Designing smart & Resilient cities:

How can Egyptian cities learn from an emerging global practice >

On the Cusp of Change

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1. GLOBAL CHALLENGES

POPULATION GROWTH, POVERTY, MIGRATION, LIVING STANDARDS AND SCARCITY OF RESOURCES

URBAN DENSITY

By 2050, 70% of the world's population will live in urban areas.

AGING POPULATION

By 2050, the number of people above the age of 60 is expected to hit double from 981 million now, to 2 billion.

HEALTHCARE

By 2030, chronic diseases will account for over 37 million deaths a year in developing countries.

MOBILITY

By 2050, there will be over 2.5 billion cars roaming the earth, while mostly being concentrated in urban areas.

RESOURCE SUSTAINABILITY

By 2050, energy demand will increase by 80% due to the increase in emerging economies.

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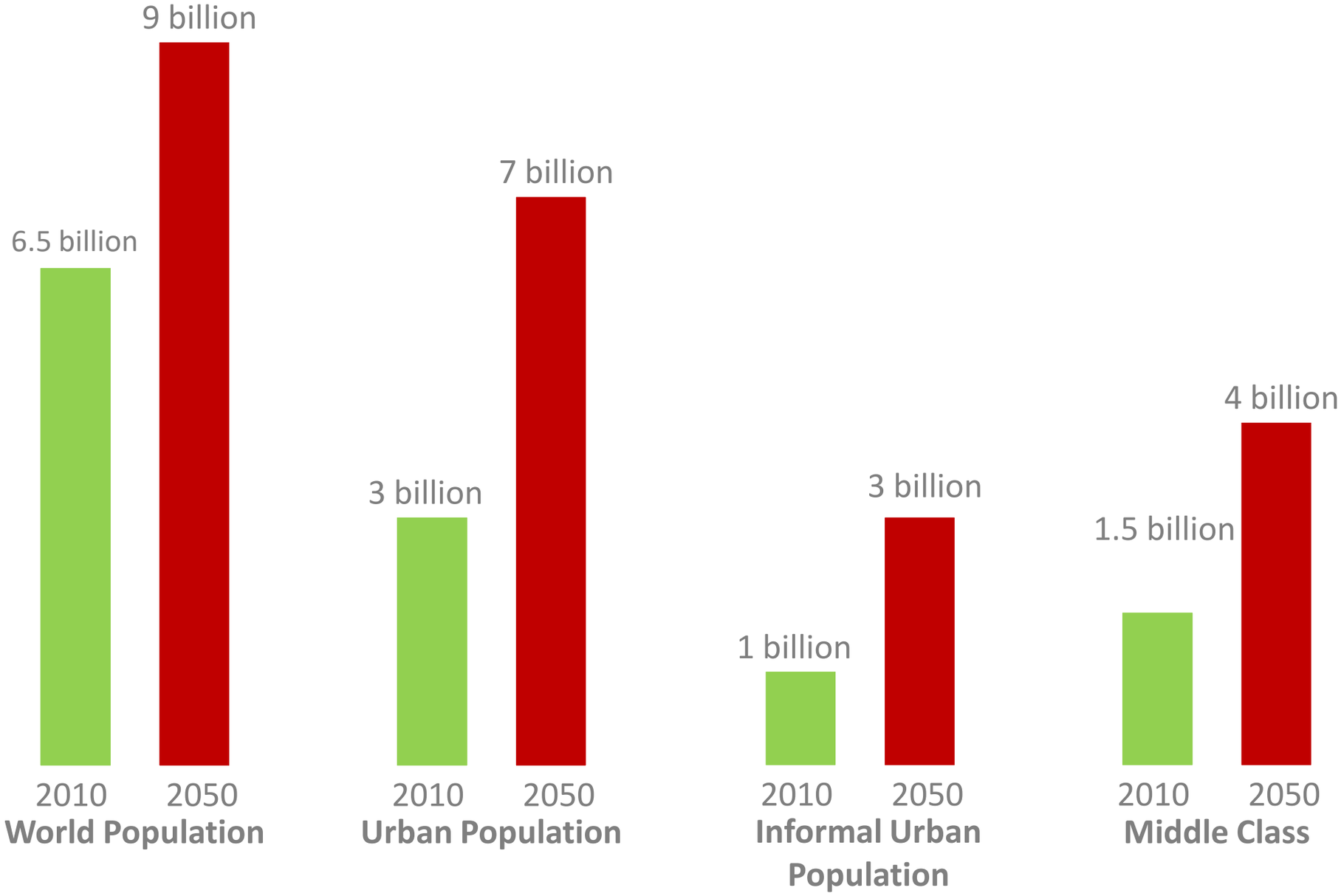
A growing trend towards cities

Source: UN-Habitat, Goldmann Sachs



Information Classification: General

2. Change is coming…. Urban mobility

Urban mobility has evolved substantially over the past fifty years, from an early interest in catering for growing car ownership and use through major road expansion, to the current emphasis on reducing car use and cutting back on road provision, encouraging sustainable travel and promoting liveable cities with a high quality of life.

Information Classification: General

Urban challenge #2 Fast highways replacing main streets

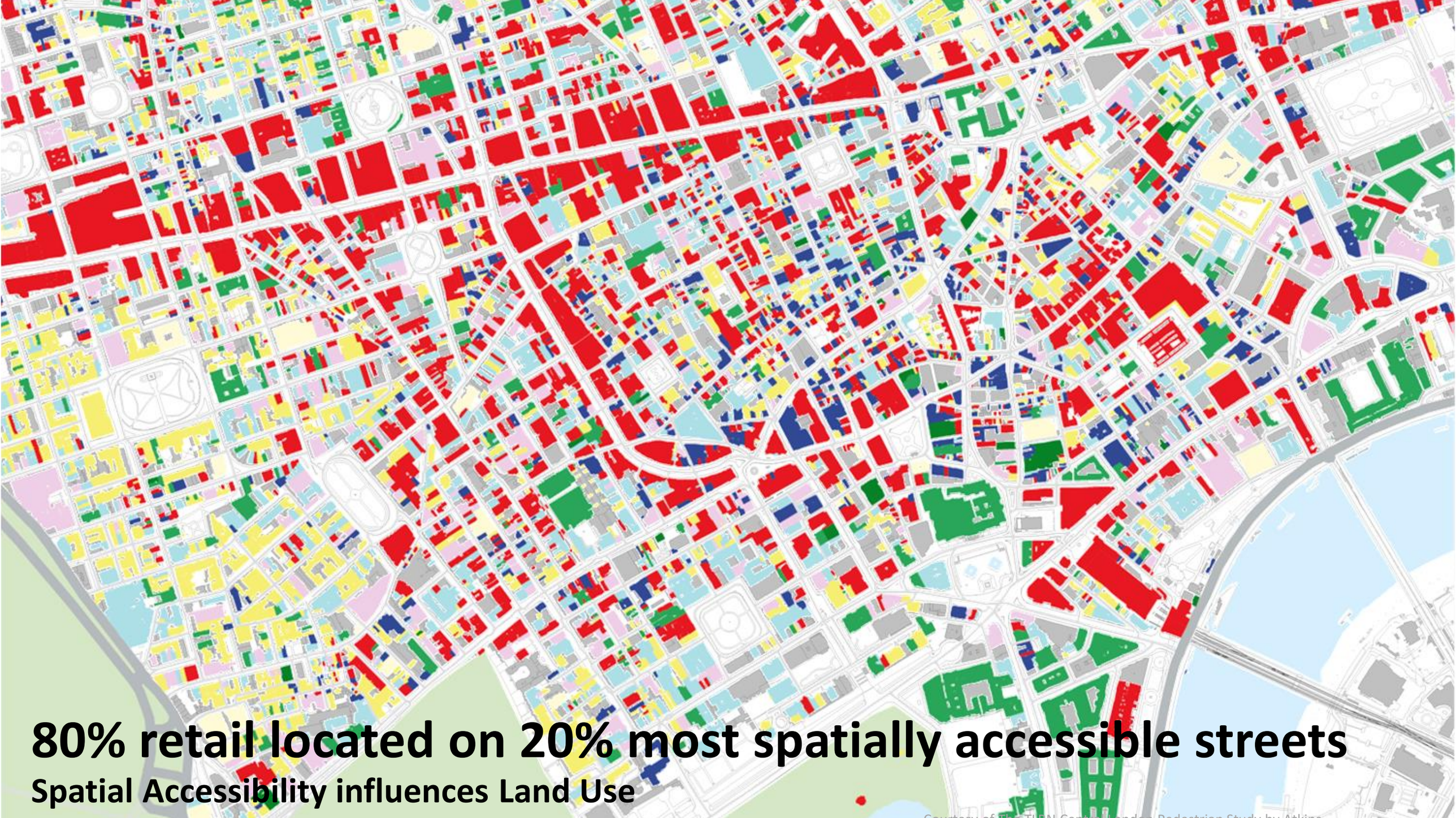
Main street mixing global & local movement.

Enhanced movement economy.

Fast highways, separating global & local movement.

