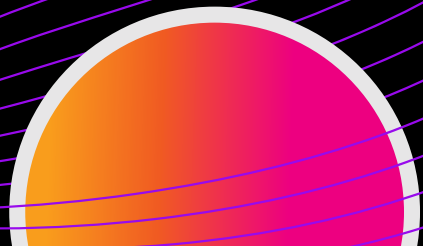# Building
Resilience

How leading **manufacturing companies** keep systems secure, production lines open and profits soaring

splunk>

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The Thriving Factory of the Future

Manufacturing makes and the world takes: from candy bars and car parts to shiny bottles of cool, crisp beer. But although manufacturing accounts for about 17% of the global GDP, according to the World Bank, few people consider the vastly complex systems that bring them the products they depend on — and look forward to — every day. Perhaps they think it's magic.

But you know there's no wizardry involved. These items land in shopping carts, on race tracks and at bar tops thanks to an intricate blend of production lines, complex machinery, sprawling supply chains … and a lot of hard work.

And it's only getting harder. Insidious and sophisticated security threats. Labor shortages. Supply chain woes. These challenges are all increasing at the same time that companies are under unprecedented pressure to reduce their carbon footprint — quickly. The industry is evolving at lightning speed, and to keep the lights on and factory floors buzzing, manufacturing companies need to think and act even faster.

When Splunk surveyed leaders across the manufacturing industry for the 2023 State of Security report, 44% of them reported weekly critical outages due to security incidents. And over half of them said that they don't have enough people to handle the increasing volume of events.

Add to this the fact that the industry is undergoing fundamental change: Gartner predicts that by 2024, 50% of factory work will be done remotely. Technologies like Industry 4.0, artificial intelligence, machine learning and cloud will be all the more vital to ensure availability across global networks and reduce production-pausing downtime.

So how do you make sure you can see across the vast and complex systems that make and deliver the products people need? How do you make sure those systems are secure? And, how do you build the carbon-neutral factory of the very near future?

Building better with a foundation of resilience

To keep production — and revenue — flowing smoothly, leading companies are retooling their strategies around resilience to build smart factories that are also sustainable and secure. And they're using Splunk's unified security and observability platform to deliver.

With the Splunk platform, manufacturing companies have full visibility into every aspect of their IT and OT environments and are able to accelerate transformation (McLaren), quickly pivot when faced with world-changing events (Meggitt) and proactively prevent major issues (Nikko Chemicals).

In these pages, you'll see how companies across the industry are transforming the way things are made and the impact manufacturers have on the planet — from Mars wrangling diverse data sources across its global ecosystem, to Honda keeping CO2 emissions in check to Heineken crafting seamless operations — and great-tasting beer.

We're working toward a more resilient future where every manufacturing company can adapt quickly to upsets and downturns and evolve to meet demand. Together, we're transforming the way people and machines come together to deliver life's essentials to consumers around the globe.

Resilience in Action

Thousands of manufacturing companies, including 96% of the Fortune 100 manufacturing companies, use Splunk to secure, sustain and manage operations.

The following pages offer a closer look at how leaders across manufacturing are using Splunk to usher in the industry of tomorrow.

Bosch Boosts Factory Efficiency

Chances are you see the Bosch logo daily — on your dishwasher, your fridge or the ebike you take to work. Though Bosch is a well-known brand for a wide range of products, its Manufacturing Solutions division provides factory equipment, technology and services for industrial businesses. One of its critical processes is manufacturing Bosch's lambda sensors, which are vital in ensuring cars meet CO_2 emissions regulations.

While data was already available to the Bosch team, they were unable to derive meaningful insights for critical processes — data analysis processes were complex and cumbersome with many different data formats that had to be manually correlated using complex SQL queries and huge Microsoft Excel spreadsheets.

> With Splunk, Bosch manufactures vital products like its lambda sensors with increased efficiency — this higher quality of work means the company can prevent major issues and identify areas for further improvement.

Now with diverse and distributed data sources consolidated in the Splunk platform, core-analysis time takes as little as 20 seconds, down from 15 minutes, freeing up time for team members to perform more complex work and come up with suggestions for how to improve business processes. "It's making the whole team more efficient," says Claus Giehl, Industry 4.0 innovation and product manager for Bosch Manufacturing Solutions.

This heightened visibility and collaboration have also created a higher quality of work across Bosch's operations. The team is now able to proactively prevent major issues — identifying the machines or workpiece carriers on the shop floor that are creating the highest percentage of faulty parts, and servicing them immediately. "Thanks to Splunk, we get deep insight into our processes," says Giehl. "This transparency assures the team uses data to make all their decisions for further improvement."

