

A Data-Driven Approach to Conference Room Occupancy Management

Global Enterprise Application Software Company

Case Study



Custom dashboard to understand capacity usage of conference rooms across campuses.

200

Meeting rooms

09

Campuses

The market leader in enterprise application software equipped nine campuses with Enlighted desk occupancy sensors to evaluate their conference room occupancy and room and desk utilization to drive space efficiency and energy savings. This allows them to evaluate the utilization of all desks within their office spaces and to make relevant business decisions in managing their spaces, checking for over/underutilized spaces and departments and test the adoption of different space types for employee well-being.

The Enlighted sensor-based solution works great for their open office areas and offers valuable insights of the utilization of the office building. However, they require more in-depth insights to meet their needs when it came to the 200 plus meeting rooms across their campuses. Kicking off this project, we started with a pilot focusing on one building and a two-week data range.

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At Enlighted we are excited to collaborate with our customers to co-create tailored insights that enhance efficiency across their real estate portfolios. By partnering closely, we tackle complex challenges and address unique use cases with customized solutions. Our goal is to empower our customers to unlock the full potential of our data solutions.

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FRANCO CASTALDINI

Head of Product

Custom Data Reporting with Enlighted Spark Services

To take a data-driven approach to better understand conference room utilization, our customer collaborated with the Spark team; a dynamic on-demand consultative service provided by Enlighted. The Enlighted Spark service is both comprehensive and data agnostic. It can include insights from our own ecosystem - Enlighted Connect Data and IoT Data from Integrated Sensors - and any other specific data relevant to your operations from external data sources. One of five key areas of expertise for the team is Live Dashboard (booking & IoT): allowing for a breakdown of space traits including conference rooms and this is the area of focus for this client engagement.

Through this partnership, our business intelligence experts pinpointed our customer's monitoring requirements, crafting customized, automated reports to align with their precise metrics.

Client Conference Room Configuration:

The conference rooms were set up by equipping each chair in the conference room with an occupancy sensor. This solution allows them to know which chair had the highest utilization and which had the lowest utilization. It did not allow the customer insights into the overall usage of the capacity of the meeting room.

The challenge was that the customer wanted to know whether the meeting rooms were offering the right capacity or if they were too small or too large via a live dashboard. Given internal resource constraints, our client did not want to build this dashboard using the data API but preferred that our Enlighted Spark team take this on to meet a deadline.

Conference Room Capacity Defined:

Our teams defined important project metrics for the project.



Sensor Status

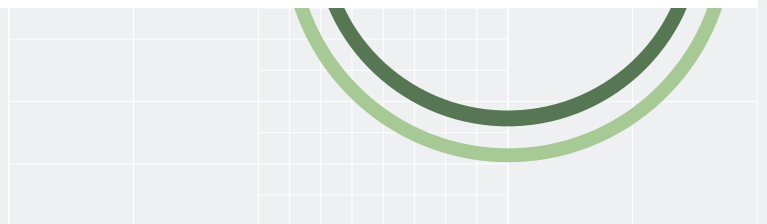
When analyzing the sensor data, it is important to understand what potential data a sensor can deliver. At all times a sensor can only be in one of the four following statuses:

- Occupied: Indicating that a sensor is detecting movement
- Unoccupied: Indicating that a sensor is not detecting movement
- Unknown: No data from the sensor has been delivered



Occupancy

The occupancy metric gives information on how many occupied minutes a sensor has detected in each time range in a percentage. The most used aggregation of sensor data for this project is one hour. E.g. a sensor detects 30 minutes (does not have to be consecutive) of occupied signal within one hour, the occupancy is equal to 50%.





Desk Utilization

The desk utilization metric provides clear insight into whether a sensor positioned at a conference room table deems an hour as either actively used or unused. This metric of utilization operates on a binary scale, conveying a sensor’s assessment as either “utilized” or “unutilized.” This determination hinges on surpassing a predefined occupancy threshold within each hour. So, a conference room sensor is classified as utilized if the cumulative occupied minutes exceed a specified threshold. This threshold is adjustable to the client’s preference. A widely accepted benchmark embedded in Enlighted and other solutions like “Insights” sets this threshold at 25 minutes of occupancy signal within any given hour.