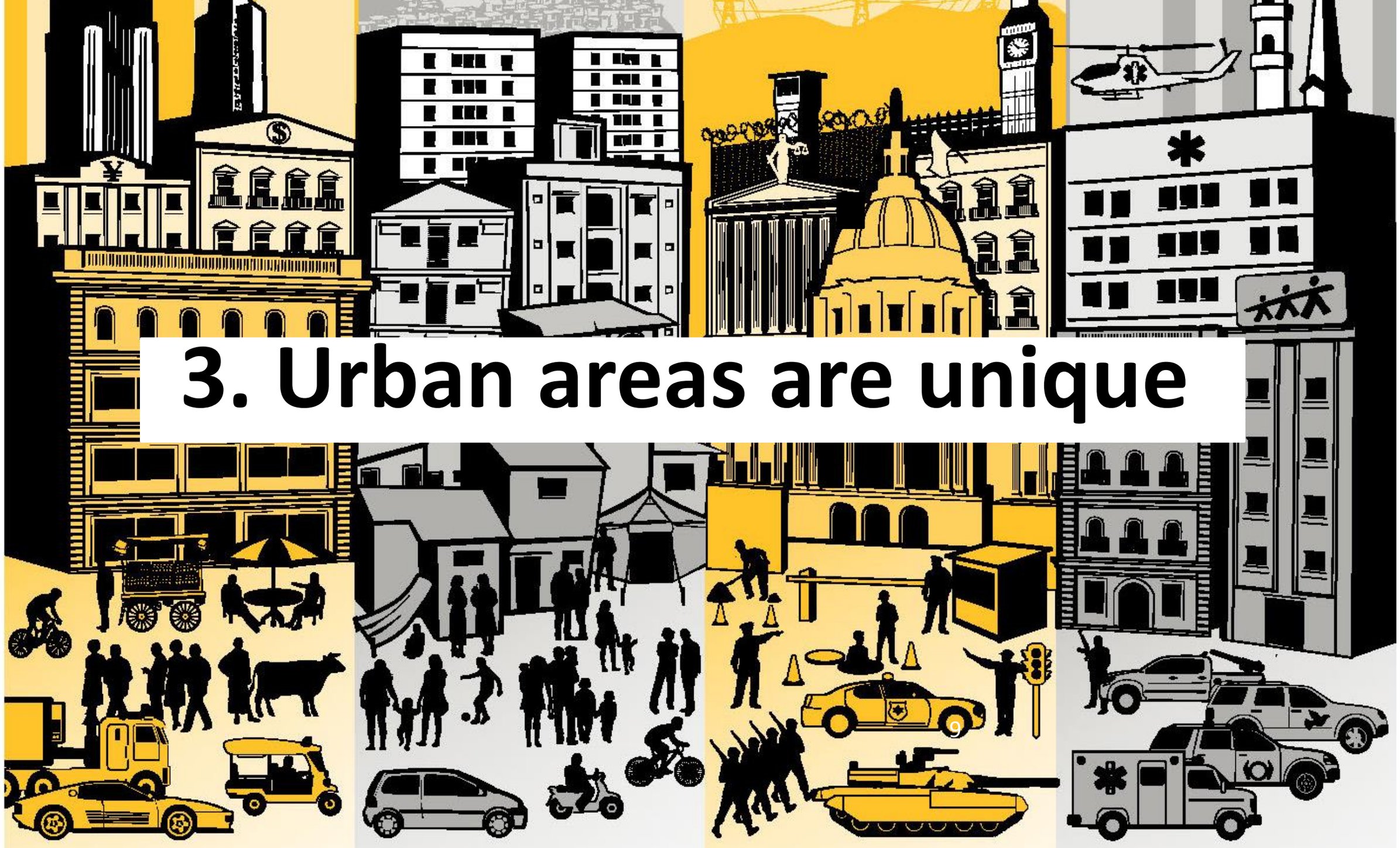
Suppressed movement economy.

Information Classification: General



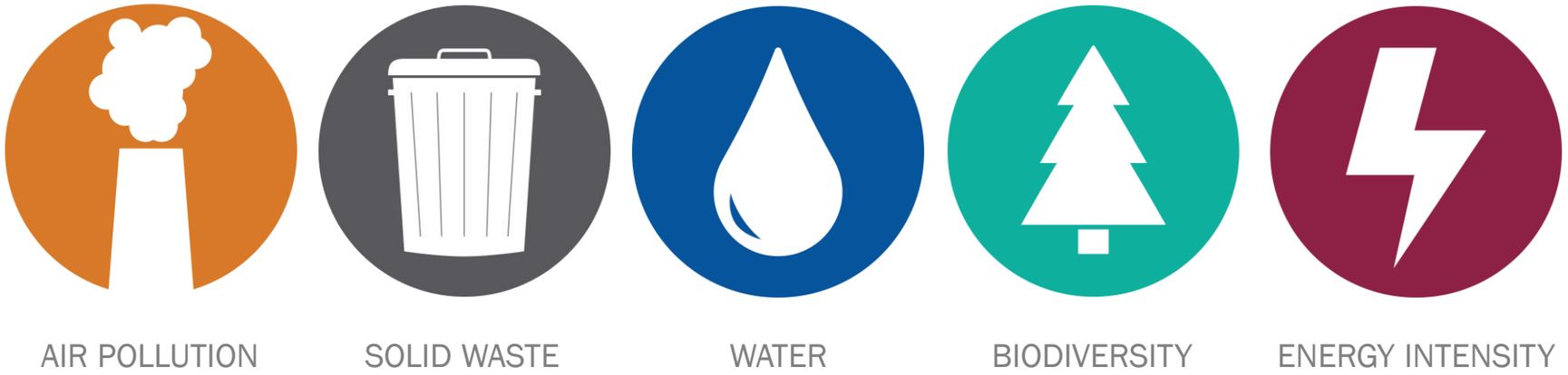
80% retail located on 20% most spatially accessible streets

Spatial Accessibility influences Land Use



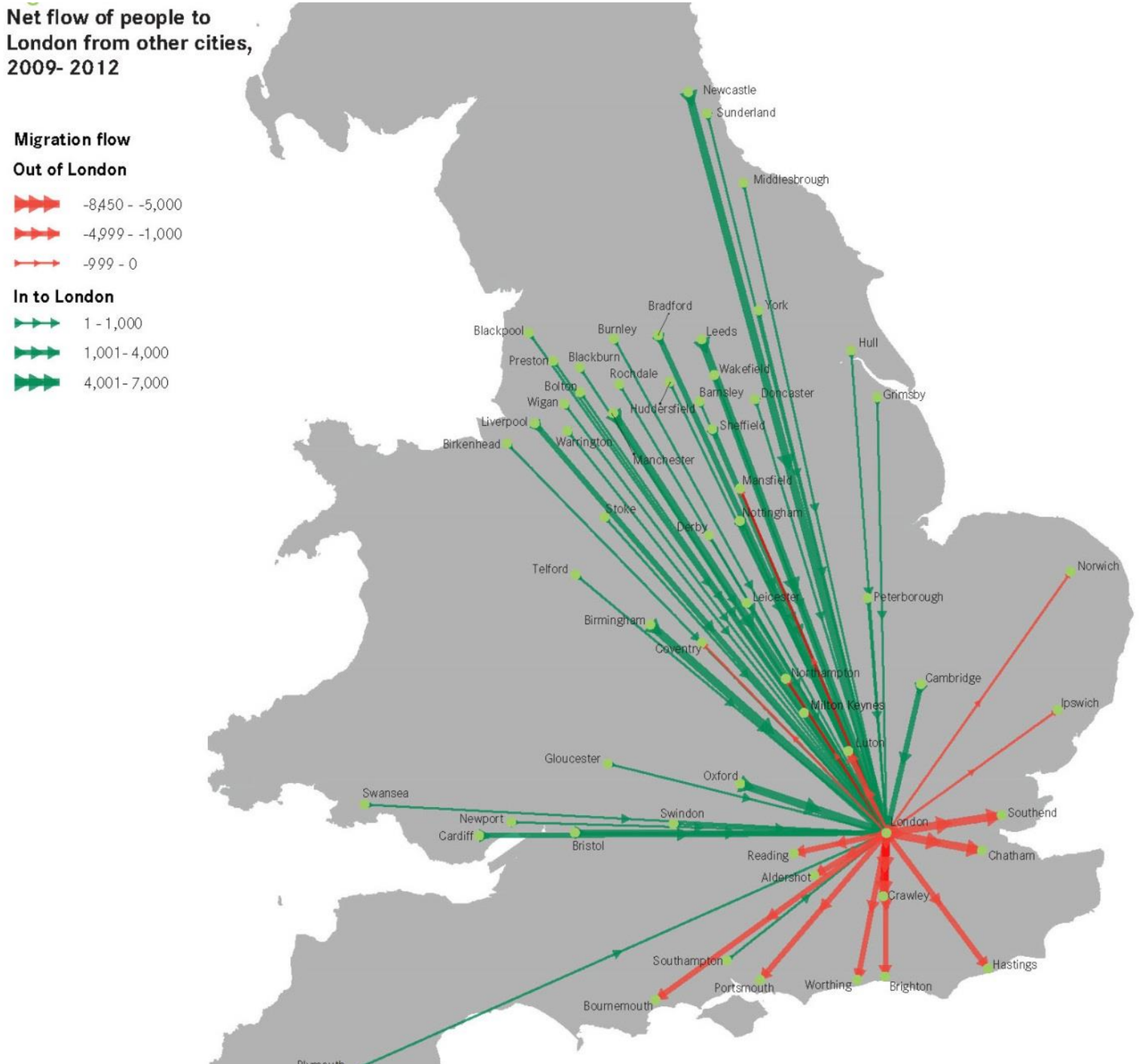
3. Urban areas are unique

Cities face many environmental challenges



Information Classification: General

This is the problem!

