




**Mr. Kristof Dupon**

**Chief Innovation Officer EEG Group**

Smart Hospitals, when the infrastructure starts  
to peak





# SMART HOSPITALS

EEG GROUP

When the infrastructure starts to speak

*Kristof DUPON, ir.*  
CIO

EEG GROUP



## HVAC & Plumbing



LEROY

EEN FRISSE VISIE OP VERWARMEN



EEG

VAN BRAECKEL



DE KOCK

HVAC - SAN



BESSEMANS

HVAC - SANITAIR



DANNEELS



MARECHAL

SANITAIR - ZINKWERK

 **BELTHERM**  
LUCHTBEHANDELING

**Verwarmings  
Technieken  
erelst** bvba



## Digital



EEG

GROUP



BUILDING-IQ

BUILDING INTELLIGENCE

25<sup>8</sup>



## Electro



EEG

ELECTRO ENTREPRISE



ELECTROLYSE

**SMET**  
ELEKTRO KAMIEL SMET NV



## Medical



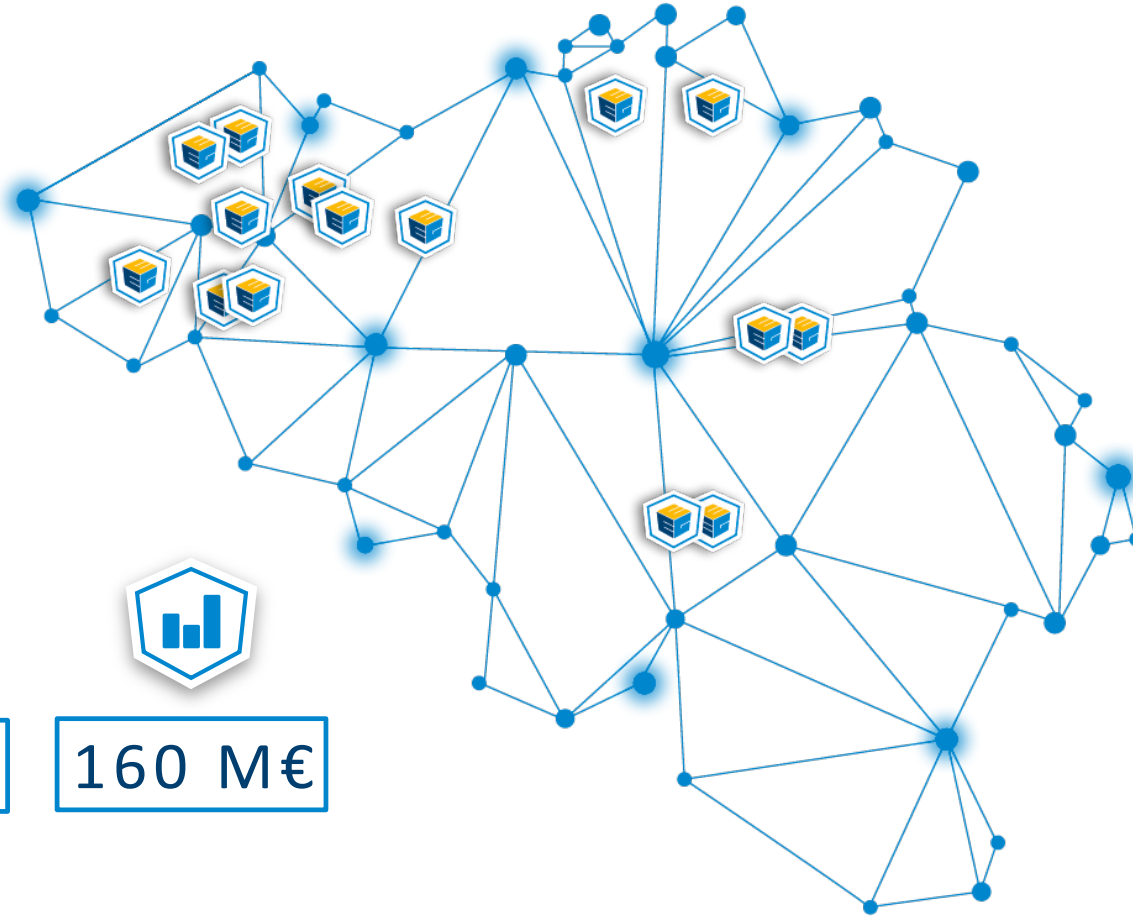
HEYER

MEDICAL TECHNOLOGY



