

DATA-DRIVEN SERVICES FOR SMART BUILDINGS

SEARCHING FOR THE NEW
EXPERIENCES AND VALUE-
ADDED

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HELLO & INTRO

My name is Elena and I am **> 5 years** worked with energy efficiency & smart buildings business development around Europe, USA and Asia.
Now I am conducting my research at **KTH Live-in-Lab**.

KTH Live-in Lab is a platform of multiple testbeds for accelerating innovation rates in the construction and real-estate sectors.



Students house
Einar Mattsson / KTH Campus



Undervisningshuset
Akademiska Hus / KTH Campus



Hobo Hotel
Nordic Choice / Brunkebergstorg

Part 1

DATA-DRIVEN

Part 2

SERVICES

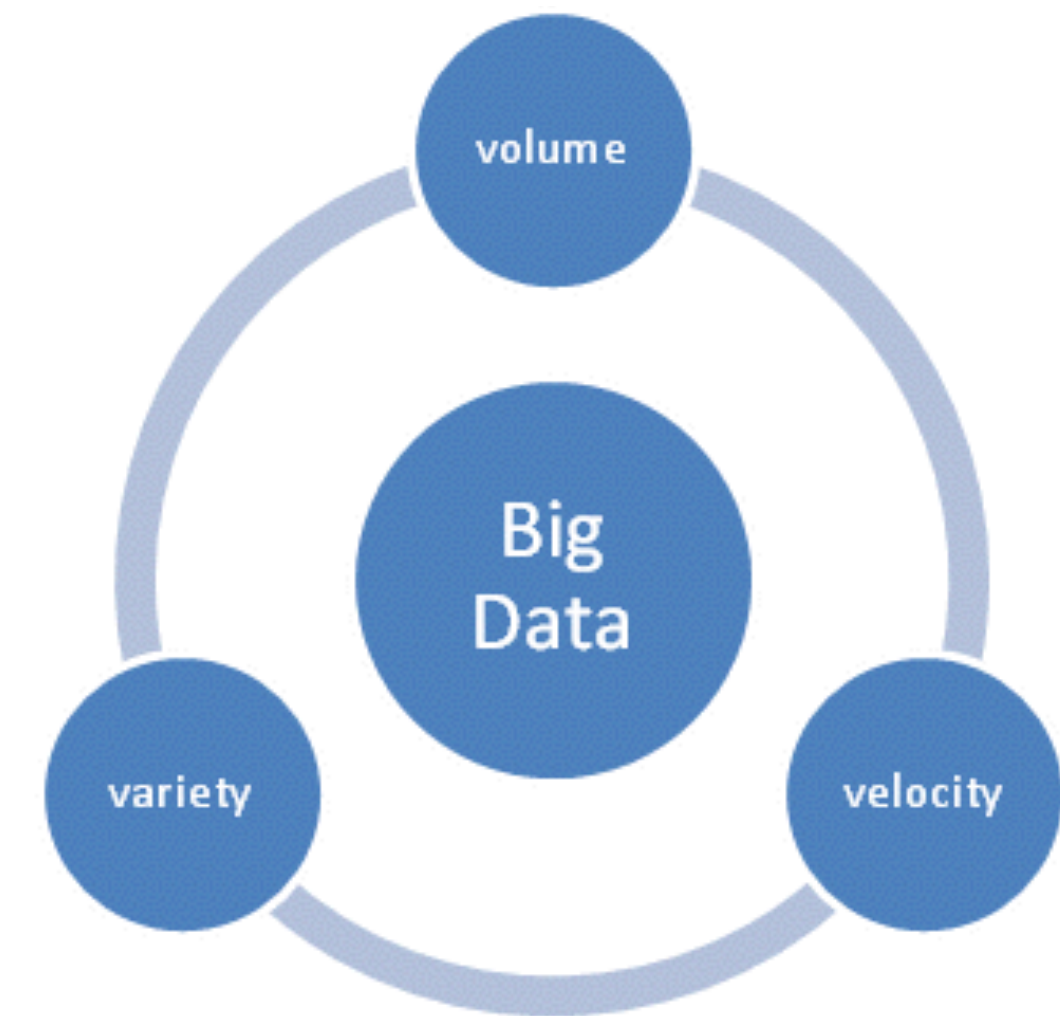
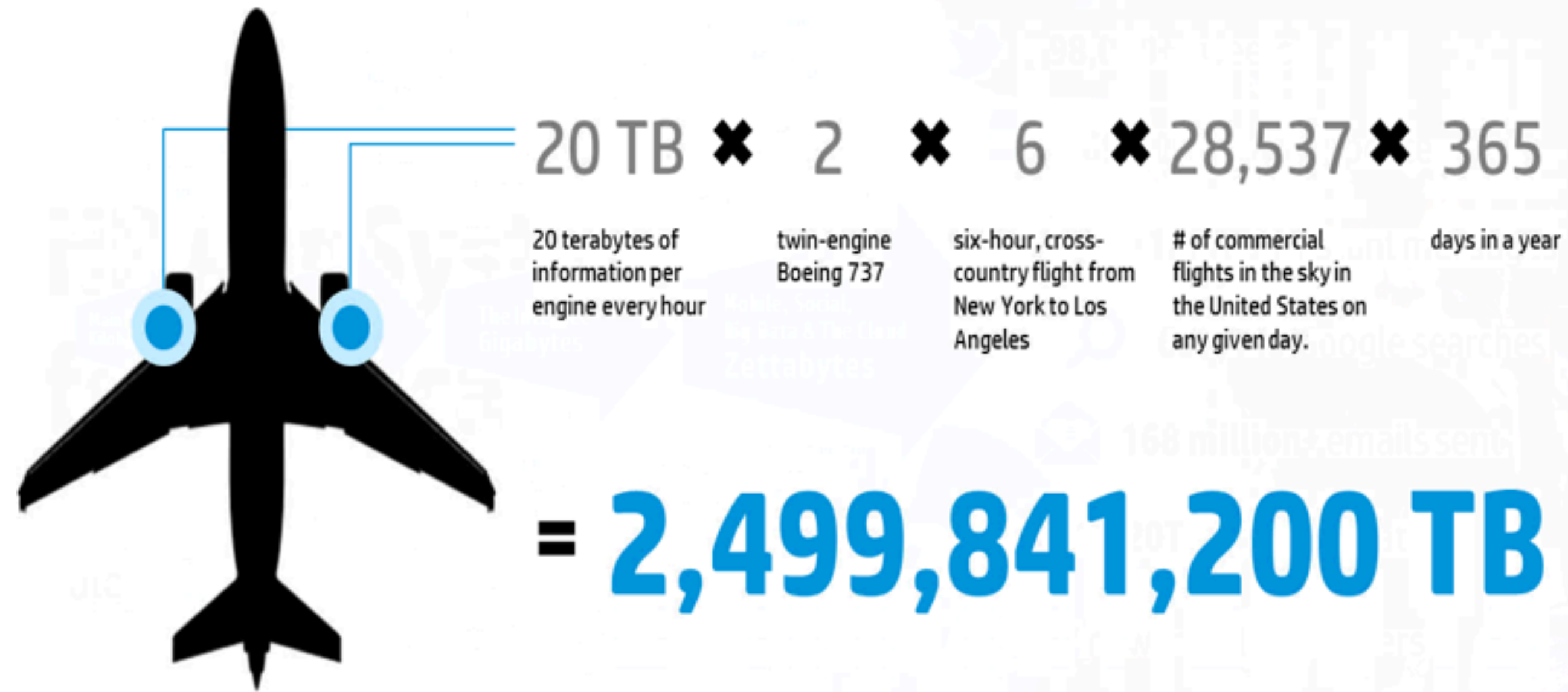
FOR SMART BUILDINGS

