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Technologies such as automation and AI are now critical drivers of change and transformation for the consumer products supply chain.

# The Role of Automation and AI in Transforming the Consumer Products Supply Chain

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Executive Graphic

FIGURE 1: *Persistent Supply Chain Challenges*

Q *As you think about the future of your supply chain, what current gaps are likely to be the most problematic if not addressed?*
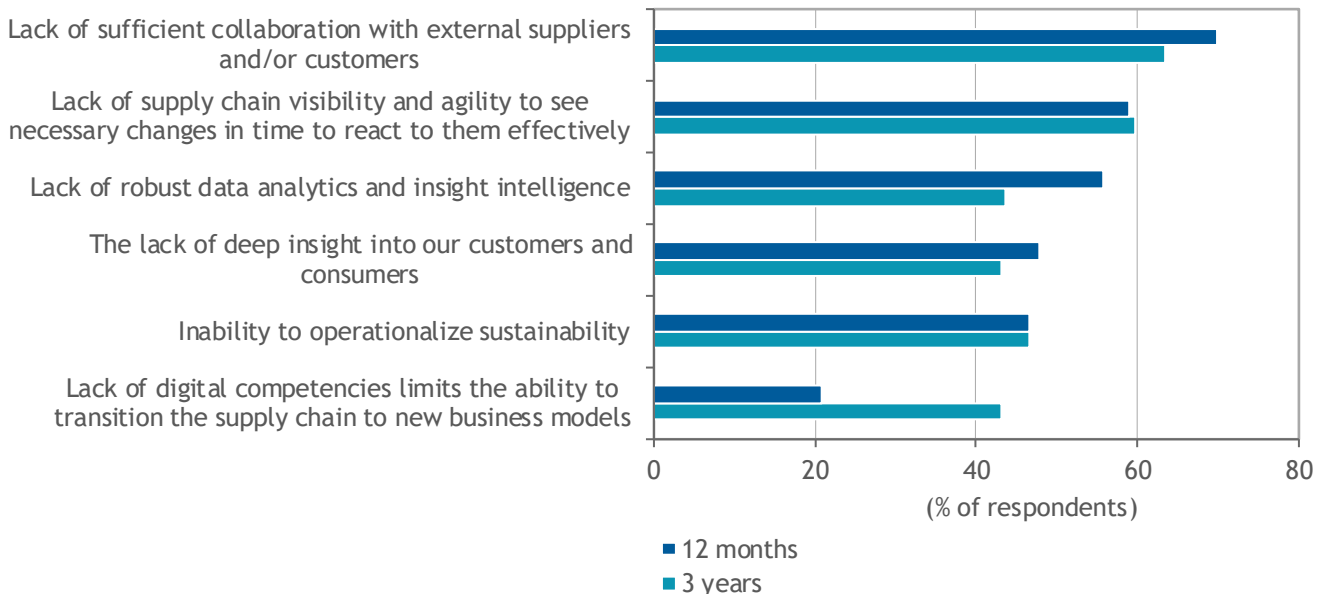
n = 49 CPG respondents

Source: IDC's Supply Chain Survey, 2023

Introduction

The role of technology has become inexorably intertwined with supply chain success in the consumer products industry. In a recent IDC study looking at the correlation between digital transformation maturity and business performance, companies more advanced in their transformation journey outperformed their less advanced brethren by two times for revenue and three times for profits. This study was not for supply chain or consumer products specifically, but the correlation is nonetheless quite profound and offers a quantifiable answer to the "why transform" question. At the same time, persistent gaps remain that constrain progress, including difficulties in driving better collaboration both within the consumer products company and with its suppliers and customers and a lack of visibility/agility to react to disruptions as noted in Figure 1. In many ways, collaboration and visibility are inexorably intertwined. A company may see a problem but lack the necessary collaborative tools to quickly socialize it with suppliers or customers resulting in disruption. Or a disruption may occur beyond the four walls and the supply chain is not made aware in time to react effectively. Indeed, there are many challenges faced by the consumer products enterprise in a post-COVID-19 pandemic environment. Disruption continues to be front and center, with companies looking for optimal ways to balance a long list of priorities.

For those of us who have worked in and around the industry for many decades, the transition from things that were aspirational for consumer products companies 20 years ago to being practical/attainable today means finally solving persistent challenges and addressing business problems. Indeed, as we have noted many times in the IDC industry research, end users do not think in terms of technology for technology's sake; they instead see it as a set of tools in the toolbox to solve problems. At the same time, many of these tools are critical elements of solving problems — thus the inexorable intertwining.

