ABB Smart Campus

Smart Spaces, Smarter Work – Digital Services

infsoft
smart connected locations

Klaus Hook
Country Real Estate Manager,
ABB Germany

"

At the ABB Campus in Mannheim, we are setting new benchmarks in the use of future-proof technologies. A custom-built app tailored to ABB provides employees with all essential features to support their daily work routines.

Leveraging infsoft's holistic solutions, including occupancy sensors, digital wayfinding, and asset tracking applications we have created a state-of-the-art and flexible working environment.

By capturing real-time occupancy data of workstations and meeting rooms, cleaning processes across the ABB Campus can be managed in a targeted and efficient way, enhancing both operational efficiency and sustainability.
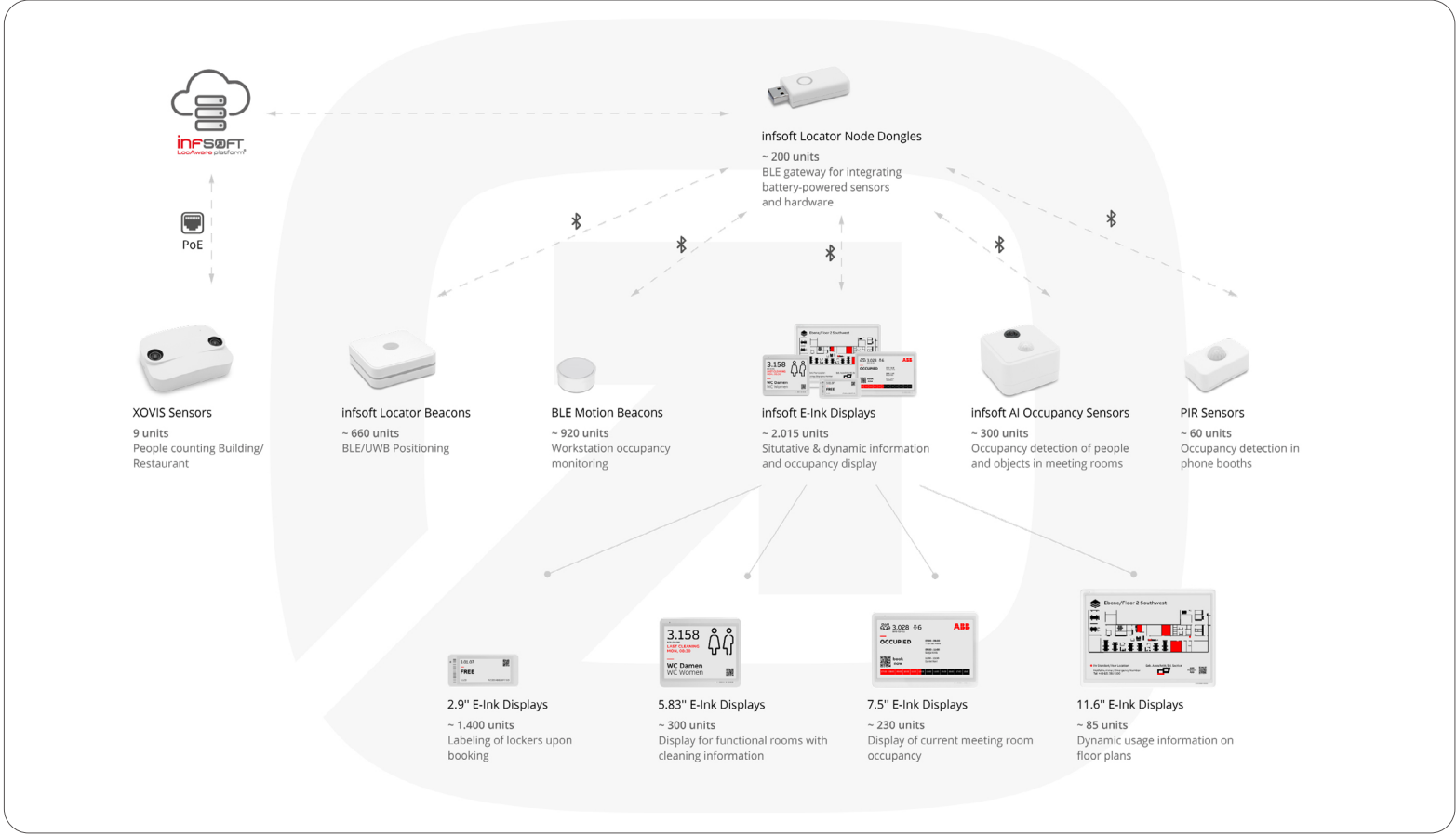
Volker Heimbeck
Senior Projekt Manager Smart
Campus, on behalf of ABB AG