DANNEELS

# EEG GROUP



850

FTE



160 M€



## TECHNOLOGY ENABLERS



CONNECTIVITY



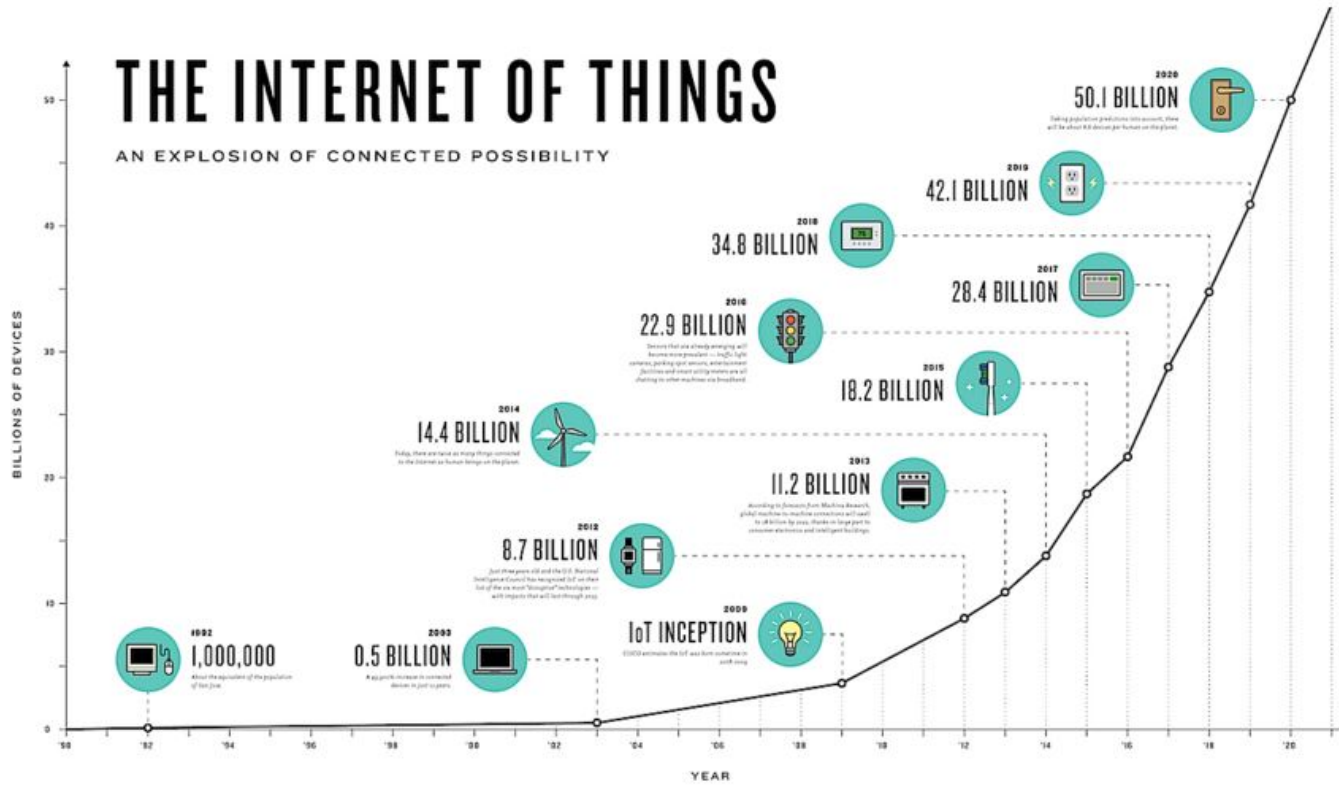
DATA SCIENCE

## CONNECTIVITY

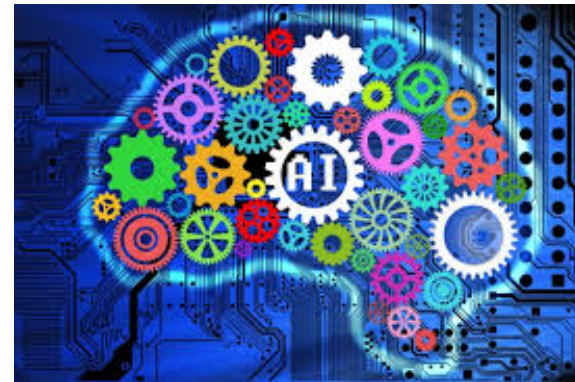


# THE INTERNET OF THINGS

AN EXPLOSION OF CONNECTED POSSIBILITY



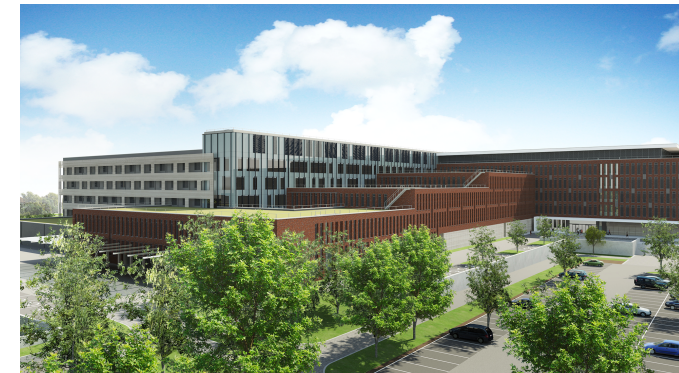
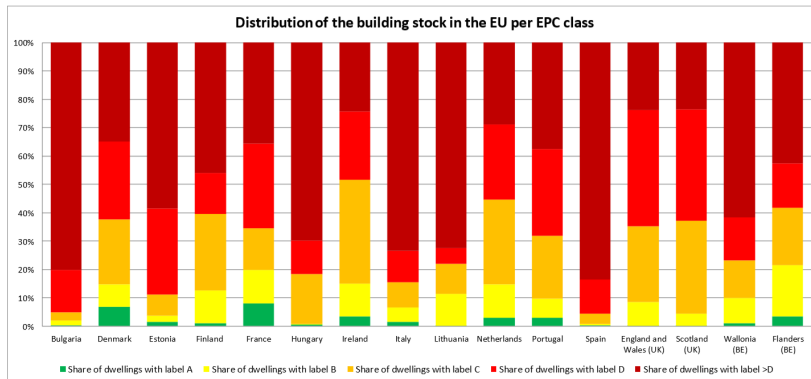
## DATA SCIENCE



## HOSPITAL INFRASTRUCTURE

The climate challenge and European Directives which go along with it, lead to far more complex installations (retrofit or new)

Air handling units, heatpump, geothermal energy, biomass, combined Heat/power production, demand driven ventilation, ...



*97% of buildings in the EU need to be upgraded to achieve a decarbonised building stock by 2050 (source BPIE)*