Room Utilization

The room utilization metrics provides insight to whether a room is considered utilized or unutilized within an hour. This metric gives information about how many desks have been considered utilized within a room within a given hour. E.g., 50% threshold. A room with 10 desks inside is considered utilized, when 5 or more desks in that room have been considered utilized within this hour. This threshold for Room Utilization can also be modified to the users liking.

Low and High Performing Rooms

Our customer aims to achieve operational excellence and enhance the occupant experience by optimizing meeting room infrastructure. To this end, we focused on identifying both low and high performing times as follows:



Low Performance times

The “Low Performing Times” (LPT) Graph calculates the percentage of time a room has low utilization. The base threshold is set at 30%, and this metric helps understand how often a room has zero or very little usage. For example, in a room with 10 desks, this metric shows the percentage of time when 3 or fewer desks are occupied.



High Performance times

The “High Performing Times” (HPT) Graph calculates the percentage of time a room is heavily used. The base threshold is set at 70%. For example, in a room with 10 desks, this metric shows the percentage of time when 7 or more desks are occupied.



Customer objectives:

- Gather a deep understanding of meeting room utilization to resize rooms to their employee’s needs at each location
- Leasing out meeting rooms that are underutilized
- Save unnecessary energy costs on HVAC that does not need to be on when rooms are unoccupied



Requirements:

- The ability to deep dive into data and high-level reporting to flag abnormalities
- The ability to identify capacity limitations of meeting rooms
- Identify meeting rooms that are frequently populated but not at full capacity. (ex: fits 15 and usually gathers 5 people)
- Identify the use of shared meeting rooms being used as private offices



Customization Provided:

- Mapping desks to the correct rooms to address specific setup needs
- Adjusting the fixed occupancy threshold to define when a desk is considered utilized
- Adjusting the fixed occupancy threshold to define when a room is considered utilized
- Creating detailed and tailored reports that enable to easily analyze and understand their specific metrics

Custom Reporting Dashboard

The custom dashboard features key performance indicators that can be viewed in real-time. Users can access:

1. Category Filters:

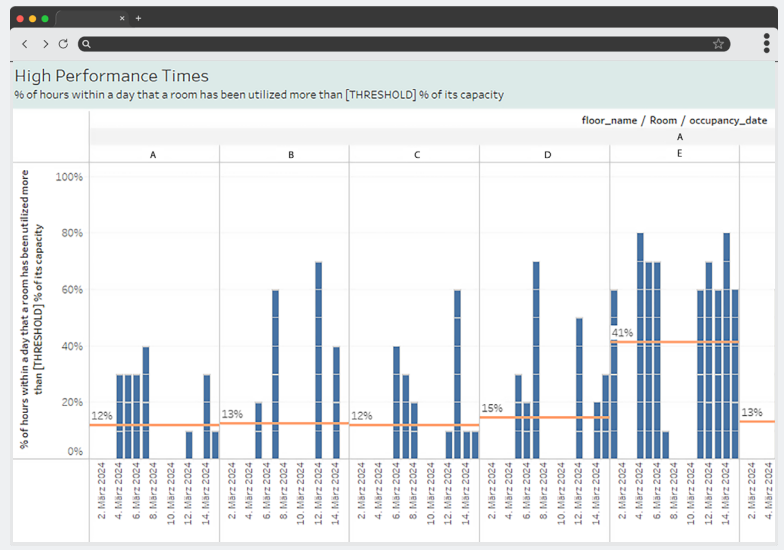
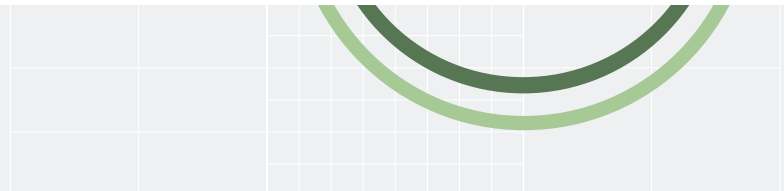
Users can filter data by “Departments” and “Desk Type” to tailor the dashboard visualization to their needs.

2. PDF Extraction:

Users can extract the dashboard data into PDF format for reporting and sharing.

3. Tailored dashboards:

Users can access graphs such as Average Occupancy, Occupancy by Time of Day, Detailed Desk Counting, Average Capacity by Time of Day, and Low/High Performance Times. These features enable a deep understanding of meeting room utilization and analysis of room usage patterns to support informed decisions.