"

One of the key challenges in this ABB project was to derive a specific catalog of functions from a wide range of diverse requests and requirements into a clear set of functionalities and to implement these within a coherent, user-focused solution.

The resulting Smart Campus solution now delivers a customized and comprehensive portfolio of features that enjoys high acceptance among ABB employees. Strong user engagement and excellent satisfaction ratings are clear indicators of its success.

Throughout both the implementation and ongoing operations, infsoft has provided ABB with outstanding support - quick, competent, collaborative, and friendly. In short, an exceptionally reliable and valued partner.

With the construction of the new ABB Campus in Mannheim, ABB AG has created an outstanding showcase for the integration of modern workspace and spatial concepts. The connected office building redefines standards in space utilization and enables flexible workplace models that meet today's demands for collaboration, agility, and innovation. As a flagship project of ABB's global "Future of Work" strategy, the Smart Campus embodies a seamless fusion of cutting-edge technology, customer-centric thinking, and forward-looking innovation. The result is a working environment that is not only efficient, but also inspiring – for employees, partners, and clients alike.

Spanning approximately 29,600 square meters of gross floor area, the new ABB Campus offers a state-of-the-art working environment for around 1,300 employees from a wide range of departments, including operations, research and development, and service functions. Particular emphasis was placed on creating multifunctional spaces that strike a balance between collaboration and concentration. Open areas designed for teamwork are complemented by quiet zones that foster individual focus, enabling employees to choose the environment that best supports their tasks. The campus's flexible workplace solutions are thoughtfully tailored to meet the demands of an increasingly agile, digital, and hybrid work culture. Offering the adaptability needed for today's dynamic workflows while also anticipating future needs.

A key pillar of the concept is the comprehensive implementation of infsoft's integrated technology suite. This includes occupancy sensors, digital wayfinding, and solutions for asset tracking as well as the booking of workspaces, meeting rooms, and lockers. The infsoft LocAware platform® consolidates all collected data and provides it in a structured format to various subsystems. A standout feature is the platform's bidirectional communication with on-site service offerings. This enables, for example, demand-driven cleaning based on actual space utilization, ensuring efficient operations and sustainable resource management.

Since June 2024, this intelligent all-in-one solution has been available to all employees on site. It enhances daily operations, fosters collaboration, and drives overall efficiency.

With the Smart Campus, ABB is setting a new benchmark for flexible, technology-driven work environments.

infsoft hardware components

Functional Rooms

E-Ink displays are used as digital door signs for functional and service rooms on the Smart Campus. They also offer interaction via QR codes, which can be used to open a service ticket in the Smart Campus app in the event of any faults.

Conference Rooms

The displays in conference and meeting rooms show current bookings. The information comes from the connected Outlook calendars. Current occupancy, also based on the installed sensor technology for occupancy detection, is clearly visible via the red status LED. This display also offers the user an interaction option via QR code, so that ad hoc bookings, future reservations or fault messages can be entered. The Smart Campus app is the central tool along the various stations of the working day.

Lockers

Employees can book a locker for personal items and work materials such as keyboards etc. via the Smart Campus application. The lockers are equipped with displays that show the occupancy status. To make it easier to identify their own locker, users can use the application to flash the LED on the display in a color of their choice for a short time. The E-Inks also offer QR code interaction for booking via the Smart Campus application.