Part 1

DATA-DRIVEN SERVICES FOR SMART BUILDINGS

RESEARCH FOCUS: BIG DATA

Sensor data from a cross-country flight

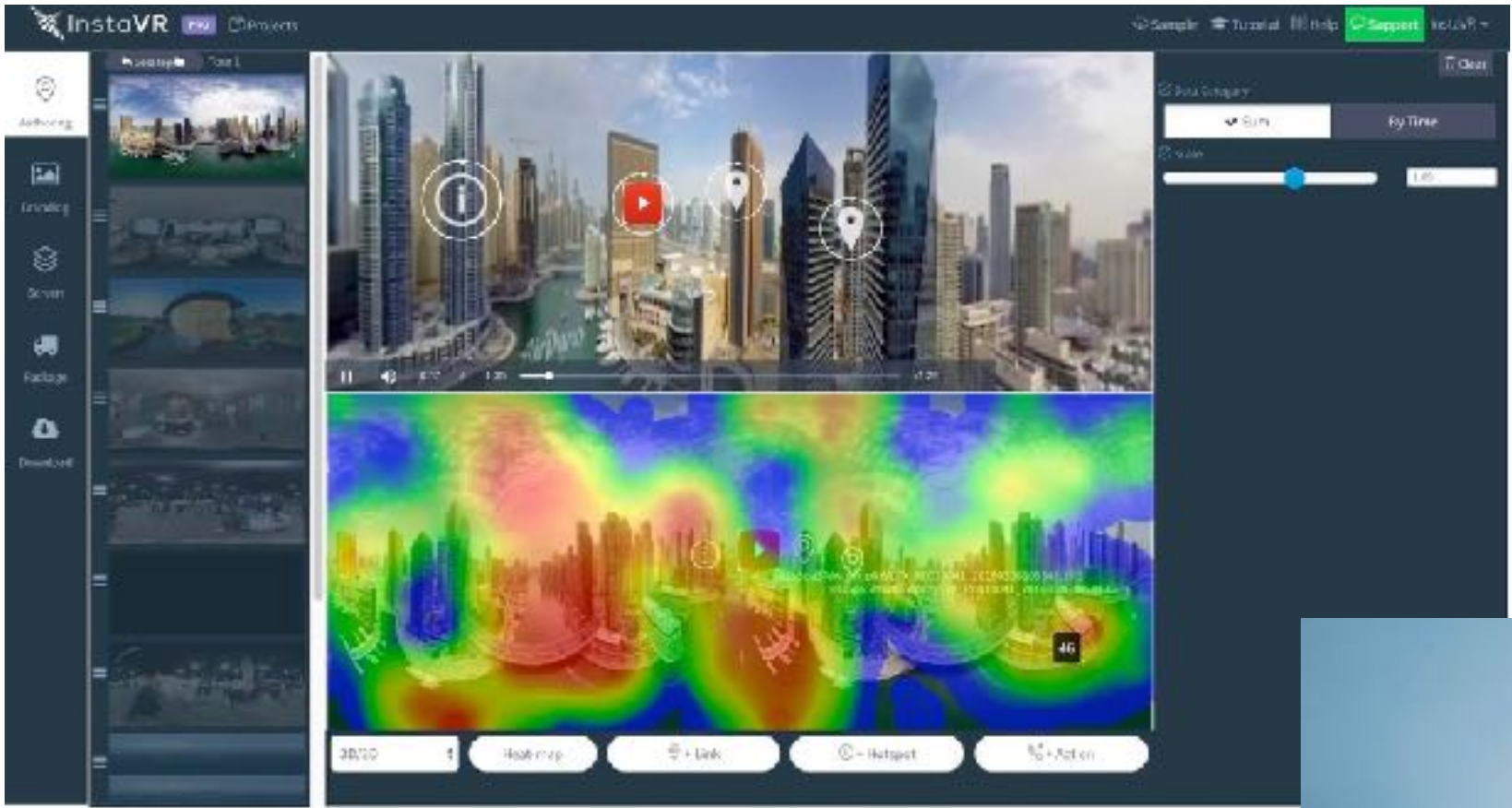


Volume

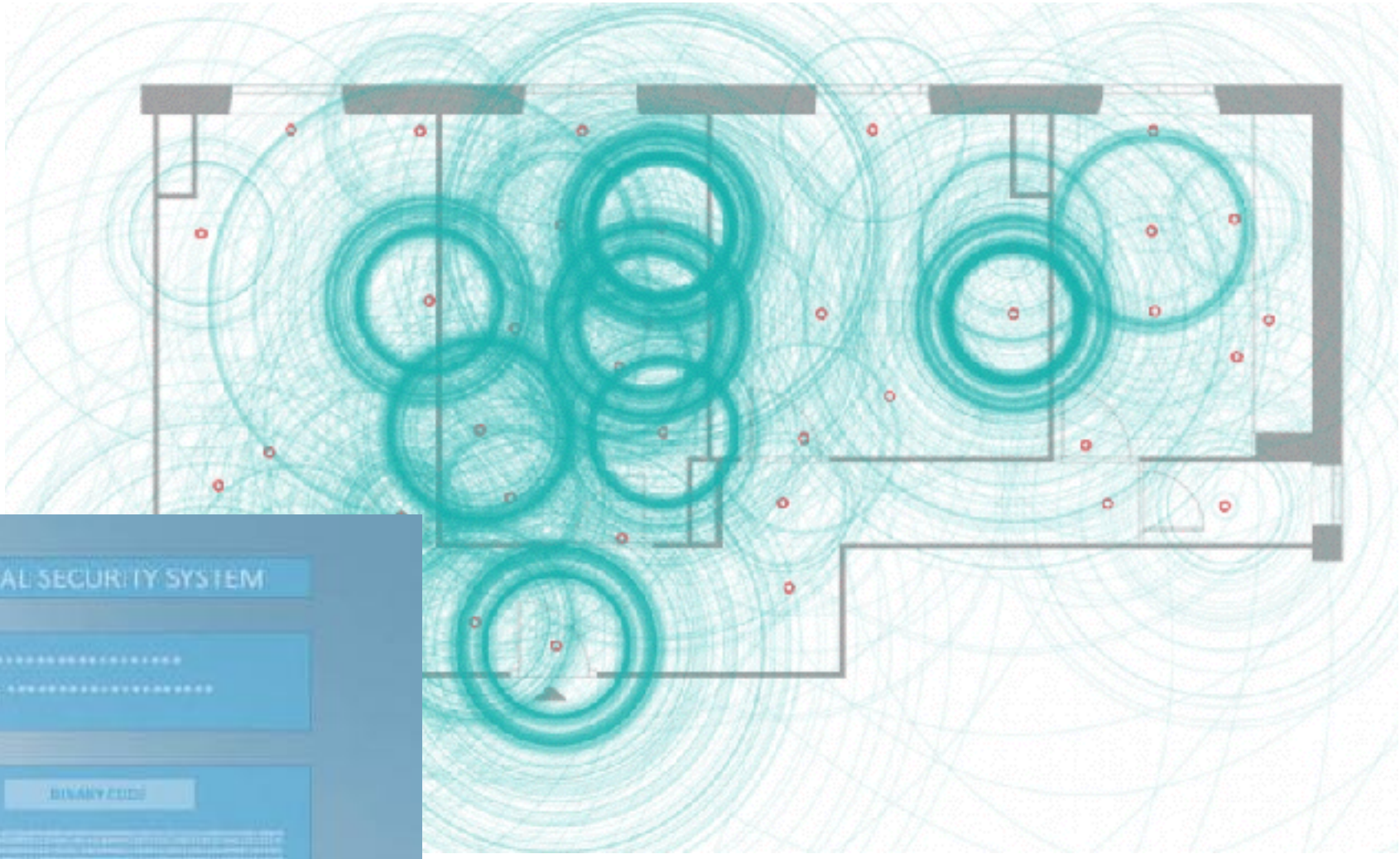
Velocity

Variety

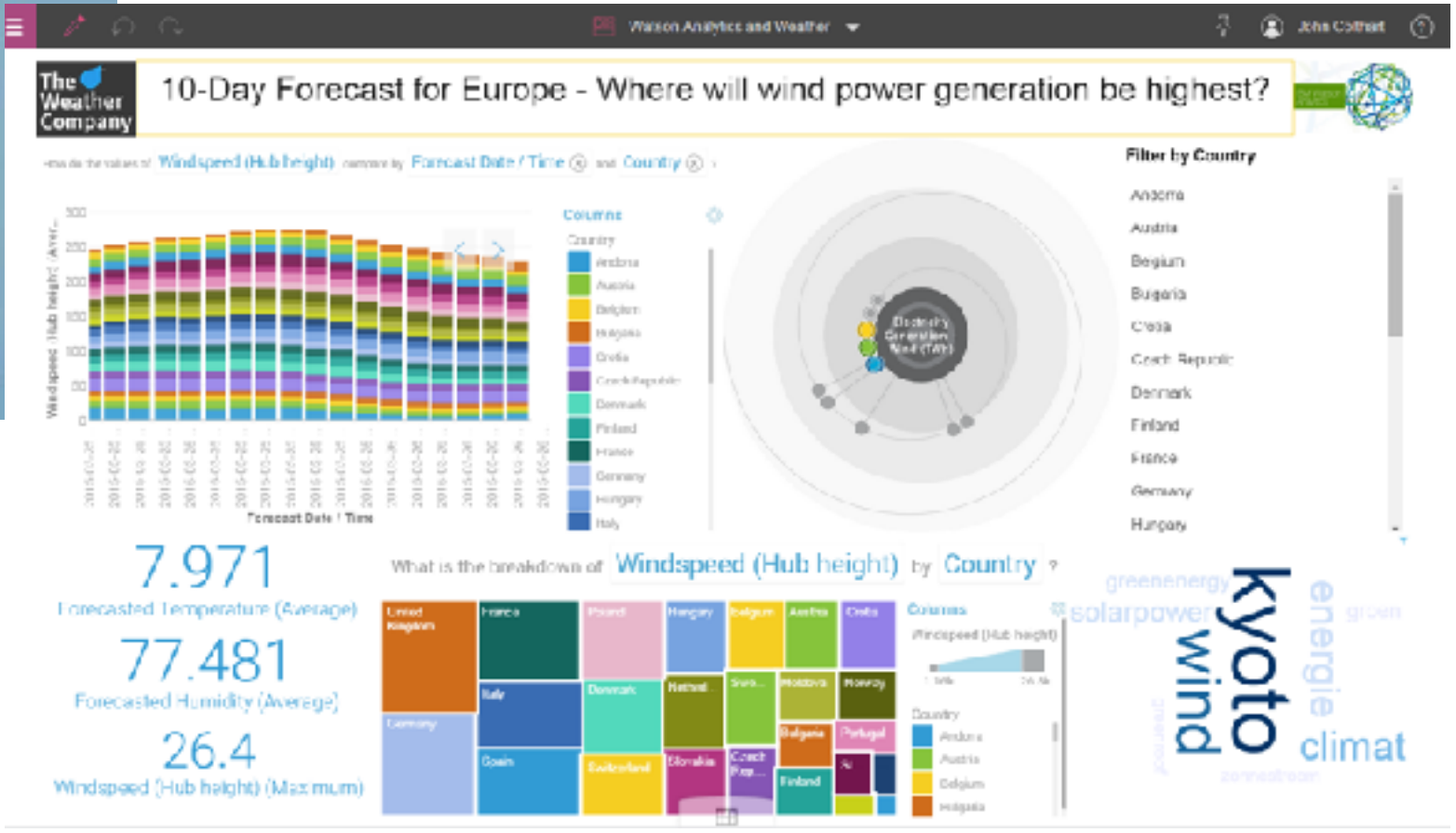
SOME EXAMPLES OF BUILDING'S BIG DATA



