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THE AGE OF SMART INDUSTRY

Trends in the Manufacturing Industry
looking forward to 2022 and beyond

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TRENDS IN 2022 AND BEYOND

We know the leaders and executives of tomorrow

Already before the pandemic disruption in 2020 and 2021 there were major changes on their way in the manufacturing industry. But the pandemic caused a real boost in the adoption of Industry 4.0 or even 5.0 initiatives. Manufacturers were struggling to maintain cost-effectiveness while adopting or planning to adopt Industry 4.0 digitalization initiatives. In 2021, the manufacturing industry will continue to face economic upheaval, evolving consumer behavior and changes to global trade patterns.

What will Manufacturing look like in 2022? IESF presents you the 7 top trends to watch according to our partners worldwide.

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TRENDS IN 2022 AND BEYOND

We all perceive the same trends when we look at the management and c-level positions we mediate in Manufacturing. Smart Industry mainly consists of the same seven elements. In this article we would like to highlight them:

- Co-creation & smart product development
- Mass customization
- Internet of Things/ digital factory
- Cyber physical systems/ factory flexibility (digital twins)
- Operational excellence/ variation reduction
- Enterprise agility/ competent workforce
- Sustainability and circular economy

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1. Co-creation & smart products

Consumers are rapidly evolving new behaviors, and their expectations are rising faster than manufacturing can follow. After the shocks of 2020 and 2021, consumers want to live better lives, so everything they purchase has to add value. But what constitutes value?

Manufacturers have to get closer to end-users to know the answer. In 2022, smart manufacturers will not only focus on concepts, but also get better at interpreting the data they already have. Instead of products, manufacturers should think of whole ecosystems, attaching apps or software features, or new subscription models that deliver recurring revenue (and data).

2. Mass customization

From fast-moving consumer goods to industrial machinery, customers want manufacturers to build products that reflect their individual needs. Mass customization may not be new, but the demand for personalized products is rising. In saturated product categories, differentiation through features alone is getting harder to achieve.

On top of that, 2020 and 2021 made consumers acutely aware of the things they value most. From fast-moving consumer goods to industrial machinery, customers want products that reflect their individual needs. For 2022, manufacturers will have to find ways to satisfy an even more personalization-hungry market on a mass scale. They'll need to do this while remaining profitable. There will be an opportunity to look closer at both pricing and fulfilment. Research shows consumers will pay 20% more on average for bespoke products and wait longer to receive them.

3. Internet of Things - Digital Factory

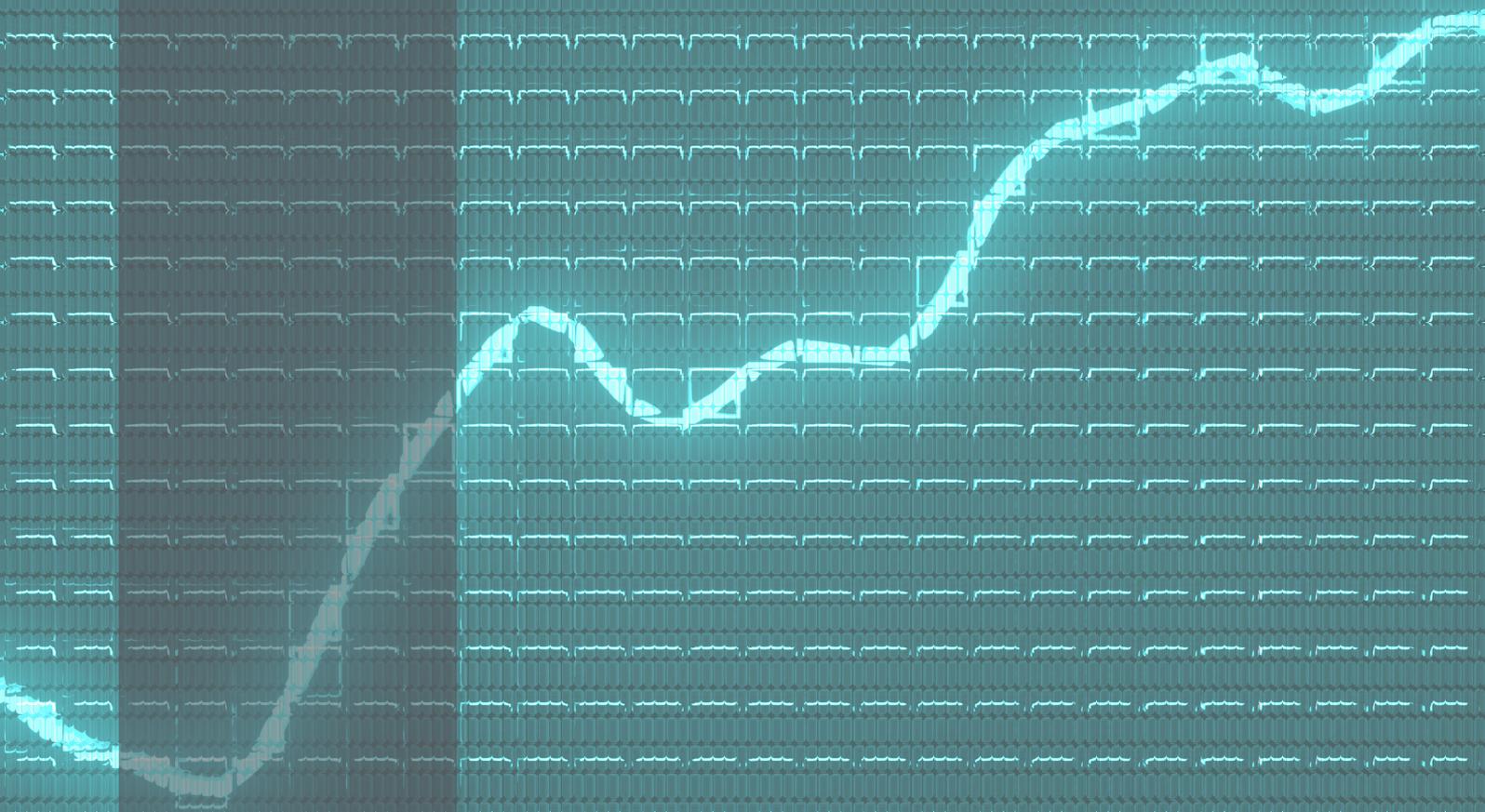
The digital factory offers the revolutionary digitization of end-to-end business processes. Internet of Things will continue to disrupt and change manufacturing and bring the industry exciting new ways to innovate how products are made and serviced. The challenge in 2022 will be to apply automation in markets defined by trends, like mass customization, where many processes and schematics can't be pre-programmed.