Floor Plans

The Smart Campus uses the digital signage solution to provide up-to-date live information on floor occupancy on every floor of the new building. The floor plans installed at strategic points show not only the current location but also the occupancy information of the conference rooms in real time. Other relevant POIs such as toilets and elevators are also clearly marked.

Digital Signage

Battery-powered E-Ink displays are used at the site to provide a wide range of information in an efficient and innovative way. The displays are ideal for displaying up-to-the-minute information in areas such as function and meeting rooms, lockers and on floor plans. Thanks to their low-energy technology, combined with Bluetooth Low Energy (BLE), the E-Ink displays not only offer an efficient and durable solution for digital signage, but also extend their benefits with additional functions. In particular, they can actively contribute to localization by being integrated into existing indoor navigation systems. This enables precise localization of objects or people in real time, making them an essential part of the modern ABB smart building concept.

Further advantages of this hardware include the integrated multi-colored LED indicator, which provides additional visual cues, for example for navigation or status display. If the exact location of the locker cannot be found on site straight away, the app can be used to make an LED light in

the infsoft E-Ink Display Beacon light up in color for around 10 seconds. The displays ensure that employees and visitors always have access to the most current information, automatically and in real time. Seamless backend integration ensures that content updates occur automatically, eliminating the need for manual intervention and enabling efficient communication across the entire campus.

E-Ink displays are used in a wide range of applications, whereby their size plays an important role. As mentioned in the following sections, smaller displays are ideal for individual applications such as the labeling of lockers or rooms. They offer a compact and efficient way of providing targeted information that is directly relevant on site. Larger displays, on the other hand, are ideal for displaying complex content such as floor plans, directions or extensive information at a glance, making them particularly useful in public areas or large buildings.

This flexibility makes E-Ink technology a versatile and sustainable solution for digital signage in modern working environments.

Utilization & Sensor Technology

ABB's space management has access to a comprehensive utilization analysis based on the installed sensors and connected systems. Especially in the context of activity-based working and free seating concepts, the reporting provides decision-makers with a well-founded database for strategic corporate decisions regarding the space structure.

Occupancy and utilization information is also available in the Smart Campus application, significantly reducing search times for free workstations and meeting rooms for employees. A large number of sensor solutions are used for capacity utilization analyses at ABB to ensure precise and comprehensive data collection.

Conference Rooms

AI Occupancy Sensors - All meeting rooms on the campus are equipped with infsoft AI Occupancy Sensors, which, in addition to detecting and counting people, also enable passive occupancy indication through object recognition. The battery-operated sensors are installed on the ceiling of the room and, with their integrated PIR sensor, enable ad

hoc detection when the resource is in use. Even when people are physically absent, occupancy can be reliably visualized by defined object classes such as laptops or keyboards.

In combination with the room's booking information, auto-release functions are also implemented, which release the room after defined time intervals if no one is present within this time after the start of the meeting.

Workstations

Motion beacons - Workstation occupancy at the Smart Campus is determined through a combination of booking data and sensor-based detection at each individual desk. To accurately capture real-time usage, the desks are equipped with motion beacons that register vibrations when a workstation is in use. If a defined threshold is exceeded, the system marks the workstation as occupied.

This sensor technology provides a straightforward method of presence detection based on physical activity. Additionally, intelligent backend logic ensures that a workstation remains marked as occupied for a configurable period, even during short absences, avoiding false availability signals and enabling a more realistic representation of actual usage patterns.

Phone Booths

PIR sensors - The phone booths across the campus are also equipped with sensors to detect occupancy in real time. Each booth utilizes passive infrared (PIR) sensors, which identify basic occupancy status based on motion within the enclosed space.

These sensors offer a reliable and non-intrusive way to monitor usage, helping optimize availability and reduce unnecessary bookings. Both the sensitivity of the motion detection and the duration for which the occupancy status is maintained can be individually configured to suit specific operational requirements and usage patterns.

