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How AI is driving innovation in FMCG, chemicals, and industrial manufacturing

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1. Introduction

The significance of artificial intelligence is rapidly increasing in the manufacturing sector. This transformative technology has evolved through years of development and refinement and is now being integrated into a wide range of manufacturing technologies, including semiconductors, software applications and platforms, and communications equipment. AI will progressively drive the functionality of key operational software applications such as Enterprise Resource Planning (ERP), Product Lifecycle Management (PLM), Manufacturing Execution System (MES), and Customer Relationship Management (CRM). Additionally, robotic systems will increasingly rely on AI for guidance and operation.

Moreover, AI will be leveraged to process and analyze the expanding volumes of operational data, enabling companies to optimize equipment performance, predict equipment conditions, and make more informed decisions based on actionable insights.

It is crucial for the manufacturing industry to comprehend how AI will impact the operations of factories and plants in the coming years, influence workforce strategies, deliver business benefits, and identify the challenges that must be addressed to fully unlock the potential of this technology.

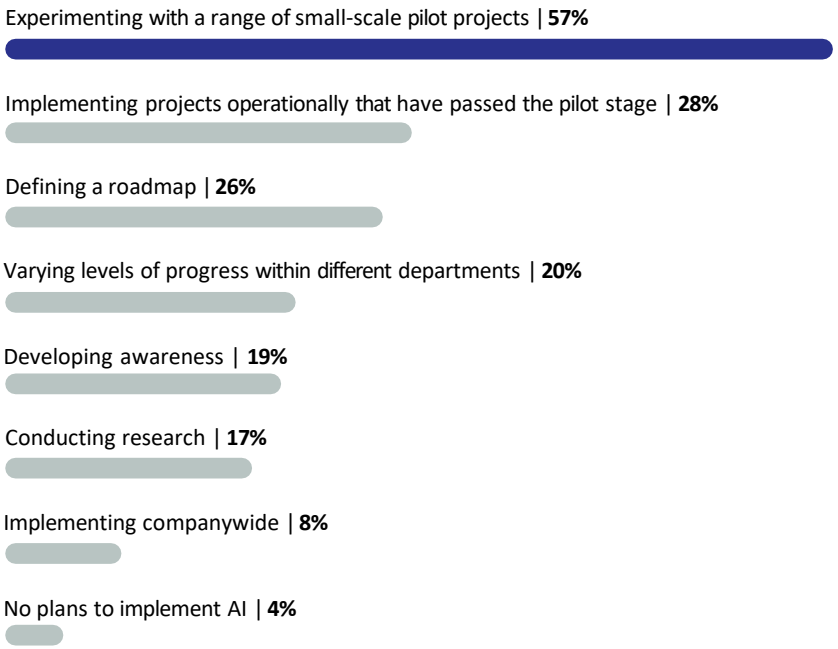
2. State of AI Adoption

Manufacturers are adopting AI methodically, starting by raising awareness about its potential and conducting research to identify areas where it can add value. Although AI has existed in various forms for years, recent advancements in infrastructure, computer platforms, and communication networks have created better conditions for its integration into manufacturing. Breakthrough products, such as OpenAI's ChatGPT, have further sparked the industry's interest and broad public attention.

This shift is evident in survey results showing that 57%[1] of manufacturers are running small-scale pilot projects, while 28%[2] have moved past the pilot stage to operationalize AI-driven initiatives. These findings highlight the growing trend of AI adoption across manufacturing operations.

28% already have operational AI projects in place, but it's still early days in AI adoption for most

State of AI Adoption in the Manufacturing Industry



1. https://www.manufacturingleadershipcouncil.com/wp-content/uploads/2023/06/The-Future-Of-AI-In-Manufacturing-MLC-2023.pdf
2. https://www3.weforum.org/docs/WEF_AI_in_Manufacturing_2022.pdf
3. https://www.manufacturersalliance.org/sites/default/files/2021-06/The%20Manufacturing%20Evolution%20Report.pdf
4. Benori internal research

3. AI application across three industries

Artificial Intelligence (AI) is no longer a futuristic concept. It drives transformation in fast-moving consumer goods (FMCG), chemicals, and general manufacturing industries. From product development to process optimization, companies are harnessing AI to enhance efficiency, fuel innovation, and sharpen their competitive edge.

