Vestergaard Company leverages IoT to optimize the efficiency of their mission-critical aircraft equipment

How a premium brand set the foundation for continuous improvement

Across the world, hundreds of thousands of flights carry millions of people through the sky every week. Executing this incredible feat safely and efficiently requires extraordinary coordination and precision. Vestergaard, a manufacturer of critical aircraft equipment like deicing trucks and potable water units, helps ensure airlines and airports operate at peak capacity. To optimize the efficiency of their equipment and better serve their customers, Vestergaard embraced the Internet of Things (IoT).

Vestergaard produces mission-critical trucks and equipment for airports, airlines, and service providers around the world

Vestergaard Company A/S has more than 50 years of experience manufacturing premium quality global supply equipment (GSE) for the smallest commuter planes to the largest commercial aircrafts. Headquartered outside of Copenhagen, Denmark, Vestergaard is a global operation with production facilities in Denmark and Thailand, and sales and service organizations in North America, Germany, France, and Finland.

Vestergaard specializes in producing aircraft service trucks—including deicers, vacuum toilet service units, potable water units, and aircraft washers—which set the standard for quality, functionality, and durability in the GSE industry. From the Frankfurt airport in Germany to JFK in New York, airlines around the world depend on

COMPANY Vestergaard

Vestergaard's service trucks and equipment to be in the right place at the right time. For example, Vestergaard has about 85 trucks running in Frankfurt. If their systems break down on a winter day, the capacity of the entire airport would be dramatically reduced to around 30%.

At the same time, servicing their trucks and equipment is more difficult than servicing equipment in a factory. Every component used to power the trucks and associated systems must be built to withstand extreme environments, so that deicing trucks can enable planes to fly in freezing weather. Due to the mission-critical nature of their equipment, Vestergaard is committed to ensuring uptime and reliability for their customers.

Vestergaard recognized an opportunity to update their Data Transmission System

Vestergaard's products leveraged an application they built over a decade ago called the Data Transmission System (DTS). The application managed a small set of each truck's data, such as how much deicing fluid was used, but more detailed functions like job scheduling were done through manual systems. In order to continue delivering premium products to their customers, Vestergaard decided to move the application to a new platform and expand its capabilities. They recognized that integrating their application with the Industrial Internet of Things (IIoT) would enable them to increase data processing and make more data-driven decisions.

By integrating the DTS with an IIoT platform, Vestergaard planned a new generation of software with the objective of significantly impacting

their bottom line. To start, an IIoT platform helps simplify and optimize job workflows, thereby improving the operational efficiency of service trucks. Greater insight into product usage fuels the optimization of service operations and also drives sustainability efforts through better visibility into KPIs. And by enabling better job management and performance, an IIoT platform streamlines compliance efforts and improves equipment effectiveness. And this is just the beginning: Vestergaard would set the foundation for continuous improvements and updates, enabling them to grow and innovate into the future.

PTC's ThingWorx was the right IIoT platform for Vestergaard's needs

Econocap, Vestergaard's trusted partner and one of Denmark's leading suppliers of PTC solutions, were a key part of Vestergaard's IoT journey. Econocap are IT architecture experts, and they were determined to make Vestergaard's IoT initiative a success. Together, Vestergaard and Econocap decided that PTC ThingWorx was the IIoT platform they needed to connect, collect, and analyze data across Vestergaard's fleet operations—giving them and their customers valuable visibility into every aspect of their trucks.

ThingWorx is a powerful IIoT solution that fuels asset monitoring and automation scenarios. It provides the flexibility that Vestergaard needs to connect a variety of legacy equipment. By tapping into an existing and proven platform, rather than driving development on their own, ThingWorx helps Vestergaard accelerate development and scale quickly. Vestergaard was confident their new solution would be up and running quickly, scale efficiently, and work across regions.

"A DIY approach can grow to be unwieldy as you scale, in terms of maintenance, security, and more. By leveraging a platform approach, we alleviate that burden. We have a solid and trusted foundation to build with," says Elo Svanebjerg, Technical Director at Vestergaard.

PTC's Customer Success team ensured success at scale

Vestergaard chose to start their ThingWorx journey leveraging the orchestration and guidance of a PTC Customer Success Plan. PTC's Customer Success team engaged Vestergaard's Technical Director and Manager of IT Engineering to develop a path forward and outline the business case. Together, they established primary goals, identified a path for reaching first value, recurring value, and future value. To start, "first value" was defined as getting the first truck connected and making real-time operational data readily available on new, functional dashboards. Vestergaard's objectives also included sensor data collection and reporting, which improve compliance, effectiveness, and job management performance.