More information on sensor technology:
- infsoft AI Occupancy Sensor

Detailed Insights

The values and data recorded by the mentioned sensor systems are made available to the building operator as utilization analyses, e.g. in the form of heat maps. infsoft Occupancy offers in-depth data analyses for freely defina-ble evaluation periods as well as real-time information. The reports can be customized using various filter options so that specific areas or specific times of day can be explicitly addressed.


Smart Campus live occupancy

Involvement of various Stakeholders

Employees - Employees benefit from the Smart Campus app, which offers a fast and reliable real-time overview of available workspaces and meeting rooms. Designed with a user-centric approach, the app addresses diverse needs and preferences, ensuring a smooth and personalized experience.

Featuring an intuitive and user-friendly interface, the Smart Campus app provides employees with real-time access to the availability of workstations, meeting rooms, and other shared resources. The app is designed to simplify the search process and reduce time spent looking for suitable spaces.
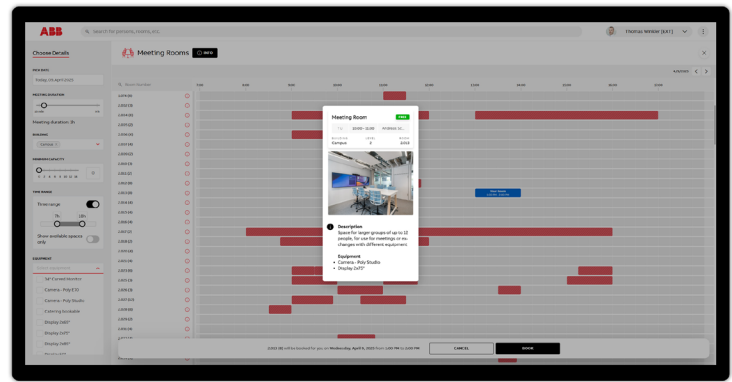

Meeting rooms - booking wizard

Users can choose from a range of display options tailored to different preferences and use cases, including interactive floor plans for spatial orientation, list views for quick scan-ning, and intelligent filter functions to narrow down results based on location, equipment, or availability. This versatility ensures that every employee can quickly and efficiently find a space that meets their specific needs. Whether for focu-sed work, collaboration, or spontaneous meetings.

In this way, the Smart Campus app helps to make the orga-nization and use of work resources more efficient and to offer employees a modern, flexible working environment.

Space Management - infsoft Occupancy offers elaborate reports and management summaries on specific issues relating to the space portfolio. These include the number of meeting, focus, creative and collaboration rooms in the right sizes and the availability of rooms over definable time periods.

Particularly valuable are the detailed utilization charts, which go beyond pure usage and offer deeper insights into the spatial behavior of employees. These evaluations not only analyze the general use of workstations and meeting rooms, but also identify preferred rooms and room types. This gives companies a precise understanding of which rooms are particularly in demand and which functions they fulfill.
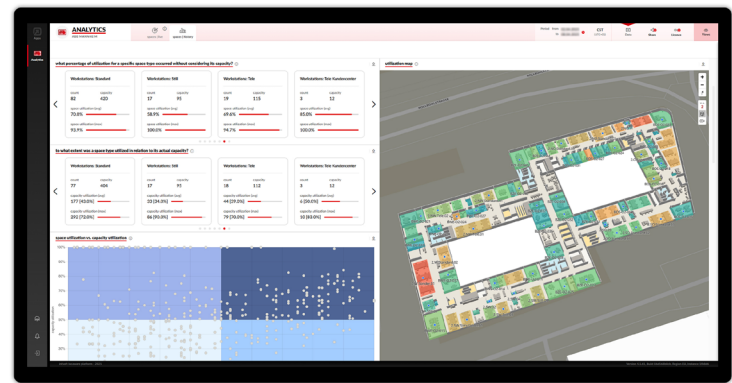
infsoft Occupancy Analytics

The use of shared desks (flexible workplaces) is also inclu-ded in the analysis. This comprehensive approach enables companies to precisely evaluate workplace flexibility and efficiency and identify optimization potential. In this way, work environments can be specifically adapted to meet the needs of employees while ensuring efficient use of resources. These in-depth analyses provide companies with valuable insights that support both planning and long-term workplace design strategy.

