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REGIONAL FOCUS: TURKEY

Transformation into the "Factory of the Future"

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%30

Manufacturing industries will account for nearly 30% of worldwide digital transformation spending in 2022.

%15.7

Digital transformation spending by manufacturing industries is forecast to expand at a five-year compound annual growth rate (CAGR) of 15.7% through 2026.

%60

IDC Manufacturing Insights' Product and Service Innovation Survey, 2021, revealed that approximately 44% of products and equipment are connected today, a figure that is expected to reach 60% in the next three years.

The ongoing wave of global disruptions is underlining the importance of resilient and agile manufacturing. These external shocks continuously threaten the continuity of operations and serve as a catalyst for digitalizing production. In times of crisis and uncertainty, digitally mature companies outperform their peers when it comes to mitigating risks and capitalizing on new opportunities. The quest for this ability to thrive in a digitalized world is accelerating the **spread of digital transformation across manufacturing industries.**

Long before the current wave of disruptions had taken hold, **the very core of manufacturing businesses were already undergoing continuous and fundamental transformation** due to the convergence of physical and virtual technologies. These key transformations on the factory floor are often referred to as "Industry 4.0", "digital factory", or, simply, "smart manufacturing". IDC defines smart manufacturing as the continuous process by which enterprises leverage cyber-physical convergence and digital skills to develop the production capabilities necessary to compete in the modern economy.

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The process of enabling transformation into the "factory of the future" is both information driven and user centric. Every asset produces a wealth of information that must be accessible to, managed by, and reconciled with production processes and workers' activity management. Data is being created by and captured from numerous sources in any modern factory. While data is abundant, most companies face the challenge that data needs to be aggregated and contextualized in order to drive insights and enable leaders to make rapid, real-time decisions. As such, insights and intelligence are necessary if manufacturers are to capitalize on their data and IoT investments. The growing volume of error codes, failure modes, readings, alerts, and data points will have the potential to slow down decision making as service and maintenance workers and customers sift through it all to figure out what, if anything, to do next. Data must be accessible, clean, relevant, and actionable to enable perfect predictive maintenance.

By 2024, 80% of global manufacturers will incorporate environmental sustainability into their product life-cycle management processes and ecosystems, improving sales by 3%.

Within the digital manufacturing space, the role of the manufacturing information system (MIS) is undergoing a major reinvention, too. There are multiple options when it comes to executing manufacturing processes; it is an area where we are seeing a battle between different MIS-like applications as users — depending on their process needs — are deploying operational-focused ERP and enterprise systems, MIS-like manufacturing applications, and industrial IoT (IIoT) platforms to achieve similar goals. The MIS brings value to the whole process — standardizing data, unifying semantics, defining metadata, and creating new meaning from collected data.

Industrial IoT (i.e., the deployment of smart IoT infrastructure on the manufacturing shop floor) is another critical factor when it comes to digital manufacturing. Historically, sensors in the manufacturing industry were collecting data but were not connected to the IT network within the enterprise. However, with smart sensors and IT-OT convergence, plant assets are modernized and include:

- IoT sensors or systems that talk to each other (M2M) and report metrics to the central information system in real time

- Machine learning combined with a big data and analytics engine that monitors asset performance patterns and predicts operational trends such as degradation in the performance of a part or the assembly line

Sustainability has seen a huge increase in interest across the globe in the past year. With a growing focus on ethical sourcing, companies that can report across the entire value chain and showcase the steps they are taking to improve environmental sustainability will see an uplift in B2B sales as other firms seek to improve their environmental ecosystems. They will also likely benefit from improved B2C sales as consumers become increasingly ethically minded. Another key advantage will be

lower operating costs as energy reduction programs, wastage reduction programs, and transport optimization approaches begin to make an impact.

For any business, it is important to understand how well a potential vendor/partner has built up its technical know-how in relation to the manufacturing vertical. Those that are able to provide all the necessary technology on a combined digital platform can help their customers to be successful in a number of ways:

- By doing pre-integrations with other software, hardware, and connectivity providers that help organizations get to market faster
- By helping customers to make the implementation process smoother
- By providing user groups that allow organizations to share best practices among themselves
- By providing opportunities to monetize software built on the platform, and more

Faced with today's business complexity, and the need to balance factory capabilities with volatile demand across elongated and dynamic supply chains, manufacturers need to harmonize, supervise, and coordinate their execution activities across the company's and its suppliers' manufacturing operations — with a greater level of real-time visibility.