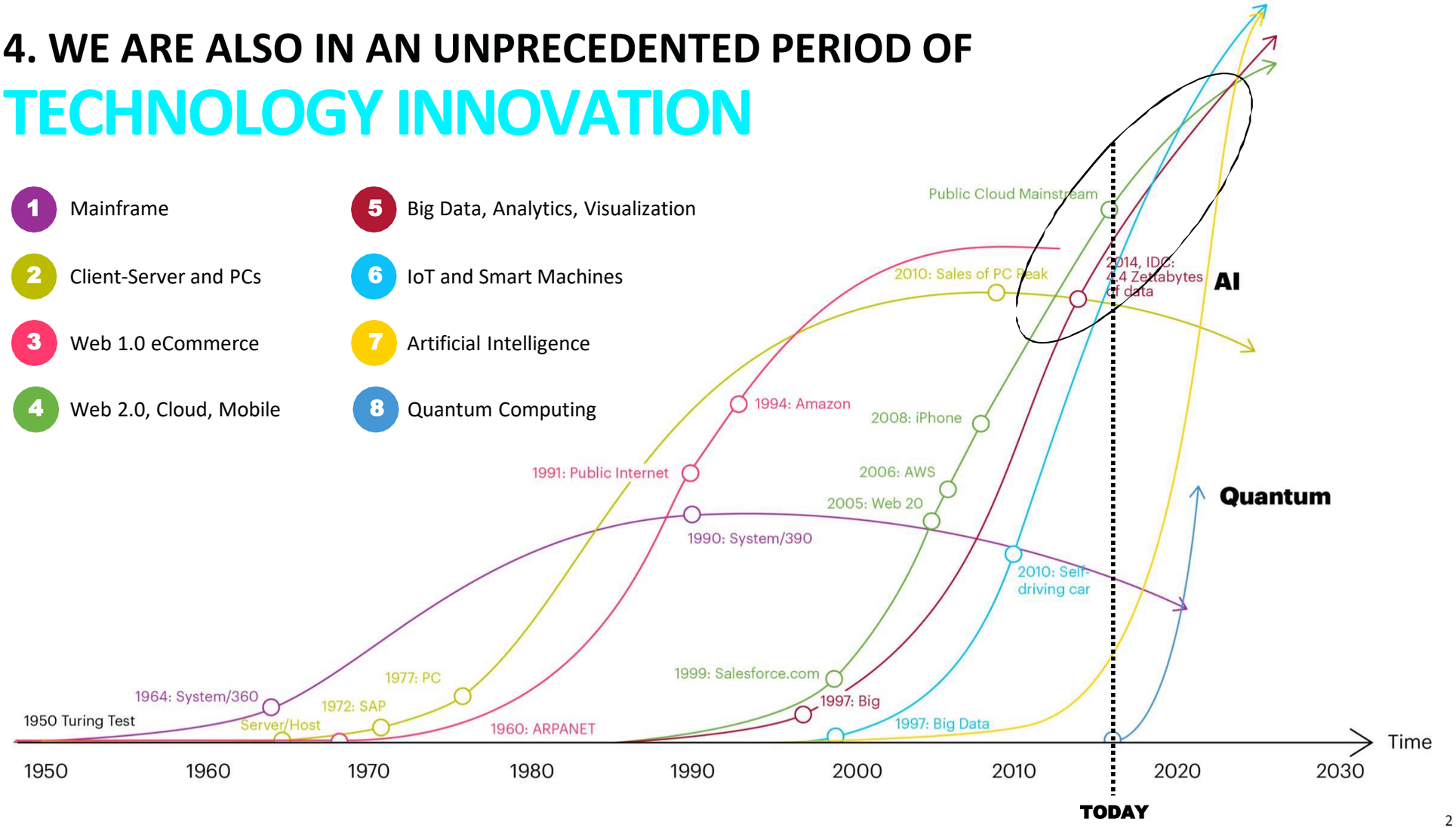


Information Classification: General

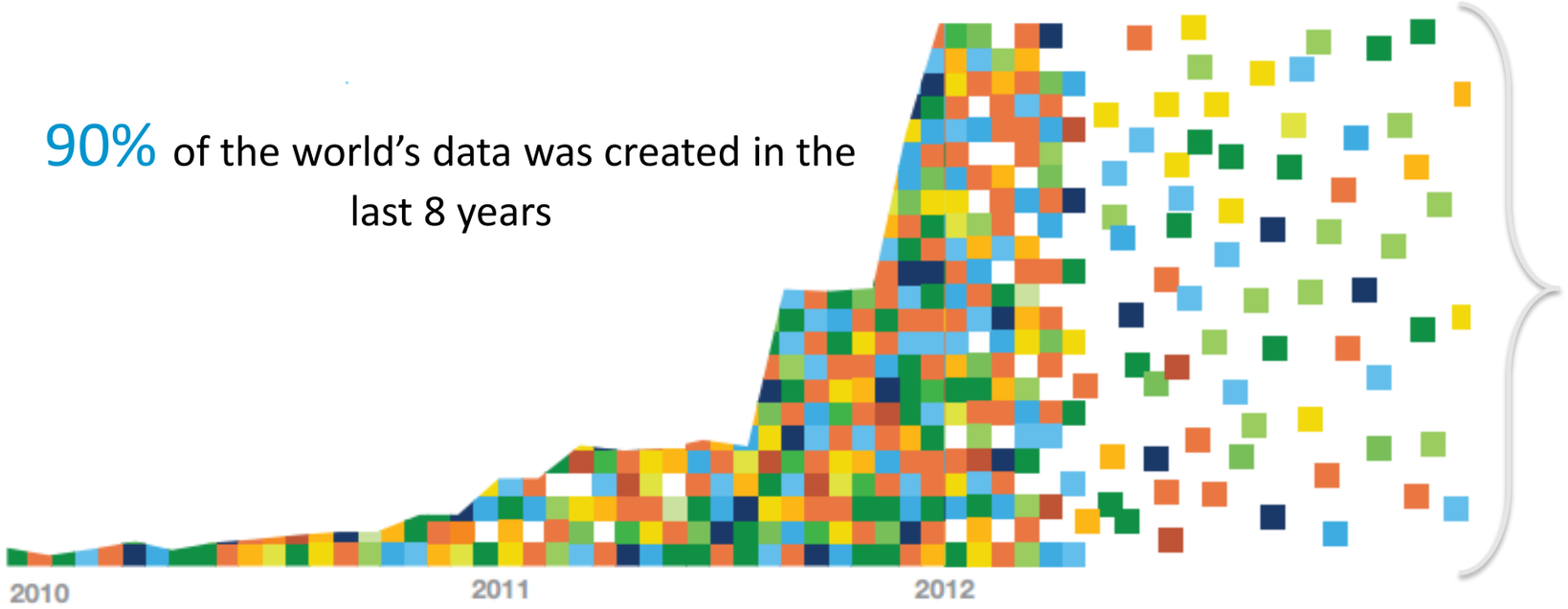
4. WE ARE ALSO IN AN UNPRECEDENTED PERIOD OF

TECHNOLOGY INNOVATION

1. Mainframe
2. Client-Server and PCs
3. Web 1.0 eCommerce
4. Web 2.0, Cloud, Mobile
5. Big Data, Analytics, Visualization
6. IoT and Smart Machines
7. Artificial Intelligence
8. Quantum Computing



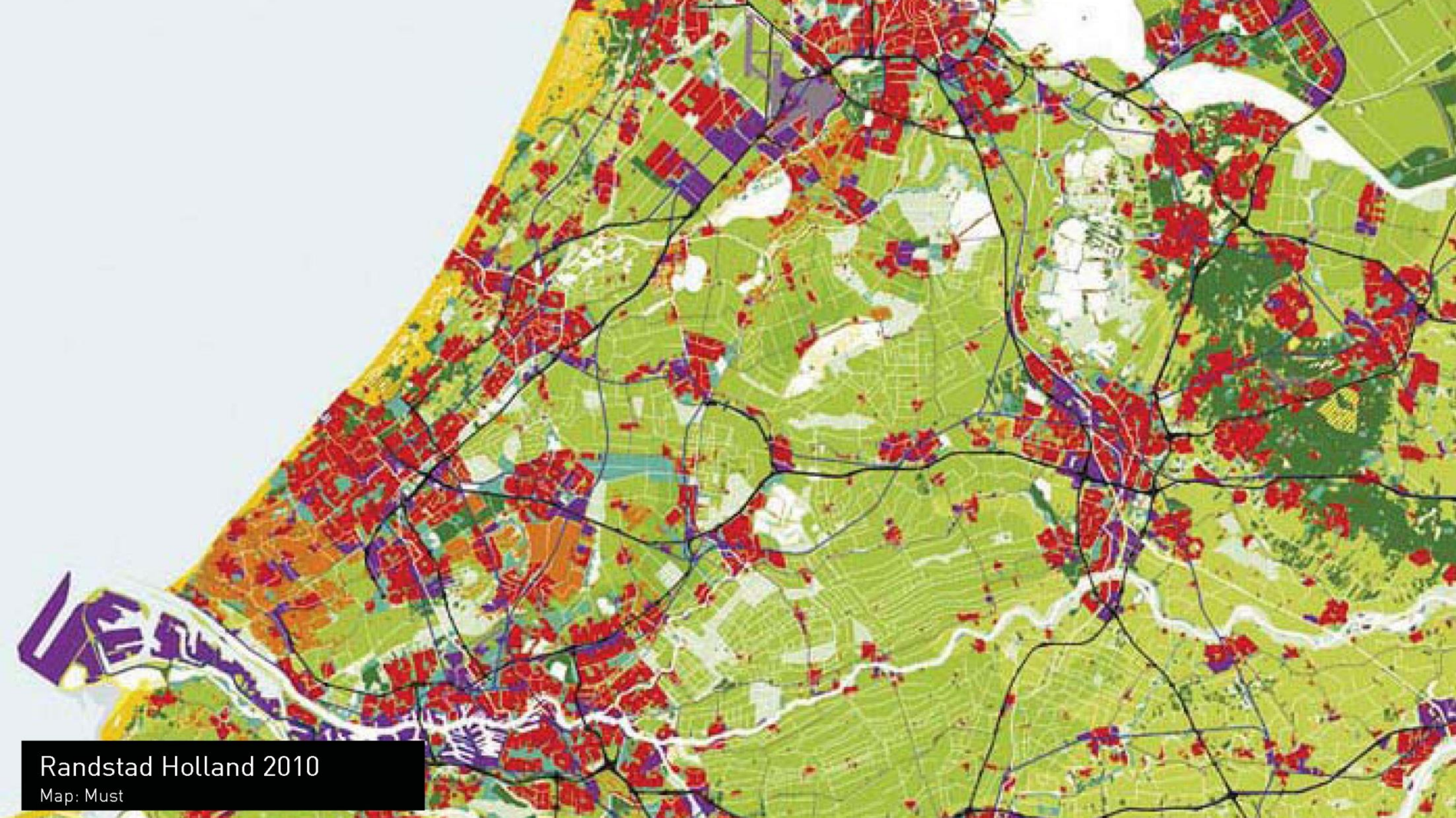
90% of the world's data was created in the last 8 years



