EUROPEAN BIG DATA VALUE FORUM
2-4 OCT | BUDAPEST - HUNGARY

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#EBDVF24

Improving Data Maturity of Manufacturing SMEs

October 2, 2024; 11:30 - 13:00

ORGANISED BY

BDV BIG DATA VALUE ASSOCIATION

IN COLLABORATION WITH

European Commission

ELTE EÖTVÖS LORÁND UNIVERSITY

IDEAL-IST

NTP Neumann Technology Platform

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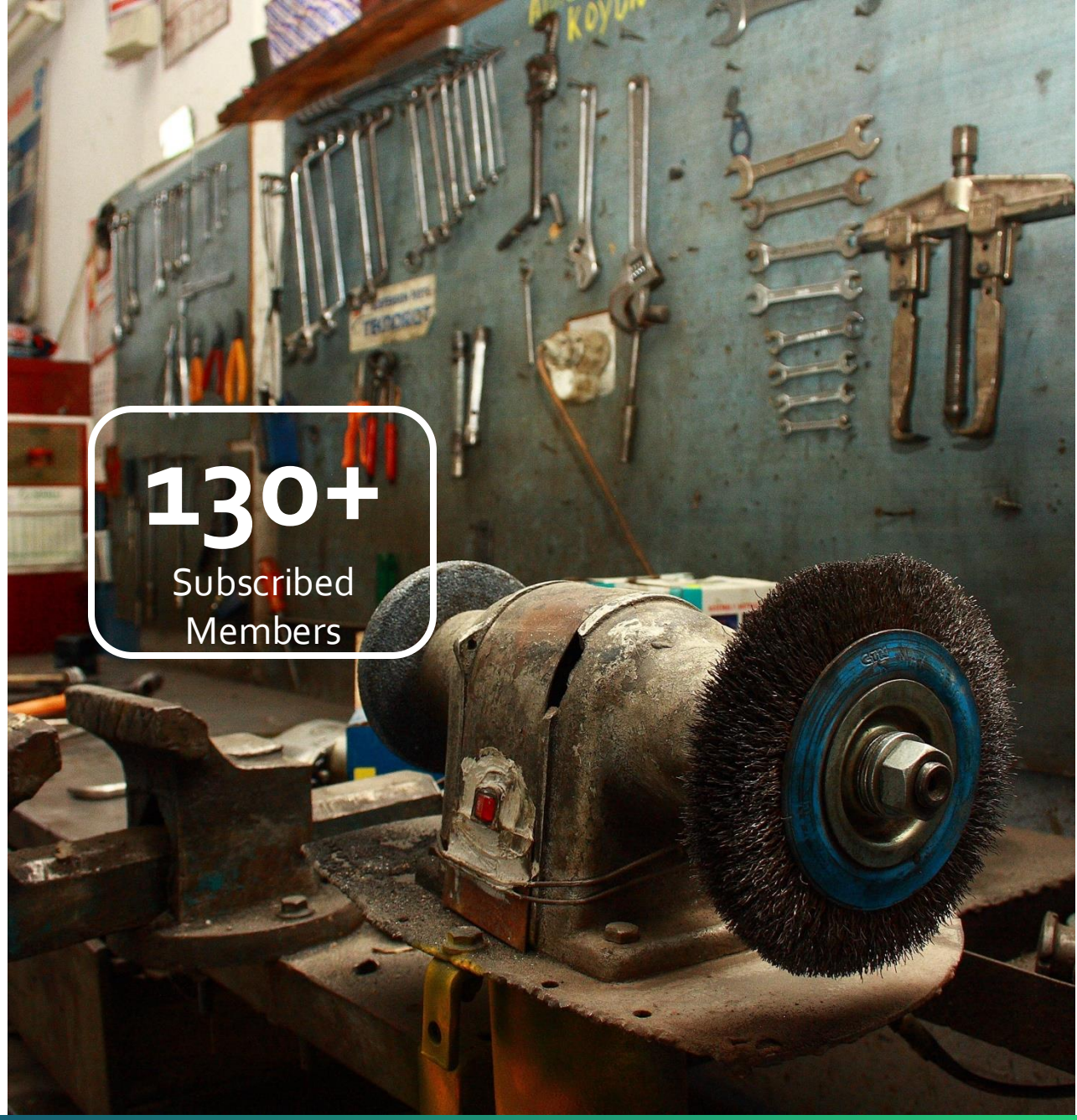
AI & AUT EXPO

