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Leading Healthcare Company Pilots RFID Solution to Improve Employee Safety



CUSTOMER CASE STUDY

Emergency egress project lays ground for improved response time and awareness of missing employees

Bayer is a global enterprise in the Life Science fields of health care and agriculture. Its products and services are designed to benefit people and improve their quality of life. At the same time, the Group aims to create value through innovation, growth and high earning power.

Led by Bayer AG in Leverkusen, Germany, the Bayer subgroups of Bayer HealthCare, Bayer CropScience and Covestro (formerly Bayer MaterialScience) independently manage their business operations.

Bayer Healthcare is among the world's foremost innovators in the field of pharmaceutical and medical products. This subgroup researches, develops, manufactures and markets products to improve the health of people and animals. The subgroup has four operating divisions:

- **Animal Health** (veterinary medicines and grooming products)
- **Consumer Care** (including over-the-counter medicines, dietary supplements, dermatology products, foot care products, sunscreens and other non-prescription products; prescription dermatology products)
- **Medical Care** (blood glucose monitoring systems, contrast agents, injection systems for diagnostic procedures)
- **Pharmaceuticals** (prescription medicines)

Bayer CropScience is one of the world's leading research-intensive companies in the agricultural industry, offering a broad range of innovative chemical and biological products for improving plant health, along with high-value seeds. It also provides extensive customer service to support modern, sustainable agriculture. A further focus is on non-agricultural applications.

Covestro (formerly Bayer MaterialScience) is a renowned supplier of high-tech polymers and develops innovative product solutions for a wide variety of everyday uses. Products holding leading positions on the world market account for a large proportion of its sales.

SOLUTION OVERVIEW

INDUSTRY

Life Sciences

PROBLEM

Newly-built, high-tech corporate center desired cutting-edge tracking system for employee safety.

PROJECT

Pilot project to implement and test a fully-automated RFID solution to manage emergency egress protocols, with potential to roll out to entire campus and facilities nationwide.

CHALLENGES

- Aesthetically pleasing
- Respect employee privacy
- Extensive testing, adjustments and modifications to accommodate high volume, employee movement and common behaviors



The Problem:

At Bayer's corporate center in Pittsburgh, Pennsylvania, "Science for a Better Life" is their motto, and safety—both in manufacturing and of employees—is paramount. With a newly built, technologically-advanced flagship building serving as its corporate center for the campus of buildings housing all Bayer business subgroups, the impressive, high-tech structure was not only designed to be beautiful, but to include cutting-edge technology at every turn—including safety measures.

In the event of a need for a building evacuation due to fire, tornado or other emergencies, Bayer wanted to capitalize on technology, discontinue their current manual procedures and implement a fully-automated RFID solution to manage emergency egress protocols.

In preparation for actual emergencies, employees would be required to leave the building during emergency egress drills and assemble at assigned muster areas outside. Safety personnel would manually check-off employee names from paper lists after they were accounted for at their various muster areas.

Bayer knew the existing procedure was error-prone and wanted to implement an automated safety/response solution using RFID technology to confirm that all employees evacuated the building, plus alert them if anyone was still inside. At the same time, it was very important to Bayer to maintain an atmosphere of trust and respect with their employees. They therefore did not want to track *specific* employee movement, but rather know overall employee counts so they could confirm that the employees who were present in the building that day made it outside, or if some were unaccounted for and still in the building.

Local fire and safety officials were excited about and in full support of the safety response solution. No other company in the area had implemented or even considered such a system that could improve safety and enable faster response to missing personnel.

Bayer wanted to implement a pilot program at their corporate center and if successful, roll the system out to all 16 Bayer buildings on the campus, and to other Bayer facilities across the country.

Why Inovity?

Inovity (formerly BarCode ID Systems) had a good existing relationship with Bayer, previously providing mobile computing and imaging solutions, barcode printing and maintenance services, along with various professional services for asset tracking and disposal at several Bayer subgroup companies. Inovity also had a very strong, well-established and long-term partnership with leading industry manufacturer, Motorola Solutions (now Zebra Technologies), and was one of very few partners certified to integrate Motorola's RFID software, SSP. For this project, Motorola Solutions partnered directly with Inovity, who had the engineering capabilities, experience and expertise to manage the project, provide demos, offer consulting services and bring all pieces of the solution together.