80% of the world's data today is unstructured

Randstad Holland 1950

Map: Must

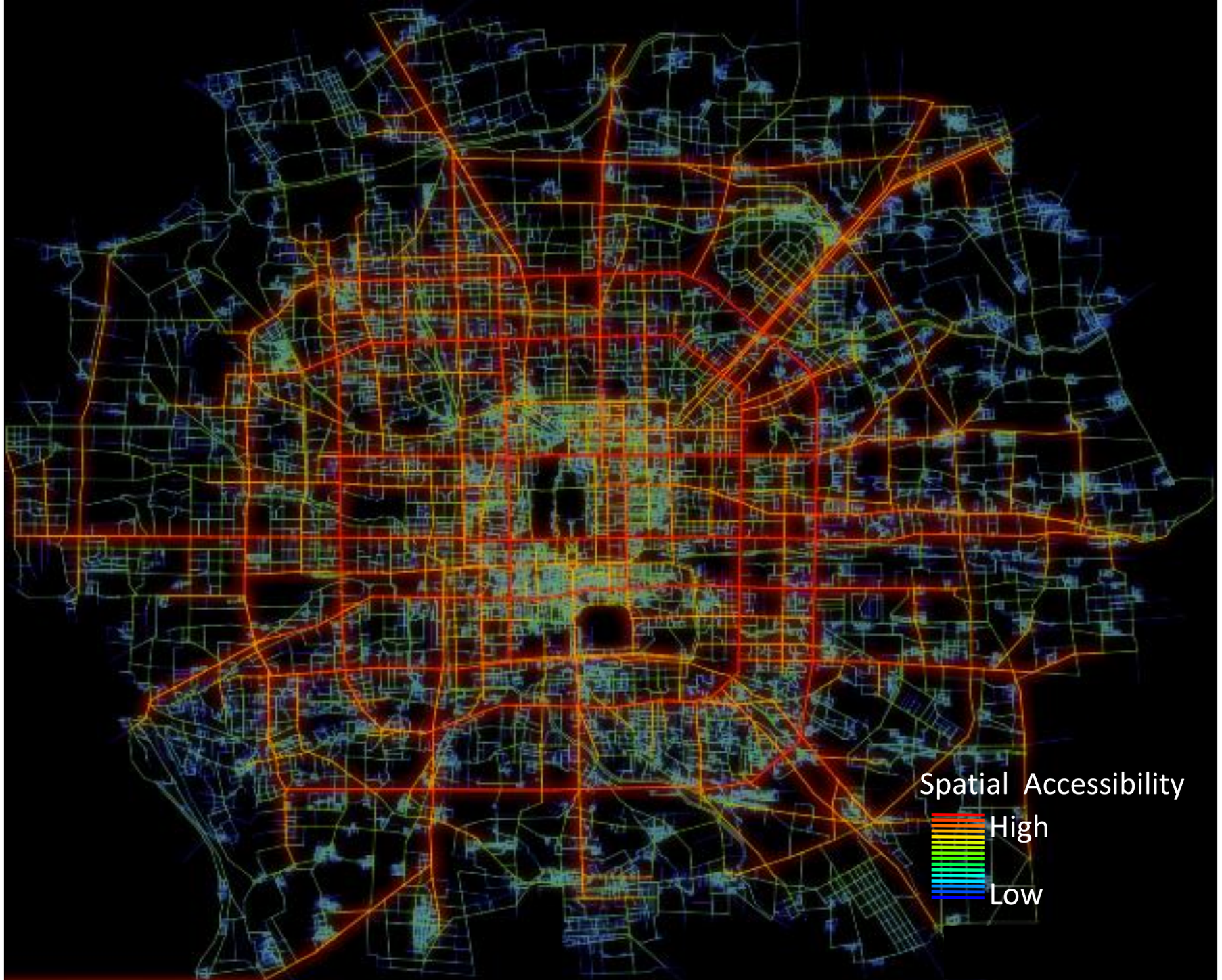


Randstad Holland 2010

Map: Must

The era of Big Data - of increasingly vast streams of information generated by people and their devices - is raising thorny questions for city planners – more and better ways of representing cities

Beijing



Information Classification: General

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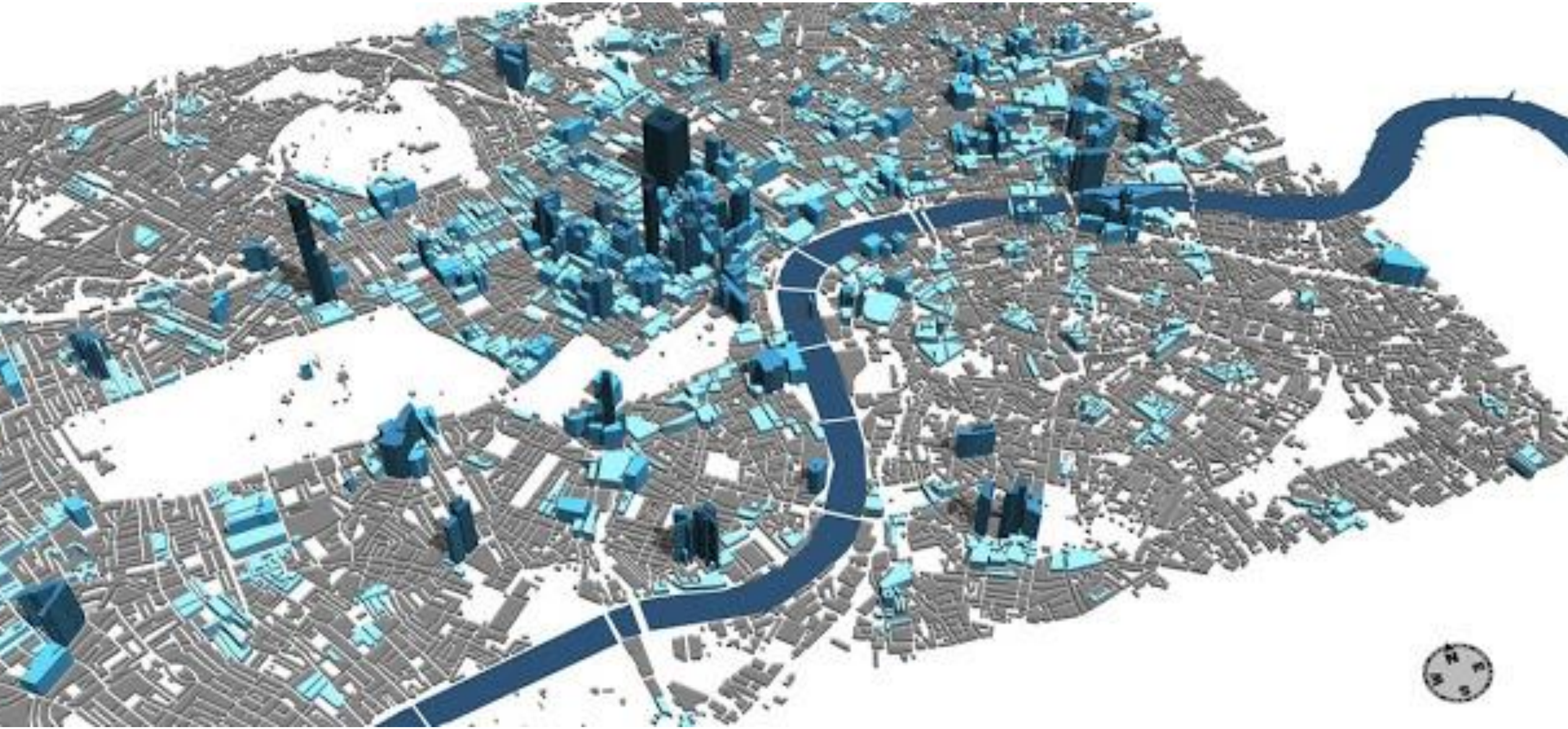