Smart Manufacturing Industry group

To **exchange views** and learn from each other experiences, on what activities are running in EU and within the different countries.

To identify **present and future challenges** to be addressed and to provide input for policy-makers at EU and member states level.



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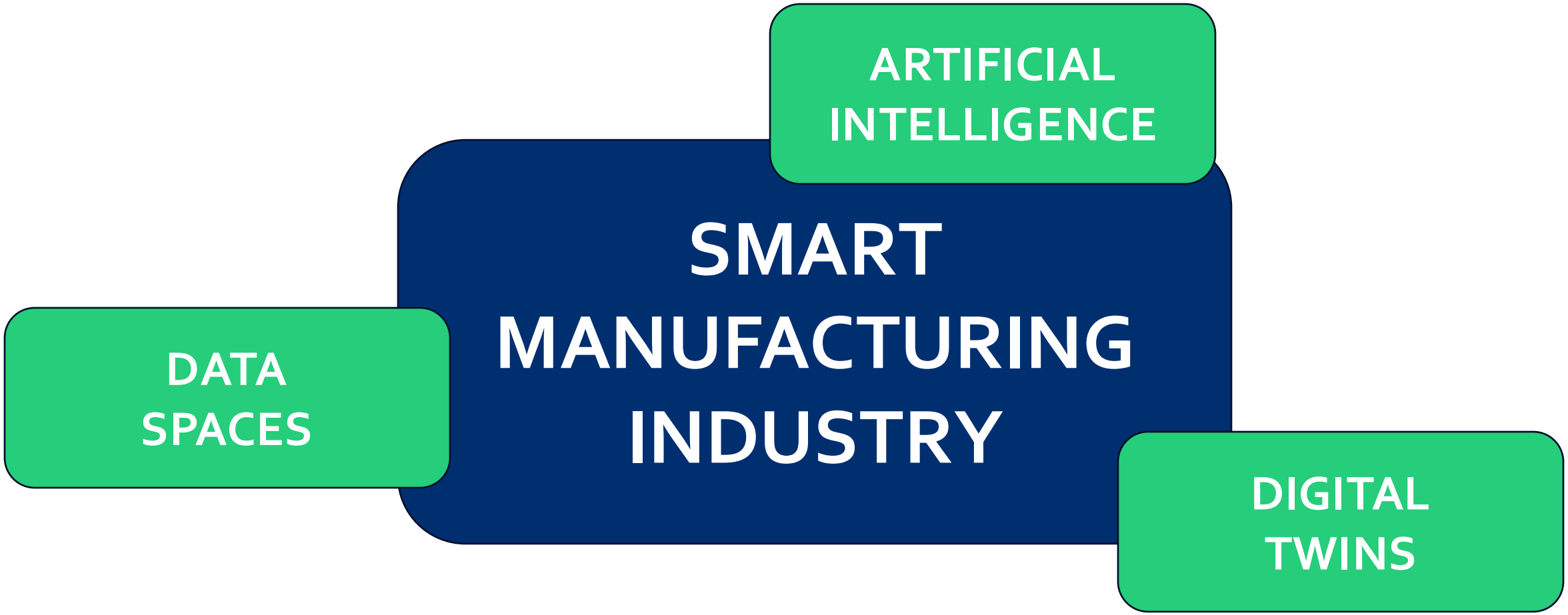

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Davide Dalle CARBONARE
Engineering Ingegneria Informatica SpA

Óscar LAZARO
Innovalia

Nuria De Lama
IDC

Sergio Gusmeroli
Politecnico di Milano

Thomas Hahn
Siemens AG

Tamás Fischl
Bosch

Peter Benedek Balog
Robert Bosch Kft.

