Empowering transformation

People-centric approaches in Sustainable Manufacturing

FUJITSU

Contents

Human ingenuity in the age of smart manufacturing

In modern manufacturing, an interesting paradox has emerged. On one hand, the industry is rapidly embracing smart, autonomous solutions sparking an era where advanced technologies and automation are becoming commonplace. On the other, the intrinsic value and indispensability of the human element in this high-tech environment remain more pronounced than ever. It is in this relationship between human and machine that the future of Sustainable Manufacturing is being shaped.

This whitepaper aims to unpack this paradox, highlighting the enduring relevance of people in an increasingly automated manufacturing landscape. As much as the industry pivots towards technological excellence, it is imperative to recognize that modern manufacturing is still, at its core, a human-centric endeavor. The success of this sector hinges not just on how well it integrates new technologies but also on how effectively it empowers its people.

Despite the advent of robots, AI, and machine learning (ML), the role of people in manufacturing is far from diminished. In fact, with the complexity of operations escalating, the industry is witnessing a transformative shift in the workforce's role. Where once manual labor and repetitive tasks dominated, now the focus is on managing and complementing these advanced technologies. The workforce of today needs to blend technical expertise with creative problem-solving and adaptability, skills that are quintessentially human.

Moreover, the push towards sustainable manufacturing adds another layer to this narrative. It's not just about achieving operational efficiency through technology; it's also about harnessing human ingenuity to drive innovation and sustainable practices. In supporting our customers through this change, Fujitsu encourages a balanced approach – one that leverages tech-driven efficiency while simultaneously fostering an environment where human creativity and innovation can thrive.

In the following sections, we will explore strategies to empower the workforce in this new era, ensuring that they are not only equipped to work alongside advanced technologies but are also integral in steering these technologies towards sustainable and ethical manufacturing practices. This approach is not just beneficial; it's essential for the long-term viability and success of the manufacturing sector.

Adapting to socio-economic changes and empowering the workforce in manufacturing

Investing in the workforce amidst technological transformation

As the manufacturing industry undergoes a transformative shift, driven by the integration of AI, machine learning (ML), and the industrial metaverse, the focus on workforce investment has become a principal concern for leadership The deployment of advanced automation technologies raises the question of their impact on the workforce. Manufacturers are now looking beyond efficiency gains to explore how these technologies can enhance the well-being of employees. For instance, leveraging AI and ML is becoming increasingly common for improving worker safety, while generative AI is being used to boost productivity.

Promoting digital literacy and a supportive culture

An essential factor in this evolution is the promotion of digital literacy among employees, equipping them with the skills to thrive in a technologically enriched workplace. To facilitate this, manufacturing businesses are cultivating a culture that supports change and encourages the continuous development of digital competencies. This cultural shift ensures that as manufacturing processes become more sophisticated, employees are not left behind but are instead active participants in the digital landscape.

Creating a connected frontline workforce

The concept of the 'connected frontline worker' is becoming a reality in modern manufacturing. This concept refers to equipping employees with the tools and information they need to make data-driven decisions, collaborate effectively, and perform their roles with greater efficiency and satisfaction. By harnessing the power of connectivity, manufacturers can ensure that their workforce is more engaged, informed, and empowered to meet the demands of a rapidly evolving industry.

Bridging the skills gap and encouraging synergy

The skills gap presents a formidable challenge as the industry moves toward more technology-integrated roles. Reskilling and upskilling initiatives are critical to bridging this gap, necessitating significant investment in learning and development programs. Such programs enable the workforce to master new technologies and adapt to an increasingly tech-driven environment.

The ultimate goal is to create a symbiotic relationship between human expertise and technological precision. While machines bring efficiency and precision, it is the human element – with its problem-solving capabilities and creative thinking – that drives innovation. This synergy is vital for tackling complex issues such as sustainability and operational efficiency, leading to responsible and groundbreaking manufacturing solutions.