Heat maps



Face-recognition

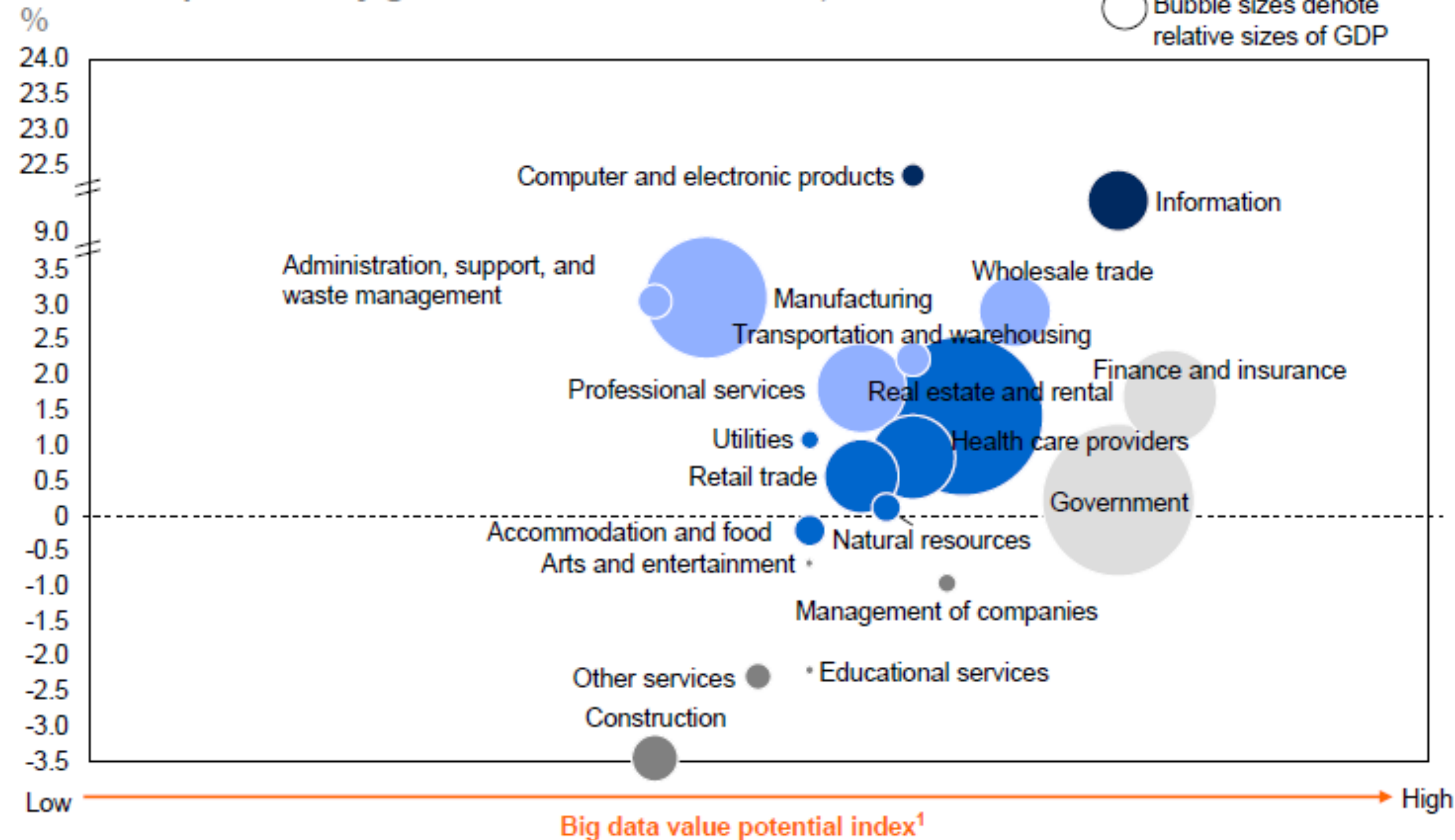


Predictive data

RESEARCH MOTIVATION: BIG DATA INDEX VALUE

Some sectors are positioned for greater gains from the use of big data

Historical productivity growth in the United States, 2000–08