Stefano Ierace
Intellimech

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Nuria de Lama (Consulting Director, IDC)

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European Manufacturing

Market Trends & Technology adoption

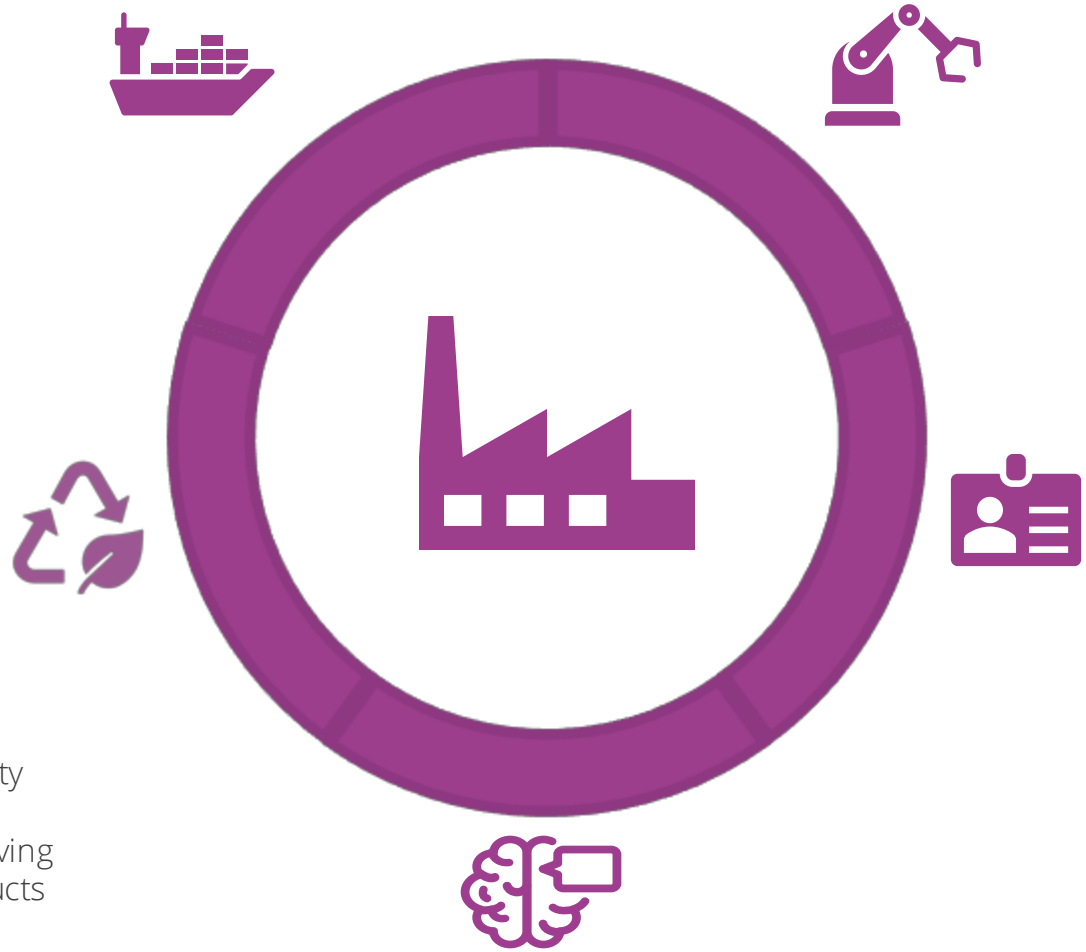
Top Business Trends in Manufacturing

Transformative Supply Chain Orchestration

Inflationary pressure, recurring short-term disruptions to the supply chain due to geopolitical instability, the effects of climate change, and the need to meet compliance requirements necessitate transformative supply chain orchestration.