20 seconds to run a query, versus **15 minutes** previously

Greater efficiency and **collaboration** across teams

Faster troubleshooting thanks to **full visibility**

"
Splunk technology helps us to decide measures faster and with better results. Across the organization, it's creating a higher quality of work."

— Claus Giehl, Industry 4.0 Innovation and Product Manager, Bosch Manufacturing Solutions

Heineken Future-Proofs Its Business With Full Visibility

Heineken distributes nearly 50 billion liters (13 billion gallons) of beer every year to urban metropolises and far-flung destinations around the world — and every single bottle must have the same high quality and refreshing taste that beer buffs love. Meeting those expectations at such tremendous scale requires fine-tuned precision across all of Heineken's processes.

To keep everything running smoothly around the clock, Heineken's digital integration team relies on the Splunk platform for visibility and real-time data exchange between Heineken's five middleware platforms and 4,500 applications. These applications cover everything from making sure that a forklift driver's iPad has the right data to put the right pallet in the right truck, to helping systems process credit card payments in a fraction of a second. But a single instance of downtime could halt production and distribution altogether. "Without integration, warehouses can't stay stocked, orders can't be placed and customers don't get their beer," says Guus Groeneweg, global product owner for digital integration at Heineken.

With Splunk, now Heineken teams can access, understand and act on all their data. "Splunk Cloud Platform translates all that raw data into transparent, actionable insights that teams across Heineken use to resolve operational issues and improve performance." As a result, the number of incidents has plummeted across teams and countries. "We never realized what value it would bring to get these insights," Groeneweg says. "These machine learning capabilities through Splunk are helping us actually prevent incidents, which is next level."
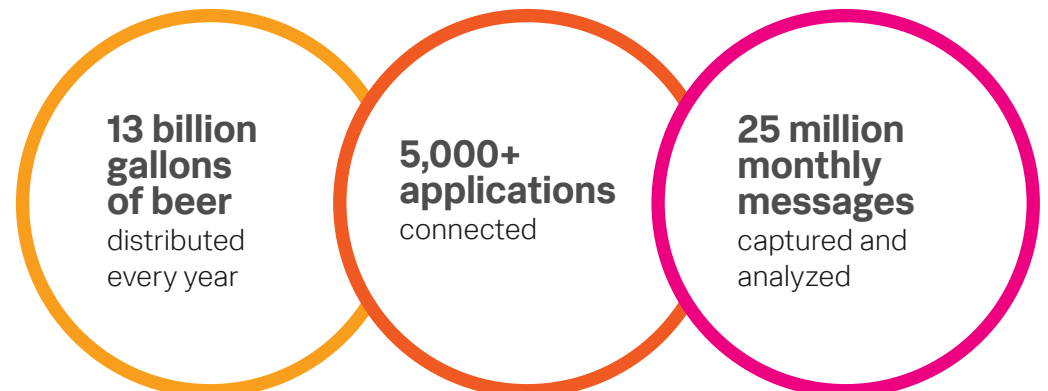
As Heineken enters new global markets and launches its EverGreen strategy, aimed at future-proofing the business and driving resilience, Heineken's partnership with Splunk will uncap new opportunities for frontend digital experiences and backend efficiencies alike so everyone — whether in business suits or bathing suits — can enjoy Heineken quality wherever and whenever they want.

> To keep nearly 13 billion gallons of beer a year flowing to destinations around the world, Heineken relies on the Splunk platform to resolve operational issues, improve performance and accelerate its transformation to become the world's best-connected brewer.

"

Splunk Cloud Platform translates all that raw data into transparent, actionable insights that teams across Heineken use to resolve operational issues and improve performance."

— Guus Groeneweg, Global Product Owner for Digital Integrations, Heineken

13 billion gallons of beer distributed every year

5,000+ applications connected

25 million monthly messages captured and analyzed

Honda Uses Predictive Analytics to Keep Production Lines Humming

As Honda's largest light truck production facility in the world, a resilient production line is imperative for Honda of Alabama (HMA). At this sprawling factory, more than 4,500 employees join forces with a complex fleet of machinery to assemble cars from hood to hubcap.

This meticulous process generates a lot of data. Yet prior to Splunk, Honda of Alabama couldn't use this data to its advantage. "A few years ago, we really struggled with being more reactive," says Charlie Studdard, factory IoT team manager at Honda. "We realized that Splunk could help us be proactive and predictive." From the production line to the boardroom, Honda of Alabama's new predictive capabilities have transformed the plant's approach to problem-solving and innovation. Armed with Splunk's machine learning

technology, teams now use pre-built models and predictive analytics for everything from equipment reliability to environmental impact.