The platform offers customizable dashboards that can be tailored to ABB's specific needs and priorities. These dash-boards enable intuitive visualization of trends, patterns and optimization potential. In addition, all reports and dash-boards can be easily exported, facilitating integration into existing management and reporting systems.

Service - The occupancy analyzes on the Smart Campus create the base for the introduction of intelligent, demand-oriented cleaning concepts. With the help of precise data on usage intensity and occupancy information, dynamic, resource-saving cleaning is implemented that is optimally tailored to the actual use of the areas and rooms. The inno-vative "Cleaning on Demand" concept is being implemented in the Smart Campus in collaboration with Soobr. The aim is to combine efficiency and sustainability while ensuring a consistently high quality of service.

infsoft Occupancy Analytics

Soobr leverages the extensive usage data collected across all rooms and areas of the Smart Campus. This granu-lar insight enables dynamic and demand-based control of cleaning schedules. Instead of relying on rigid, standard-ized time plans, cleaning operations are aligned with actual space utilization.

The result: optimized workflows, significant savings in resources such as water, energy, and cleaning agents, and a more sustainable approach to facility management. This data-driven methodology ensures maximum operational efficiency while supporting environmentally responsible practices.

The seamless communication between Soobr and the inf-soft LocAware platform® ensures smooth and efficient ope-rations. All completed cleaning activities are recorded by Soobr and transmitted directly to the infsoft platform. The collected data is displayed in real time on E-Ink displays installed in key areas such as restrooms.

Users can instantly see when a space was last cleaned and whether cleaning is currently in progress, ensuring full transparency at a glance. This intelligent cleaning concept not only enhances the efficiency and sustainability of faci-lity services but also improves the overall user experience. At the same time, cleaning staff benefit from optimized workflows: unnecessary tasks are eliminated, and efforts can be targeted where they're needed most. Cleaning on Demand is a key component of a modern, sustainable, and smart campus management strategy.

Smart Campus Application

The Smart Campus application is available as an iOS, Android and web version (responsive).

Mobility

Overview of public transport, parking spaces & charging stations - The Smart Campus application supports ABB

employees with a variety of practical functions even before they arrive. The application provides information on public transport stops around the Mannheim campus and visualizes current charging station occupancy for electric and hybrid vehicles in the parking garage. The data comes from ABB's own energy management system "OPTIMAX".

Working on Site

Resource booking, collaboration & orientation - Employees can book a workstation up to two weeks in advance or spontaneously via the Smart Campus application.

Card-based with real-time occupancy for immediate use or via the planning tool, which also supports multi-day bookings and categorizes workstations according to the Activity Based Working concept - booking workstations is quick and easy for users. The booking can be shared with colleagues via Team Planning, making it easy to work collaboratively within the same work zone.

Lockers for storing personal belongings and work equipment are available to all employees and are conveniently distributed throughout the standard office floors. This ensures that staff members always have easy access to secure storage near their workspace, supporting flexibility and mobility in the modern workday.


The Smart Campus app provides a clear, real-time overview of both available and occupied lockers, allowing users to book lockers as needed with just a few taps. Each locker is also equipped with a digital display that visually indicates its current status on site, offering additional convenience and transparency for daily use.

