KMD ON DIGITAL TRANSFORMATION OF CITIES

PRACTICAL EXAMPLES

HANS JAYATISSA, CTO, KMD
KMD HAS DELIVERED SEVERAL OF THE DANISH PUBLIC DIGITAL INFRASTRUCTURE SOLUTIONS

DANISH PUBLIC DIGITIZE STRATEGIES

2001
DIGITAL COOPERATION

2004
PAYMENTS AND INTERNAL DIGITIZATION

2007
JOINT INFRASTRUCTURE

2011
DIGITAL COMMUNICATION

2016
BETTER USE AND SHARING OF DATA

KMD CONTRIBUTION

- Borger.dk introduced as one of the first self-service solutions
- WorkZone for Public Sector administration
- NemKonto e-Boks
- E-Invoice
- EDI - healthcare
- Municipality reform
- Open data interfaces (OIO) and property data (OIS)
- Digital print and Digital Post
- Election.dk
- NemRefusion
- Data Hub Platform (Datafordeleren)
- LG Support Systems

Source: The Danish Agency of Digitization, KMD
...AND TODAY, DANISH CITIZENS ENGAGE WITH KMD SYSTEMS IN MULTIPLE ASPECTS OF THEIR DAILY LIVES

When applying for higher education
  – KMD Studica

When looking for a job, applying for unemployment benefit, when you get a job at the municipality and get paid wages
  – KMD Momentum, KMD Nova Link, KMD Opus, KMD Nova ESDH, KMD Fariiks, and Data Analytics

When getting a credit card
  – Banqsoft

When you get a job and get paid wages
  – KMD Payroll Cloud

When you go to school
  – UVej, MinUddanneise, KMD Personale, and KMD Elev
  or when you go to an election
  – KMD Vejg.

When you receive unemployment benefits or early retirement benefits
  – KMD Fariiks

When receiving pension
  – Edlund LIFELINK+

When you receive home care or live in an assisted living facility
  – KMD Nexus and KMD Nova Vej

When leasing a car
  – Banqsoft

When meeting the police
  – KMD Workzone

When you fall ill
  – KMD Nexus

When meeting any document or record from the state
  – KMD Workzone, Grunddata, and KMD Cognitio

When you become homeowner, and settles utility supply
  – KMD Easy Energy and KMD ESR

When you sign children up for daycare
  – KMD Institution

When you play or watch a football match
  – KMD Booking, KMD Sport, and Data Analytics

When you are born, married, divorced, deceased
  – KMD P-Data
OS2IOT & FIWARE as the backbone for an IOT Context Platform for Municipalities and Regions
1. Internal POC

2. Customer Pilot (OS2IOT) + Next Steps (Fiware Sandbox)
Twin4Build

Demonstration of a Smart Building Energy Management Platform
USE BIM AND DIGITAL TWINS TO SUPPORT THE ENTIRE ENERGY LIFE-CYCLE OF BUILDINGS – FROM STATIC BIMs TO DYNAMIC BEMs

BIM open standard file format (IFC file)

Conception
- BIM is developed as a digital representation of physical and functional characteristics

Design
- A smooth transition from static BIM to dynamic BEM
- Dynamic BEM services as a basis for a Digital Twin
- The Digital Twin optimizes and informs design decisions

Construction
- The Digital Twin coordinates building construction phase and keeps track of time and resources

Initial Commis.
- The Digital Twin monitors building performance, analyzes building's behavior and tests different control scenarios

Operation and Control
- Continuous Commis.
- Using on-site data, the Digital Twin enables automated and continuous commissioning to ensure proper building operation

Retro Commis.
- The Digital Twin optimizes future building upgrades and retrofits with the capability to test different energy measures and improvements

Static digital twin (BIM/IFC)
Dynamic digital twin (BEM/NGSI-LD)
OBJECTIVES AND EXPECTED OUTCOME

OBJECTIVES
Replacing the static Building Information Model (BIM) with real time operational models combining flexible and adaptable dynamic energy models and real-time data to provide the following services:

1. Collecting, integrating and managing building data within a flexible, effective and open standard context information model.

2. Real-time building performance monitoring and automated continuous commissioning and fault detection, enabling smarter operation and facility management along with performance optimization.

3. Strategy and planning support over the whole building life cycle through informing optimal decisions and running ‘What if?’ scenarios in advance.

EXPECTED OUTCOME

1. Owners will have higher energy-efficient buildings from day one.

2. Facility managers will have a tool for smarter facility management through advanced monitoring, automated continuous commissioning and timely maintenance intervention.

3. Consultants and planners will have a solution aiding in effective strategy planning and optimal decision-making support through running ‘What if?’ scenarios in advance, predicting impacts and testing control and management regimes in virtual environment.
THANK YOU

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