Automation systems will need to be fed with data currently sitting in manufacturing's technology silos: living on individual machines or inside disconnected software solutions. Applying new levels of automation beyond the factory floor will also uncover value and become a key driver of new efficiencies.

4. Cyber physical systems/ factory flexibility (digital twins)

Design, manufacturing, production planning and MRO frequently operate as independent "silos" within the organization. But what if this data could be aggregated and expanded to allow total process simulation of an actual production process? An important prerequisite for smart manufacturing is cyber-physical integration, which is increasingly being embraced by manufacturers. Cyber-physical systems and digital twins have gained extensive attention from researchers and practitioners in industry. They can endow manufacturing systems with greater efficiency, resilience, and intelligence. Cyber-physical systems and digital twins share the same essential concepts of an intensive cyber-physical connection, real-time interaction, organization integration, and in-depth collaboration.

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5. Operational excellence

For several decades, manufacturers have used lean principles and tools to reduce operational complexity and improve productivity. The lean approach provides the foundation for operational excellence by standardizing processes, instilling a culture of continuous improvement, and empowering workers on the shop floor. However, given the increasing complexity of operations, many companies have found that lean management by itself is not sufficient to address their operational challenges. A set of advanced digital technologies known as Industry 4.0 has emerged to offer new approaches for dealing with complexity and improving productivity. By deploying the right combination of technologies, manufacturers can boost speed, efficiency, and coordination and even facilitate self-managing factory operations.

6. Enterprise Agility / Competent workforce

Agile organizations can quickly redirect their people and priorities toward value-creating opportunities. A common misconception is that stability and scale must be sacrificed for speed and flexibility.

Truly agile organizations combine both: a strong backbone or center provides the stability for developing and scaling dynamic capabilities. This backbone binds structural stability (standard operating procedures) to cultural stability (shared purpose, direction, and values); it also supports dynamic capabilities (for instance, fluid changes to strategy and team setup) in order to respond quickly to fast-changing conditions.

Competence encompasses a combination of knowledge, skills, behavior and limitations that an individual can use to improve performance. Providing employees with the relevant skills and knowledge will go a long way into ensuring that the decisions they make are the correct ones.

7. Sustainability & Circular Economy

To achieve a truly sustainable circular economy, consumption and production practices would need to change together. A sustainable circular economy involves designing and promoting products that last and that can be reused, repaired and remanufactured. This retains the functional value of products, rather than just recovering the energy or materials they contain and continuously making products anew. We have to do more with less material and consume responsibly.



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