Smart cities:

The impact of cyber security on the global uptake of a holistic approach to city planning

An increasingly connected world

- 6.4 billion things were connected in 2016

- In 2016, Gartner estimated that 5.5 billion things got connected every day

- Expected to reach 20.8 billion by 2020

- McKinsey estimated the potential market as US$3.9 to $11 trillion by 2025 in 2017

New challenges in a new world

- The World Economic Forum's *Future of Work* estimates 7.1 million jobs will be lost due to automation.

- Human share of labour hours will drop from 71% to 58%.

- Jeff Bezos, Mark Zuckerberg, Elon Musk - Universal Basic Income

- Jack Ma predicts people will work just 16 hours per week by 2047.

Cities come with environmental problems

- Cities cover roughly 2% of the geographic area of earth, generate 80% of the world's GDP.

- Cities are also responsible for as much as 70% of the world's carbon emissions and 70% of the world's energy consumption (United Nations)
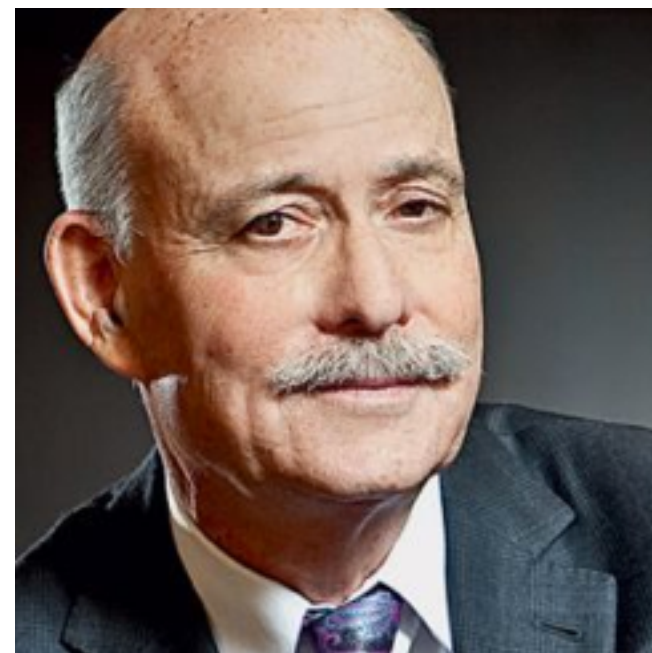
Smart cities

- Improve efficiencies in an urban environment in ways that lower the cost of management of the city, maximise resource efficiency and improve public safety.

- The concept has been incredibly popular, with over 1,000 smart city projects under construction worldwide.

- One third of UK cities have smart city ambitions, and two thirds of US cities are now investing in smart technologies.

A new economic system?

**Jeremy Rifkin:** *The Zero Marginal Cost Society* (2014)

- The transition to the Internet of Things and smart cities will be motivated by a push to resolve global crises such as climate change.

- Capitalism will be eclipsed by the "Collaborative Commons".

- Are we being too optimistic?

Problems with a cohesive approach...

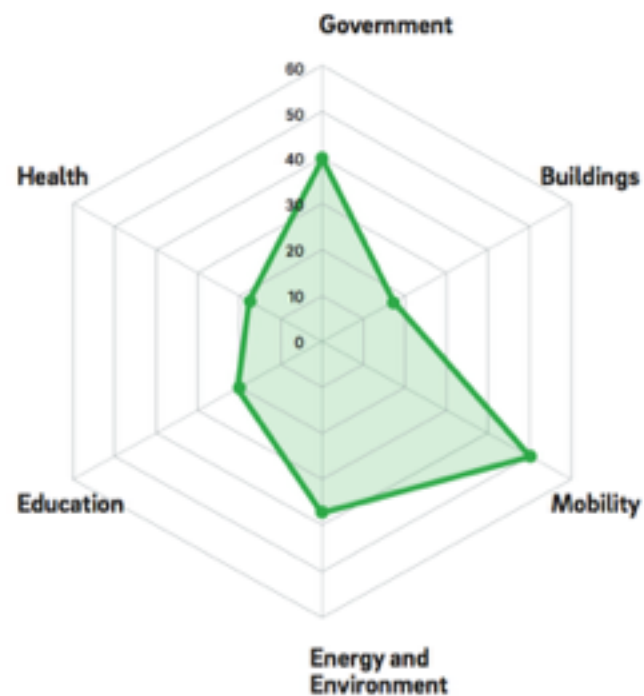**MOST SMART CITY STRATEGIES SHOW ROOM FOR IMPROVEMENT. ONLY 19 CITIES SCORE OVER 50**

