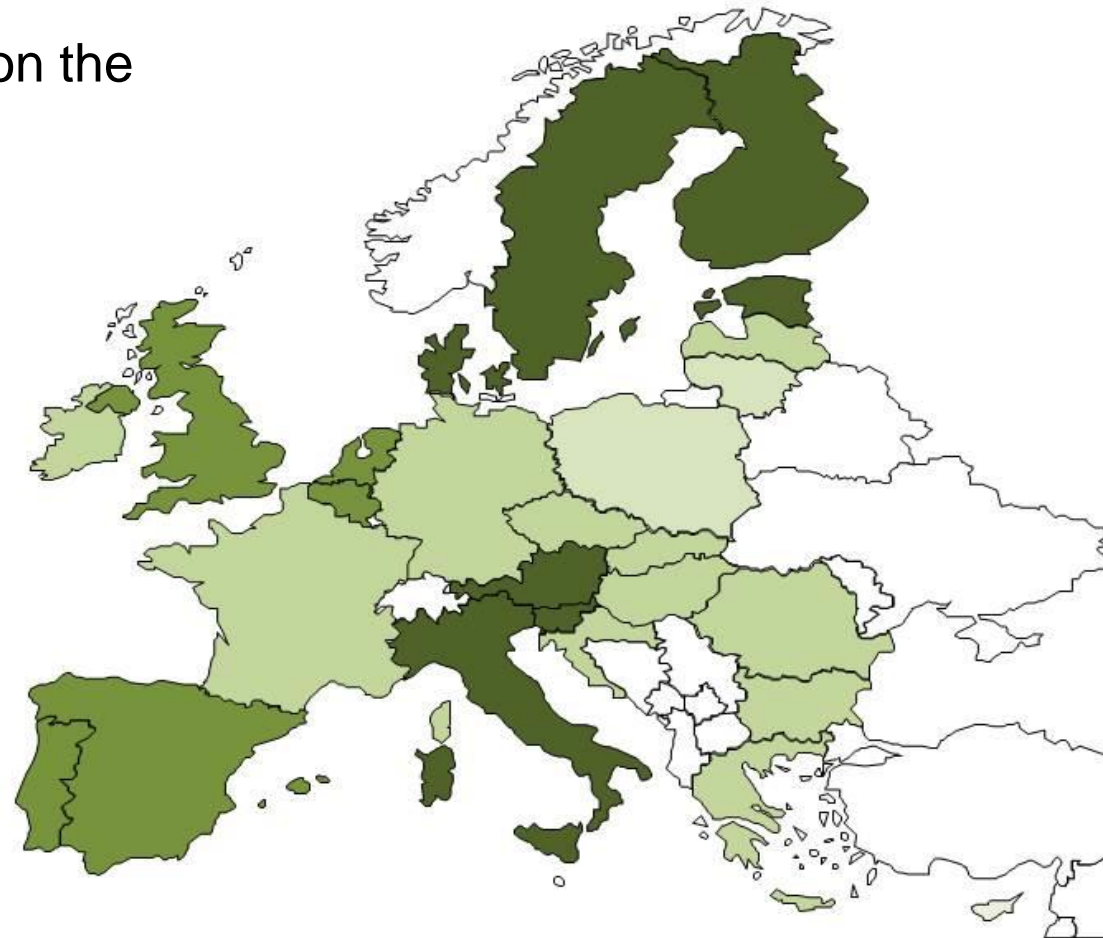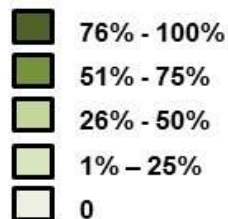
European smart cities: 6 characteristics (2015) http://www.smart-cities.eu

1. Smart Governance indicators
Political awareness
Public & social services
Efficient & transparent administration

Examples: Joined-up across city, including services and interactions linking & integrating public, private & civil, as well as to national government

2. Smart economy indicators
Innovative spirit & entrepreneurship
Productivity & labour market
International integration & city image

Examples: eBusiness, eCommerce, productivity, ICT-enabled advanced manufacturing & services.

3. Smart mobility indicators
ICT-Infrastructure
Transport System
External accessibility

Examples: ICT supported and integrated transport and logistics

4. Smart environment indicators
Ecological awareness
Air quality & resource management

Examples: Smart energy including renewables, ICT-enabled energy grids, metering, pollution control and monitoring, green buildings and planning, etc.