391



962



3.277



256



15.507



Hospital wide – 15.507 datapoints

- 15' samples
- 62.028 samples / hour
- 1,5 Million samples / day





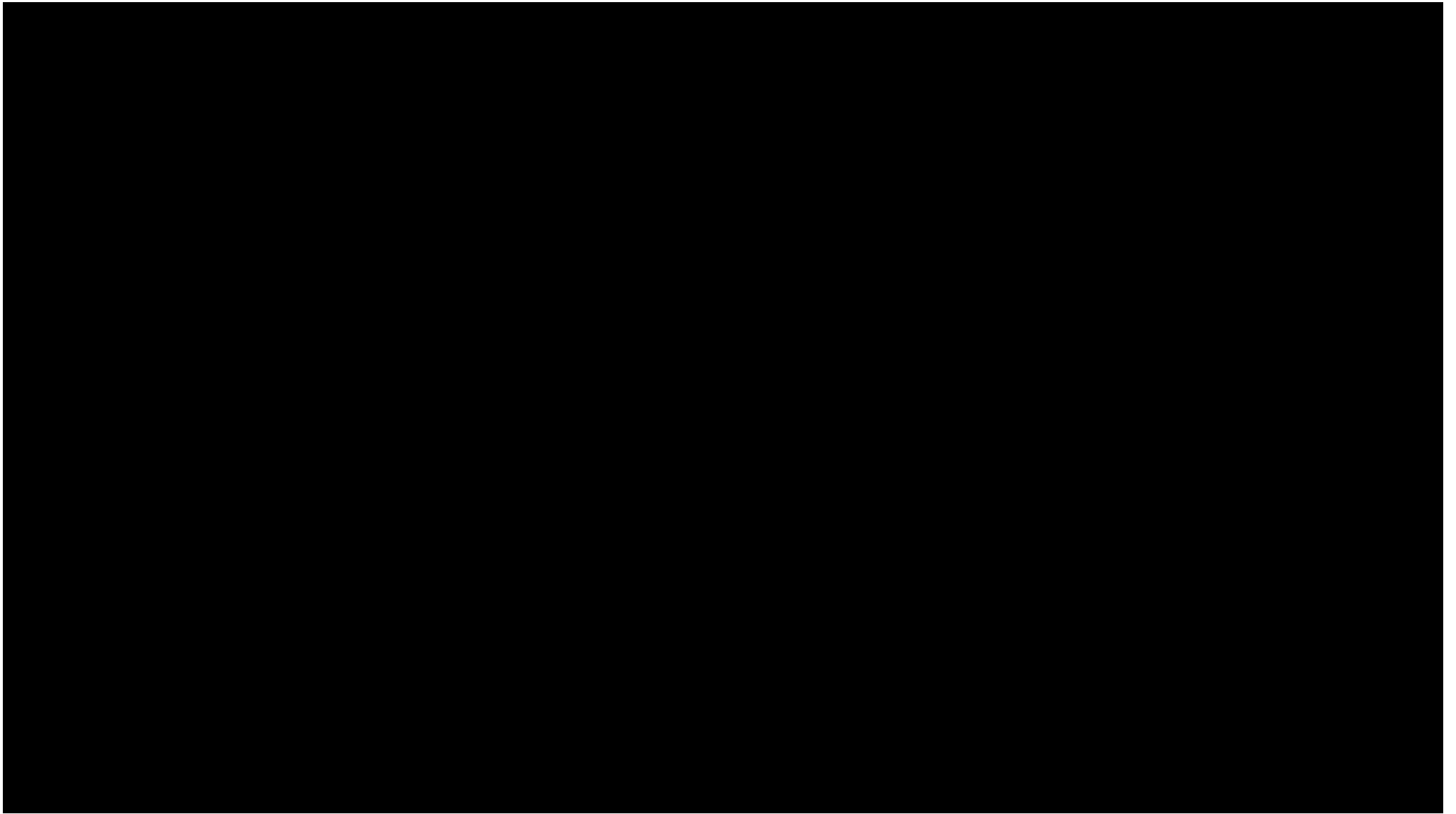
Operating theatre - 60 datapoints

- 5' samples
- 720 samples / hour
- 17.280 samples / day

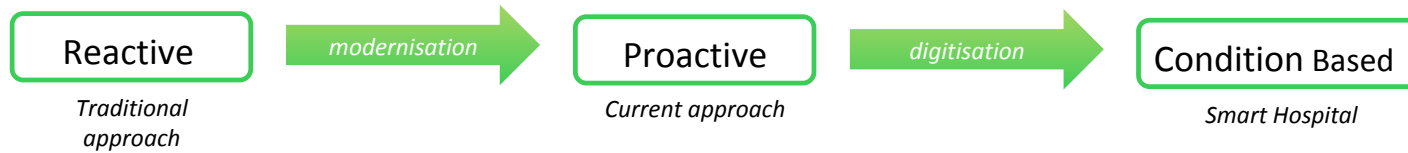


1.5 Million samples / day...