Applications of AI Implementation and their Effects

Industry	Application	Description	Example
FMCG	Product Development	AI speeds up recipe creation by analyzing market demand, flavors, and nutrition trends.	Mondelez International reduced product development time by 4-5x, launching 70 new products.[3]
FMCG	Demand Forecasting	AI-driven digital twins simulate production and logistics to minimize waste and energy use.	Unilever employs AI models to forecast and boost supply chain efficiency, resilience, and agility. Optimized inventory management reduces trucks on the road, ensuring precise deliveries, fewer trips, and 30% less human effort.
FMCG	Consumer Insights	Implementation of AI-enabled company to identify emerging trends and enhance product innovation	Nestlé leverages AI to analyze trends, ingredients, flavors, and health benefits from online sources, leading to the launch of Nescafé Dalgona coffee mixes and Nesvita plant probiotic supplements in China.
Chemicals	Drug Development	AI accelerates molecule discovery, drug safety reporting, and medical image analysis.	Parexel pilots AI for faster drug safety reporting and molecule discovery.
Chemicals	Process Optimisation	AI enhances chemical manufacturing by improving efficiency, reducing energy consumption, and cutting costs.	Dow Chemical uses AI-driven models, which have helped optimize chemical reactions and manufacturing processes, resulting in increased efficiency and reduced waste.
Chemicals	Process Optimisation	The implementation of AI-enhanced agricultural productivity and sustainability	BASF has strategically combined agronomic expertise with hardware proficiency through their joint venture with Bosch, aiming to reshape the future of farming.

1. https://www.reuters.com/business/healthcare-pharmaceuticals/conference-drugmakers-tout-ai-efforts-us-tariffs-cast-shadow-2025-02-26/
2. https://www.ft.com/content/648046c1-7fcd-43fb-819b-841f104396d9
3. https://nypost.com/2024/12/27/lifestyle/oreos-owner-is-using-ai-to-create-new-snacks-and-get-them-on-shelves-5-times-faster/
4. Benori internal research

Industry	Application	Description	Example
Manufacturing	Research & Development	AI supports market research, simulations, and prototype design for faster innovation.	AI-driven R&D accelerates product creation and testing in manufacturing.
Manufacturing	Predictive Maintenance	AI replaces traditional control systems with advanced data-driven decision making.	Schaeffler implemented AI systems to monitor equipment health, which minimized downtime and maintenance costs.
Manufacturing	Design & Engineering	AI reduced time-consuming tasks such as clay modeling by rapidly generating 3D models and stress predictions	Ford has integrated AI agents and advanced GPUs from companies such as Nvidia to expedite its vehicle design and engineering processes.

Artificial intelligence (AI) is ushering in a new era of innovation and efficiency in the rapidly evolving pharmaceutical and chemical industries. Industry leaders such as Amgen and Parexel are harnessing AI to accelerate drug discovery, optimize repurposing strategies, and enhance medical image analysis. By automating regulatory reporting and streamlining compliance processes, AI is improving accuracy and accelerating the delivery of life-saving treatments to patients worldwide.

A similar transformation is reshaping procurement in the chemical sector. According to the Chemical Industry Journal, raw materials account for 50–70% of sales revenue for chemical companies. Despite this, many procurement decisions rely on intuition or historical pricing trends, an approach that often fails to account for real-time market dynamics.[4]

According to a recent IBM survey, 80% of chemical industry executives recognize AI as a key driver of business success over the next three years[5].

AI is transforming the FMCG industry by enhancing product development, streamlining supply chains, and enabling personalized marketing while driving innovation, accelerating time-to-market, and improving demand forecasting. These advancements underscore AI's pivotal role in driving innovation and competitiveness within the FMCG sector.

