WHITE PAPER

BEYOND THE FACTORY FLOOR: UNLOCKING THE TRANSFORMATIVE POTENTIAL OF AI ON BUSINESS ENABLING FUNCTIONS IN MANUFACTURING

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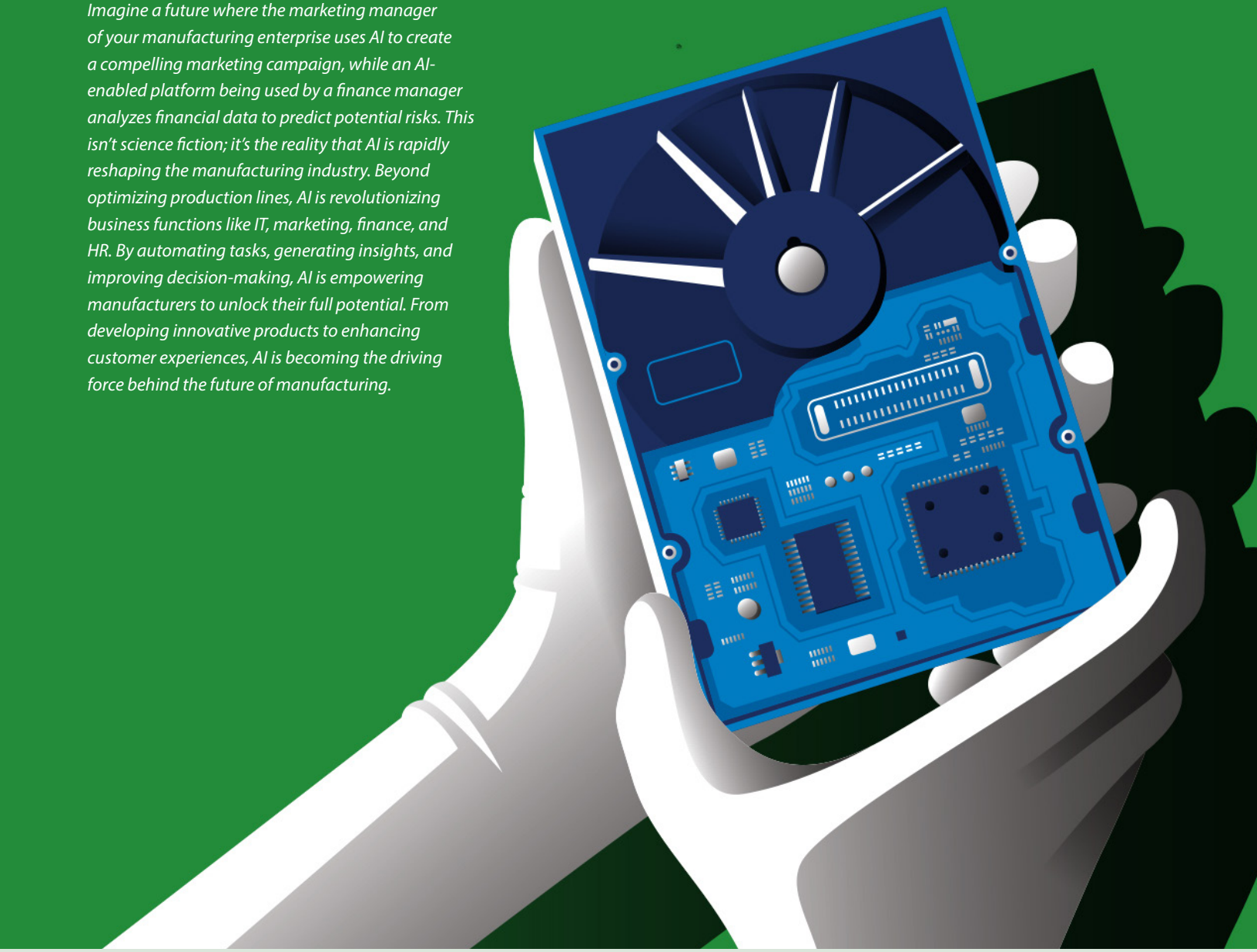
Imagine a future where the marketing manager of your manufacturing enterprise uses AI to create a compelling marketing campaign, while an AI-enabled platform being used by a finance manager analyzes financial data to predict potential risks. This isn't science fiction; it's the reality that AI is rapidly reshaping the manufacturing industry. Beyond optimizing production lines, AI is revolutionizing business functions like IT, marketing, finance, and HR. By automating tasks, generating insights, and improving decision-making, AI is empowering manufacturers to unlock their full potential. From developing innovative products to enhancing customer experiences, AI is becoming the driving force behind the future of manufacturing.