When the factory burns paint fumes, for example, the team uses Splunk to predict and monitor equipment temperature, which ensures fumes are properly filtered and that the equipment does not exceed the EPA-mandated temperature that would damage the environment and shut down the process for an entire day. "I put all our data sources into Splunk — whether from the manufacturing floor, our equipment, power meters or one of the plant's 100 applications," says Studdard. "Splunk allows us to then act on that data, providing insights, answering questions and solving problems we may not have even known we had."

Keeping production lines operating without interruption is essential to Honda's ongoing success. "Using Splunk to predict equipment failure is very valuable to us," says Bobby Roger, senior staff engineer at Honda. "Equipment downtime is very costly, so by predicting problems and making repairs ahead of time, we save a lot of money."

> With Splunk, Honda of Alabama uses machine learning to increase efficiency, bolster safety and proactively identify and solve problems before they turn into machine failure or interruptions in the production line.

70% faster mean time to resolution **(MTTR)**

More profitability and efficiency through **better uptime**

Exceeds environmental standards by correlating machine, equipment, power and IoT data

"

Splunk allows us to act on [our] data, providing insights, answering questions and solving problems we may not have even known we had."

— Charlie Studdard, Factory IoT Team Manager, Honda Manufacturing of Alabama

Mars Gains Single View Into All Data Sources for Smooth Production

Mars, Inc. goes far beyond confections. Though it originally came to prominence through sweet treats like Mars bars, M&M's, Snickers and more, Mars has vastly expanded through a tactful and aggressive acquisition strategy of organizations to become one of the largest privately held companies in the United States. To ensure its quickly expanding global ecosystem of disparate technologies, production flows and services continues to run smoothly, Mars turned to Splunk.

"Splunk has made it possible to get that single view of systems health while also offering smart ways of alerting, automating and remediating any possible issues," Antonio Guedes, security analytics senior lead at Mars. An aggressive acquisition strategy also requires the ability to onboard new players while extending security and IT monitoring services with speed and scale — when

new subsidiaries bring their own infrastructure and cloud instances, the environment can quickly become challenging to manage, especially from a security perspective. With Splunk, Mars now has a single repository of security-relevant data from across the entire subsidiary portfolio and their respective SOCs so teams can accelerate troubleshooting and improve overall security posture.

Although initially offering security and IT support, Splunk has expanded into an ever-wider set of use cases at Mars. "As we mature with it, it's become apparent that Splunk is the solution for our broader issues as well," says Guedes. "In addition to monitoring insights, we're also looking forward to using machine learning for predictive capabilities." Mars will continue to rely on Splunk to further this approach to data, fueling innovation and sharpening the organization's competitive edge across the globe.

> With the Splunk platform, Mars now has a single, comprehensive view of all data sources for immediate alerts, proactive problem solving and enhanced security across the organization.

Expanded **access** to data to about **300 people** globally

Optimized cloud performance through centralized control and optimization

45 dashboards connected to **single source of truth**

"

As we mature with it, it's become apparent that Splunk is the solution for our broader issues. Now, we have over 300 users all self-serving their own insights from Splunk."

— Antonio Guedes, Security Analytics Senior Lead, Mars, Inc.

McLaren Accelerates Innovation With Real-Time Insights

McLaren Racing is one of the most successful and innovative names in motorsports, winning 183 Formula 1 Grand Prix, three Indy 500s and the 24 Hours of Le Mans. McLaren knows that data can be the difference between a good race and an expensive defeat. To keep their competitive advantage, McLaren turned to Splunk.

On race weekends, McLaren must set its strategy in real time, streaming data from the car's nearly 300 telemetry sensors to its traveling trackside IT Rig while adjusting for everything from weather changes to tire conditions. A single miscalculation or network interruption could be the difference between finishing on the podium, or not in the points at all. "Splunk is very critical in both our on-track and off-track performance," says CEO of McLaren Racing Zak Brown. "You need to have both because if we're not competitive off track, we won't be competitive on track."

In testing, practice, qualifying and on race day, Splunk streams and analyzes 100kHz of data per second to give McLaren the insights they need for real-time decision-making. Managing such a tremendous volume of data across on-premises, cloud and edge landscapes creates a high degree of complexity. "With Splunk, we provide better operations, more reliability and greater consistency," says Edward Green, head of commercial technology for McLaren Racing. "We've never had the level of insight that Splunk provides before, and it's helping us consistently deliver an exceptional IT experience."

As McLaren's efforts expand in IndyCar, Extreme E and esports, so does their need for a platform that can manage complexity while handling multiple racing series. Green sees Splunk as vital to helping widen the scope of what's possible. "One of the most valuable aspects of Splunk has been its ability to spark curiosity and innovation across the organization," says Green.

> By using Splunk to translate real-time data into actionable insights, McLaren sharpens its competitive edge and accelerates the pace of transformation in Formula 1 and esports racing.