1 See appendix for detailed definitions and metrics used for value potential index.
SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

Big data value potential index:

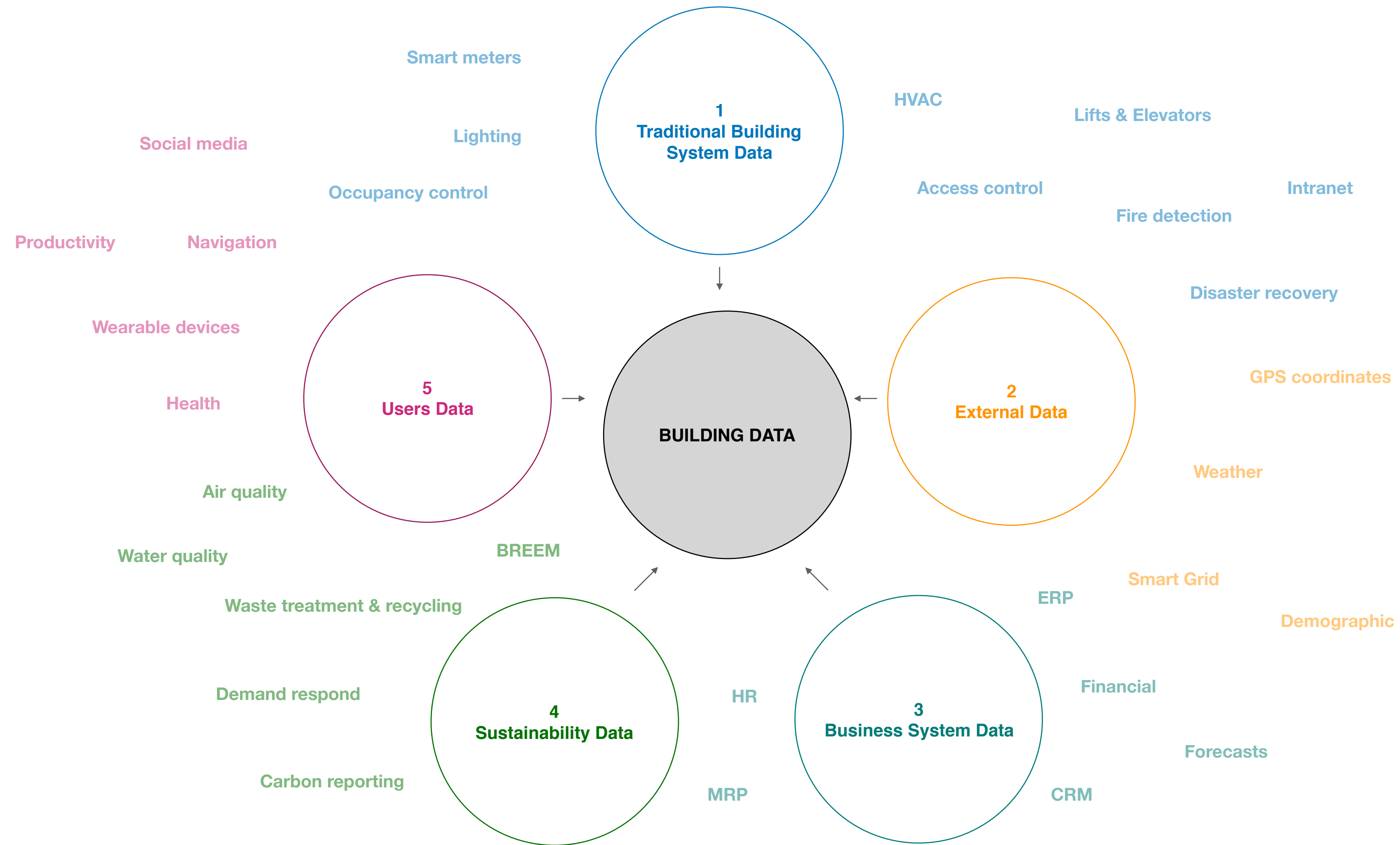
The index consists of five metrics that are designed as proxies to indicate:

1. The amount of data available for use and analysis
2. Variability in performance
3. Number of stakeholders
4. Transaction intensity
5. Turbulence inherent in the sector

Construction industry:

- < Low level of IT intensity
- < Low level of Data driven mindset
- < Low level of Data utilization

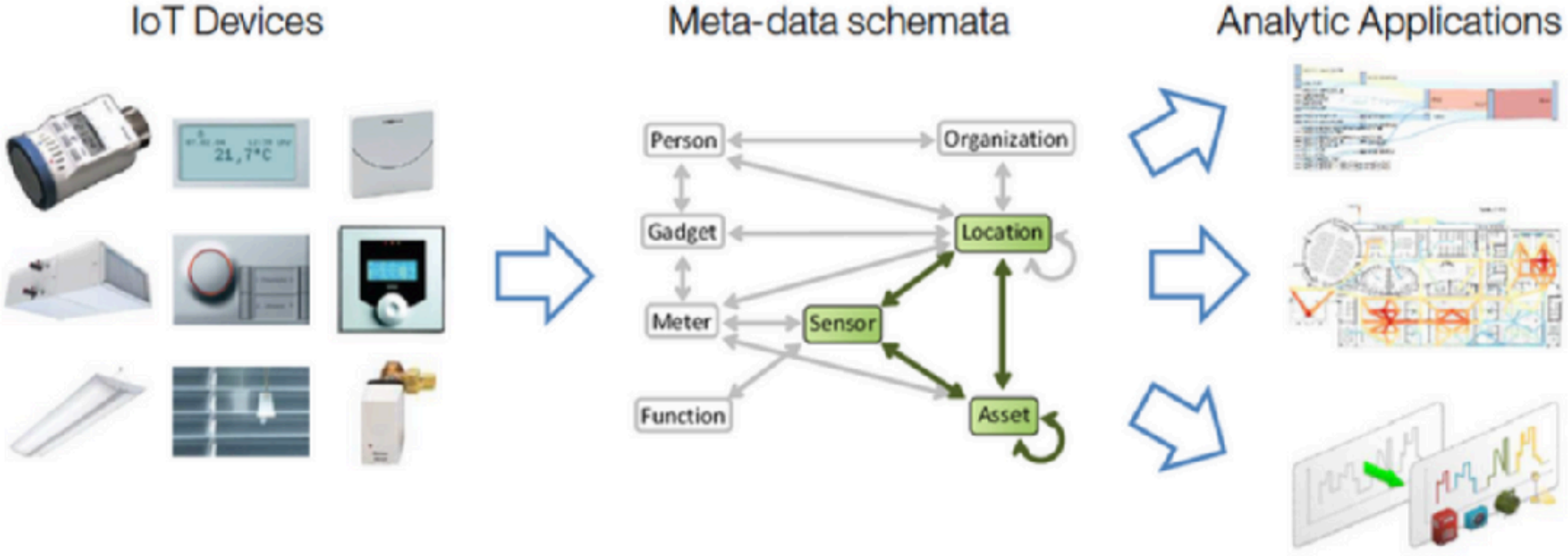
DATA IN SMART BUILDINGS: OVERVIEW



DATA UTILIZATION VS VOLUME IN SMART BUILDINGS



BIG DATA UTILIZATION: INTEGRATION BARRIERS

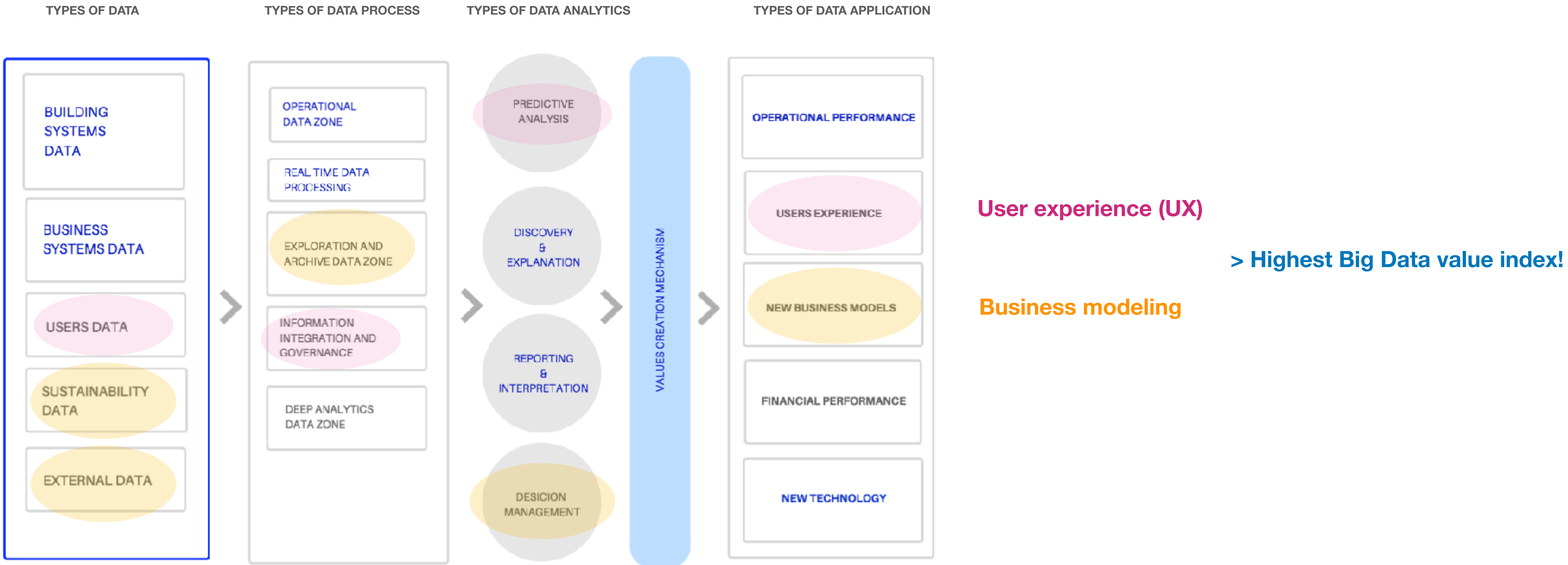


INTEGRATION BARRIERS

1. Data quality issue
2. Lack of knowledge of algorithms
3. Lack of knowledge of analytics workflows
4. Lack of knowledge of how data is related
5. Lack of knowledge of organizational context
6. Lack of knowledge of semantic information of available data