How to interpret the data:

Initially the team determined that 0% of time as value for the “low performing” measure and 100% of time for the “high performing measure” will not be the benchmark, as they are not the norm. However, a high score in the “LPT” and a low score in the “HPT” is a strong indication for a room being too big. This is telling the user that the room of interest is basically unutilized for most of the time and never really utilized.

Patterns to look out for:

Having these metrics available gives the client a chance to quickly examine the percentage of high utilized and low utilized times for a given meeting room. This information allows the client to identify different scenarios or patterns which may or may not require the attention and action of the real estate management team.



Pattern	Insight	Action
<p>Low value LPT and high value in HPT</p>	<p>The ideal scenario for a conference room is one where it experiences:</p> <ul style="list-style-type: none"> • Minimal instances of being empty or underutilized, and • Frequent instances of high utilization or being fully occupied 	<p>No action required</p>
<p>Low value LPT and low value in HPT</p>	<p>This scenario requires review because the conference room, despite being often utilized, rarely reaches its maximum potential.</p>	<p>Review for Reduction in Size</p> <p>Review to determine action such as a reduction in size as the capacity is rarely reached and the room is underutilized.</p>
<p>High value LPT and Medium/High value in HPT</p>	<p>This scenario is typical for conference rooms with more than 15 chairs. These rooms generally have low occupancy most of the time but experience surges in high utilization during large events that fill them to capacity.</p> <p>Despite infrequent, when these events occur, the customer needs to ensure that the available capacity is sufficient.</p>	<p>Monitor to Validate Usage is in Alignment</p> <p>Monitor to ensure that the room is occasionally at capacity.</p>
<p>High value LPT and Low value in HPT</p>	<p>This scenario requires immediate action as the conference room has both low occupancy and low utilization.</p>	<p>Immediate Action Required</p> <p>Actions can include leasing the space out, breaking it down into multiple smaller rooms or identifying reasons that might lead to this usage pattern.</p>

Findings in the case study:

By examining the test data from the two-week pilot, we identified all four of the previously defined usage patterns:

<p>Low value LPT and high value in HPT</p>	<p>A lot of meeting rooms are used as intended. They are empty or low in room utilization for an overall small fraction of the time, while mostly being filled with more than 70% of its capacity. This is a great indicator that those hold the perfect capacity and equipment.</p>
<p>Low value LPT and low value in HPT</p>	<p>For this pattern, one room which has a capacity of 6 desks stood out. Although this room was frequently used by groups of up to 3 people, it was never utilized by more than that. This suggests that while the room and its technical equipment are valued by employees, its capacity may be too large. Further data verification is needed, but currently, this room is a strong candidate for capacity reduction.</p>
<p>High value LPT and Medium/High value in HPT</p>	<p>In contrast to the large meeting room mentioned on topic A, this pattern was expected. We identified it in one of the rooms on the first floor, which has a capacity of 12 desks, making it one of the larger rooms in this case study. As anticipated, not all desks in this room are frequently needed. The data shows that smaller groups use this room most of the time. However, during larger meetings, the room's full capacity is utilized by employees. This results in an overall average of 6% High Performance Times (HPT) over the entire period. This indicates that the large meeting room is being used as intended.</p>
<p>High value LPT and Low Value HPT</p>	<p>This last category is particularly noteworthy as it raises significant concerns for Facility Management. Five rooms have been identified with this usage pattern, with capacities ranging from very small (2 desks) to very large (12 desks). As we roll out the dashboard portfolio-wide and gather more time series data, these rooms will receive considerable attention. They are prime candidates for being divided into smaller rooms or leased out entirely, as their capacity is not being sufficiently utilized.</p>

Conclusion: Looking Forward

This customer case study demonstrates the power of delivering a customized dashboard tailored to our client's needs, delving deep into the critical insights that drive analysis of conference room utilization. By leveraging the expertise of the Enlighted Spark team and custom data analytics, we not only optimized conference room occupancy but also paved the way for a greener, smarter future.



Building Robotics, Inc.,
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Turn Everyday Spaces into Extraordinary Places

Wherever space, people and work meet, Enlighted empowers organizations with the technology to transform real estate spaces into regenerative places that fuel positive impact for people, portfolio, and our planet.

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