

IT Services for IoT

Aalto IT Services



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A Tall Stack

Data Processing

Analytics, correlation, visualization...

Data Collection

Customizable, non-standard, scripting/coding required

Networking

Local to wide area to global

Wired, wireless, mobile...

Hubs & Gateways

Often proprietary but also Raspberry Pi etc

Things & Sensors

From thermometers to buildings

Aalto Use Cases (1/2)

- **Aalto Industrial Internet Campus --->**
(aiic.aalto.fi)
 - Including Digital Twin solutions
- **Building Information Model (BIM) combined with sensor data**
 - Campus Digital Twin
- **Smart Buildings pilot project**
 - Various IoT solutions including sensors, buildings maintenance, cameras, etc

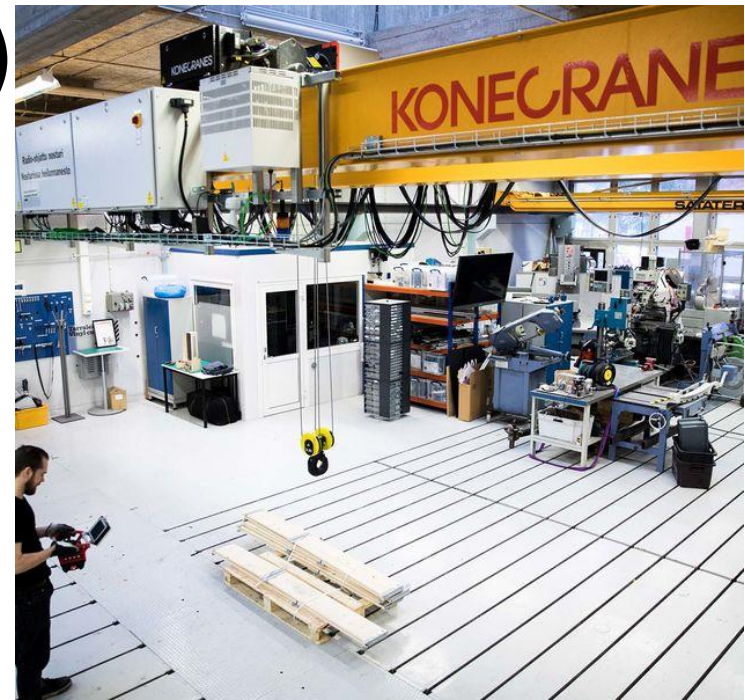


Image: aiic.aalto.fi

Aalto Use Cases (2/2)

- **Sisäilmapoliisi**
- **5G Research**
 - A platform for IoT connectivity & Research
- **Junction Hackathon (hackjunction.com)**
 - More about this in a moment...
- **Campus development in Otaniemi**
 - (<https://www.tietoa.fi/weup/otaniemi/>)
 - Building data, HVAC, Wifi data...
- **And more!**



2017



2020



2025



2030



2035





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What Can the IT Dept Do?

- **Networking (especially wifi + wired)**
 - But IoT also applies 5G, NB-IOT, LoRa, Sigfox...
 - IPv6, PoE, PoDL, latency...
- **Centralized Solutions for collecting IoT Data**
 - Currently looking at Thingworx (on-premise), Mindsphere (hosted), Azure IoT tools (cloud)
 - How to manage server administration?
- **Identity & Access Mgmt (IAM)**
- **Various things to organize: licenses, permissions, collaboration, procurement...**

Issues to Consider

- **Regulations, permissions, contracts**
 - Data ownership, confidentiality, GDPR, privacy, copyrights...
 - Data location: campus / country / EU / global
 - Collaboration with various companies, startups, etc
- **Security**
 - Things, network, software support, patches, platforms...
- **Which solutions to support?**
 - The field is very cluttered – not enough resources to adopt all available solutions & technology
- **Roles & Responsibilities & Competences**

Case: Junction Networking

- **Europe's biggest hackathon in Dipoli, Otaniemi 11/2018**
 - Around 1500 participants
- **The event mainly relied on Dipoli's normal network infra**
- **Special arrangements for Junction included**
 - A special wireless ESSID Junction with separate routing for IoT etc
 - A temporary switch network
 - Additional VLAN arrangements
- **hackjunction.com**