Data > Information > Knowledge > Wisdom

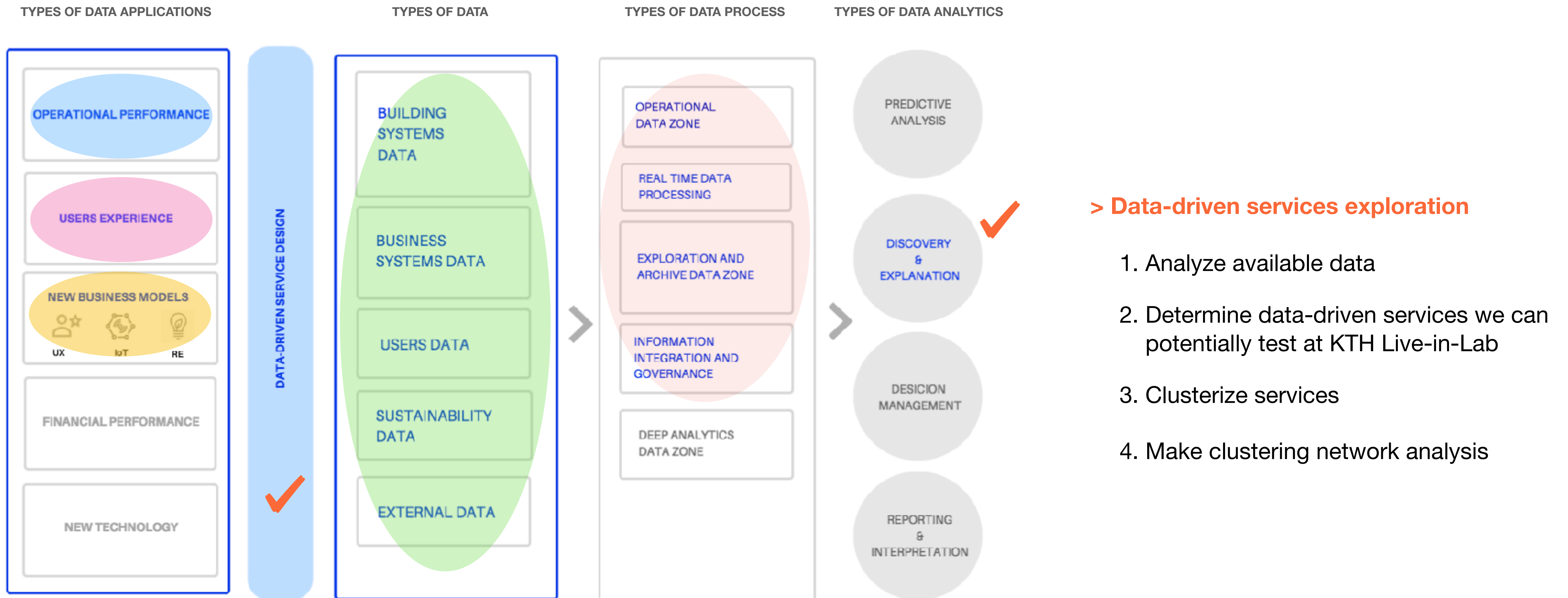
BIG DATA ARCHITECTURE: DATA STRATEGY



Part 2

DATA-DRIVEN **SERVICES** FOR SMART BUILDINGS

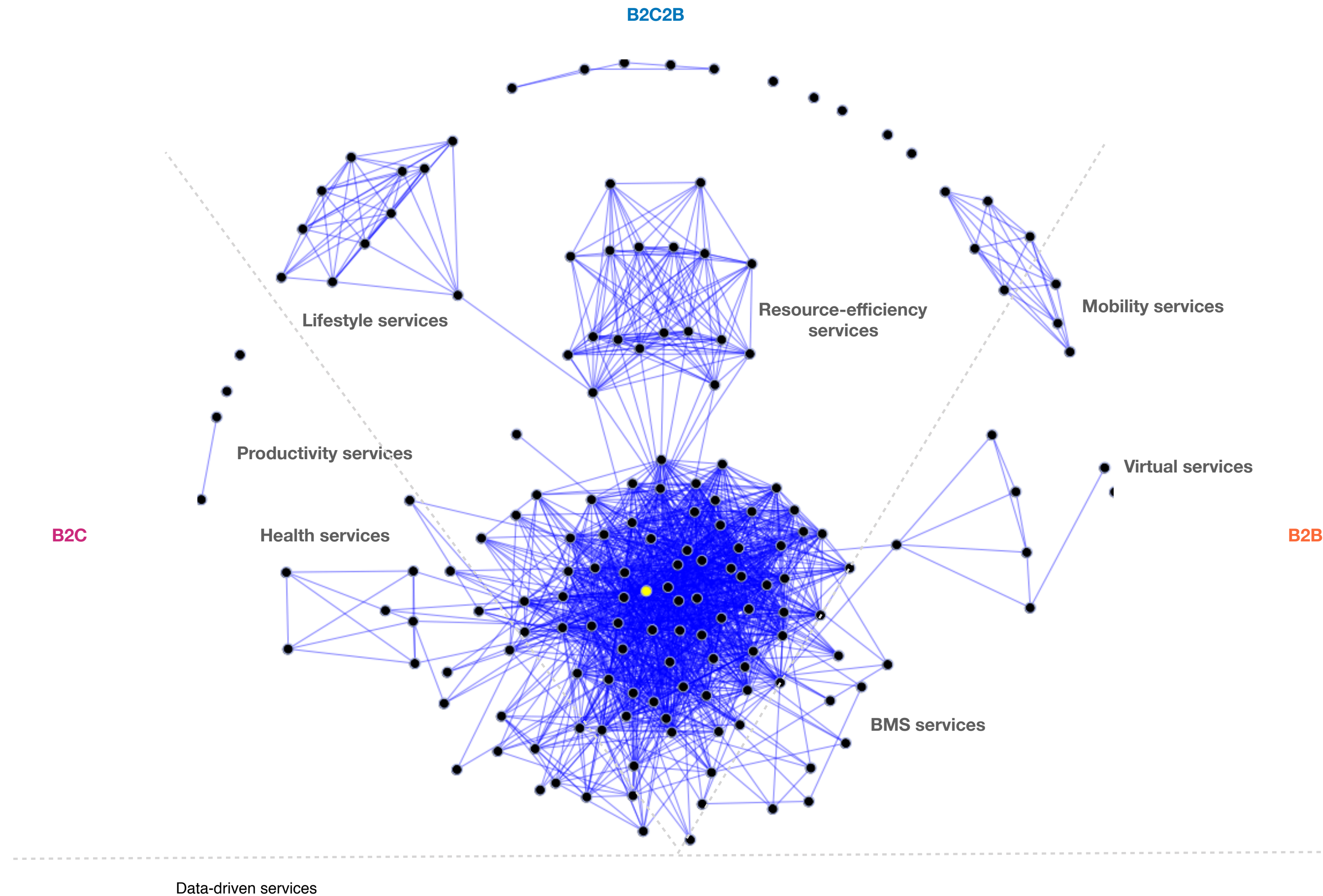
BIG DATA ARCHITECTURE FOR DATA-DRIVEN SERVICES