Beyond procurement, AI is revolutionizing general manufacturing. From research and development to production optimization, AI-powered tools enhance market analysis, product design, and workflow efficiency. On the factory floor, AI is driving tangible results, wherein global industrial processing plants have reported a 10–15% increase in output and a 4–5% rise in EBITA[6], driven by AI's ability to identify patterns that improve efficiency and reduce downtime.

Across industries, AI works as a strategic asset, allowing companies to integrate AI into their operations, redefining industry standards, and gaining a decisive edge in innovation and efficiency. Meanwhile, those who adapt slowly risk being left behind in the next wave of industrial transformation. The future is clear with AI no longer being an option but a driving force of progress.

1. https://www.mckinsey.com/industries/metals-and-mining/our-insights/ai-the-next-frontier-of-performance-in-industrial-processing-plants
2. https://www.reuters.com/business/healthcare-pharmaceuticals/conference-drugmakers-tout-ai-efforts-us-tariffs-cast-shadow-2025-02-26/
3. https://www.cio.inc/fmcg-industry-drives-innovation-ai-adoption-a-25719
4. Benori internal research

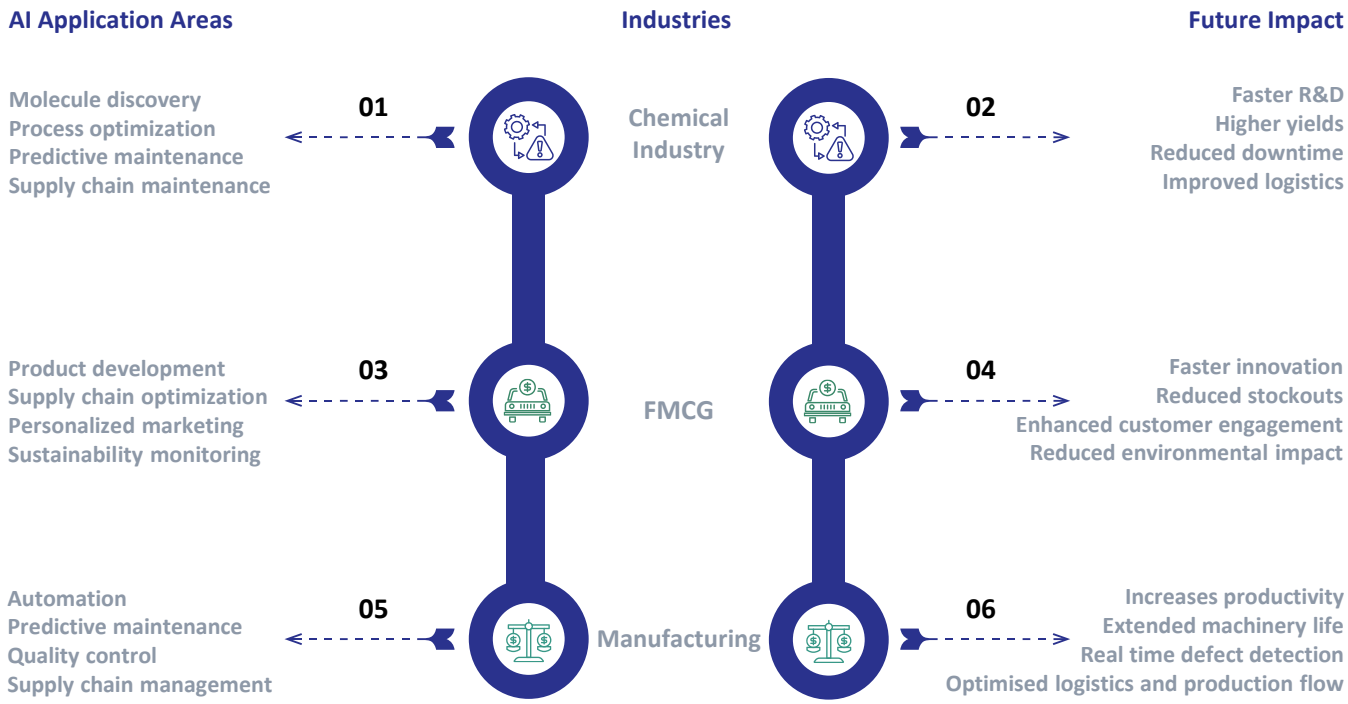
4. Cross-sector benefits of AI in manufacturing