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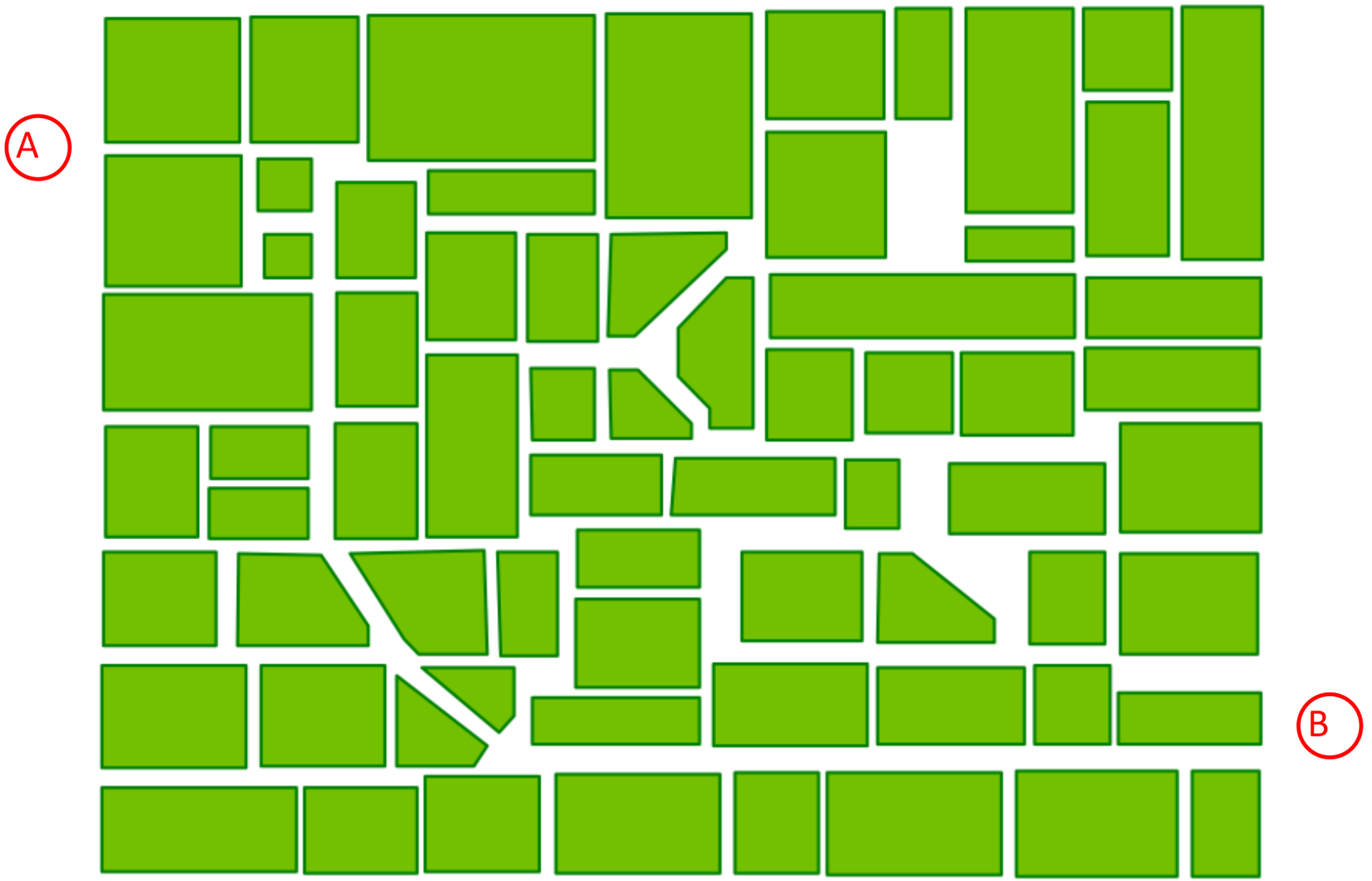
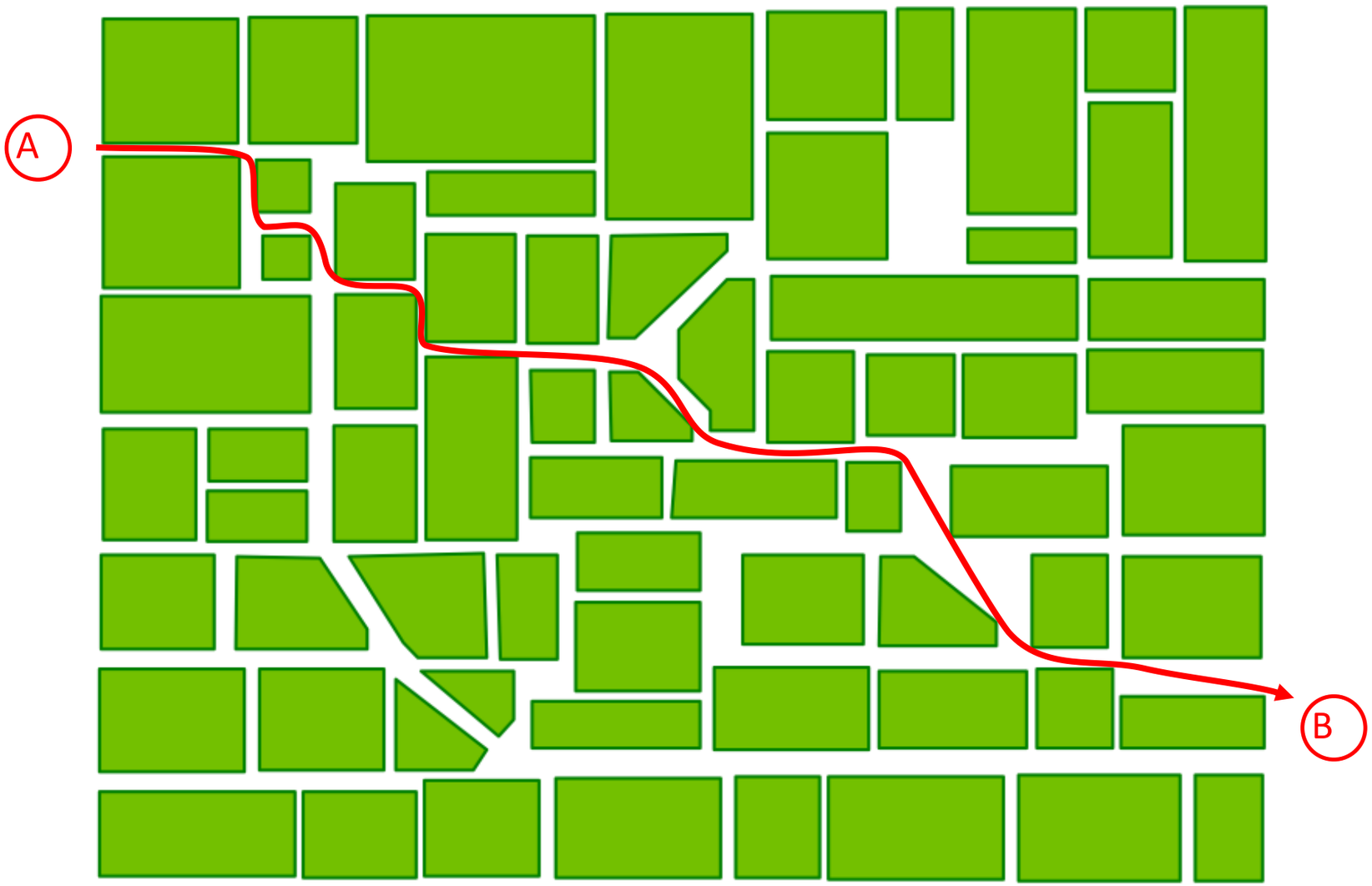
Which is the easiest route between A and B?



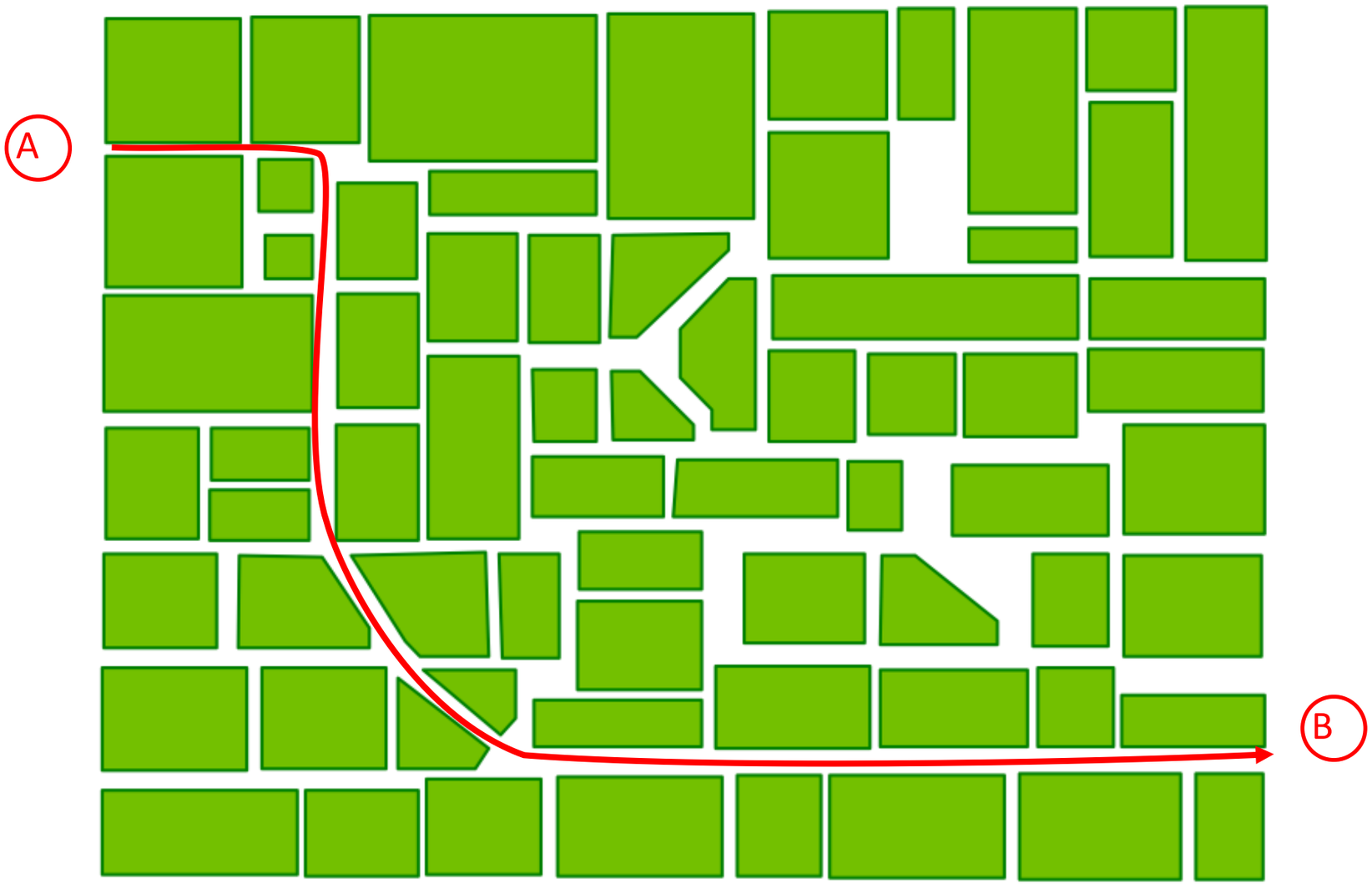
Information Classification: General

Shortest path? ie least metric distance?