Results overview: Smart City Strategy Index

> 50

Avg. 37

IT infrastructure · Strategic planning · Action fields
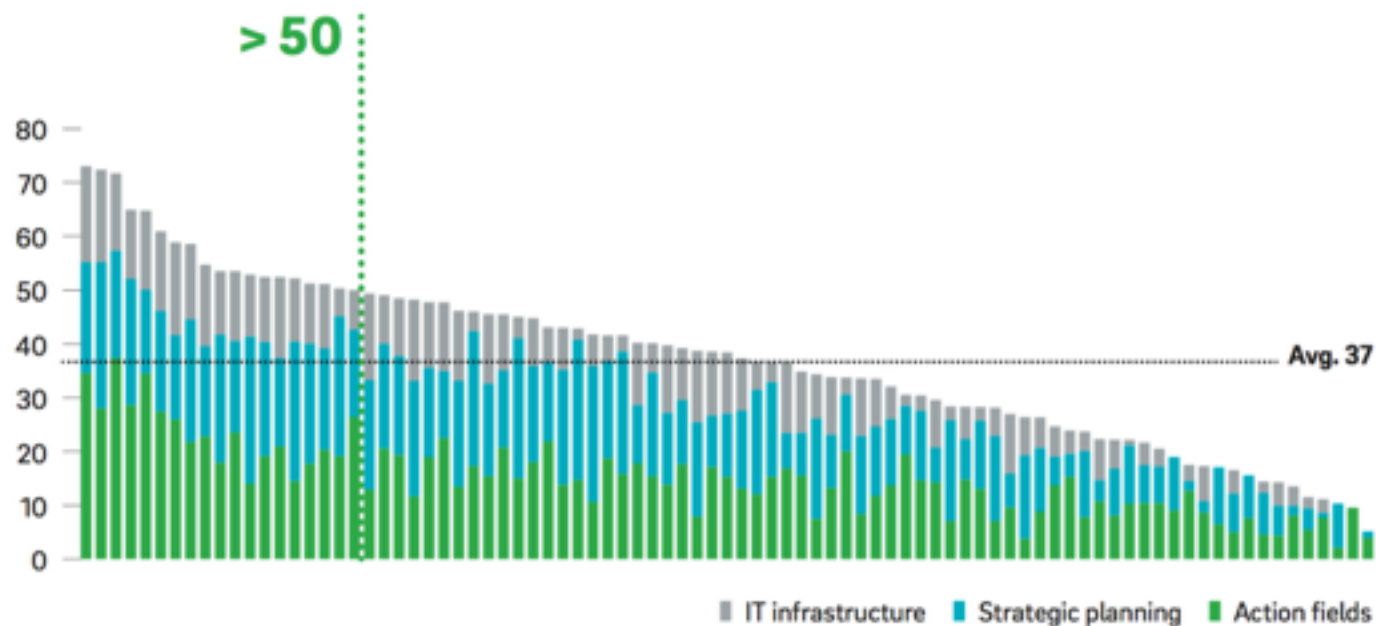
Source: Roland Berger

FOCUS OF SMART ACTIVITIES
Cities emphasize three areas and neglect three others
[in % of maximum score per category]

Source: Roland Berger

Many smart cities are combinations of low and high technology

- Barcelona: uses high tech sensors for parking, managing lighting, smart waste disposal, integration of wireless networking, sensors for air quality and noise, citizen participation in data management and bike loan schemes.

- Low tech initiatives like the Pedestrian First policy for Superblocks and the expansion of green spaces.

