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

KTH Live-in-lab





Hobo Hotel Nordic Choice / Brunkebergstorg



KTH Live-in-lab

Data-driven services

SERVICES FOR SMART BUILDINGS

Part 1

DATA-DRIVEN SERVICES FOR SMART BUILDINGS

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RESEARCH FOCUS: BIG DATA



days in a year

of commercial flights in the sky in the United States on



SOME EXAMPLES OF BUILDING'S BIG DATA



Heat maps



Predictive data

RESEARCH MOTIVATION: BIG DATA INDEX VALUE



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

ster A 📃 Cluster D		
ster B 📃 Cluster E		
ster C		
ble sizes denote tive sizes of GDP		
ormation and insurance		
	-	
→ High		

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



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DATA UTILIZATION VS VOLUME IN SMART BUILDINGS



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BIG DATA UTILIZATION: INTEGRATION BARRIERS



Data > Information > Knowledge > Wisdom



Data-driven services

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



BIG DATA ARCHITECTURE: DATA STRATEGY



TYPES OF DATA APPLICATION



User experience (UX)

> Highest Big Data value index!

Business modeling



Part 2

DATA-DRIVEN SERVICES FOR SMART BUILDINGS

KTH Live-in-lab

Data-driven services

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



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Data-driven services

DATA-DRIVEN SERVICES: BUILDING RELATED / B2B2C

BMS services

Virtual services



Interactive BMS (B2B + B2C)



Virtual Twin for products & services pre-testing

Data-driven services

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Resource-efficiency

Mobility services

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Smart building metabolism



Authentication, Meter Data, Billing Escrow Payment Node Wallet in a Car/ Load Switz Controller Smert Phone Ap

EV + Blockchain CPO



DATA-DRIVEN SERVICES: HUMAN-RELATED / B2C

Lifestyle services

Productivity services



OneTonneFuture



Personalized lighting with MOUM

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Data-driven services

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

