Press contact:
Michele Moore Duhen
Tel: +44 3709 053408
E-mail: michele.moore@capgemini.com

Europe is leading AI in manufacturing operations adoption finds new study from Capgemini

Over half of European manufacturers are implementing AI use cases in the sector with Germany a frontrunner on 69% AI adoption versus US at 28% and China at 11%

Paris, December 12, 2019 – A new report from the Capgemini Research Institute highlights that the European market is leading in terms of implementing Artificial Intelligence (AI) in manufacturing operations. 51% of top global manufacturers in Europe are implementing at least one AI use case. The research also analyzed 22 AI use cases in operations and found that manufacturers can focus on three use cases to kickstart their AI journey: intelligent maintenance, product quality control, and demand planning.

Capgemini's report entitled 'Scaling AI in manufacturing operations: A practitioners' perspective' analyzed AI implementation among the top 75 global organizations in each of four manufacturing segments: Industrial Manufacturing, Automotive, Consumer Products and Aerospace & Defense. The study found that AI holds tremendous potential for industries in terms of reduced operating costs, improved productivity, and enhanced quality. Top global manufacturers in Germany (69%), France (47%) and the UK (33%) are the frontrunners in terms of deploying AI in manufacturing operations, according to the research.

Key points from the report include:

AI is being utilized and making a difference across the operation value chain
Leading organizations are using AI across manufacturing operations to significant benefit. Examples include food company Danone[1] which has succeeded in reducing forecast errors by 20% and lost sales by 30% through using machine learning to predict demand variability. Meanwhile, tire manufacturer Bridgestone[2] has introduced a new assembly system based around automated quality control, resulting in over 15% improvement in uniformity of product.

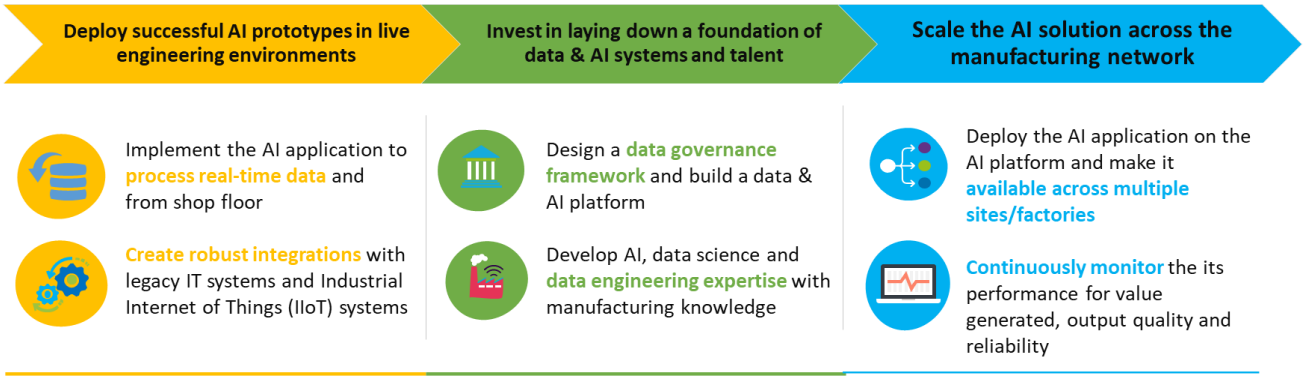
Manufacturers tend to focus on three main use cases to kickstart their AI journey
According to the report, manufacturers start their AI in operations journey with three use cases (out of 22 unique ones identified in the study) as they possess an optimum combination of several characteristics that make them an ideal starting point. These characteristics include: clear business value, relative ease of implementation, availability of data and AI skills, among others. Executives interviewed by Capgemini commented that product quality control, intelligent maintenance, and demand planning are areas where AI can be most easily implemented and deliver the best return-on-investment. For instance, General Motors[3] piloted a system to spot signs of robotic failures before they occur. This helps GM avoid costs of unplanned outages which can be as high as $20,000 per minute of downtime. While there is consensus on which use cases are best to get started with AI in operations, the study also points out the challenge of scaling beyond the first deployments and then systematically harvest the potential of AI beyond those initial use cases.

[1] Toolsgroup, "Ex Machina: AI and the Future of Supply Chain Planning", January 2016.
[2] Harvard Business School, "Bridgestone: Production System Innovation Through Machine Learning", November 2018
[3] iFlexion, "Image Classification Everywhere in Automotive," accessed September 2019

"As implementation of AI in manufacturing operations matures, we will see large enterprises transitioning from pilots to broader deployment," said Pascal Brosset, Chief Technology Officer for Digital Manufacturing at Capgemini. *"Quite rightly, organizations are initially focusing their efforts on use-cases that deliver the fastest, most-tangible return on investment: notably in automated quality inspection and intelligent maintenance.*

"The executives we interviewed were clear that these are functions which can deliver considerable cost savings, improve the accuracy of manufacturing and eliminate waste. However, the leaders do not solely focus on these use cases but, in parallel with their deployment, prepare for the future by reinvesting part of the savings into building a scalable data/AI infrastructure and developing the supporting skills." He further added.

The report concludes by outlining recommendations to scale AI in manufacturing operations (see the figure below):



To read the full report, click here.

Report methodology

Capgemini conducted extensive secondary research on the AI initiatives being tested and implemented by 300 global manufacturers – the top 75 global organizations in four manufacturing segments (Automotive, Industrial Manufacturing, Consumer Products, and Aerospace & Defence) by their annual global revenue in each of the four sectors listed above.

Capgemini also interviewed over 30 senior executives from the manufacturing sector, belonging to the following industries: Industrial Manufacturing, Automotive Consumer products, and, Aerospace & defense. These executives belonged to four distinct profiles:

1. Department/function head in one or more manufacturing plant(s) e.g., maintenance, production, quality
2. Plant leadership (plant manager/director)
3. Director/VP Operations (corporate / multi-country responsibility)
4. AI Heads/ Heads of Innovation/ Chief Digital Officers

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