# O&M – SCHNEIDER BUILDING ADVISOR

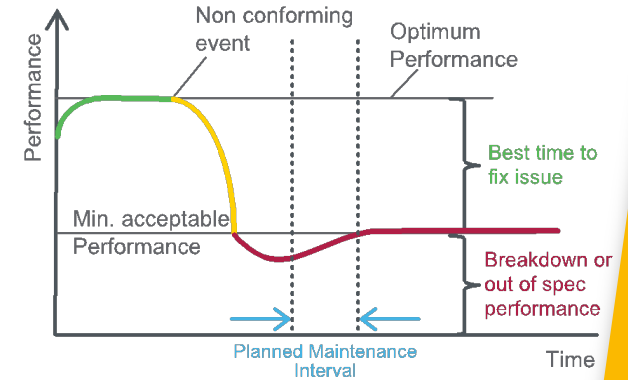


**5x** More expensive than proactive maintenance

**10x** More expensive than condition based maintenance

18% of failures are age related

82% of failures are random

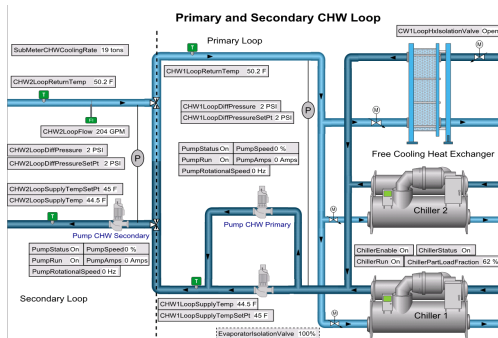
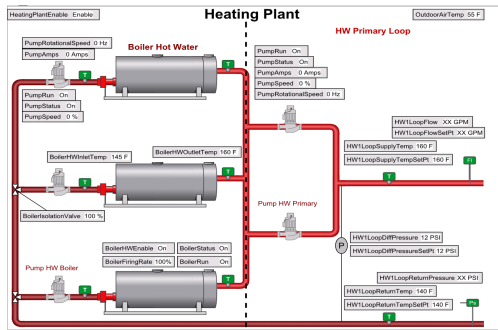