Users can also get support for suitable meeting rooms within the application. In addition to direct bookings via the interactive campus map, the app offers a room overview with filter functions so that available rooms can be selected and booked based on the specified criteria such as capacity, equipment features and the like. Ad hoc bookings are also possible via the room displays using QR code interaction. An integrated calendar provides a personalized overview of the day's appointments and allows direct navigation to the room. Automatic positioning with an accuracy of <0.5m is
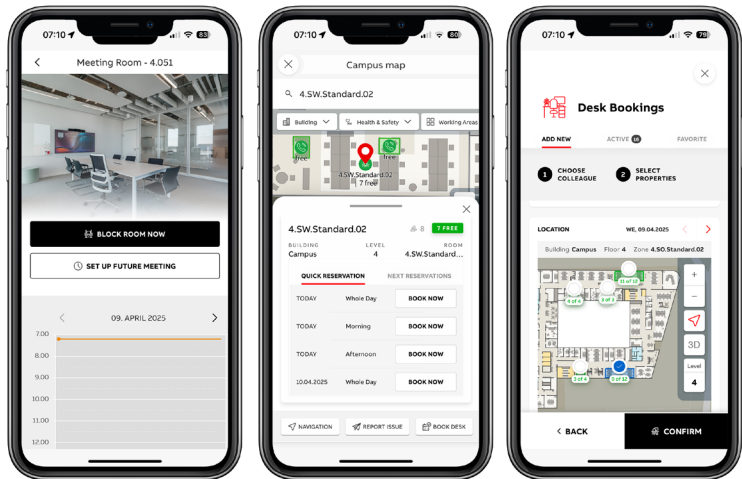
available throughout the campus building, enabling directions to any destination on the site.
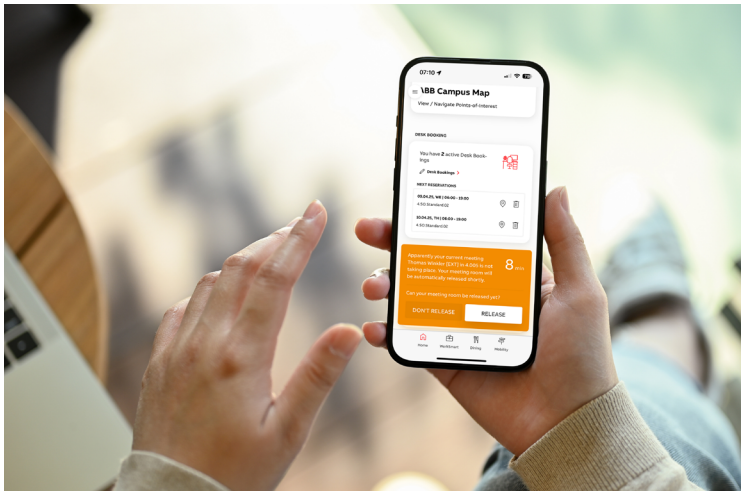
The autorelease function for meeting rooms is based on advanced technologies such as AI and PIR sensors, which ensure efficient use of resources. If the PIR sensor does not detect anyone in the room for a period of 10 minutes, the host is automatically notified. They receive a push message and an email asking them to indicate whether the room is still required or should be released.

If the host decides to release the room, it is immediately made available for booking by other users. If the room is still required, the timer is reset and a new 10-minute cycle begins. Meanwhile, the PIR sensor continuously checks whether occupancy is detected.

The push notification overlays the app and cannot be ignored to ensure that the request is processed. If the organizer leaves the notification and email unanswered, the room is automatically released after another 10 minutes.

This procedure guarantees flexible, needs-based room usage and minimizes unused time slots.

