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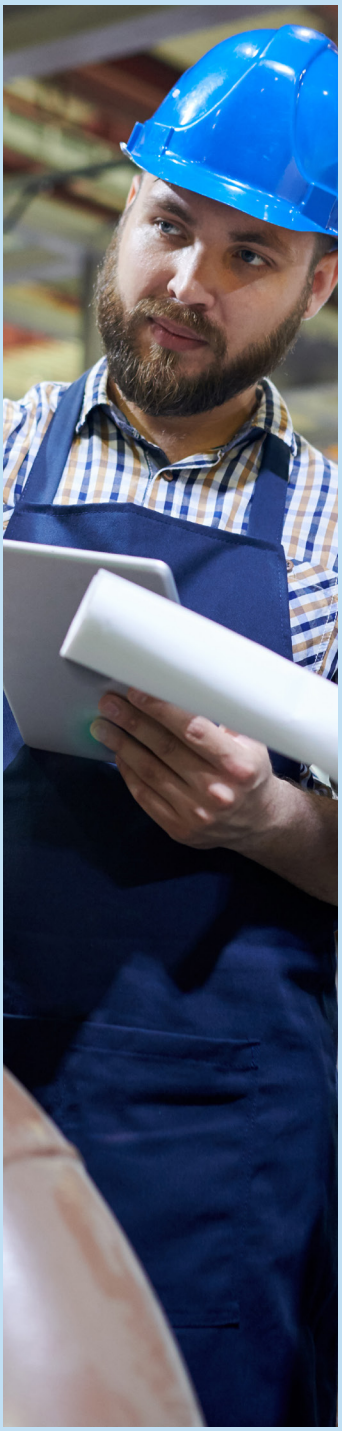

INDUSTRY 5.0

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5IR: A look at how people and robots will symbiotically work together using Artificial Intelligence for the Manufacturing Ecosystem

Today we are operating in an ecosystem, that will redefine not just technology, but also the way of life. Gen Z is already adapting to this change, and we can see its impact all around us.

Rewind a couple of centuries back:

Human beings started realizing the enormous benefits of tools and technology to start producing things on a large scale through what we are calling as manufacturing today.

From the ages of the first industrial revolution till Industry 4.0, factories have evolved to become smarter and technology intuitive. With the advent of AI, we are now seeing the industry starting to move to Industry 5.0 or 5IR. The current paper delves into how the 5IR is shaping manufacturing and how humans and robots will not only co-exist but also collaborate, to make the best of advances in artificial intelligence.

What is the 5th Industrial Revolution?

Industry 5.0, also known as the Fifth Industrial Revolution or 5IR, is the manifestation of the smart industry 4.0 where people will be working alongside A.I.-powered robots in a symbiotic relationship to enhance workplace processes.

The primary benefit of Industry 5.0 is the creation of more creative jobs, enabling individuals to focus on enhancing customer experiences. By allowing manufacturing processes to be handled through automation, human workers can focus more of their time on delivering improved, bespoke services and products.

It is difficult to see the disadvantages of Industry 5.0, however the question is in how organizations, especially factories can rapidly adapt to these technological changes and embed it in their ecosystem.

To understand this better, it is worth looking in more detail at the 3 key aspects denoting the way manufacturing industry is getting ready for the change.

- Human Centric approach
- Resilience
- Sustainability

Humans at the centerstage

Many manufacturing processes from the start of the first industrial revolution have evolved to prioritize safety and well-being for human life. There has always been a discussion on how to naturally reduce human intervention in such unsafe situations and rely on use of automation and intelligence to reduce the inherent risks. A classic example is found in the use of servicing and maintenance of boilers or in foundries where heat and temperature encourage significant human intervention. While industry 4.0 developed mechanized robots for many of these tasks, 5IR can now help develop intelligence in these robots to predict failure points and prompt interventions to support the maintenance processes. This approach ensures that maintenance decisions are based on past predictions and historical data, empowering both humans and robots to make informed and effective choices.

Microsoft Business Applications is developing a HoloLens which will be a great aid in designing some of these 5IR use cases and automation.

Adjusting to changes in demand

Given the rapidly changing geopolitical landscape and the abundance of information, manufacturing organizations must proactively account for demand fluctuations and leverage past experiences to streamline demand across the entire supply chain. For example, disruptions caused by the pandemic or conflicts in certain regions have led manufacturing companies to make their factories more scalable. This adaptability allows them to respond swiftly to changes and adjust their demand in near real-time. Industry 5.0 with its advanced use of AI helps develop models which learn based on past data experience and immediately help modify the planned orders or change the supply chain in such scenarios.

Azure machine learning service, for instance, can readily train and deploy a demand model without the need to modify code.

Sustainability

With majority of countries committing to sustainability goals for the future as a part of the COP discussions year on year, manufacturing industries are committed to help achieve these goals as part of their Corporate Social Responsibility initiatives.

Research shows that over 27.4% of organizations consider sustainability among their **top 3 business priorities** (source: IDC's Future Enterprise Resiliency and Spending Survey). With sustainability as a critical success factor for enterprises worldwide, it is becoming increasingly important for organizations to effectively manage their sustainability initiatives.

The Microsoft Sustainability Manager (Microsoft's Sustainability Cloud suite of offerings) offers a growing set of ESG (environmental, social, and governance) capabilities & tools, empowering organizations to accelerate sustainability progress and business growth.

Microsoft Sustainability Manager leverages Power Platform, to monitor and manage an organization's environmental impact with unified data that helps enable actionable insights.

This flexible suite also offers pre-built data models, data connectors, reports for ESG, plus added capabilities for value chain data management, ESG data lake options, reporting across all environmental categories, and more.

A case in point here would be a bottling company which is committed to ensure that their emissions from plants are within the permissible limits as defined by the COP Sustainability goals. By using Microsoft cloud and integrating with the Manufacturing Execution System (MES) such emissions can be recorded and made available for plant managers to define their maintenance strategy without impacting the production lines.

Conclusion

Industry 5.0 is committed to help manufacturing organizations meet their key ESG goals. With the advent of Cobots and/or humanoid robots which work together with humans to develop a safe and a secure environment there is going to be a huge push and desire to move towards this techno manufacturing phase. The future of sustainability lies in the manufacturing industry. The future of sustainability in manufacturing lies in embracing Industry 5.0, where Artificial Intelligence and learnability models are utilized to swiftly meet the COP goals committed by countries.

About the Author

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Jay Naik is a Principal Consultant in Infosys for the Microsoft unit. He comes with an 18+ years of experience in Biz Apps implementations and has played diverse roles in projects till date. His experience includes, not only implementing discrete and process manufacturing implementations but also finance and project management and accounting processes. Currently he is responsible for Biz Apps portfolio in European markets involving D365 Finance and SCM implementations.

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