Barriers to smart city uptake

- Dependence on public sector

- Trust in systems

- Private/ public partnerships

- Complexity of technology

- Need to demonstrate Return on Investment

- Development of technologies in silos

- Cyber threats

The smart city and cybersecurity vulnerability

- Opens up opportunities for critical infrastructure attack

- Recent examples include:

  - DDoS attacks on transportation systems in Sweden in October 2017
  - WannaCry - ransomware crypto worm cost National Health Service £100m and cancelled 19,000 appointments
  - SamSam, a hacker group who used ransomware to infect the city of Atlanta's system to demand bitcoin. Cost: $17 million
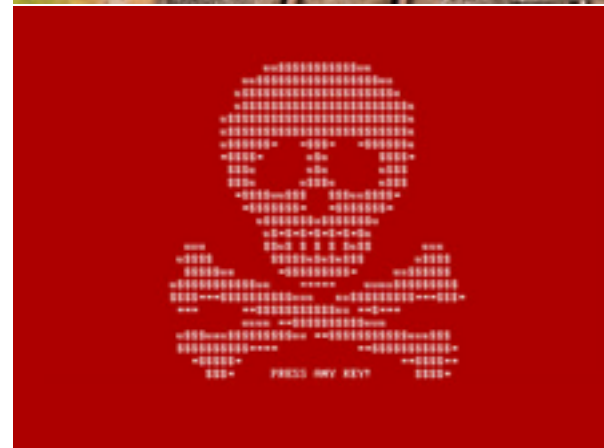
Technology is moving at a faster pace than our ability to upskill workers

- We face a complex and changing landscape that is difficult for even experienced professionals.

- The 2018 Global Information Workforce Study found two-thirds of respondents felt their organisation lacked the skills to deal with the modern threat landscape.

- Need for confidence in contractors to deliver secure solutions.

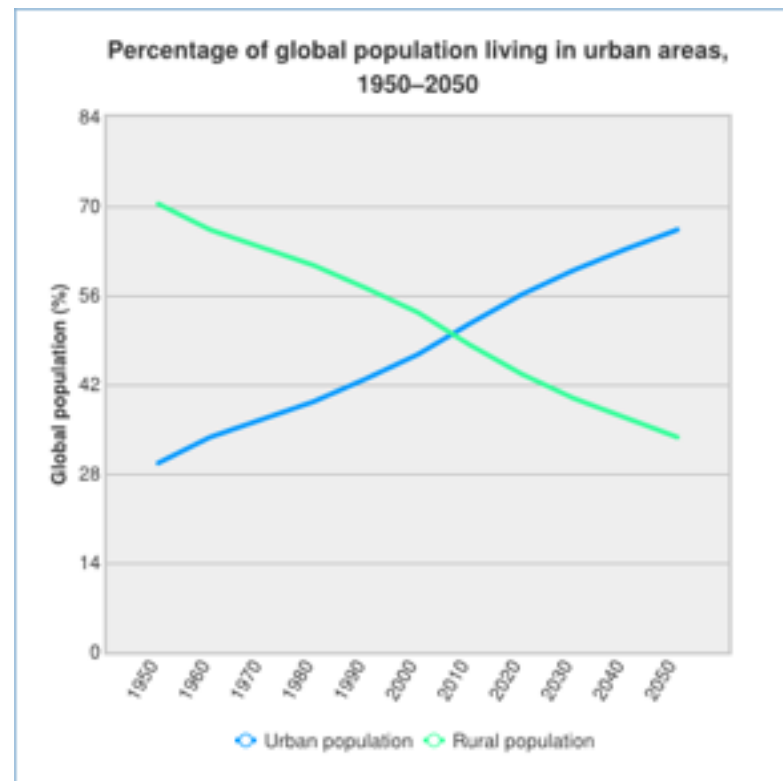- Need for public sector to have access to easily digestible information on solutions.
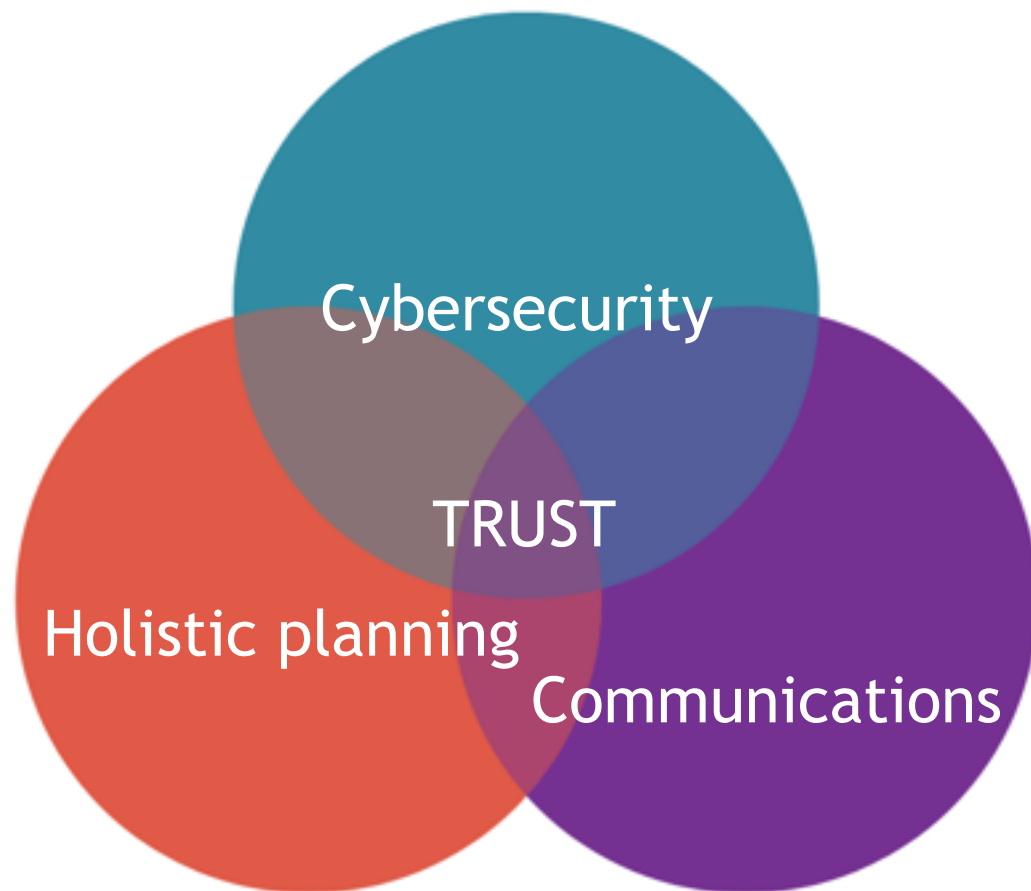
Urbanisation is relatively new

