



### Business challenge

Multi-disciplinary consultancy Tyréns wanted to gain a deeper understanding of the relationships between people and the buildings they work in – based on hard data, rather than intuition.

### Transformation

Tyréns will revolutionize building management and boost efficiency by deploying Internet-connected sensors at its headquarters and linking them to its building information models and asset management systems.



Per Bjälnes  
BIM and IoT Strategist  
Tyréns

### Business benefits:

**1,000 sensors**  
were installed and mapped to assets in less than four hours

**Reveals**  
which objects within a building are most important to measure

**Helps**  
make smarter decisions about every aspect of building management

# Tyréns AB

## Creating smarter workplaces with real-time insight from the Internet of Things

Tyréns is one of Sweden's leading multi-disciplinary consultancies, specializing in solutions that promote sustainable development. The company operates from 30 offices across Sweden, and also has offices in Copenhagen, London and Tartu. It employs more than 1,300 people.

*“With IBM technology, we have the potential to revolutionize the way our clients manage buildings.”*

Per Bjälnes  
BIM and IoT Strategist  
Tyréns

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## On a mission to build the best

Through its work as a leading multi-disciplinary consultancy, Tyréns strives to create better, safer and more sustainable communities. To help achieve this objective, the company wanted to gain a deeper understanding of how people experience and interact with the buildings they live and work in. It also wanted to find an easy way to share this insight with clients such as architects, building managers and owners.

Per Bjälnes, Building Information Modeling and IoT Strategist at Tyréns, elaborates: “Rather than just relying on guesses and gut feeling, we wanted real-life analysis of how people actually use buildings. If we can truly answer questions such as ‘Why is it too hot on this floor?’ and ‘How many people actually use this 12-person meeting room?’, we can help our clients make much smarter management and maintenance decisions.

“As a test case, we decided to use building information modeling (BIM) techniques to map out a building, and then integrate live data from strategically placed sensors, connected via the Internet of Things. This would allow us to create on-screen visualizations of how each meeting room, each restroom – even each desk – were being used. We realized that this would be an incredibly powerful source of insight.”



## Looking through closed doors

Tyréns chose its Stockholm headquarters as its first smarter building project. Working closely with IBM, Tyréns used Autodesk Revit to create a building information model, containing a detailed 3D representation not only of every room in the building, but also its furniture, lighting and heating systems. The company then loaded this asset hierarchy into the company’s IBM® Maximo® Asset Management system in just four minutes – a task that would typically take several months if all the assets had to be registered manually.

Next, Tyréns worked with IBM Business Partners Intel, Yanzi and SVSi to install 1,000 Internet-connected sensors throughout the building in just four hours, and registered their locations in the BIM and Maximo systems. IBM MessageSight allows these sensors to send real-time information about everything from temperature and humidity to light, power usage and movement.

By plotting the sensor data in the BIM, Tyréns can easily visualize exactly what is going on in every part of its building, in real time, 24 hours a day.

Per Bjälnes adds: “Equipped with this information, we can directly analyze why – for example – it is too hot in a certain room. Depending on the reason – too many people, too much sunlight, the blinds weren’t down, inefficient air-conditioning, and so on – the building manager can make data-driven decisions to keep temperatures stable. This saves energy and money and will help us to create a better working environment.”

He continues: “The BIM user interface is very easy to use and requires no technical expertise. This means that every member of staff, from cleaners and receptionists to accountants, can easily access and understand the model, and make data-driven decisions.

## Why sensors matter

In a previous research project at another office, Per Bjälnes had analyzed employees' restroom usage throughout the week. His research team tracked the restroom visits manually.

“We saw that the average worker makes 3.6 visits to the restroom on Mondays, but only 2.6 on Fridays. That may seem trivial – but when you think about it, you can use this kind of insight to optimize cleaning schedules and supply purchasing, helping to drive down costs. As a result, we saw the number of restroom-related helpdesk calls fall from two per week to just one call in six months.

“With a sensor-based approach, you don't need to set up a specific research project to gather this kind of data. You get the data for free, updated instantly and in real-time. Whenever you have an idea about optimizing something in your building, you already have the information you need to analyze whether your new strategy will work.”



## Rewriting the rulebook

Supported by IBM, Tyréns plans to share the insights it has gained with clients throughout the world, and help them increase the efficiency of their buildings through Internet of Things technologies.

Per Bjälnes says: “The solution enables proactive building management, which will cut costs, ensure sustainability, improve services and contribute to a more pleasant working environment.

“We're investigating the commercial possibilities of selling this solution to our clients, because there are so many possible applications for this kind of technology,” explains Per Bjälnes. “For example, the solution could be shared by emergency services to help save lives. Fire-fighters could view how the building changes as a fire spreads and where people are trapped, enabling them to plan their response while they are en route to the fire.”

He concludes: “Equipped with Internet of Things technology from IBM, Intel, Yanzi and SVSi, we have the potential to revolutionize the way our clients manage buildings, while the insights we gain from the BIM solution will help us to build better, cheaper, safer environments for people to live and work in.”

“To take an example, we have installed movement sensors under the tables at each chair in our meeting rooms, which allow us to see how many people are sitting in each room throughout the day. This allows us to assess if the room is being utilized properly, and whether or not it is the most efficient use of space.”

In the near future, Tyréns hopes to be able to share the solution with other organizations – creating a new revenue stream for its business.

## Solution components

- IBM® Maximo® Asset Management
- IBM MessageSight
- Node-RED
- SVSi
- Yanzi
- Tyréns AB

## Take the next step

To learn more about Tyréns, please visit [www.tyrens.se/en](http://www.tyrens.se/en). To watch some videos about Tyréns' Internet of Things solution, please visit [youtu.be/HrSV5mRsSiE](https://youtu.be/HrSV5mRsSiE)

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