GROUP

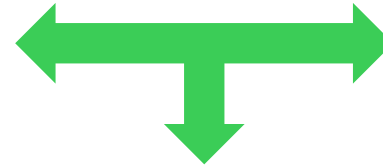
# O&M – SCHNEIDER BUILDING ADVISOR

## Connecting Assets



## Polling & Distribution

5 minutes



Desktop



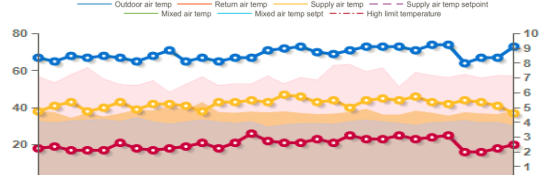
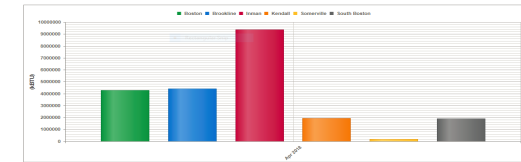
Mobile



Worldwide

## Leveraging Data

Heating on, economizer should be off. OA damper should be min. Mixed air temp lower than setpoint.	1	\$165	10	6
Over-aggressive freeze prevention. Leaking cooling valve. No supply temp reset.	0	\$127	10	6
Supply temp lower than setpoint. Low loop temp difference. Flow sensor miscalibration. Sensor error r/lat	4	62 €	10	5





## O&M – SCHNEIDER BUILDING ADVISOR

**SFG20 Maintenance Scope**  
**1620 Data Points across 350 assets**

Data point checks by Maintenance Engineers if  
in line with SFG20 scope

**1,620 checks  
per annum**

**Proactive**

*Current approach*

**Building Advisor Service Plan**  
**1620 Data Points across 350 assets**

Building Advisor checks every data point,  
every 5 mins, every day

**170 Million+ checks  
per annum**

**Condition Based**

*Smart Hospital*





## MONITOR



### Space

Occupancy, utilization



### Comfort

Temperature, Humidity



## ASSIST



### Find

Spaces, people, services



### Book

Rooms, workplaces, services



## TRANSFORM



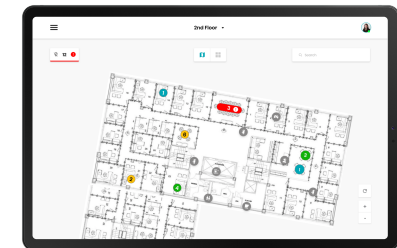
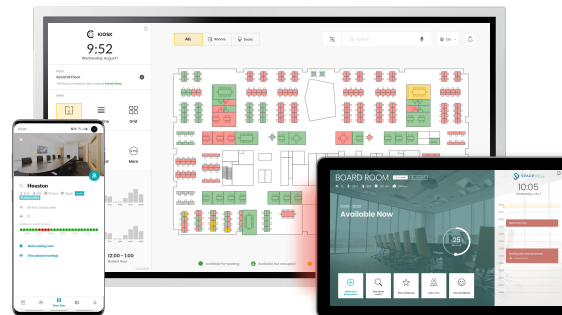
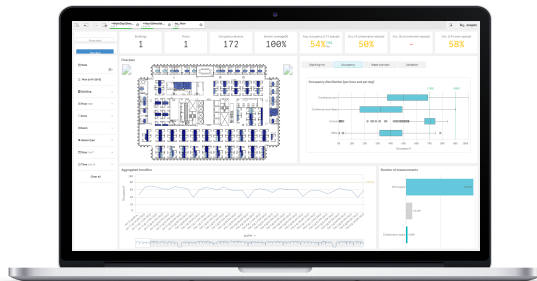
### Cleaning

Activity based, real-time follow-up

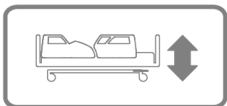
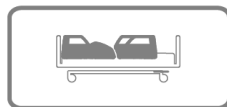


### Repairs

Direct response, real-time view



# PATIENT EXPERIENCE & SAFETY HAELVOET/UNMATCHED - SMART BED



## OPPORTUNITY

The combination of bidirectional communication between clinical, business, and building systems, the implementation of smart, semi-autonomous devices or sensor networks, and the use of analytics within a hospital creates endless possibilities for the development of smart, efficient, and effective hospital processes  
*(“MacKenzie Health”)*



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