The number of people living in cities is rising:

- 1800: 7%

- 1900: 16%

- 1950: 30%

- By 2030, 60%

Percentage of global population living in urban areas, 1950–2050

Global population (%)

Urban population   Rural population

We still are trying to figure out what makes a city tick

How we build and grow a successful city is something that has been debated over time. From the concept of a central district to the notion of concentric nodes that grow together…

Legibility of the city is key

- *Image of the City* (Kevin Lynch, 1960)

- Studies three cities (Boston, Jersey and Los Angeles) to examine how inhabitants interpret what makes a city.

- Argued that what made a city successful was its "legibility" from inhabitants.

- Cities grow from the bottom up, as well as the top down.
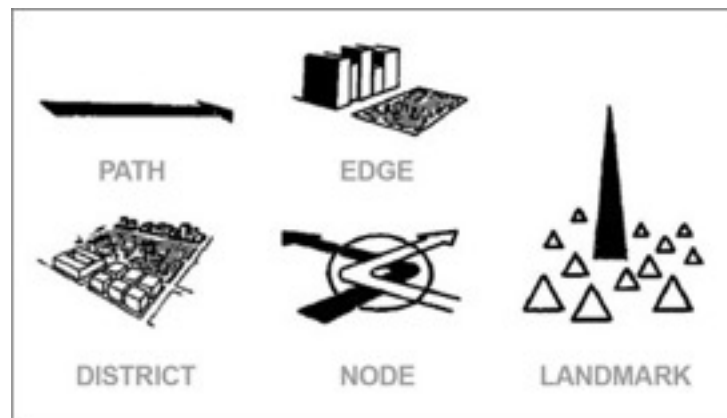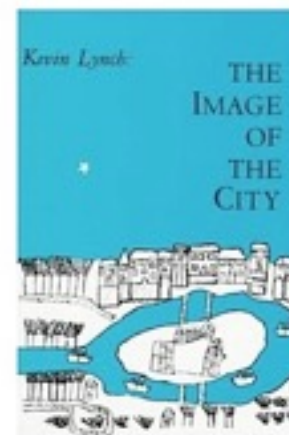
Technology must build on and enhance unique characters of the city

- Example: Municipio de Medellín, Colombia

- Highest rate of adoption in Latin America (McKinsey and Co, June 2018)

- Builds upon issues unique to the city to create a customised experience based on local needs

Question & Answer
Next Steps

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