Information Classification: General

Simplest path? ie least angle change



Information Classification: General

231
Georg-Elser-Straße

Paula-Modersohn-Platz
P.-Modersohn-Platz
3 Haid
12 Nur Ausstieg
RVF Regio-Verkehrsverbund Freiburg (RVF)
VAG
Freiburger Verkehrs AG
Ganz die Freiburger Linie
7208 Freiburg über Wittnau
SBG
SüdbadenBus
SETRA
FR JS 436
miniMAL

Sperwersingel

HACKETT
LONDON
197
End of bus lane
NET-A-PORTER
W747 UGU
DEWALT

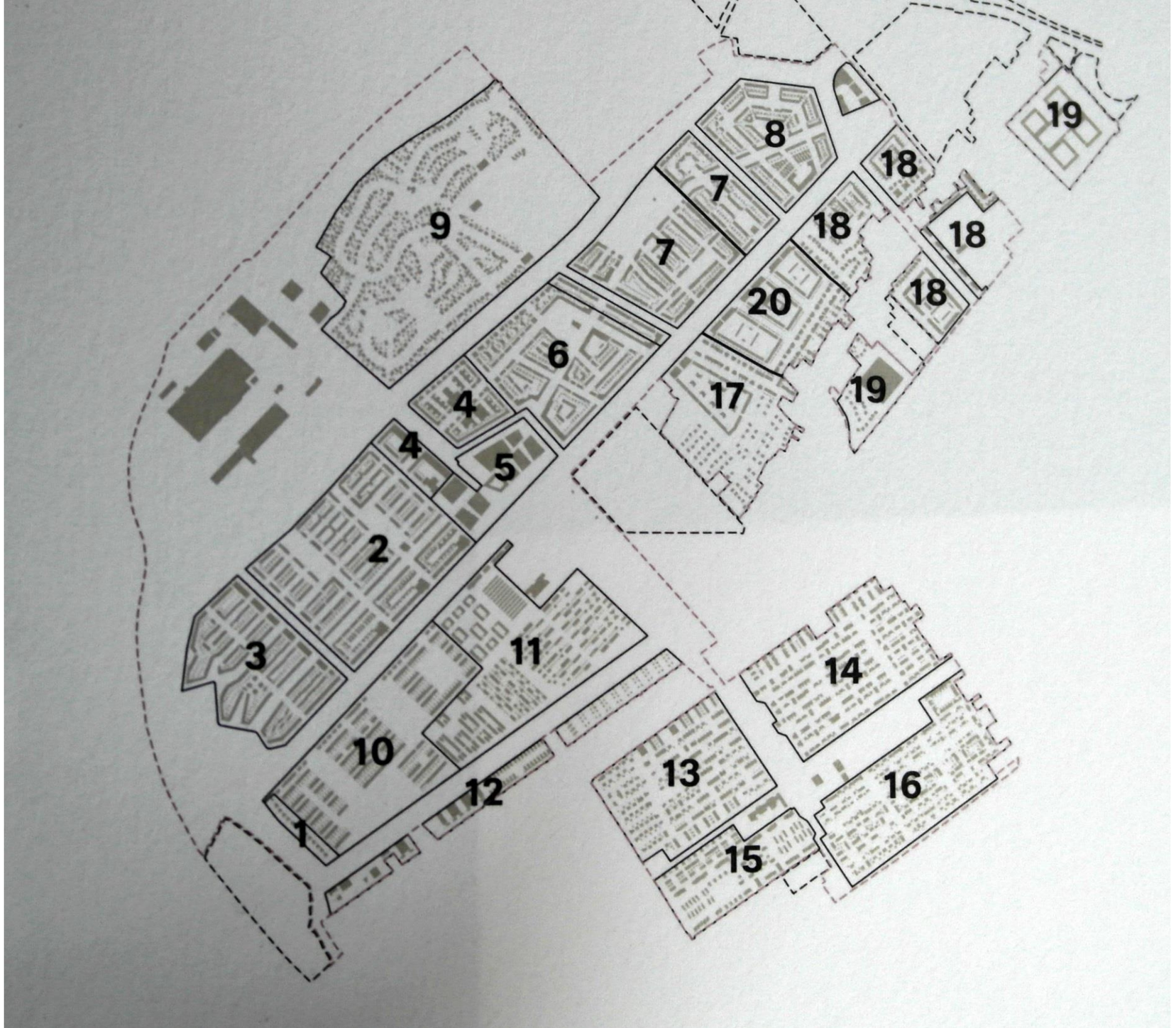
YODEL DIRECT
HACKETT LONDON
197
End of bus lane

This kind of infrastructure delivery is not possible everywhere…

Basic infrastructure and service provision shortfalls faced by many southern cities present a challenging context for ‘smart’ solutions

Global south challenge: Are smart cities relevant?

Information Classification: General



Information Classification: General

Water
Gras
Fietsersbrug
Bomen
Gebied nog te ontwikkelen

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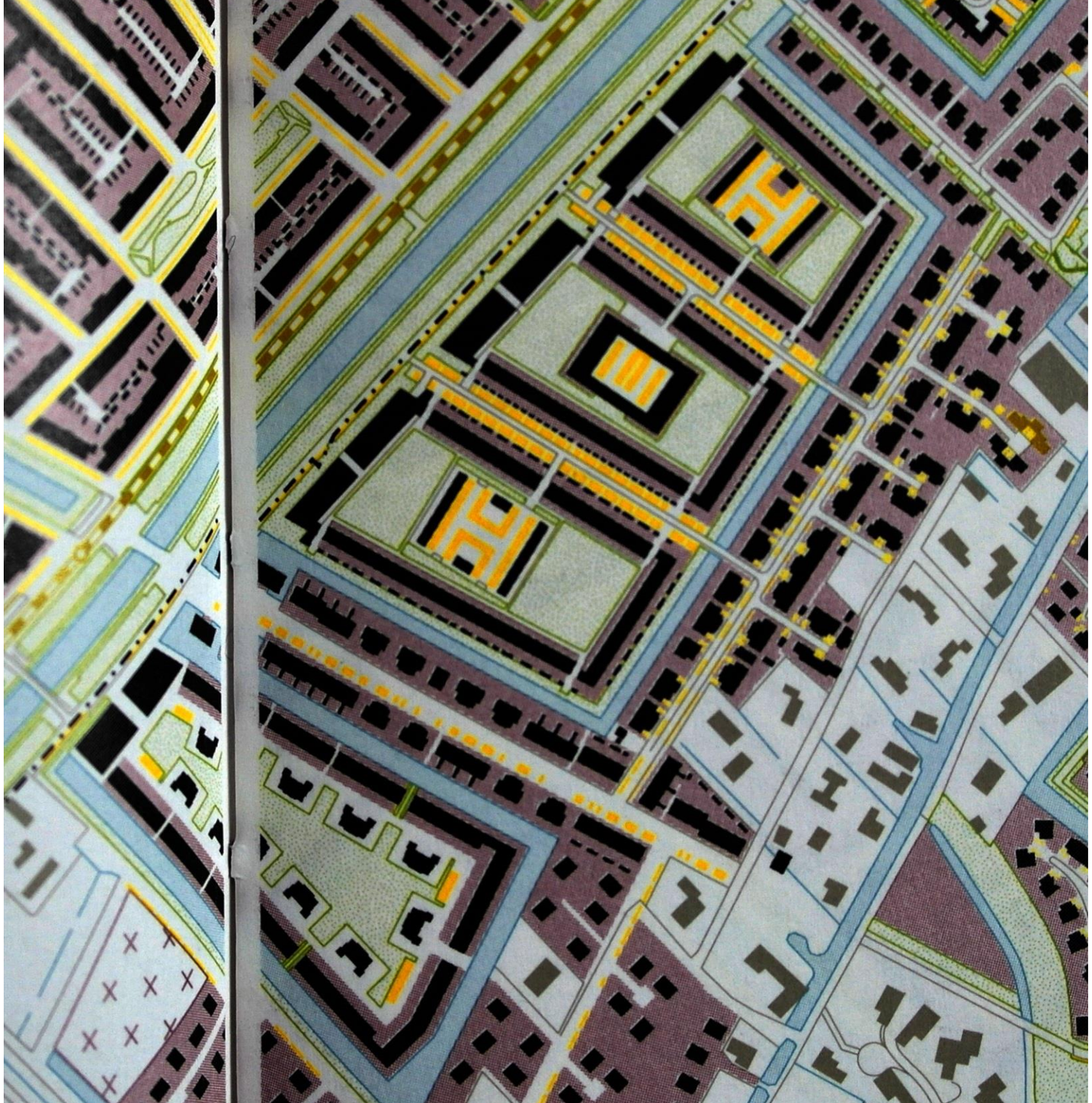

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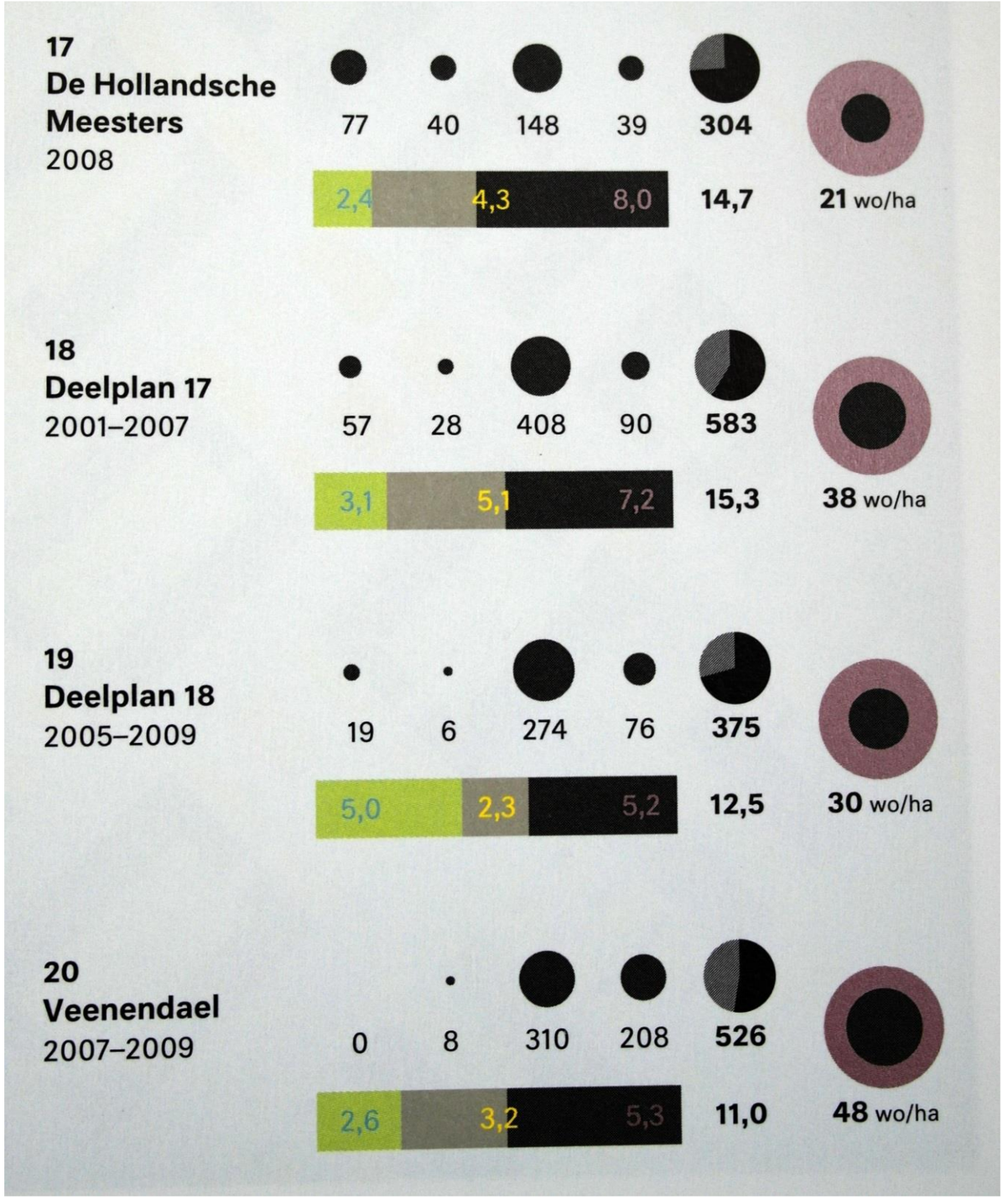