The Infosys Generative AI Radar 2023 - North America reported that in the 12 months following ChatGPT's introduction, businesses in the United States and Canada spent about $3.3 billion on generative AI initiatives, and would likely increase that by 67 percent in 2024 to $5.6 billion. 18.5 percent of the manufacturing companies surveyed said they were drawing value from their generative AI use-cases, and another 21.3 percent said they were in different stages of implementation.

While AI adoption in manufacturing is on a steady upward trajectory, it is mainly in core operations, targeted at optimizing production, enhancing efficiency, enabling proactive maintenance, and assuring quality. The use of AI for enabling business functions in manufacturing companies is less common, owing to reasons such as lack of awareness of AI's uses in those functions, data integration challenges, and resistance to change among employees. By restricting AI to core functions, manufacturers are leaving significant value on the table; a recent survey of senior business leaders by a leading consulting organization reports that 75 percent of those who had implemented generative AI at scale in a corporate or business function said the initiative met or surpassed expectations.

Replacing fragmented AI implementation with a unified, enterprise-wide, AI-first strategy would enable manufacturing companies to unlock the technology's full value potential. An AI-first approach – that is, considering AI before any other technology to resolve a business problem of any kind – will guide manufacturers to explore the full spectrum of AI use-cases, across core, corporate, and business functions, and impact every aspect of their organization, from customer service to knowledge management.

However, it is extremely important to select the right use-cases from an unlimited range of options spanning functions, such as IT, human resources, finance, and customer care. In fact, use-case selection was among the top three gen AI concerns of senior business leaders participating in the aforementioned survey. The study also noted that 39 percent of organizations were adopting mostly efficiency-focused generative AI use-cases in corporate functions, leveraging automation to speed up tasks and reduce manual effort; comparatively fewer companies (28 percent) were pursuing primarily effectiveness-focused gen AI use-cases that improved service levels, added new capabilities, or elevated business outcomes. To understand why this matters, note that the choice (efficiency versus effectiveness) makes the difference between optimizing just accounts payable versus improving overall capital allocation, between merely summarizing the changes to a contract versus researching legal precedents.

Since there is clearly more advantage to be gained from increasing effectiveness, manufacturers should weigh their choices carefully before going ahead. The following groupings could help them sift corporate/ business function use cases and identify their priorities:

Automation and content generation for efficiency

An early 2024 poll by a global market intelligence provider noted that the IT function was leveraging generative AI in software development, infrastructure, and operations. In the software-intensive manufacturing industry, the sky is the limit for AI use cases in IT. From generating code and test data to updating and debugging code, AI co-pilots can assist developers through various stages of application development and maintenance. Managing multiple solutions and platforms amid a shortage of IT resources is a big challenge for manufacturers; by automating routine coding activities with AI, they can deploy their high-skilled developers in more complex assignments. Other advantages of using an AI code assistant include faster development and consistency across applications and platforms.

The large majority of manufacturers have legacy systems that they are looking to modernize. Generative AI can relieve developers of tedious tasks such as code summarization & review, and creation of output summaries & documentation; it makes the code more understandable for both technical and business users by writing the summaries and documents in human-readable format, and adding explanations to code, where necessary. What's more, non-technical users can issue natural language instructions to generative AI, which will then write the code, thereby improving productivity and efficiency. AI can also automate other tasks such as business rules extraction and code translation.

In the poll mentioned at the beginning of this section, customer service, marketing, and sales were the business functions that were leading gen AI adoption/ investment. Using granular customer insights for *hyper-personalized messaging at scale* is among the most popular use-cases for AI in marketing: it is predicted that by 2025, 30 percent of the marketing messages sent by large organizations will be AI-generated. The latest gen AI solutions can compose content tailored to individual customer preferences – think relevant product recommendations and customized offers – to improve click-through rates and conversion; the tools can even create marketing collateral in conformance with brand guidelines (color, font, tone, layout, etc.) By using AI for conceptualizing and generating content, manufacturers could free up their marketing bandwidth. Manufacturing companies can also use AI to analyze campaign performance data and launch a suitable, real-time response. By turning to AI for content creation, data-driven recommendations, and performance insights, organizations can optimize their marketing campaigns to incur double-digit cost savings. Further, they can enhance their online brand presence and engagement on various channels, including social media, by delivering targeted content that resonates with the audience.