> Data-driven services exploration

1. Analyze available data
2. Determine data-driven services we can potentially test at KTH Live-in-Lab
3. Clusterize services
4. Make clustering network analysis

DATA-DRIVEN SERVICES: CLUSTERING



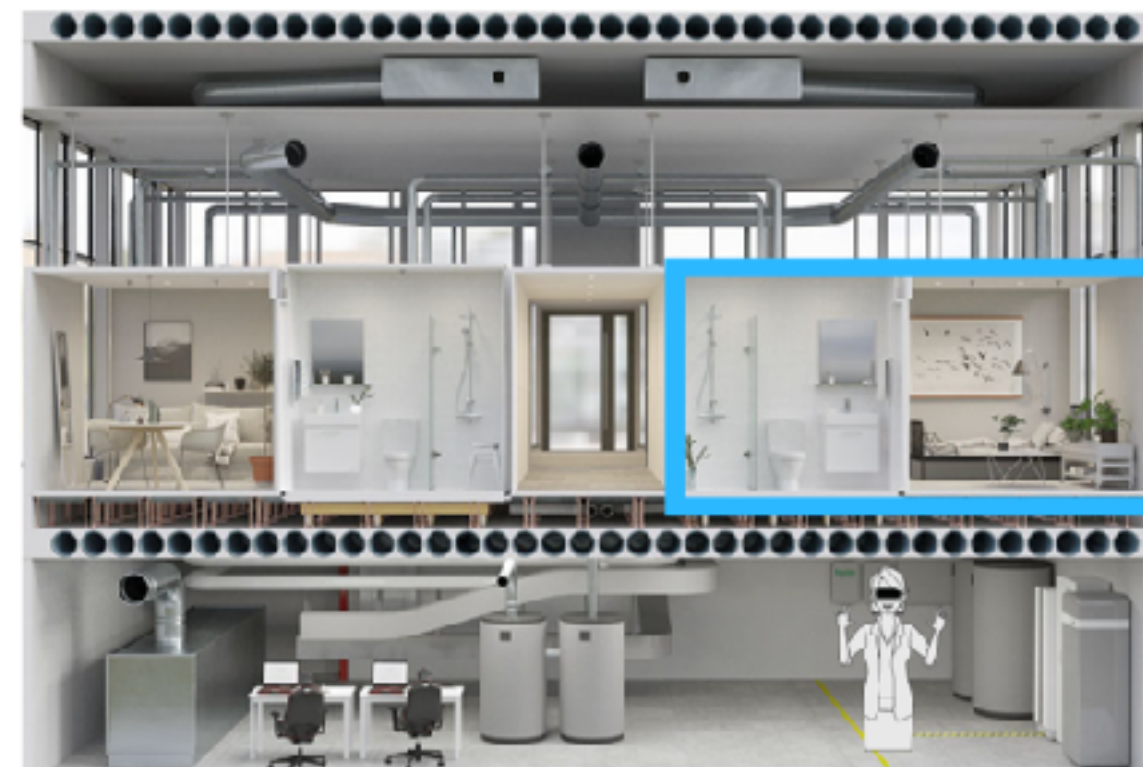
DATA-DRIVEN SERVICES: BUILDING RELATED / B2B2C

BMS services



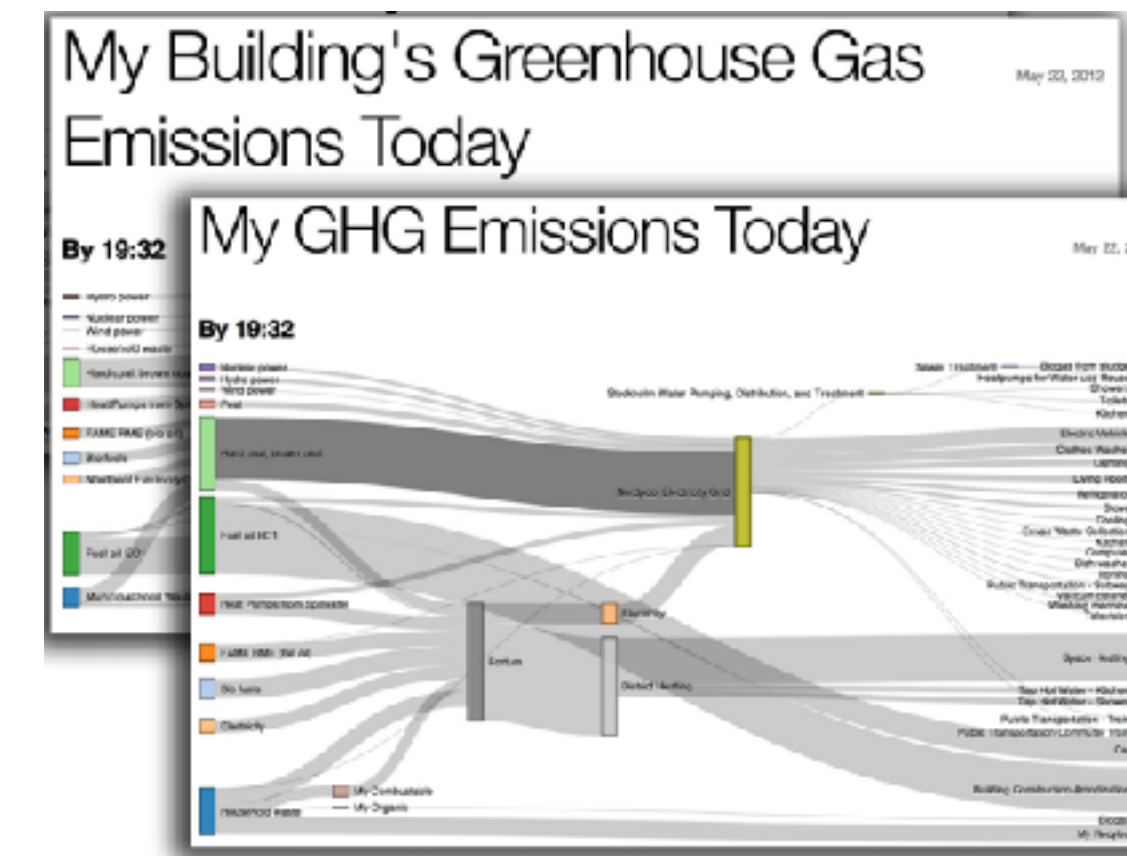
Interactive BMS (B2B + B2C)