Sustainable Operations and Product Innovations

High energy prices and requirements from laws, customers, and the investor community are driving the development of decarbonization strategies related to improving energy efficiency and sustainability of products and business operations.



Unleashing the Power of AI with Generative AI

GenAI not only enhances the economics of AI but also democratizes its access, fueling rapid proliferation in the manufacturing industry.

Harnessing the power of data in factory operations

Digital technologies play a pivotal role in enhancing factory operations, yet realizing their full benefits necessitates the availability of relevant data and the implementation of comprehensive data management strategies.

Navigating Skill and Workforce Dynamics

Manufacturers must holistically address workforce and talent management to bridge skill gaps, encompassing everything from talent attraction and retention to enabling and augmenting employees with digital technologies.

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Harnessing the Power of Data in Factory Operations

Digital technologies play a pivotal role in enhancing factory operations, yet realizing their full benefits necessitates the availability of relevant data and the implementation of comprehensive data management strategies.

Factory operations need to run efficiently, safely, and securely, and they need to become more agile and flexible to address increasing customer demands. To achieve this, speed and quality of decision making needs to be improved. This requires access to pertinent data and **better utilization of data**.

Having a comprehensive **data strategy** — which includes capturing, storing, managing, contextualizing, and analyzing industrial data — is key to implement data-driven improvements of shop floor operations.

Data platforms can bridge data silos and provide data in a harmonized way through standardized data models that are aligned with semantics. **Digital twins** of assets or operations can help to put industrial data into context for operators, thereby providing a holistic view for making decisions on parameter improvements.

The ability to **monitor the conditions of production assets** on the shop floor in real time is also key to evaluate and decide on improvements, but it requires instrumentation of production assets and connection to a network.

Execution Priorities in 2024

32% **Data platforms and analytics**

42% **Digital twins** (virtual representations of a physical entity, process or environment)

35% **Real-time asset monitoring**

Execution Challenges

- **Poorly integrated operational data sources due to non-interoperable interfaces**
- **(Legacy) production assets not being instrumented and connected to a network**
- **Data security and data sovereignty concerns when it comes to data-sharing within an ecosystem of suppliers and partners (e.g., to create a digital twin of factory operations)**
- **IT/OT security concerns**
- **Lack of integrated IT/OT governance models and collaboration between IT and OT domains limit utilization potential of OT data**

Source: IDC's *EMEA Cross-Industry Survey*, December 2023 (n = 157 European manufacturers)

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Generative AI: Business Impact & Challenges

Accelerating employees' and workers' time-to-expertise and improved operations efficiency can reduce costs, improve service levels, and increase worker productivity.

Selected GenAI Use Cases in Manufacturing

		Impact	
		Business Benefits	Metrics
Asset Maintenance	Augmenting maintenance staff with **AI-driven guidance and repair instructions** in natural language, including checking spare parts availability and ordering.	Increased production asset availability	• Reduced unplanned asset downtime • Improved first-time-fix rates • Improved mean time to repair
Root Cause	Factory staff can ask queries in a natural language dialog format about **correlation of production, material, and supplier data related to the quality issues** identified during production.	Faster time to quality issue resolution	• Reduced scrap rates
Agile Production Planning	Factory staff can ask queries in a natural language dialog format about **best sequence of production orders** considering real-time supply availability, delivery requirements, and inventory optimization.	Faster adoption of factory operations to supply constraints	• Reduced time to complete order

Execution Challenges

Security and privacy and to not having the right level of **quality data.**

There are **trust issues in AI Outputs** due to existing issues with biases and the "blackbox" effect due to a lack of transparency.

Insufficient AI governance is perceived as a major risk, and the upcoming **EU AI Act** is aiming to address the risk of ungoverned AI.

Lack of skilled personnel (e.g., data scientists, data engineers, and AI modelers) makes developing own models or choosing the optimal LLM for company-specific use cases from a multitude of possibilities quite of a challenge.