5. Smart people indicators
Education & lifelong learning
Ethnic plurality & open-mindedness

Examples: eSkills, eWorking, eCapcities, integrated with physical working

6. Smart living indicators
Culture, leisure & tourism
Health, education & security facilities
Housing & social cohesion

Examples: ICT-enabled life styles, behaviour & consumption, eInclusion, eCommunities, social cohesion & social capital

5

Key fields BRATISLAVA (SK)
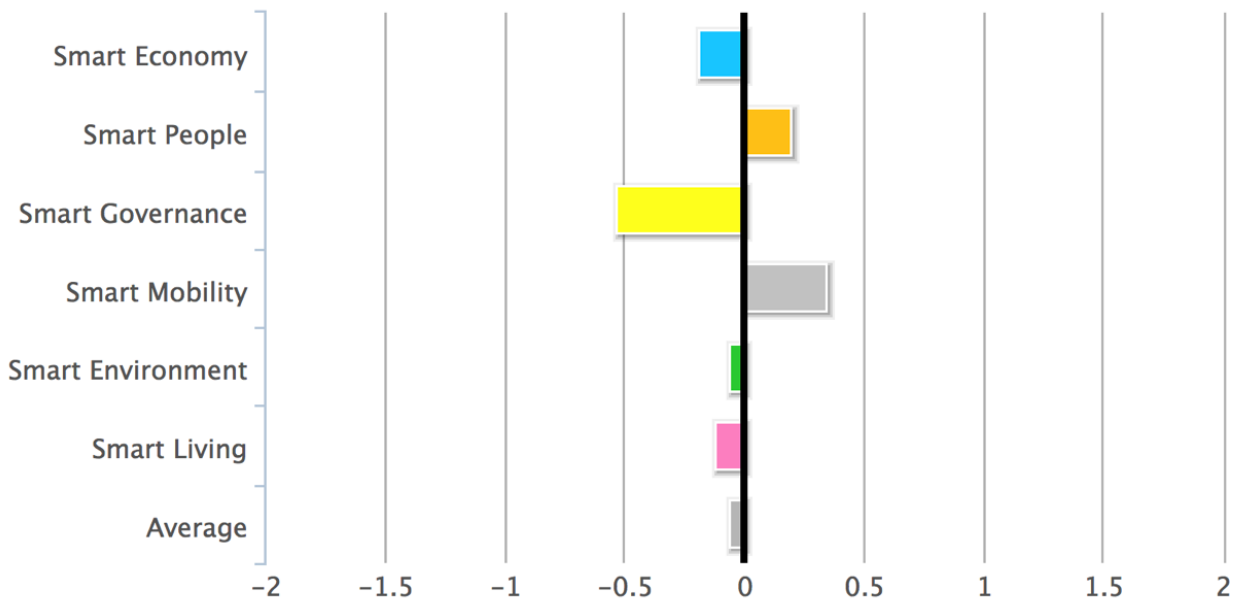
Bratislava (2015)

Metropolitan population (2016)
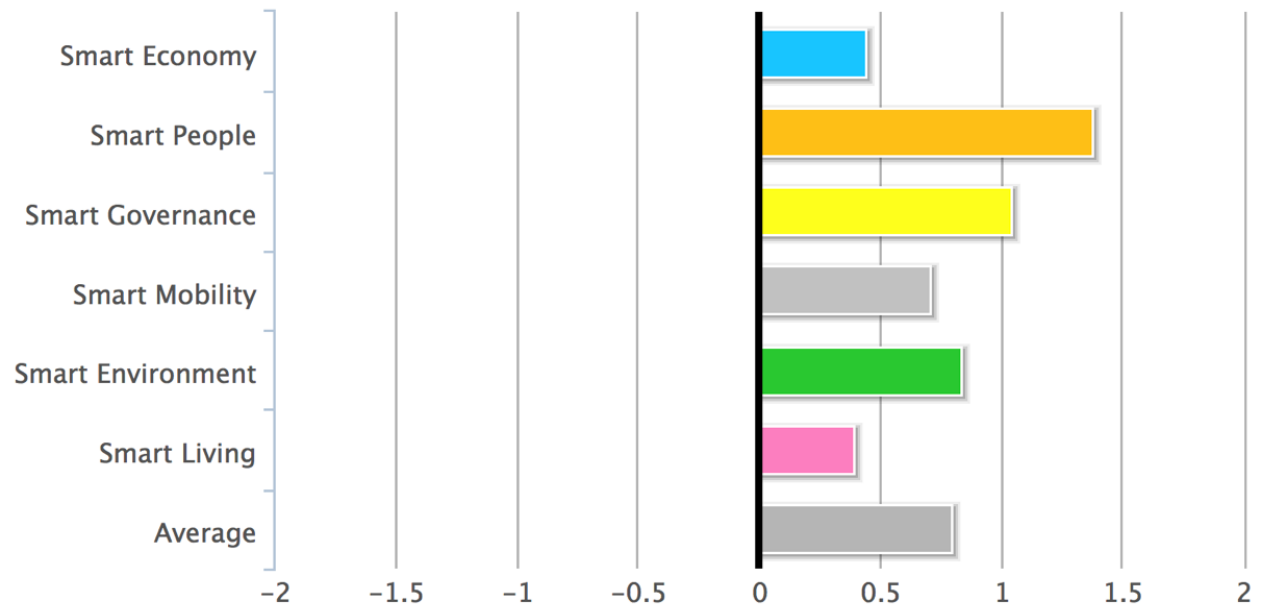•659,578

Metropolitan density (2016)
•1,147/km2

Key fields AARHUS (DK)