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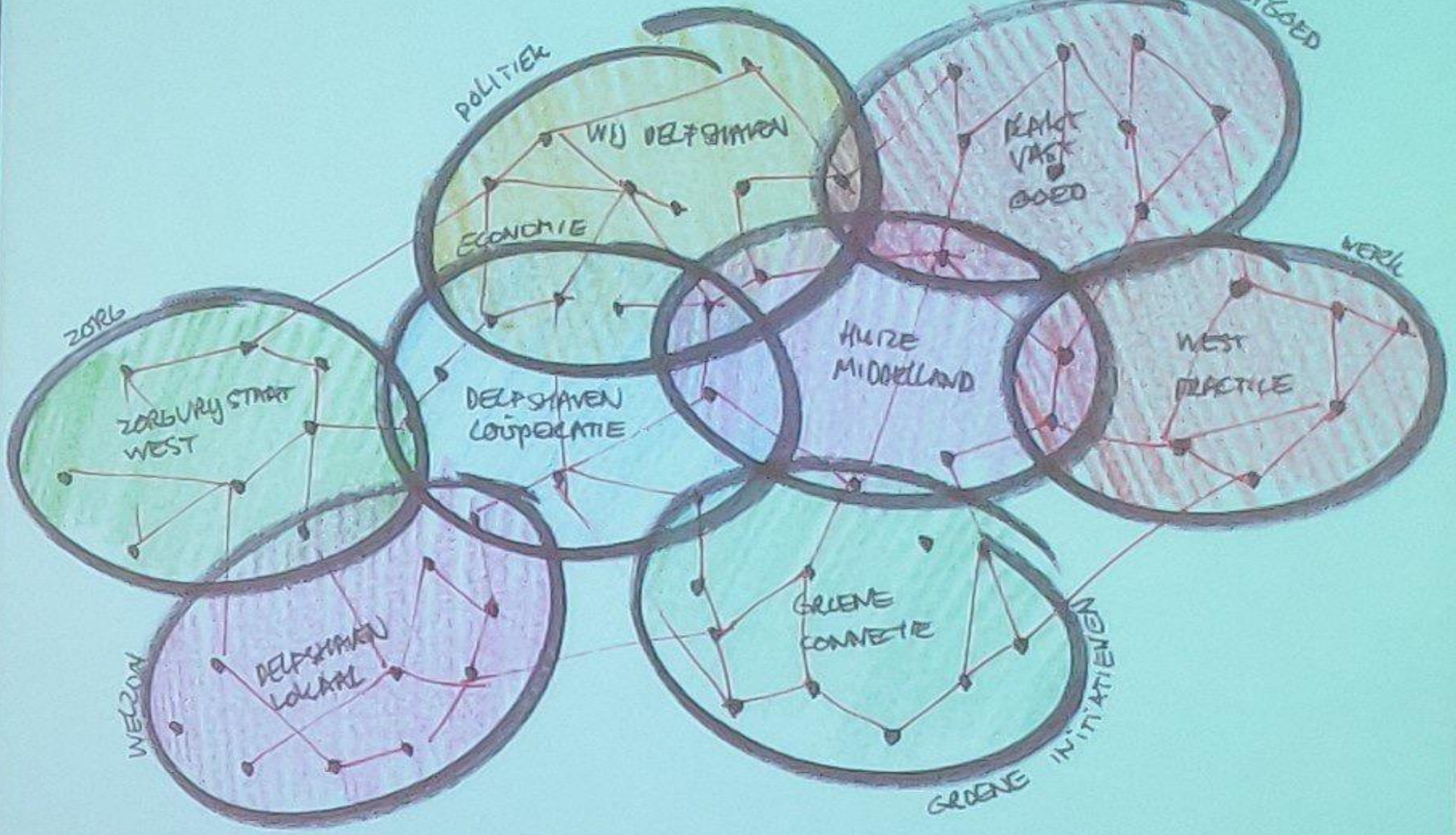
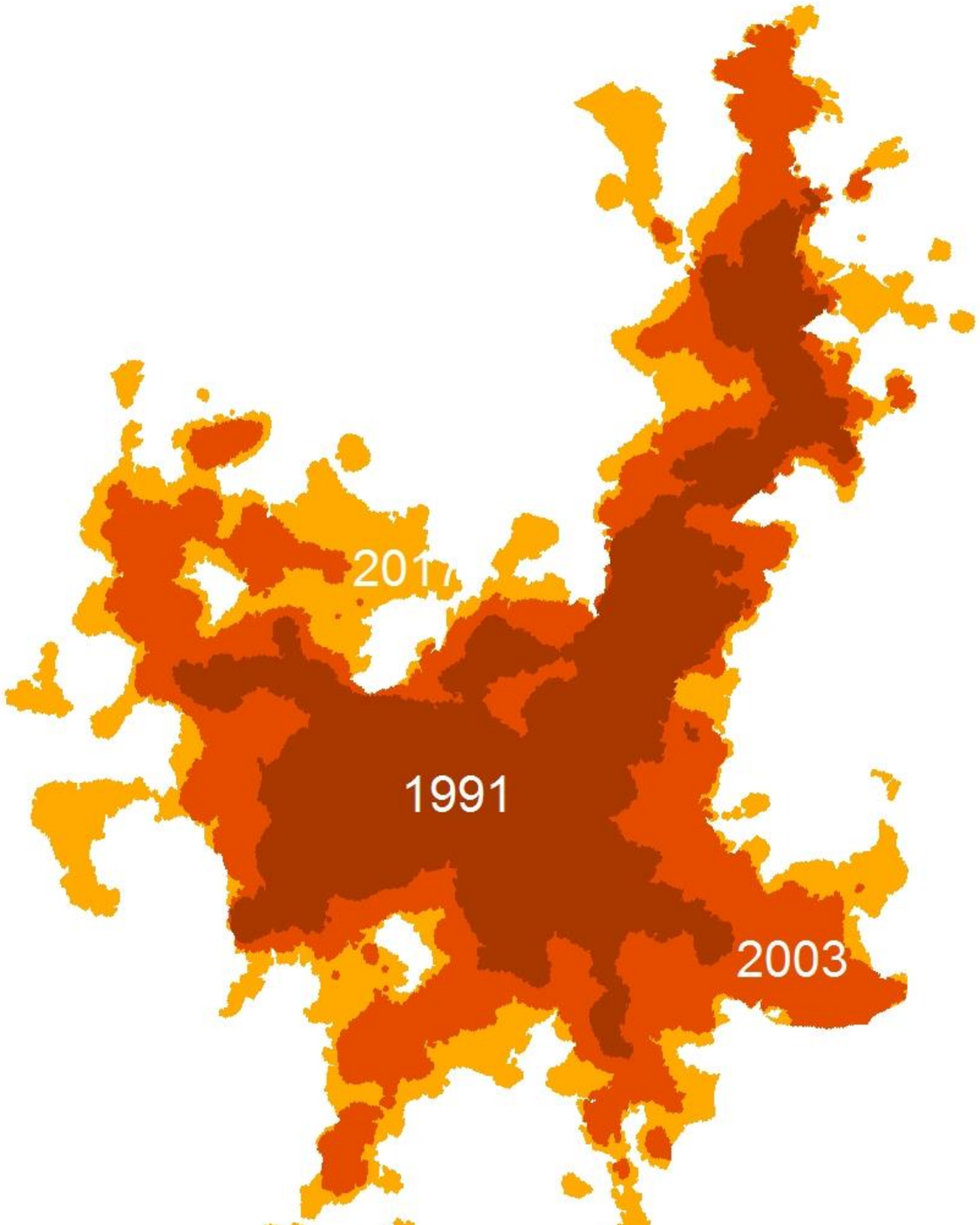