Artificial Intelligence (AI) has emerged as a transformative force across industries, driving efficiency, innovation, and precision in operations. In chemicals, FMCG, and manufacturing industries, AI is optimizing complex processes, refining workflows, and enhancing supply chain management. Real-time data analysis ensures consistent product quality, maximized yields, and reduced waste, enabling companies to achieve unprecedented efficiency gains.

Predictive maintenance is another critical advantage, where AI-powered monitoring anticipates equipment failures before they occur, reducing downtime and extending machinery lifespan. This proactive approach is vital in chemical plants and manufacturing facilities, where operational disruptions can lead to significant financial and safety risks.

In research and development (R&D), AI accelerates discovery by enabling advanced simulations and prototyping, drastically cutting the time and costs associated with physical testing.

Benefits of AI, its Application Areas, and Future Impact



In the broader manufacturing landscape, AI enhances quality control through advanced vision systems capable of detecting minute defects, surpassing human inspection capabilities. Additionally, AI accelerates product development by analyzing vast datasets to identify new design opportunities and optimize material usage.

Looking ahead, AI's role in FMCG, chemicals and manufacturing industries is poised to expand, with advancements in machine learning and integration with Industry 4.0 technologies leading to more autonomous operations, personalized consumer experiences, and sustainable practices. Companies that effectively harness AI's potential will likely gain a competitive edge in an increasingly digital and environmentally conscious market.

AI-driven sustainability initiatives will significantly reduce waste, energy consumption, and carbon footprints, while evolving to drive innovation and ensure compliance with environmental regulations, making them a key differentiator for industry leaders.

1. https://www.cleverence.com/articles/business-blogs/how-3m-and-dow-chemical-leverage-ai-for-advanced-manufacturing-efficiency/
2. https://www.dow.com/en-us/product-technology/pt-polyurethanes/harnessing-the-power-of-digitalization.html
3. https://www.schaeffler.com/en/media/press-releases/press-releases-detail.jsp?id=87908801
4. https://www.chemengconsulting.com/blog/2025/02/24/ai-applications-chemical-manufacturing-industry/1106/
5. https://www.dijuno.ai/dijuno-resources/the-intelligent-future-of-fmcg-ai-in-2025-and-beyond
6. Benori internal research

