

FUJITSU

Carbon Neutrality:
Pioneering a
greener future in
manufacturing





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Why prioritizing carbon neutrality matters to modern manufacturers

In today's climate-conscious world, manufacturers face the dual challenge of boosting production while fulfilling environmental, social and governance (ESG) obligations. As significant contributors to global emissions, the industry plays a pivotal role in mitigating climate impact. Embracing carbon neutrality isn't just a moral imperative; it's a strategic move that aligns with international efforts like the Paris Climate Accord and the push for net-zero emissions.

The journey toward carbon neutrality brings opportunities for enhanced productivity and profitability, aligning with broader sustainability goals. Fujitsu is dedicated to leading manufacturers on this path, offering insights and strategies to achieve a sustainable manufacturing landscape. This brochure outlines Fujitsu's commitment to carbon neutrality, detailing how we can collectively progress toward a greener, more prosperous future.

Combating the environmental challenges in manufacturing

Manufacturers, understanding their integral role in global economies, also recognize their responsibility towards environmental stewardship. As demands rise, there's a clear awareness of the potential implications – such as increased emissions, waste, and resource consumption.

First and foremost, manufacturers are compelled to confront greenhouse gas emissions originating from diverse manufacturing processes and the consequential global impact of these emissions. This nuanced understanding is crucial in developing effective strategies to mitigate the environmental consequences of their operations.

Furthermore, the management of waste generated in manufacturing activities is critical. As is combatting the over-reliance on non-renewable resources and the pressing need for sustainable sourcing and resource management. Especially when it comes to energy, raw materials, and water. A transition towards more responsible resource management is therefore essential to reduce the overall carbon footprint of manufacturing operations.

In the context of an ever-changing global business environment, it is paramount to understand the growing demand from consumers, investors, and communities for manufacturers to adopt greener and more sustainable practices. This paradigm shift is reflected in consumer preferences, investor sentiments, and community expectations, placing manufacturers under increasing scrutiny to embrace environmentally responsible operations.

This pressure is not just coming from consumers or workers. Governments and regulatory bodies are reshaping legal frameworks to confront environmental challenges head-on. In this landscape, manufacturers must remain agile, ensuring their operations not only comply with current regulations but are also resilient enough to adapt to future legislative changes.

Lastly, there is a distinction between the direct environmental consequences of manufacturing activities and the indirect effects propagated through products, transportation, and the broader supply chain. This means focusing on Scope 1, 2, and 3 emissions with equal diligence. This differentiation underscores the multifaceted nature of environmental impact assessment, encouraging a more comprehensive approach towards sustainability, for which technology can offer effective solutions.

An ecosystem dedicated to facilitating change

The next generation of sustainable manufacturers are working together to tackle climate change - positioning the right people, partnerships and transformative technologies to collectively drive manufacturing innovation. Both for the good of the environment and for wider economy.

Fujitsu has proactively developed and implemented a suite of strategic initiatives aimed not only at addressing these immediate concerns, but at reshaping the future of sustainable manufacturing. The value of an ecosystem-based approach is that it supports sustainability initiatives. Here, Fujitsu's [strategic partnerships](#) with leaders such as SAP, ServiceNow, and Microsoft can come together to harness advanced technologies that can effectively monitor, control, and reduce emissions.

Having these strategic initiatives in place encourages

Transparency to enable free, open collaboration with internal and external partners

Ingenuity to improve production processes via shared ideas, knowledge and experiences

Flexibility to respond at speed to disruptive events by mobilizing stakeholder networks

Circularity to reuse, recycle and regenerate each other's resources and unlock value in unexpected places

These initiatives are designed to optimize resource utilization, minimize waste, and advocate for the adoption of sustainable alternatives within manufacturing. Our commitment extends to assisting customers in seamlessly integrating renewable energy sources into their operations, reducing their reliance on fossil fuels, and therefore advancing the cause of environmental sustainability.