Virtual services



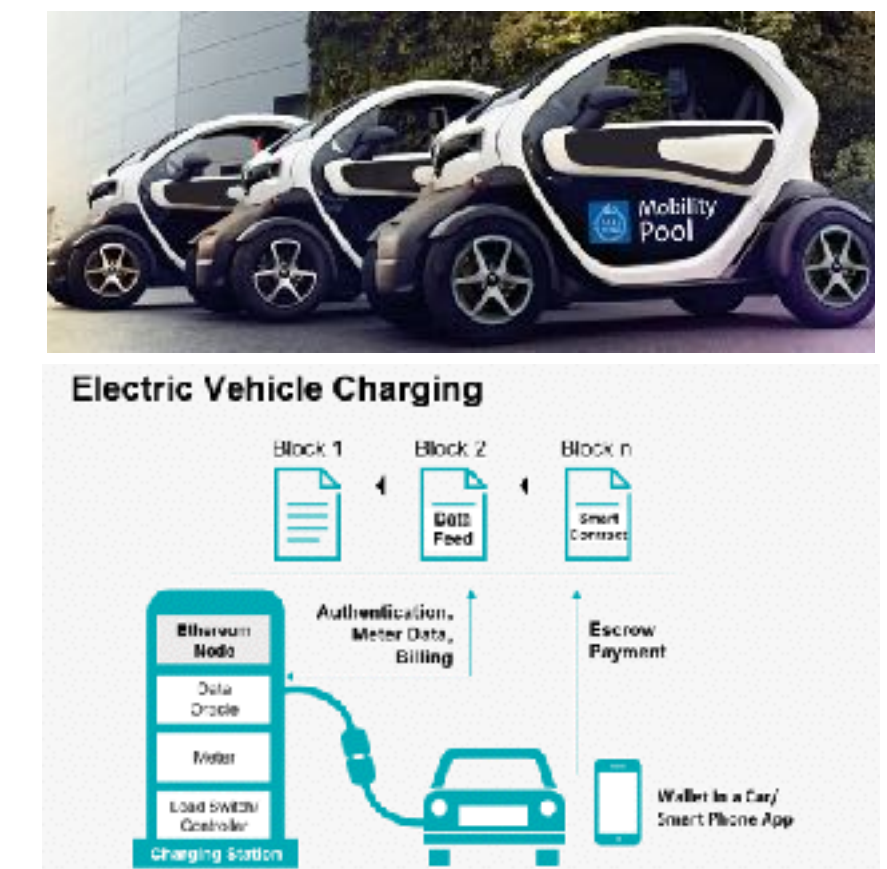
Virtual Twin for products & services pre-testing

Resource-efficiency



Smart building metabolism

Mobility services



EV + Blockchain CPO

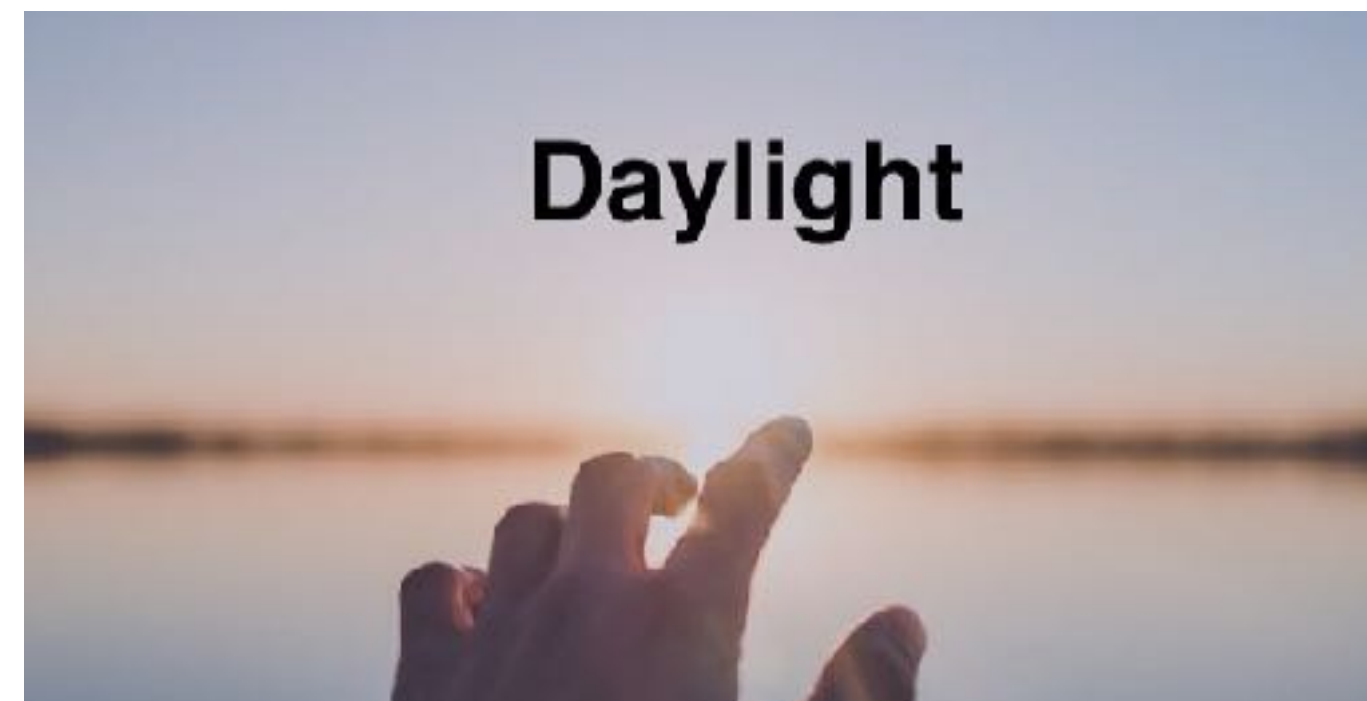
DATA-DRIVEN SERVICES: HUMAN-RELATED / B2C

Lifestyle services



OneTonneFuture

Productivity services



Personalized lighting with MOUM

Health services



Allergen-free air

SUMMARY

1. **BIG DATA FOCUS: INCREASE DATA UTILIZATION**
2. **UX & BUSINESS MODELING FOCUS: BIG DATA INDEX POTENTIAL**
3. **B2C / B2B2C STRATEGY: USER-CENTRIC APPROACH**
4. **DATA-DRIVE SERVICES DESIGN: BOOTH DYNAMIC & FLEXIBILITY OF YOUR DATA**

THAT'S IT FOR NOW > THANKS