infsoft Locator Beacon

Services

Ticketing, visitor management & events/news - In the event of any disruptions to the media technology of a meeting resource, the workstation or other service cases, the Smart Campus app offers a ticket module with which service tickets can be created and assigned to the responsible work groups based on a category selection. At ABB, interfaces to ServiceNow (IT-related faults) and the service provider WISAG (issues relating to the building and other services) are connected for this purpose. Open tickets, including those of other users, are displayed in the app on an area basis, so that multiple notifications are minimized. These are also visualized on the room displays.
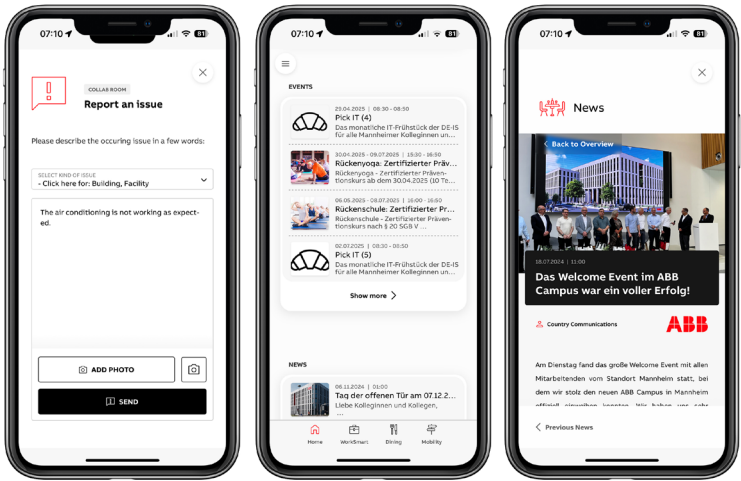

Integrated with the «EnterSmart» visitor management system, the Smart Campus app serves as an additional, user-friendly channel for managing guest registrations. The entire visitor journey, from digital safety briefings to reception-related updates is seamlessly handled within the app. Inviting employees are kept informed with real-time status notifications, such as when a guest has successfully checked in at reception.

Beyond visitor management, the app also acts as an information hub for employees. It provides a detailed overview of current events and campus news, showcasing the vibrant daily life at the Mannheim site. In addition, users can access live data on the building's energy performance, including real-time energy consumption, photovoltaic output, and charging station usage. Offering both transparency and awareness around sustainability efforts.

Food & Dining

Meal plan, canteen utilization & catering orders - In addition to snacks in Caffè Dalluci, the company restaurant Eat & Meet offers a variety of lunch dishes that can be called up in the Smart Campus app a week in advance. Linked filter options allow employees to enter their personal preferences (e.g. exclude allergens) and receive a menu selection tailored to them. The canteen operator "Eurest" supplies the data to a provided interface.
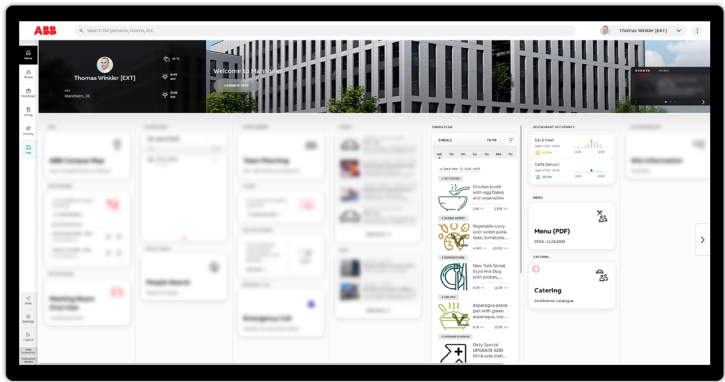
The information on current capacity utilization, including available seats, provides helpful guidance on the timing of the coffee and restaurant visit.