SELF ORGANISATION IN URBAN COMMON NETWORKS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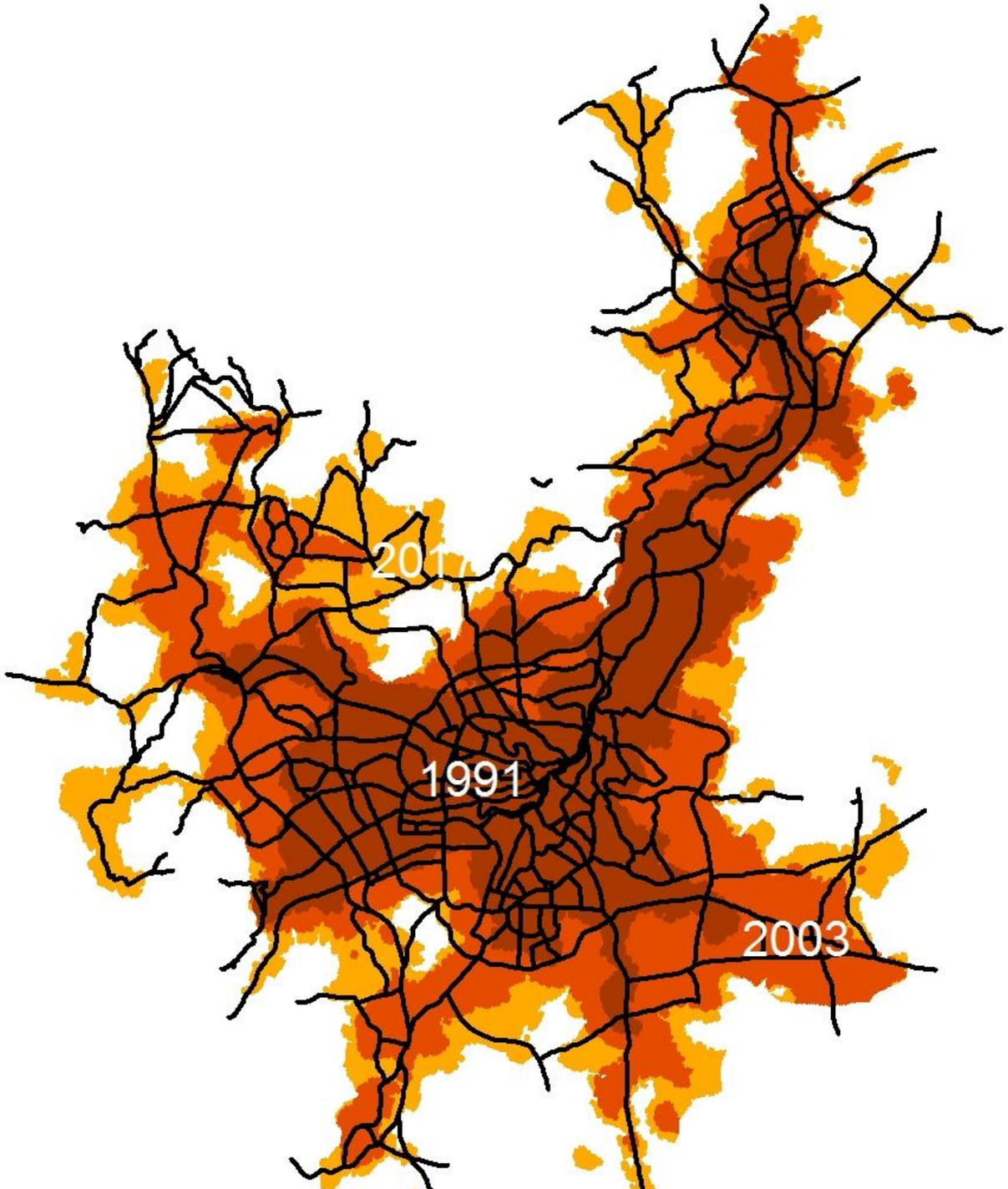
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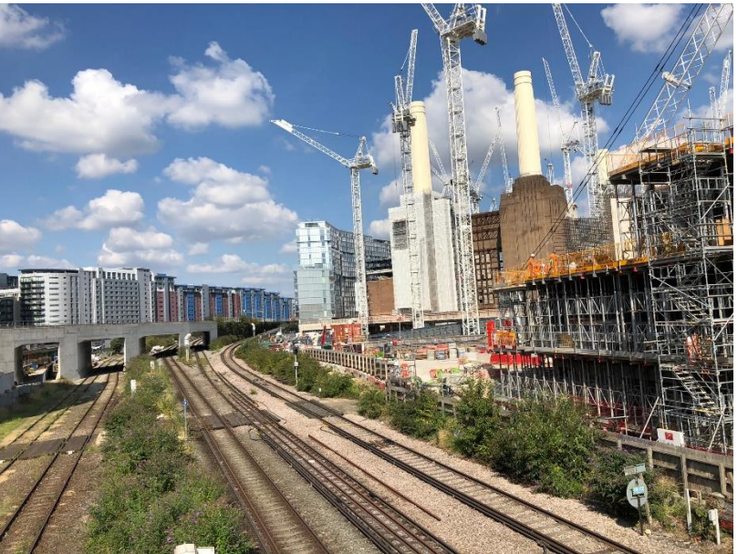
‘smart’ will look different at different scales, geographies, and sectors



BUS

出口
EXIT

1 hr by BRTS, 35 minutes by car!

Vastrapur-Kankaria Commute Among Revelations Of Study

Parth.Shastri@timesgroup.com

Ahmedabad: When BRTS was introduced in the city, it was hoped that the 'world-class' public transport would inspire car-owning Amdavadis to hop on to the bus. But that did not happen.

A major survey conducted by the Cept University found that if you were to travel from Vastrapur to Kankaria by the BRTS, it would take you an hour to reach the destination, even though the BRTS has a dedicated 10km corridor. If you travelled by car, it would take 35 minutes to reach Kankaria even though you have to travel 1.4 km extra in the mixed-traffic lane. The study found that it took 25 minutes for the commuter to walk from or to a bus stand as there was no efficient 'last mile connectivity'. Also there was a seven-minute waiting time at the bus stand.

The study also revealed that 63% of the citizens in western part of the city use car or bike to commute

The first of a kind study, Understanding the City Studio by the faculty of planning, also revealed that 63% of the citizens in western city parts use car or bike to commute daily. The ratio is 59% for the city. The study was conducted by 150 students and 11 faculty members from CEPT University. P2

Information Classificatic

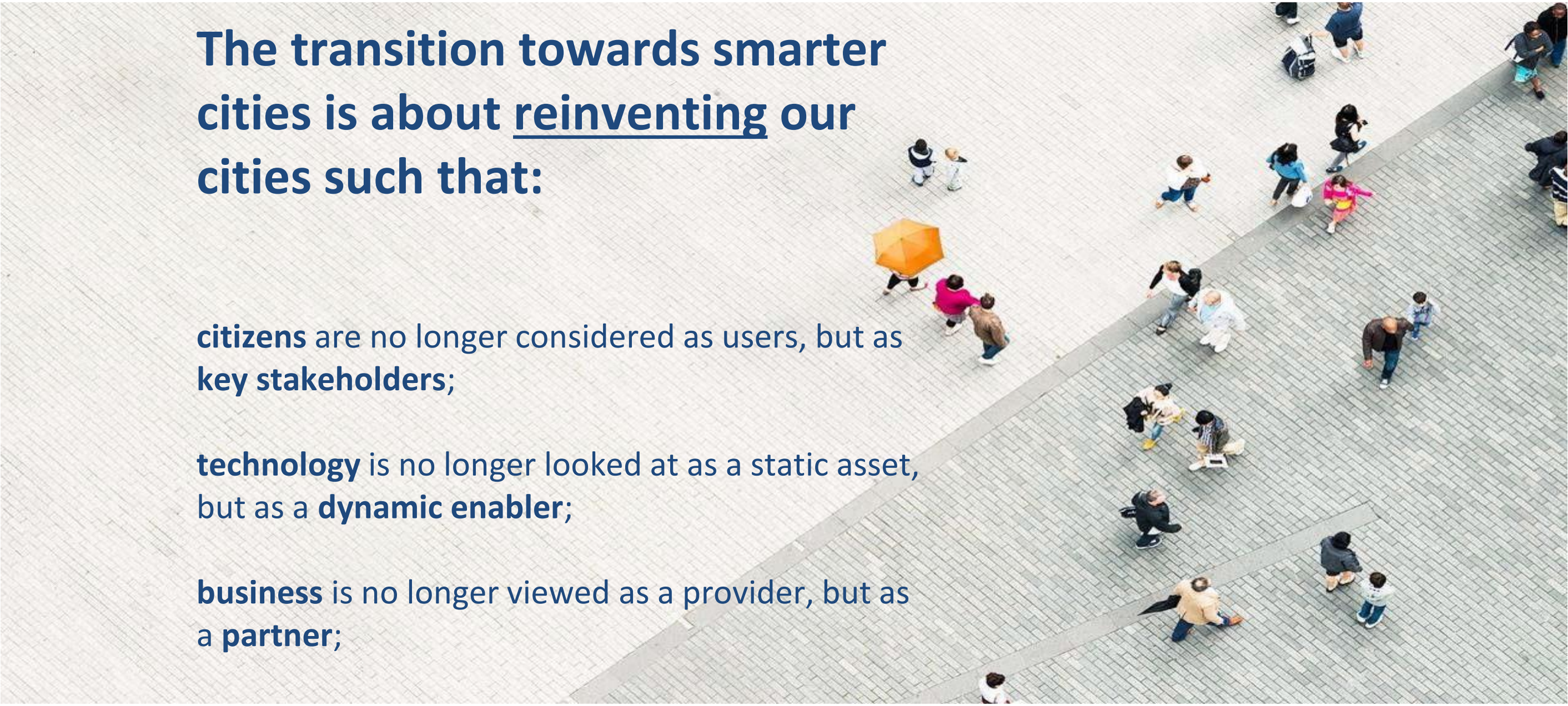
Challenges

- Data quality is still poor / lack of infrastructure
- Difficult to engage citizens
- Delegation to technologists may not achieve optimal outcomes

Opportunities

- Get the basics right
- Appropriate collaboration
- Technology

The transition towards smarter cities is about reinventing our cities such that:



citizens are no longer considered as users, but as **key stakeholders**;

technology is no longer looked at as a static asset, but as a **dynamic enabler**;

business is no longer viewed as a provider, but as a **partner**;

8 things to focus on building smart cities

1. Break the silos
2. Focus on positive outcomes: social wins
3. Engage innovators
4. Master policymaking and partnerships
5. Enable city data
6. Connectivity is strategic
7. Modernise infrastructure
8. Build trust

Information Classification: General

Thank you

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