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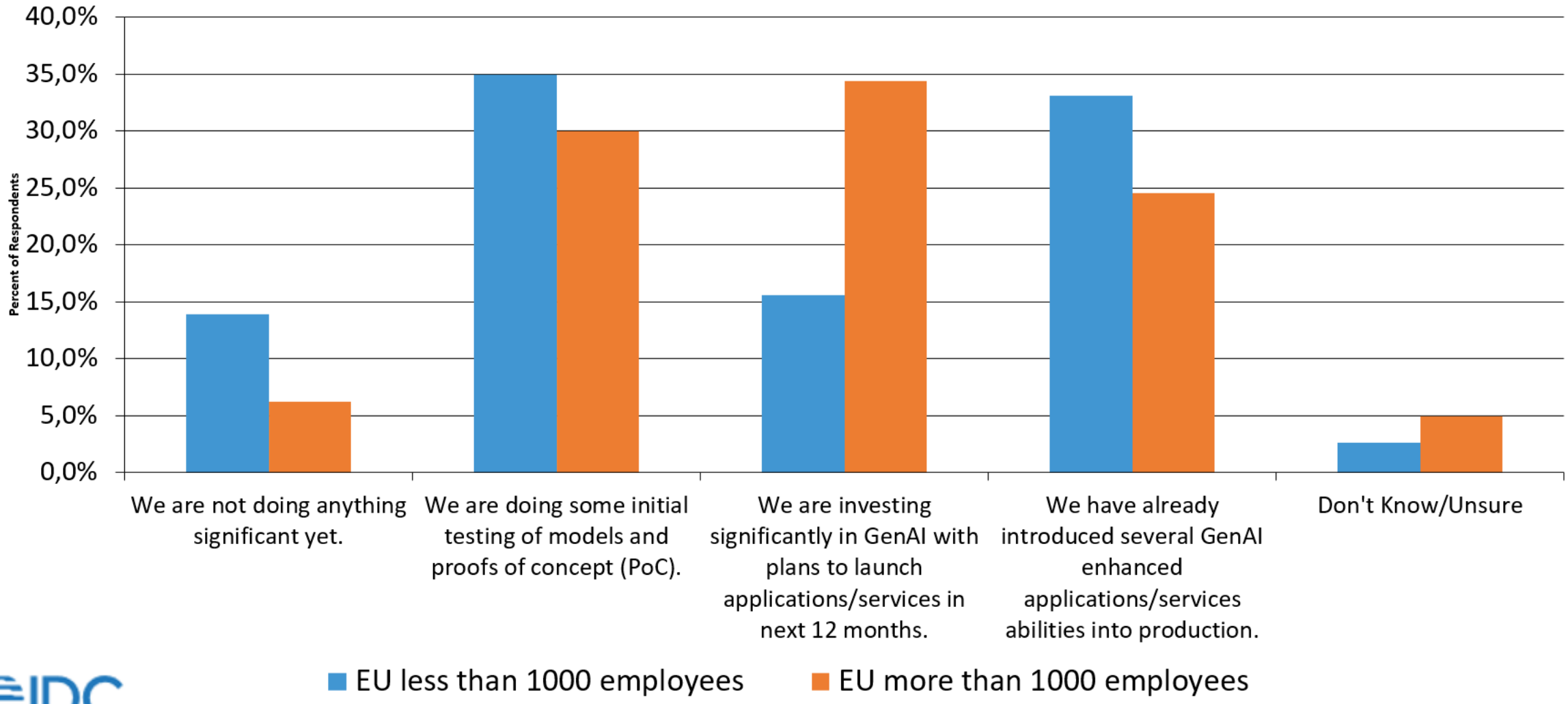
How does the picture for SMEs look like?

Analysis of Manufacturing SMEs in the EU

Generative AI is a branch of computer science that involves unsupervised and semi-supervised algorithms that enable computers to create new content using previously created content such as text, audio, video, images, and code in response to short prompts. What is your organization's current state of evaluating or using Generative AI (GenAI)?