The Smart Campus app accompanies ABB employees seamlessly through their day-to-day work and offers comprehensive information and functions. This allows users to concentrate fully on their work and benefit from a supportive, integrated platform that makes working efficient and pleasant.
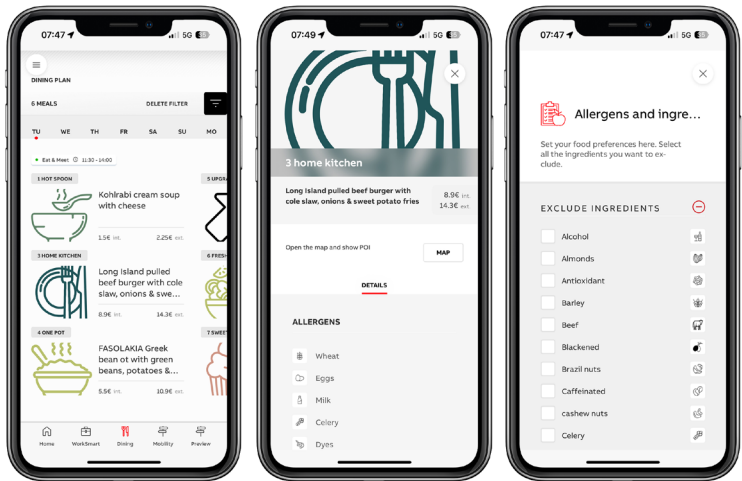
The ABB Campus in Mannheim is a striking example of how innovative technologies and forward-thinking concepts can transform the world of work. With a seamless blend of modern architecture, digital infrastructure, and a strong focus on employee needs, the result is a fully connected Smart Campus that sets new standards.

From advanced digital signage and detailed space utilization analytics to a comprehensive network of sensors, the Smart Campus is equipped with all the tools needed for intelligent space management and the ongoing optimization of workplace processes. These technologies not only increase efficiency but also support long-term sustainability goals.

As a key component of this ecosystem, the Smart Campus app gives employees an intuitive and flexible interface for organizing their workday. Whether booking workstations, meeting rooms, or personal lockers, the app streamlines everyday tasks and enhances the overall workplace experience.

Mobility has also been thoughtfully redefined. The campus features electric vehicle charging stations, ample bicycle parking, and direct access to public transportation all encouraging environmentally friendly alternatives to commuting by car.

A key focus was placed on open, flexible spatial design that fosters communication and collaboration. Adaptive office areas, quiet zones, and creative spaces provide the ideal setting for every work scenario.

By strategically implementing smart building technologies, ABB has created a dynamic work environment that continuously adapts to the needs of its users. Real-time data supports the reduction of operational costs while enhancing both comfort and functionality.

ABB AG demonstrates how technological innovation can boost not only efficiency and agility, but also employee satisfaction and productivity. The Smart Campus is more than just a building, it is a living example of digital transformation in action, and a blueprint for the workplaces of tomorrow.
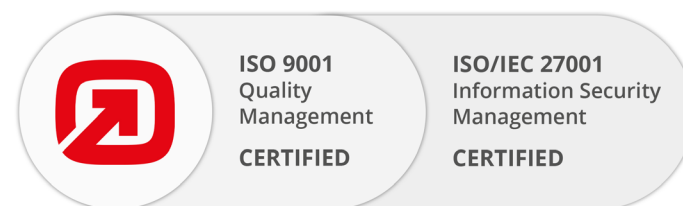
About infsoft

infsoft GmbH, based in Großmehring near Ingolstadt, has been offering comprehensive platform solutions for large companies since 2005. The focus is on the location of people and assets, utilization analyses of space and equipment, room sensor evaluations and the provision of workplace experience systems. E-labeling components for mobile assets and situational room labeling complete the portfolio.

smart connected locations: The infsoft LocAware platform® forms the basis of the full-service offering as a central cloud IoT hub. Extensive web applications for data management and visualization are available within the platform. infsoft LocAware offers a bi-directional connection to third-party systems via numerous interfaces in order to bundle internal and external data streams.

Long-standing customers include F. Hoffmann-La Roche, Roche Diagnostics, Audi, Frankfurt Airport and the Swiss Federal Railways (SBB). infsoft's quality management is certified according to DIN EN ISO 9001, and our information security management is certified according to ISO/IEC 2700. Our quality management encompasses all measures to improve processes, services and products in order to consistently meet customer and regulatory requirements.

ISO 9001 Quality Management **CERTIFIED**	**ISO/IEC 27001** Information Security Management **CERTIFIED**

infsoft
smart connected locations

Text & Design infsoft GmbH
Picture Credits ©infsoft.com, ©shutterstock.com