The tangible returns on people-centric solutions in manufacturing

The sector's current focus on people-centric solutions goes beyond ethical considerations; it emerges as a strategic investment with clear returns on investment (ROI). The latest research into the role of people in manufacturing underscores the value of nurturing a digitally proficient, innovative, and sustainability-focused workforce.
These studies not only spotlight the evolving preferences and morale of manufacturing employees but also emphasize the direct correlation between technological advancement and enhanced productivity in the sector.

Shift to a digitally savvy workforce

According to the 'Advanced Manufacturing Realized' report by EY, by the year 2025, digital natives are projected to constitute over 50% of the global workforce. This imminent shift heralds a new era in manufacturing – one where the workforce is inherently more attuned to digital technologies and solutions. For manufacturers, this trend signifies an evolving landscape where advanced technological tools and solutions will be readily adopted and leveraged by a digitally adept workforce, offering opportunities for innovation and efficiency previously unattainable.

Employee preferences for technological and sustainable companies

An emerging trend among manufacturing workers is the preference to replicate the values and experiences of their home lives within their workplace environment — six out of 10 even express a willingness to accept lower salaries in exchange for positions at companies that are either technologically advanced or sustainably oriented. This preference underscores a fundamental shift in workforce priorities, where technological innovation and environmental responsibility are becoming as critical as financial compensation. For manufacturers, this indicates an evolving expectation from their workforce: a desire to be part of organizations that are not only at the forefront of technological innovation but are also committed to sustainability.

Link between morale and modernity in manufacturing

There exists a notable correlation between employee morale and their perception of the company's technological modernity. High morale is often associated with working in 'very modern' environments, whereas low morale is linked to perceptions of technological stagnation. This relationship highlights the critical role that staying abreast of technological advancements plays in not just improving operational efficiency but also in boosting employee satisfaction and retention. It underscores the need for continuous skill development and adaptation among the workforce, enabling them to effectively utilize and benefit from new technologies.

Employee enablement driving sustainability in manufacturing

Supporting inspectors with AI to improve quality and efficiency in aerospace manufacturing

A leading global aerospace engineering group sought to improve the efficiency and consistency of its aircraft wing inspections while retaining its rigorous quality standards. The company deployed an artificial intelligence-enabled defect recognition system to support its team of certified inspectors performing non-destructive evaluations on aircraft wings.

The AI system processes complex multi-dimensional data captured from ultrasound sensors to identify anomalies and defects. Working in tandem with inspectors, the solution delivers a 50% increase in throughput as more parts are inspected concurrently. The AI system also brings greater uniformity to the inspection process compared to reliance purely on human judgement.

Additionally, the digitized report culminating from the new quality control process allows for root cause analysis of recurring issues. This provides the potential to optimize manufacturing processes and drive further quality gains. The aerospace firm is also developing new service offerings around its digital inspection data to bring further value to customers.

Fujitsu people enablement strategies of in manufacturing

At Fujitsu, the journey towards digital transformation is deeply intertwined with a commitment to enabling people - a strategy that is essential for businesses to remain relevant, compliant, and attuned to both economic and societal imperatives. In this evolving landscape, we recognize the significance of harmonizing technological advancements with human-centric approaches. To that end, our people enablement strategies are not just fostering digital transformation in manufacturing but are also ensuring that this transformation is sustainable, inclusive, and value-driven.

Human impact in digital transformation

Fujitsu approaches digital transformation with a clear vision: to achieve a definitive business purpose while significantly enhancing the experience for consumers, employees, and partners. This approach goes beyond mere technological upgrades; it's about understanding and incorporating the human element in every step of the digital journey. By doing so, we help manufacturers create long-term value that transcends traditional business metrics, encompassing societal contributions and sustainable practices.

The Fujitsu approach to design thinking

Central to our strategy is the concept of Human Centric Experience Design (HXD). This innovative approach is geared towards addressing challenges that require creative, out-of-the-box solutions and removing roadblocks to true digital transformation. HXD accelerates both the creative and decision-making processes, enabling swifter and more profound transformations in business operations and user experiences. Through HXD, Fujitsu reimagines how technologies can be designed and implemented to be intuitive, user-friendly, and impactful.