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view original in KnowledgeHound – **Study:** Future Enterprise Resilience Survey (FERS) 2024 - Wave 6

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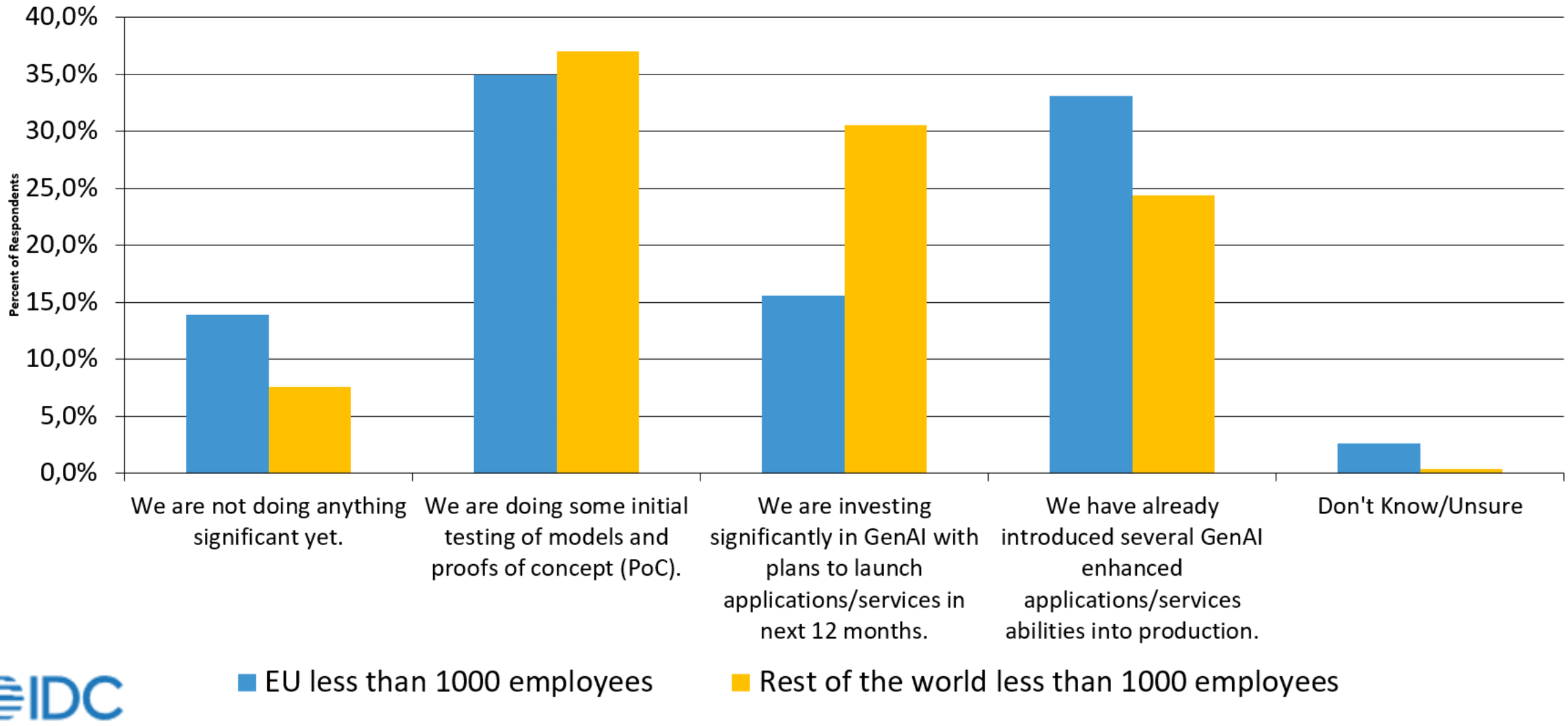

