

Fujitsu on Sustainable Manufacturing

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Overview

- Fujitsu believes sustainability is not just a corporate buzzword but a critical priority in management and a strategic necessity that accelerates business outcomes. However, despite this recognition, there is a concerning execution gap. While everyone appears to be talking about sustainability, more needs to happen.
- Protecting our planet is a moral obligation and a viable and sustainable business opportunity. By working with customers, Fujitsu aims to convert sustainability challenges into opportunities. This vision paves the way for a greener future in manufacturing grounded in sustainable growth and resilience.
- Fujitsu provides manufacturers with a holistic digital transformation journey centered around five key pillars so they can create a sustainable future seamlessly, collaboratively, and effectively. Fujitsu aims to help manufacturers connect, protect, and optimize their operations, driving visibility, efficiency and sustainability.

Fujitsu's vision for Sustainable Manufacturing

- Fujitsu's Sustainable Manufacturing is not just a collection of solutions, but rather a comprehensive approach to sustainable manufacturing. It is designed to support manufacturers on their journey to the future, where transparency, efficiency, and sustainability are tightly intertwined.
- For Fujitsu, Sustainable Manufacturing is achieved through the integration of **six key factors**, driven by a human-centric approach and advanced digital twins:
 - 1. Close customer collaboration:** Collaborating with customers in product development enables the creation of innovative products that meet market needs. By allowing customers to experience and review 3D models of products using VR, we can gather valuable feedback and bring products that meet market needs to market faster, enhancing our competitiveness.
 - 2. Flexible production:** By integrating operations from design to manufacturing based on data, and maintaining consistent data for parts and processes, we can achieve just-in-time production. Supply and demand balance simulations, considering manufacturing constraints, optimize planning, freeing employees from high-pressure tasks and time constraints. BOP data enables flexible adaptation to design and layout changes through simulations and design reviews, and continuous improvement through feedback of manufacturing data.
 - 3. Environmental responsibility:** Simulations during the design phase enable environmentally conscious product design, incorporating features like lightweighting, enhanced durability, improved recyclability, and energy efficiency, leading to a reduced environmental impact across the entire product lifecycle.
 - 4. AI augmentation of in-house skills:** AI enhances in-house skills in various aspects of manufacturing, improving the quality and speed of decision-making. AI can assist in rapid decision-making under complex conditions, such as incident detection, countermeasures, and outputting improvement recommendations, thereby improving productivity. Furthermore, AI can automate decision-making processes,

addressing talent shortages. AI frees employees for creative tasks, fostering a more innovative workplace.

5. **ESG risk analysis and compliance:** Integrating financial and ESG data enables effective ESG goal achievement through visualization, risk analysis, and simulation. Centralized ESG data management reduces the workload for information disclosure in compliance with global disclosure standards. Additionally, it enables traceability throughout the product lifecycle, strengthening product compliance.
6. **Resilient supply chain:** By centralizing data from the entire supply chain, including supplier information, and external risk information, we can visualize supply chain risks and surrounding circumstances, enabling the construction of a resilient supply chain. In emergencies, it enables rapid assessment of the impact and decision-making. It also allows for the identification of high-risk points, leading to pre-emptive response planning and strengthening preparedness in normal times. AI enables optimization of inventory, production and procurement costs, and energy costs under various conditions, including resource shortages and demand fluctuations.

Customer benefits of the Fujitsu approach

By strategically embracing sustainability and leveraging Fujitsu's expertise, manufacturers can expect these benefits, as a result of the 6 key factors:

1. **Increased customer royalty** by innovating product development and by enhancing competitiveness.
2. **Conducive work environment and culture of continuous improvement** by achieving just-in-time production, by reducing inventory and waste and by improving in Quality, Cost and Delivery (QCD).
3. **Enhanced brand value** by developing products with reduced environmental impact and by effectively reducing GHG emissions thanks to visualizing the company's carbon footprint and identifying hotspots.
4. **Creative work environment** by enhancing decision-making spend and quality, by improving productivity and by addressing the talent shortage.
5. **Sustainable development for the long-term** by effectively achieving ESG goals, by reducing the workload for information disclosure and by strengthening product compliance.
6. **Enhanced resilience** by accelerating decision-making in emergency situations and by finding cost-effective alternatives.

Fujitsu's Sustainable Manufacturing offerings overview

- **Digital Engineering:** Fujitsu leverages digital technologies to revolutionize product design and development processes, surpassing traditional engineering methods. By integrating digital twins, digital threads, simulations, and Model-Based Systems Engineering (MBSE), we aim for seamless data integration and sharing throughout the entire product lifecycle. This accelerates product development, reduces operational costs and risks, and improves product quality. Furthermore, data-driven decision-making enhances the market competitiveness of products and services.
 - **Innovation Catalyst:** Fujitsu provides comprehensive support for various core business operations in the manufacturing industry. We act as a catalyst, driving innovation and maximizing the value of business applications for core operations. Using a digital thread, we connect processes, enabling the visualization and automation of the design and development process to shorten development times, reduce costs, and improve quality.

- **Engineering Accelerator:** To rapidly respond to changing market needs and environmental concerns, and to achieve a balance between innovation and QCDE (Quality, Cost, Delivery, Efficiency), a fundamental transformation of design and development methodologies is necessary. Fujitsu offers digital twin and digital rehearsal technologies, providing development and verification methods that enable swift responses to changing needs and challenges. Furthermore, the data generated from daily operations provides new insights, optimizing business processes and contributing to new product development, dramatically enhancing overall corporate competitiveness.
- **Digital Manufacturing:** Fujitsu also utilizes digital technologies to optimize and streamline the entire manufacturing process. Through digital tools and data, we manage every stage from design and simulation to production planning, manufacturing, and quality control, enhancing manufacturing precision, efficiency, and flexibility. This leads to significant improvements in overall factory efficiency, enabling data-driven decision-making, anomaly prediction, cost reduction, enhanced risk management, improved quality, and faster delivery times, ultimately boosting the company's competitiveness.
 - **Manufacturing Operation Management:** In today's increasingly competitive environment, achieving the optimal balance between quality and cost requires seamless collaboration between design and manufacturing departments. Fujitsu supports the operation of manufacturing sites by aiming to improve the efficiency of the entire manufacturing process through planning, execution, monitoring, and optimization. The centralized management of standardized procedures and manufacturing records enables quantitative analysis of defects, allowing for the identification of affected products, production lines, and root causes, ultimately leading to improved QCD across all facilities.
 - **OT Digitalization:** By implementing real-time monitoring of factory equipment and processes, and by collecting and analyzing the resulting data, we aim to improve productivity, efficiency, and product quality.

Fujitsu quote

- "The manufacturing industry is undergoing a dramatic transformation. Rising costs, labor shortages, and a fragile supply chain—these challenges threaten sustainable growth. Fujitsu's advanced data analytics and deep industry knowledge provide real-time visibility into your production processes, inventory levels, and customer demands. This enables optimized production planning, efficient inventory management, and faster customer response. Furthermore, we support the creation of new business opportunities through market trend analysis and customer needs assessment, solidifying your competitive advantage."

Customer references

- Fujitsu worked with **Bayer Seeds** to develop a model that optimizes global seed production planning. This model uses AI and the quantum-inspired Digital Annealer to factor in drought, conflict, and transport issues.
- Fujitsu helped the **Hamburg Port Authority (HPA)** create a more sustainable transportation system by applying quantum-inspired technology to optimize logistics flows and reduce CO2 emissions.

Further reading

- [Fujitsu UVANCE Sustainable Manufacturing](#)

- [Fujitsu Manufacturing Solutions](#)