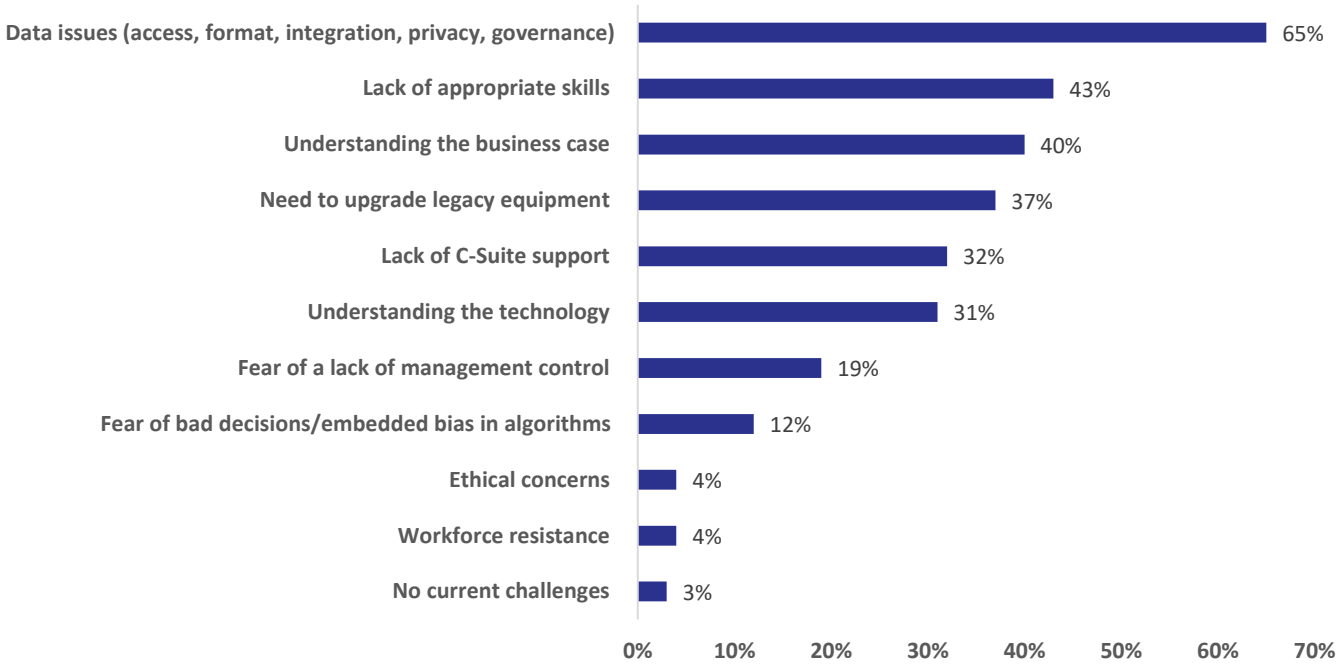
5. Challenges to AI adoption

AI holds significant potential to transform industries such as FMCG, chemical, and general manufacturing by enhancing efficiency, innovation, and competitiveness. However, adopting AI in these sectors faces several challenges that must be addressed to harness its benefits fully.

This issue includes challenges in accessing and formatting data, integrating disparate sets of data, data privacy, and governance rules in manufacturing organizations. The data issue is 22 points ahead of the second-place issue, and there is a lack of appropriate AI skills in the workforce. The survey suggests that many manufacturers need more people skilled in AI data management.

Coming in third and fourth in terms of challenges to overall AI adoption, at 40% and 37%[7], respectively, were understanding AI's business case and the need to upgrade legacy equipment. Without clear metrics in place to measure the value of AI, it is no surprise that understanding the business case remains a challenge.

Data issues dominate the challenges of AI adoption



6. Future Trends: AI in the evolution of manufacturing

The future of AI in these industries will focus on the deeper integration of digital twins, generative AI, and autonomous operations. Digital twin virtual models of physical assets will allow companies to imitate real-time production processes, enabling faster decision-making and proactive issue resolution. Generative AI will further enhance product design and research, reducing dependency on traditional trial-and-error methods. Meanwhile, fully automated production lines and AI-driven sustainability measures will enable businesses to reduce waste and enhance operational resilience.

As AI adoption accelerates, companies that integrate these technologies into their core operations will gain a significant competitive edge. AI is not a tool for efficiency but is a strategic driver for innovation, enabling industries to navigate market volatility, meet evolving consumer demands, and achieve long-term sustainability.

In a nutshell, by integrating AI, manufacturers can significantly improve efficiency, reduce costs, and drive innovation, ultimately gaining a competitive advantage in the industry.

1. https://www.manufacturingleadershipcouncil.com/wp-content/uploads/2023/06/The-Future-Of-AI-In-Manufacturing-MLC-2023.pdf
2. https://www3.weforum.org/docs/WEF_AI_in_Manufacturing_2022.pdf
3. https://www.manufacturersalliance.org/sites/default/files/2021-06/The%20Manufacturing%20Evolution%20Report.pdf
4. Benori internal research

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