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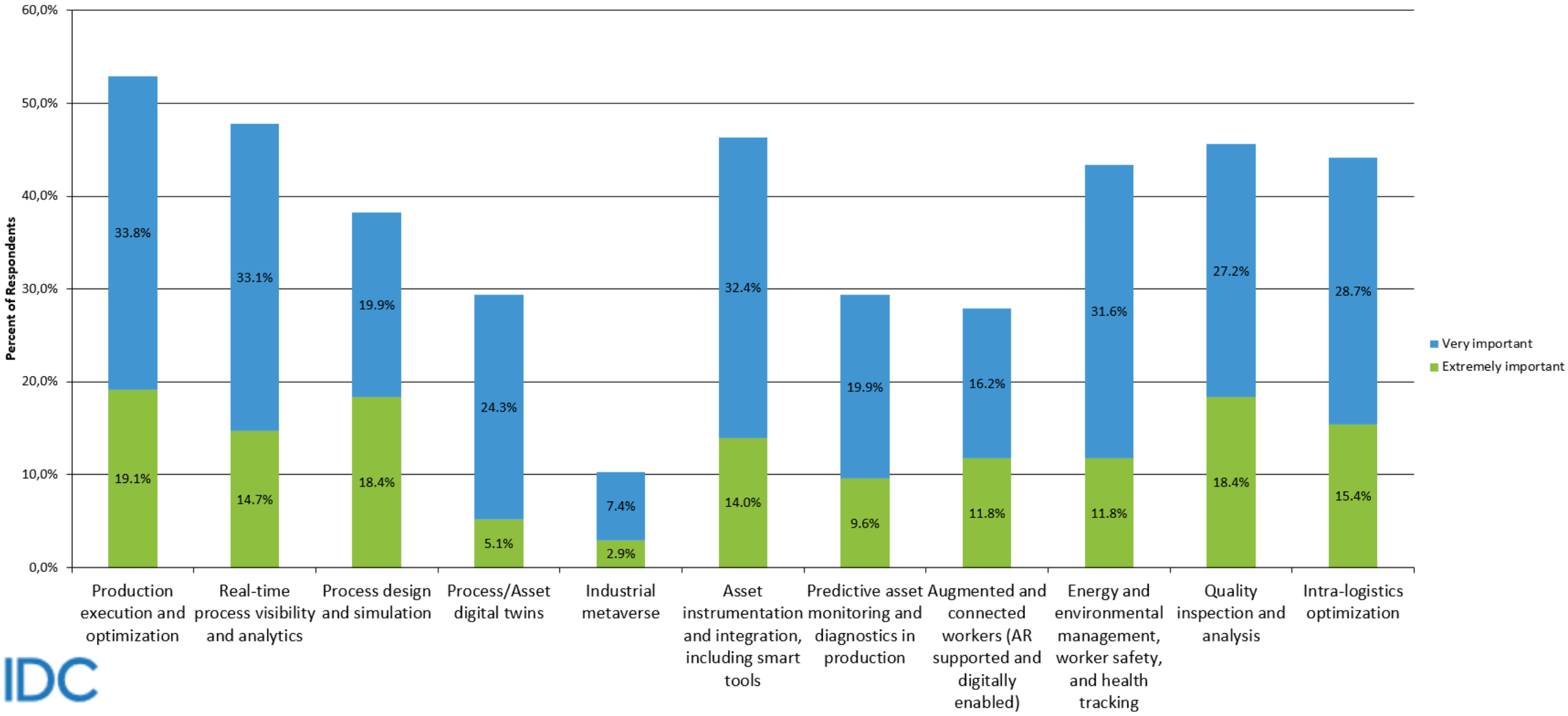
How would you rate the importance of each of the following industrial AI opportunities for your company? (Responses of EU companies of less than 500 employees)



View original in KnowledgeHound – **Study:** IDC Syndicated Survey 2024: Manufacturing Industry Core Survey 2024, #11323 – **Sample:** B2B, CATI, Manufacturing (Tech/Brand/Asset and Engineering oriented) – **Total sample:** N=800 – **Unweighted base:** N=136 –

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Thank you!

Get in touch: ndelama@idc.com

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