Smart Building by Deerns
Who is this guy?

- **TU Delft**
  - 2011: MSc Sustainable Housing Transformation

- **Deerns**
  - 2011: Project Engineer/Leader

- **Deerms**
  - 2016: Consultant Smart Building

- **bGrid**
  - 2017: Commercial Director
DEERNS: European leader in engineering consultancy for technical systems and high performance

The world’s most sustainable and smartest buildings

- Offices in 12 countries +500 experts
- Patented Technologies
- Membre of The Green Grid, and several Green Building Councils (GBC’s),
- Projects: ~ 1000 / year
  €12.500.000,000 / year
- 68M € Turnover
  In 2016
- Created in 1928
- MEP, Sustainability strategy
- Smart & Connected buildings
- > 120 projects Certified BREEAM , LEED, HQE, DGNB, WELL

DEERNS is the European leader in engineering consultancy for technical systems and high performance, and is renowned for its expertise in sustainable and smart buildings. With operations in 12 countries and over 500 experts, DEERNS offers a wide range of services including MEP, sustainability strategy, and smart and connected building solutions. The company is a member of The Green Grid and several Green Building Councils (GBC’s), and has completed over 120 projects certified in BREEAM, LEED, HQE, DGNB, and WELL standards. DEERNS achieved a turnover of €68 million in 2016, and is dedicated to producing the world’s most sustainable and smartest buildings.
DEERNS is Recognized for its COLLABORATIVE Design with Architects

The world’s most sustainable and smartest buildings

The Edge
Netherlands
BREEAM Outstanding
ZEB

Bosco Verticale
Italy
LEED Gold

Maison de l’Ile de France, Paris,
Zero Energy Building

LVM Münster, Germany
Zero Energy Building
The Edge produces 102% of its own energy use.

The Edge, Headquarters Deloitte, Amsterdam
World’s most sustainable building (BREEAM)
World’s first Smart Building
5500 m² of solar panels generate 165 kW electrical power
About 2,500 Deloitte workers share 1,000 desks

Smart Building enables a 40,000m² building instead of 100,000m²
Our Vision
Digital transformation

“Every business will become a software business, build applications, use advanced analytics and provide SaaS services.”
- Satya Nadella

Sources: Microsoft, ¹McKinsey, How IoT Can Support A Dynamic Maintenance Program, 2016, ²IDC, 2016

- Engage your customers
- Empower your employees
- Optimize your operations
- Transform your products

~80% margin¹

Driven by apps, analytics, and services in 2020

$100M²

Average increase in income for the most digitally transformed enterprises

30B²

2020

2009

Intelligence

Income

Things

Sources: Microsoft, ¹McKinsey, How IoT Can Support A Dynamic Maintenance Program, 2016, ²IDC, 2016
Anyone, anytime and anywhere
Activity Based Working
I forgot my security card!

I can’t find my colleague!

Are flexible work places really that efficient?

This place needs to be cleaned

Does this really need to be cleaned?

I can’t find my Stuff!

I can’t find a Conference room

I can’t work In this heat

Are my people Happy?

I can’t park my car!

How much Real estate do I really need?

Sustainable Building

Maybe

Sustainable Usage

No

How much

Real estate do I really need?
Sensor deployments in buildings

Projected sensor deployments in CRE (millions)

Source: Gartner IoT, Endpoints and associated services, Worldwide, 2015
Internet of too many Things

- Many applications, many interfaces
- Many vendors, many security leaks
- Many stand-alone solutions
- Many different networks

Integration of Things

- Integrated smart functionality
- One user interface
- One secure network
- Perfect solution for today, smart enough for tomorrow
Not a building filled with gadgets,

The building as your personal assistant

but a building that actively supports the processes within.
Connects with Everything

Heating & Cooling
Ventilation
Lighting
Blinds

Phone

Etc.

Smart Cleaning
Predictive Maintenance
Smart Security
Asset Tracking

Building Analytics
Employee Satisfaction

Property Value
Energy Efficiency

Employee Facilit Manager
Real Estate Manager

Asset Tracking

Smart Parking

Built in sensors
Light
Humidity
Presence & Localisation
Temperature
Sound
CO²

Comfort that follows iBeacon
Positioning

4-in-1: positioning, sensing, communication, control

Open structure

Wireless

Standardized
The building as a smart phone

Open & standardized Smart Building Platform

Allowing third party devices and apps

Portfolio of standardized apps

Install new functions when you need them
Live Smart Building implementation in Microsoft HQ

- Life implementation
- Update real estate strategy & need
- Renovation
- Green field
- Personal Assistant for user, manager & owner
- Smart building

Smart building user experience
Building usage analytics
Live Smart Building implementation in Microsoft HQ
Individual Footprint Monitoring

**Individual resource consumption monitoring**
- Air conditioning
- Heating & cooling
  - Lighting
  - Device usage

**Personal reporting & benchmarking**

**Customized sustainability tips**
Smart Facility Management

- Real time localization of maintenance assets
- Predictive maintenance
- Efficient cleaning based on utilization heat maps
- Performance optimization with machine learning
Smart Real Estate Management

Real time control of your real estate

- Custom Dashboards
- Occupancy
- User Satisfaction
- Optimise real estate usage
- Property Value
- Energy Efficiency
Sustainability on all levels

- Design: Reduced floorspace based on empirical building analytics
- Build: Continuous improvement
- Maintain: Cluster users with same profile
- Operate: Sustainable building usage
- Predictive maintenance
- Increased hardware performance through machine learning
- Efficient cleaning
-back
Health, Well-being and Smart Building

**Mind**
- User feedback
- Less stress
- Self monitoring

**Light**
- Sunlight harvesting
- Personal light settings
- Visual comfort

**Air**
- Smart ventilation
- VOC reduction
- Cleaning protocol

**Comfort**
- Personal thermal comfort
- Personal light settings
- Free workplace finding

**Fitness**
- Activity programs
- Active building design
- Active furnishings

**Nourishment**
- Order Food
- Mindful eating
- Smart food storage

**Water**
- Water quality testing
- Water treatment
- Legionella prevention

*Smart Building*
There are loads of buildings people talk about.

Our buildings talk to people.

Smart Building by Deernt