The Solution:

The pilot project used Motorola Solutions' RFID software in conjunction with Bayer's employee database and internally-built website to manage the data. Inovity recommended Motorola's (now Zebra Technologies) FX7500 and 9500 RFID readers and tested several different types of antennas both for effectiveness and appearance to track anonymous employee movement in and out of the building through a variety of entry/exit points. Because the building was an attractive, newly-built, modern structure, Bayer was as concerned with the aesthetics of the solution as much as its functionality. They built attractive enclosures to camouflage the various RFID antennas but still allow for proper operation.

All egress points for the building, which included the main lobby entrance with vestibule, cafeteria area and outdoor patio work area, required antenna configurations. Antennas were attached via coaxial cable to the RFID readers connected to the Bayer network, and data was sent to Bayer's database. In keeping with Bayer's concern for employee trust and privacy, generic RFID cards were issued to employees—but not associated with a particular employee—and were separate from the employees' ID cards. The generic RFID cards would indicate that "an" employee entered or exited the building, but not which specific employee. The entry/egress data would be flushed nightly and cleared to start over the next day.



Challenges:

As with any RFID implementation, individual circumstances, materials and behaviors can affect the results of a system and extensive testing is therefore mandatory. The first obstacle in the Bayer project was with the RFID chips themselves and the ways employees would carry their cards. Water is an obstacle for RFID transmissions, and with the human body being approximately 60% water, any cards carried close to the body, as in a wallet or pocket, could have readability problems. Additionally, if carried too close to the employees' access control badges, the signals could also be hindered. Inovity tested several types of RFID chips for better readability and placed cards on lanyards to be worn around the neck, rather than be carried in a pocket or wallet. Initial testing did not result in acceptable read rates, so Zebra RFID cards were tested and worked considerably better after a great deal of adjustments to the strength and distance of the readers and antennas. The new RFID cards were printed in an aesthetically-pleasing format with the Bayer logo and linear barcodes that could be scanned by security guards to enter the numbers into the system initially, or on-demand as new cards were needed for employees or visitors.

Another challenge was with the RFID equipment after full testing began with heavy loads on the system. Antennas alone near the ceiling were not enough to handle hundreds of employees coming and going. Additionally, when employees would linger at or near the outdoor patio/work area, their proximities would set off the antennas and false reads were being reported, even though they were not truly entering or exiting the building. Adjustments to the RFID software and hardware were not sufficient, so Inovity recommended RFID "portals" for employees to pass through upon entering or exiting the building. Bayer was concerned about how the portals would affect the aesthetics of the building, but some very attractive Gnome Portals by Jamison were installed and met Bayer's aesthetic standards.

With the portals and extensive adjustments to the RFID hardware and software, testing was more successful, but human challenges remained. Despite having cards on lanyards to be worn, there still remained substantial interference or behavioral issues. Women employees would put the cards in their purses, men would put cards in their wallets, employees might forget their cards, etc. These behaviors would have to be overcome for the solution to work as desired.

The Results:

With better RFID cards, intelligent Motorola RFID software and employee training, the pilot emergency egress project at Bayer reached a 95% success rate, with ongoing improvements as employee training and behavioral changes continued. Inovity and Motorola Solutions provided a unique RFID solution with full project management, troubleshooting and support. As a trusted advisor to Bayer—and with the Motorola Solutions RFID software since being discontinued—Inovity has presented an intelligent automation software solution using their custom-developed Automation IQ™ software that can process the RFID transactions for emergency egress projects at all Bayer locations.

Inovity, formerly BarCode ID Systems, is a business process improvement company that transforms technology into powerful, integrated solutions that drive efficiency and reduce costs. As a specialty IT systems integrator, Inovity designs and delivers innovative solutions that connect and relay crucial business information between all points of operational activity, in real time. By emphasizing workforce mobility, ERP data mobilization and business process intelligence, Inovity provides automated technology solutions for manufacturing, distribution, healthcare, field service and retail environments.

Established in 1993, Inovity is privately owned and headquartered in Atlanta, and maintains sales and engineering offices in Atlanta, Chicago, Boston, Greenville, SC, Greensboro, NC, Columbus, OH, Huntsville, AL and Ft. Lauderdale. With innovation at its core, combined with solutions for productivity, agility, efficiency, connectivity and visibility, BarCode ID Systems has become Inovity. Contact Julie A. Leonard, Marketing Director, 800-452-7418, ext. 9045, jleonard@inovity.com, <http://www.inovity.com>.