Aarhus (2015)

Municipal population (1-1-8)
•340,421

Municipal density (1-1-18
•707/km2

Example: Smart Citizen Kit

A low–cost environmental sensing kit for people to measure their local environmental data, such as humidity, noise and air pollution

Open source, crowdsourcing technology for citizens to participate directly in their smart city

According to Tomas Diez (Barcelona), Founder of the Smart Citizen Kit:
"*It's about empowering people to take their city back.*"

Re-thinking the 'smart city' label

Does 'smart city' capture all the different types of city?
- digital cities
- wired cities
- sustainable cities
- innovative cities
- intelligent cities
- knowledge cities
- creative cities
- open cities
- energy cities
- cities as innovation launch pads
- shareable cities
- resilient cities
- cities of nature & green cities

Other city networks include:
- C40 network of global megacities addressing climate change
- Global Fab City network: fabrication cities

Example: Nature-based solutions for urban (re)development
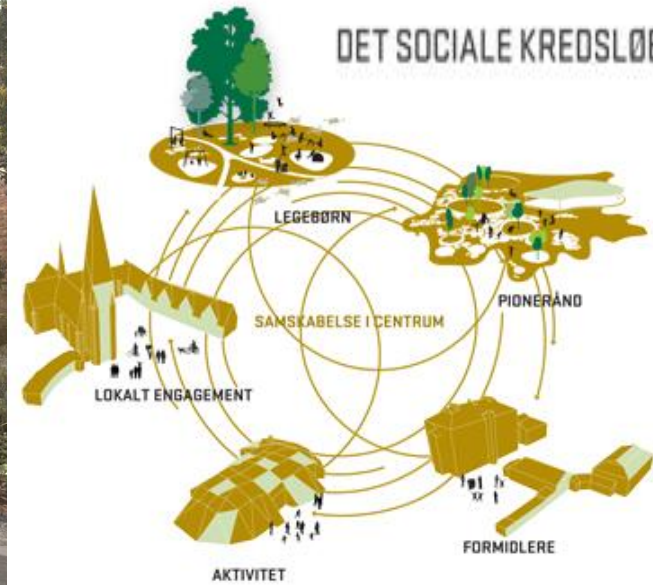
New Nordic scalable model for city development

•Move away from tackling climate change water issues using bigger sewers, hard surfaces and technological 'fixes' -- instead focus on the intricate design of topography, soil, trees, flowers, vegetation, natural seepage and drainage woven into the urban fabric

•Based on inter-linking 3 extremely site-specific circuits: hydrological, biological & socio-economic

•Social innovation, co-creation, dialogue and humanistic nature-based solutions: close & continuous collaboration with residents, school children, local civil organisations

•Result is a greener, happier, sensuous and varied local culture and identity that empowers.
(Source: SLA Urban Development Consultants, Denmark)

Example: locally-productive, globally-connected, self-sufficient cities

From linear to spiral production ecosystems:

BARCELONA
BOSTON
SOMERVILLE
CAMBRIDGE
EKURHULENI
KERALA
GEORGIA
SHENZHEN
AMSTERDAM
TOULOUSE
OCCITANIE REGION
PARIS
BHUTAN
SACRAMENTO
SANTIAGO DE CHILE
DETROIT
BREST
CURITIBA

- Move FROM current linear industrial production: importing raw materials & products and exporting waste & pollution

- Move TO spiral innovation ecosystem: materials flow within cities whilst information and data on how things are made circulate globally

- FROM centralised mass production TO decentralised distributed manufacturing and mass customisation.

Cities as platforms for sustainability and resilience

Leadership

•Provide inspiration, vision and frameworks, but also get out of the way as often as possible

•Let a thousand flowers bloom…but ethically, fairly & inclusively

Innovation

•'Living assets' are the only real source of innovations

•PEOPLE: Ensure people & their needs underpin economic & technical innovation using social innovation & co-creation

•NATURE: Work with nature & use nature-based solutions if possible

Participation & collaboration

•Involve all legitimate actors, especially local communities

•Strengthen local identity

•Focus on social inclusion for livability & quality of life

Technology

•Technology: not a panacea or 'fix', but a liberator

•Combine the virtual with the physical

•Spread the potential of collaborative technologies as tools for government, businesses & people using open source & open data

Policy coherence

•Develop open governance for the specific city context: each city & region is unique

•Produce locally, communicate globally

•City's are at the 'sweet spot' 😁