"

We are fearless in our approach to technology, and Splunk gives us greater insight into our systems so we can innovate and scale across the organization."

— Edward Green, Head of Commercial Technology, McLaren Racing

Improves **operations**, **reliability** and **consistency** for critical infrastructure

Accelerates **race car development** through data-driven insights

Streams and analyzes **100kHz of data per second** for real-time decision-making

Meggitt Bolsters Productivity and Stays Resilient Against Unprecedented Events

Meggitt, an engineering company that creates high-performance industrial components, has been a world leader in aerospace, defense and energy for over 70 years. The team knew it needed to embrace the cloud and big data to reap the benefits of manufacturing 4.0, make smarter decisions, maximize operational efficiency and manage growth to stay ahead of competitors.

Because it handles sensitive information for customers, tight security was also a mission-critical requirement. Meggitt needed a platform to prepare for the challenges of the future — something that would strengthen its security posture and improve the company's ability to scale so it could meet growing demand and make decisions based on data, rather than instinct and emotion. So Meggitt turned to Splunk.

With Splunk Cloud, Meggitt spends less time maintaining on-site infrastructure and can easily scale IT resources to accommodate increases in customer orders or production output. Splunk also helps Meggitt stay resilient in the face of unprecedented events. When the COVID-19 pandemic hit, the IT team created Splunk dashboards within one day, making it possible for Meggitt to quickly shift to remote work and maintain operational flexibility. Without Splunk, the team estimates that it would have taken weeks or months to figure out which systems could securely leave the building.

"The ability to pivot to remote work was a turning point for us," says Kashaf Rashid, Meggitt's global director of security operations and information. "The business now understands the power of data in enabling operational flexibility." Having proven its usefulness in security and scalability, the Splunk platform is now used across the organization, including to improve the operational efficiency at key manufacturing sites. Now that Meggitt can proactively identify when servers are experiencing issues, the IT team can easily adjust resources and prevent network outages that could halt production in manufacturing facilities.

> Splunk Cloud helps Meggitt easily manage security risks, act quickly and decisively in the face of unprecedented events and meet growing demand as it scales for growth.

40 global sites secured with the help of AI

100% increase in security coverage for staff workstations

1 day to create dashboards to enable **secure remote working**

"

Splunk reveals where our security has potential to improve and, when there are issues, helps us figure out what went wrong so we can prevent it from happening again. It's been an absolute game changer for us."

— James Steel, Detection and Response Team Manager, Meggitt

Nikko Chemicals Centralizes SOC Monitoring For Better Business Continuity

Japan's specialty chemicals manufacturer Nikko Chemicals produces ingredients for cosmetics, pharmaceuticals, food and sustainable products. As a responsible corporate citizen, Nikko Chemicals works to balance both environmental and economic considerations. As an integral part of its business continuity strategy, the company strives to run a secure, scalable, hassle-free and fully visible cloud operation.

In response to the Great East Japan Earthquake and the subsequent tsunamis in 2011, Nikko Chemicals kick-started a cloud migration initiative for better business continuity planning. By replacing on-premises infrastructures with software as a service (SaaS) applications running on Amazon Web Services (AWS), the company hopes to minimize damage and speed recovery during disasters. And to ensure service integrity and protect business-critical information, Nikko Chemicals replaced its legacy asset management tool with the Splunk platform, which immediately improved operational visibility across the organization.

"Splunk gives us a cross-sectional view of logs for deeper threat investigation," says Yuichi Higashihara, director of the IT planning and promotion division at Nikko Chemicals. And Splunk scales alongside the company. "Equally impressive is that we can manage an ever-increasing stream of log data,"

continues Higashihara. "Splunk Cloud is flexible enough to fulfill every wish and is an effective solution for companies with minimal resources like us."

Because of this new flexibility and ability to scale, Nikko Chemicals has effectively deployed new SaaS applications to achieve new goals. To further this success, the company has established a standard to only use applications that are compatible with Splunk Cloud. "Splunk is worth every penny, creating unprecedented value and opportunities for companies with resource-strapped operations teams like us," says Higashihara.

> Splunk gives Nikko Chemicals full, real-time visibility over its entire environment, leading to heightened security, proactive threat detection and mitigation, and the ability to make data-backed decisions across the business.

"

Splunk is worth every penny, creating unprecedented value and opportunities for companies with resource-strapped operations teams like us."

— Yuichi Higashihara, Director, IT Planning and Promotion Division, Nikko Chemicals Co., Ltd.

Full visibility across multiple SaaS applications

Enhanced security through centralized and proactive threat protection

Boosted efficiency with simplified operations and painless system maintenance

Discover how Splunk drives resilience for organizations across the manufacturing sector.

Learn More

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