"We felt the success plan would take us in the right direction, inspire us throughout the journey, help us locate resources, and open doors we might not have anticipated," says Jacob Kildegaard, the Manager of IT Engineering at Vestergaard.

While it was challenging to migrate the existing application onto a new platform and also incorporate IIoT capabilities at the same time, the PTC Customer Success team proved to be an invaluable resource. Together, the two teams worked through how to store data, move data in and out of systems securely, distribute insights, facilitate knowledge transfer, and more. In addition to ensuring successful implementation, the Customer Success team also led focused enablement sessions with Vestergaard's Pre-Sales experts and Product Managers.

"The connection to the Customer Success team has been invaluable," says Kildegaard. "They are completely invested in making the project a success, and their expert guidance shortened the time to outcomes."

Vestergaard successfully launched the application and connected trucks to the IoT platform

Today, the new IIoT-based application is up and running in the United States, helping schedule, manage, service, and optimize trucks. The system manages data coming from hundreds of trucks—with each vehicle having up to 230 data points—providing a wealth of information to Vestergaard and their customers. These data-driven insights drive optimizations and efficiencies from frontline workers all the way back to Vestergaard's design phase.

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Through the application, customers push job definitions to the trucks so that frontline workers know exactly where and when they're supposed to carry out the task. Real-time location services help Vestergaard and their customers optimize workflows, getting the right operator to the right place at the right time. Dashboards give frontline workers access to critical insights, such as how much deicing fluid they should use, what the predicted weather conditions are, and how many planes need to be serviced. Leveraging third-party data like weather data, historical data, and more, the application unlocks deeper insight and optimizations around specific conditions or factors.

"The new platform is a huge help to our frontline workers and their mission-critical jobs. They are extremely effective today, and this system will only

empower them further. With all the information they have at their fingertips, they can ensure they're always in the right place at the right time," says Svanebjerg.

The application provides customers with valuable insight into asset health. Now, instead of a truck breaking down in below freezing temperatures, they can see if a system isn't operating correctly and address the issue before it becomes a problem in the field. Collecting vast amounts of data helps fuel a variety of other scenarios as well, such as streamlining the compliance reporting process and driving sustainability efforts. For example, insights into key metrics like driving patterns, emissions, and potential areas for reducing the environmental impact of equipment. And as Vestergaard invests in electrifying their trucks, they can collect warranty data around the batteries they buy from other manufacturers such as battery usage, power usage, how often they recharge the batteries, and more.

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Elo Svanebjerg,
Technical Director at Vestergaard

Data also helps drive product improvements as well, as Vestergaard leverages the data they collect in the field to optimize the engineering and design process. Now, Vestergaard sees how their products are being used and can adjust their design process to better serve customer needs. "We can analyze data to further optimize our products," says Kildegaard. "It gives us deeper insight into how our vehicles are being used." This benefit was unexpected but is already having a significant impact. With their ThingWorx IIoT Platform, they anticipate being able to realize more benefits that they might not have planned for initially.

Vestergaard improved the operational efficiency and effectiveness of their service trucks

Vestergaard is progressing quickly, but they're far from finished. In addition to their US rollout of the application, they plan expand to Japan, North America, and Europe shortly. And beyond the hundreds of trucks they have already connected, Vestergaard, Econocap, and PTC plan to scale the application to connect thousands of Vestergaard's trucks.

Vestergaard realized their goal of increasing operational efficiency through simplified, optimized, and fully managed job workflows. Leveraging control user interfaces (UIs) and dashboards, they're able to coordinate and administer operator tasks more effectively. Compliance processes have been greatly impacted as well, as better job management, performance, and extended reporting capabilities—including geolocation historical mapping—improve the effectiveness of their

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products and compliance reporting. And finally, with a platform that they can scale and adapt as they grow their business, Vestergaard successfully established a foundation for continuous improvements and future updates.

"We are continuing our digital transformation journey by exploring how we can integrate the DTS system with other systems that will produce greater benefits down the road," says Svanebjerg.

Moving forward, they plan to explore integrating augmented reality tools and other innovative technologies. "First, we establish the basics, and

then we'll move to the next level. We're thinking of all the other innovative solutions we might be able to take advantage of now," says Kildegaard.

As Vestergaard continues to scale their solution and drive business impact, they look forward to developing their relationship with PTC and the Customer Success team. "We talk on a weekly basis to discuss what we're doing and brainstorm what direction to go in. They help us stay one step ahead of potential challenges before they become a problem," says Kildegaard. "I see it as a continuous process. In a way, we've been able to organically grow together."