In fact, the list of possibilities for manufacturers to use AI to automate tasks and create content in business functions is virtually endless, ranging from automation of candidate screening to generation of product support documentation, and everything in between.

Data analysis and insights for decision-making

Every business function in manufacturing can also benefit from AI's analytical capabilities. In IT application vulnerability management, AI can analyze source code to detect injection attack, and recognize patterns and configurations to spot malware, phishing, and various other cyber threats. Similarly, AI can enable application maintenance and support by diagnosing code, fixing bugs, and analyzing performance metrics, logs, and usage patterns to predict system deterioration or failure. Finance teams can leverage AI to ease tedious and complex activities, right from conducting due diligence and financial valuation in mergers and acquisitions to analyzing past data and forecasting future trends for budgeting. And HR managers can improve metrics, such as employee retention, by studying AI's analysis of exit interview data to identify the common reasons for quitting and the actions required to reduce churn.

However, to become high-performing, truly AI-driven enterprises, manufacturing companies should provide business users with access to cross-functional information, enabling them to work towards common goals. For example, aside from technical data, IT should also have up-to-date information on regulatory requirements, such as data privacy rules, to be able to design compliant applications. Unfortunately, data silos and rigid interfaces prevent this from happening in the majority of organizations, which are forced to employ additional manpower to pull data from various sources. The good news is that generative AI can mitigate these challenges by gathering data from cross-functional sources and creating detailed insights that users can access over gen AI's user-friendly, natural language interfaces.

Intelligent assistants for enhancing experience and support

How important is customer service? A 2020 survey found that when customers perceive value in a service interaction, there is an 82 percent chance they will purchase again from the provider, and a 97 percent probability that they will say good things about them. The problem is that customer support staff are often overburdened with cases, which impacts the quality of service.

Using large language models and conversational AI, manufacturers can reduce the load on human agents and raise the quality of service by delivering support in natural (and local) language. A virtual assistant can further enhance the experience by providing targeted recommendations to customers. Last but not least, manufacturers can employ gen AI-enabled agents to document and summarize every service interaction within seconds, thereby saving agents' time and effort, and their organizations' costs.

A great example here is that of Volkswagen America, which has a virtual assistant that customers can access through an app to seek help with practical queries, such as the process for changing a flat tire; they can also use Google's chatbot, Gemini, to retrieve useful information about the vehicle's features by simply pointing their phone cameras at the dashboard.

Sales staff need to access and interpret products' technical specifications during client presentations, and summarize the discussions after the meetings are over. Sometimes it can be difficult for sales employees to understand or explain a product's technical features in a way that is meaningful to the customer. By feeding specific text queries to a gen AI tool which summarizes the features of various products, sales staff can figure out which ones meet a customer's requirements. Also, over time, it would be possible to train AI models on demo scripts and past interactions for generating presentations highlighting how the features of different products can serve different clients and use-cases.

Similarly, manufacturers can use AI tools to answer employees' routine queries and provide resolutions to common issues. Avery Dennison uses a generative AI system to enable close collaboration among workers, improving employee experience and productivity.

Knowledge management and decision support

Manufacturing companies create a wealth of data across various functions. Managing that knowledge and making it available to the right users when they need it, can unlock immense value. AI can enable this by automating knowledge discovery & capture, offering intelligent search & contextual assistance, generating training content in multiple languages, etc. For instance, it can facilitate knowledge management in the sales function by maintaining a history of past interactions that executives can refer to for answering queries about product specifications or any other questions that customers may have.

Similarly, enterprises can use the analytical capabilities of AI to enable all types of business decisions: by studying company policies, AI can identify compliance violations and related risks, and also recommend mitigative actions; or it can study vendor performance data to recommend the best suppliers for various requirements, and suggest improvements where needed.

From sales and marketing to human resources to finance and legal, every business and corporate function in manufacturing companies can leverage the power of AI to improve their working, take better decisions, and enhance service and experience. Clearly, this is their way forward.

About the Author

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Rakesh is an industry leader with 25+ years of enabling digital transformation for clients of Infosys, leveraging emerging technologies. He is responsible for working with our automotive, aerospace and manufacturing clients and collaborating with them as they embark on introducing new business models and products.

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