In alignment with globally recognized accords and industry benchmarks, including the [United Nations Sustainable Development Goals](#) (UNSDGs), we champion practices that place a premium on recycling, reusing, and re-manufacturing to prolong product lifecycles and mitigate their environmental footprint.

Our commitment includes a dedicated focus on pioneering eco-friendly materials, processes, and technologies that hold the potential to propel the manufacturing sector towards a circular economy. One where the principles of sustainability are upheld at every stage of the production cycle.



Technological solutions for Carbon Neutrality

Technology serves as the foundation in our pursuit of carbon neutrality. By leveraging cutting-edge technological solutions, Fujitsu not only identifies and reduces carbon footprints but also revolutionizes manufacturing processes. Some of the ways we can help customers make significant strides in their carbon neutrality journey include:

Smart monitoring systems

Utilizing sensors and IoT devices to constantly monitor and provide real-time data on emissions, helping in proactive decision-making.

Artificial Intelligence (AI/ML/DL)

Deploying AI algorithms to analyze vast amounts of data, predict potential inefficiencies, and recommend optimal solutions for emission reduction.

Green IT infrastructure

Adopting energy-efficient servers, data centers, and cloud solutions that reduce the carbon footprint of IT operations.

Advanced robotics

Using eco-friendly robotic solutions that optimize manufacturing processes, reduce waste, and consume less energy.

Energy management platforms

Software solutions that monitor, control, and optimize energy consumption across various manufacturing stages.

Blockchain for traceability

Implementing blockchain technology, such as [Fujitsu Track and Trust](#) DLT solution, to ensure the sourcing of sustainable materials, track green initiatives, and validate carbon credits.

Digital Twins (DT), Virtual Reality (VR) & Augmented Reality (AR)

Using DT, VR & AR for virtual prototyping and training, reducing the need for physical materials and unnecessary travel requirements.

Collaboration: The path to a greener future

This journey is not one to be taken alone. Collaboration is an integral component in a carbon-neutral manufacturing landscape. Meaningful change requires collective action, and through our partnerships with various stakeholders — from suppliers to industry experts, governments, and NGOs — we can co-create solutions and strategies that drive tangible benefits, including:

Supply chain	We enable customers to work closely with suppliers to ensure sustainability standards, source eco-friendly materials, and encourage the adoption of green practices throughout the supply chain.
Global action	By collaborating with global, national and industry bodies, such as UNSDGs, we can align with environmental regulations, benefit from incentives, and contribute to policy formulation that promotes ongoing change.
Research & development	Partnering with universities and research institutions means we can remain at the forefront of sustainable technologies and methods.

The core of our ethos rests on a belief that to effect change we need collaborative efforts. We are dedicated to generating value for our customers – encompassing commercial, environmental, and social dimensions – to confront and resolve systemic challenges. Our approach revolves around forming strategic alliances with our partners, where we deploy agile, scalable technologies within a meticulously planned roadmap. Not only does this augment the value of your enterprise, but expedites your journey towards carbon neutrality.

We advocate for open dialogue and leverage the principles of design thinking to co-create customized business transformation strategies. Consequently, our collective goal is to minimize the impacts of climate change, necessitating a concerted and co-creative endeavor. For manufacturers, this translates into the establishment of ambitious sustainability targets and active participation in the global movement striving for net-zero emissions.





Supporting customer success

Fujitsu's dedication to sustainability goes beyond our own initiatives; it is reflected in our customers' achievements as well. Working in partnership, we have helped to empower customers to not only meet their environmental goals but to set new benchmarks for carbon-neutral excellence within their industries. Here are stories of change-makers who, with Fujitsu's support, are creating a cleaner, greener future.

Cleaning London's air: Proventia partners with Fujitsu to reduce bus emissions

Proventia is a Finnish company that develops exhaust after-treatment systems to reduce emissions from diesel engines. We have worked with Proventia to implement a real-time cloud analytics platform to monitor the performance of their NOxBUSTER emission reduction systems installed on London buses. By using Fujitsu's Event Processing IoT Platform, Proventia gained insights into real-world emissions reductions. This enabled Proventia to verify their technology is decreasing NOx as promised. With our help, Proventia is able to meet tighter air quality standards and develop better retrofit solutions to fight climate change.