Harmonious integration of people and technology

Fujitsu envisions a future of manufacturing where the integration of people and technology is harmonious and mutually enhancing. In this future, technology is crafted not as a substitute for human expertise but as an enabler, augmenting human capabilities. This vision is rooted in our commitment to developing digital literacy, ensuring that employees are well-equipped to interact with and leverage technological tools effectively.

Recognizing the importance of company culture in supporting this transformation, we focus on creating an environment that is conducive to change and innovation. This involves nurturing a workplace where employees are encouraged to develop their digital skills and adapt to new ways of working, ensuring that the integration of technology into our daily operations is smooth and beneficial.

Enabling collaboration and sustainability through human-centric tools

Our commitment to people enablement is embodied in the development of platforms and tools rooted in human-centric design. These innovative resources are specifically tailored to encourage collaboration among employees, tapping into collective intelligence to spark innovation.
They cultivate a work culture where sustainable manufacturing is not just an afterthought but a fundamental aspect of every decision-making process. By instilling this ethos, we not only enhance operational efficiency and productivity but also integrate a deep-seated commitment to sustainability within the manufacturing workflow.

Moreover, our focus on creating a connected frontline workforce is a testament to our dedication to employee empowerment. By equipping frontline workers with access to real-time data, robust connectivity, and advanced digital tools, we significantly elevate their capacity for making well-informed decisions. This empowerment allows for efficient collaboration and precise task execution, thereby boosting job satisfaction and engagement. Such connectivity is instrumental in enhancing operational efficiency, ensuring that each employee is a valued and integral part of the manufacturing process. Through these efforts, we're not just optimizing manufacturing practices but also nurturing a more engaged, informed, and proactive workforce.

Shaping a sustainable future in smart manufacturing

As we enter a new era in manufacturing, marked by rapid technological advancements, the importance of equipping teams with digital tools and skills cannot be overstated. There is a clear correlation between digital empowerment and increased output and efficiency. When employees are adept in utilizing digital technologies, they are not just performing tasks more efficiently; they are also positioned to contribute fresh ideas. These innovative contributions can lead to groundbreaking solutions in manufacturing processes, driving operational efficiency, and opening new possibilities for sustainable practices.

The power of collaboration across departments and functions in achieving streamlined operations and a cohesive organizational approach is evident. A manufacturing environment that encourages cross-functional teamwork fosters a sense of unity and shared purpose. This collaborative spirit ensures that operations are not just efficient but also adaptable to changing demands and challenges.

Furthermore, teams equipped with diverse skills and insights are better prepared to address manufacturing challenges holistically and innovatively. Diversity in expertise and perspectives breeds creativity, leading to solutions that are not only effective but also forward-thinking.

Perhaps most crucially, prioritizing the welfare of people – the employees, communities, and stakeholders – results in sustainable business practices that extend beyond immediate operational gains. Such practices have long-term positive impacts, contributing to the well-being of local communities and the global environment.

Sustainable Manufacturing is not just about reducing waste or conserving energy; it's about creating a system that nurtures and values its most vital asset: its people.

The future of smart manufacturing hinges on a balanced and integrated approach. By embracing a people-centric methodology, manufacturers can unlock the full potential of technological advancements while fostering a workplace culture that values human creativity, collaboration, and well-being. This approach not only enhances immediate operational efficiency and innovation but also paves the way for long-term sustainability and resilience.

> **The future of smart manufacturing hinges on a balanced and integrated approach. By embracing a people-centric methodology, manufacturers can unlock the full potential of technological advancements while fostering a workplace culture that values human creativity, collaboration, and well-being. This approach not only enhances immediate operational efficiency and innovation but also paves the way for long-term sustainability and resilience.**

FUJITSU

**Contact Fujitsu to find out more about our
services and products for manufacturers.**

Contact Fujitsu: Fujitsu Global