

Case Study

Enhanced Room Utilization Application

Summary

A global furniture manufacturer with over 800 dealer locations has been developing and producing office furniture for over a century. Employing talented office-to-home interior designers, they arrange their products in rooms effectively to fit the needs of their customers. But in order to step into the current technology-centric market, they needed help developing a software product that would optimize room usage and create smart, connected spaces for their customers. They needed a partner that could provide experts in DevOps solutions in order to get this new product to market quickly to outpace their competitors. In addition, the client required IoT expertise to automatically extract and input sensor data in real time into a fully customized, user-friendly dashboard that could be used by both our client and their customers.

Luxoft created a front-end solution that pulls sensor data via Java, displaying interactive visuals on an intuitive dashboard. In addition, we incorporated a backend via Azure in order to collect data onto the cloud. Luxoft also helped create regular developer workflows by using Scrum ideology. By setting up a Scrum team and advising the client on how to operate, the client became much more agile in their software development process, with their team velocity exponentially increasing from 8 points to 55 points per sprint. Additionally, Luxoft opened up a DevOps pipeline to speed up the development and testing process even further, reducing build times from days to mere hours. By helping speed this unique software product to release, our client could then solidify a place in the market before their competitors do. Product users would then be able to optimize their space in order to fit the needs of their occupants – lowering costs and increasing efficiency.

Business Challenge

Our client is a global leader in furniture manufacturing and has been producing office furniture for over a century. Employing talented office-to-home interior designers, they arrange desks, tables and chairs effectively to fit the needs of their customers. With this experience, they are aware of how workplaces are changing with the introduction of the mobile, connected worker.



Office spaces must be hyper-personalized and controlled by facilities managers in order to appeal to occupants in an increasingly complex and competitive global environment.

To set foot in a technology-centric market, our client wanted to develop their first smart spaces application product. It would use real-time actionable data obtained from room sensors to optimize conference room use, creating a connected space. But our client needed help engineering their application.

The application measures the use of conference rooms by detecting how many people come in and out of them, what time of day they are occupied, how long the rooms are occupied and if occupants have scheduled the room for use or not. Thus, the app determines if the room's capacity is being efficiently utilized, if more furniture would be able to fit, and of what types and sizes. Having rarely-used rooms increases costs for facilities managers, so this application helps pinpoint those rooms for users.

For instance, an 8-person conference room that typically has 2-person meetings could be divided into two 4-person rooms, opening up more availability for meetings. Since the room is so large, it's important to maximize the space whenever possible.

As a furniture manufacturer, this application is beneficial to the client's interests. The client's customers using the application will be able to figure out if they can buy more furniture and what kinds, increasing customer satisfaction. This gives our client a niche spot in the market, making their brand stand out more than others due to this unique application product. As the first app of its kind, the client needed a partner that could provide a DevOps pipeline solution to get it to market quickly to outpace their competitors. In addition, they needed IoT expertise to extract data in real time from sensors into a user-friendly dashboard.

Luxoft's Solution

Luxoft has previously implemented an IoT solution that tracks occupants in airport lounges to optimize VIP lounge passes, which detected the entry and exit of over 9,500 customers with more than **90% tracking accuracy in just six weeks**. Luxoft has also accelerated the delivery cycles of online banking applications through DevOps, and provided a continuous delivery pipeline for a social media company's interactive application. With proven expertise and a previously built proof of concept, Luxoft brought in IoT and DevOps teams to help make the client's software product a reality.

The application product was designed to evaluate the use of conference rooms and the furniture inhabiting them by collecting data from in-room infrared sensors. These sensors would detect people who enter the conference rooms, sending real-time data to the Azure cloud. To that end, Luxoft created a front end that pulls sensor data via Java, running it through an analytics engine and displaying charts on a customized dashboard for both our client and our client's customers to see. Facilities managers can then access the data from anywhere and at any time, even searching by timeframe, room location, room amenities and other attributes.

Developed with AngularJS and Node.js, the dashboard displays data charts to help users make data-driven decisions – such as what office furniture to buy and what conference rooms are necessary – optimizing room use. For example, a large conference room could be changed into six workstations if not occupied enough as is, in order to optimize the area by providing space for new hires. Or the dashboard could show there aren't enough chairs in a particular room, recommending a certain amount more can fit comfortably. Using this program will bring visibility into conference room use through an intuitive dashboard.

To keep the project quick and on task, Luxoft helped create regular developer workflows using Scrum ideology. We set up two Scrum teams with 14 Luxoft experts and advised the client on how to operate, organize sprints, produce user stories, find out what tasks the product owner and other Scrum titles entail. As a result, the client adopted this methodology and became much more agile in their development process, with their team velocity exponentially increasing from 8 points to 55 points per sprint. We also opened a DevOps pipeline to speed up the development process even further, automating tasks (such as the build process and security scans) and improving communication between development and IT operations. This allowed the team to reduce build times from days to mere hours.

Benefits

The product will help facilities managers make the best use of their space, evaluating conference room use and furniture placement. Instead of having empty rooms, the space will be optimized to fit the needs of the occupants, increasing efficiency.

Solution Overview

Industry:

- Manufacturing
- Real Estate

Partner Technologies:

- AngularJS
- Node.js
- JavaScript
- C#
- Docker
- Karma
- Jasmine
- MySQL
- JMeter
- Microsoft Azure

Luxoft Services:

Scrum and Agile advising
DevOps pipeline creation
IoT development assistance and advising

Client Profile:

35 technology specialists;
developers, QA, UX design,
product owner... and more



As the second highest cost for facilities managers is real estate (after employees), this also will dramatically cut costs.

This application will help increase the satisfaction of the client's customers, helping facilities managers determine if they can buy more furniture and what types. Since this solution is the first of its kind, the application gives our client a niche spot in the market, making them more favorable and noticed by their customers.

This product will eliminate slow manual and anecdotal processes to find out if space use is optimized. Using an automated, unbiased approach keeps the data accurate and easy to obtain, allowing users to act on it immediately. Automatic data collection will also free up users for other tasks. By storing on the cloud, the data collected from sensors is highly secure.

The use of Scrum and DevOps helps advocate automation and quick adjustment to changing needs during development, bringing the product to market much more quickly. This helps our client solidify a unique place in the market before their competitors do. Through these methodologies, our client was able to monitor and shorten the cycles of development, integration, testing, deployment and infrastructure management.

While used for conference rooms, this concept can optimize the use of any space in any industry. In the future, the client wishes to integrate the program's data with other products they produce, as well as develop mobile functionality.