Teijin and Fujitsu pioneer sustainability with blockchain for material traceability

Teijin and Fujitsu collaboratively launched a blockchain platform to elevate the environmental value and traceability of recycled materials for manufacturers. This platform promises transparent, reliable data on the environmental impact and origin of materials, promoting sustainable, environmentally conscious designs, and contributing to a carbon-neutral future and a circular economy in manufacturing.

Why Fujitsu: Standing out for our commitment

Fujitsu supports customers in advancing towards carbon neutrality through commitment, innovation and results. We have many distinguishing attributes which underline our unique positioning to help facilitate a greener transformation of the manufacturing sector including:

Championing sustainability

Fujitsu takes a pivotal role in establishing and championing ambitious sustainability goals. This commitment to sustainability is ingrained in our company culture and serves as a guiding principle in all our operations and solutions.

Pursuing innovation

A hallmark of our approach is the relentless pursuit of innovation, exemplified by our development and deployment of cutting-edge technologies. These state-of-the-art solutions exemplify our dedication to staying at the forefront of technological advancements that always have sustainability in mind.

Augmenting people and processes

Our sustainability strategy is all-encompassing. It looks to harmonize technology, human capital, and operational processes to drive sustainability in manufacturing. This holistic approach underscores our resolve to effect enduring change on a systemic level.

Collaborative to the core

In our quest to foster sustainability, we are deeply committed to facilitating close collaboration between our customers, their suppliers, customers, and all other stakeholders who constitute the broader value chain. This ethos is a cornerstone of our Carbon Neutrality strategy, ensuring that the journey is both collective and cohesive.

End-to-end support

Manufacturers require an end-to-end architectural framework that accommodates the unique characteristics of their business. Fujitsu can work across the entire partner ecosystem and leveraging existing applications and data sources to construct a scalable circular economy that can be perpetually evolved and refined.

A global/local approach

Our global presence is accompanied by a commitment to cater to local needs, respecting regional distinctions, and actively engaging with local communities to maximize the effectiveness of sustainability initiatives.

Transparency and accountability

We are steadfast in our commitment to openly sharing our progress, acknowledging the challenges we encounter, and proactively presenting solutions. This practice strengthens our reputation and underscores our trustworthiness within the industry.

Setting the direction for a carbon-neutral future

Transitioning to a carbon-neutral future in manufacturing is not just a challenge but an opportunity to reshape business dynamics, create sustainable value, and secure a resilient future. At Fujitsu, we believe it's vital to get started on this transformative journey as soon as possible.

The journey toward carbon neutrality demands a holistic approach that encompasses several critical components. It requires the honest evaluation of current carbon footprints, establishing clear and achievable targets, to implement a clear approach towards carbon neutrality. This diligent self-assessment provides the foundation upon which meaningful progress is built.

It is equally vital to adopt a mindset of ongoing evolution, where strategies remain flexible and adaptable to accommodate emerging challenges and seize new opportunities. This agility is key in navigating the ever-evolving landscape of sustainability. By leveraging Fujitsu's research, innovative solutions, and extensive experience, manufacturers can significantly expedite the path to sustainability, ensuring that strategies are informed by the latest advancements and best practices.

Ultimately, the transition to carbon neutrality transcends just environmental responsibility; it is also about building a brand that resonates with ethically conscious consumers and stakeholders. By aligning your manufacturing processes with sustainable principles, you can create a brand identity that is both ecologically responsible and commercially attractive, forging a path towards a greener, more prosperous future.



Take action

Fujitsu is here to support you at every step of this transformative journey, helping you unlock the full potential of your workforce and do so in a way that targets carbon neutrality. Partner with Fujitsu and steer your manufacturing enterprise towards excellence. Contact us today to start your own journey into the world of smart, efficient, and sustainable manufacturing.

[Contact us](#)