There is little doubt that the future of the consumer products supply chain resides in an automated facility that meets future needs for speed, resiliency, and efficiency both within the enterprise and extended to suppliers and customers (even consumers, potentially) and enables better collaboration and effective assessments of trade-offs. Unlike many other functional areas, automation for the supply chain is about both decisions and physical processes. Technologies like robotics, the use of AR/VR tools, or even the ever-expanding use of mobility tools are transforming physical tasks like picking, staging, and transportation across all fulfillment facilities. Yet decision automation, including the use of various AI technologies, is moving even faster. This transformation is driven partly by the issues companies have hiring skilled people into the supply chain and also by the necessity of making faster decisions in an environment in which the supply chain can easily get bogged down in consuming and digesting enormous amounts of data. Although I am fond of saying that AI doesn't think better than people, it just thinks faster —the reality is that AI can accommodate much broader and deeper data sets in making either better recommendations or better actual decisions. In a recent IDC survey of chief supply chain officers, 55% cited automation as top of mind for 2024 and 54% identified generative AI (GenAI) specifically.

At the same time, automation within the consumer products enterprise is not solely about the supply chain. In a recent IDC manufacturing survey, 63% of companies cited cognitive systems (AI, GenAI, and machine learning) and tools as driving investments in process automation across all functional areas. Notable use cases included customer tier management, trade promotion optimization, and innovation funnel portfolio management.
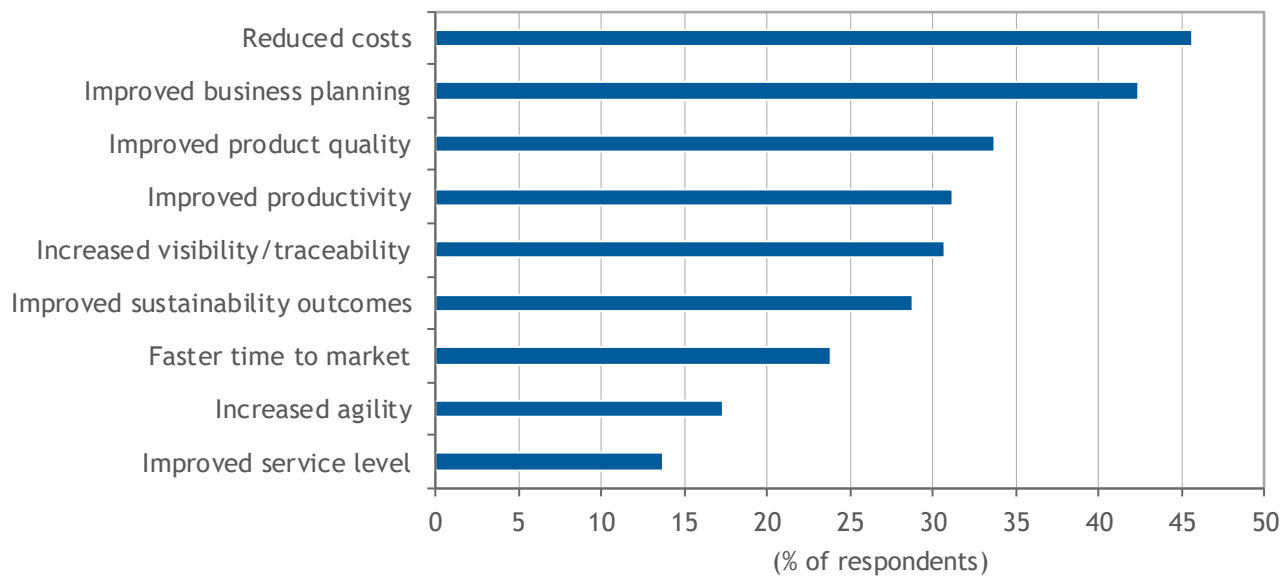
Benefits

The progression of AI within the consumer products supply chain is moving at a remarkable pace. When asked by IDC about their current approach, 27% of supply chain executives said that they have already implemented GenAI

technologies within their organization and expect business outcomes to be affected positively by those technologies. A further 23% have begun to implement GenAI technologies into their supply chains.

In IDC's 2023 *Worldwide Supply Chain Survey,* technology investments like cloud and AI were identified as being significant drivers for cost optimization, productivity, and enhancing both visibility and agility for consumer products companies. In an earlier IDC manufacturing survey, the same view was held for managing factories and production facilities. Figure 2 illustrates the benefits accruing from AI specifically, with consumer products respondents indicating a significant range of benefits. Although the precise magnitude of those benefits will vary by company, discussions IDC has had with consumer product companies suggest benefits in the high single digits, particularly in employee productivity gains.

FIGURE 2: *Benefits of AI in the Supply Chain*
  Q *What benefits have you seen as a result of implementing AI in your supply chain?*

n = 49 CPG respondents

Source: IDC's Supply Chain Survey, 2023

When considering GenAI specifically, operational efficiency and employee productivity are the top anticipated benefits in the shorter term. When thinking longer term, opportunities for revenue growth accede to the top spot. This is consistent with other research IDC has conducted where longer-term transformation efforts do drive differentiating revenue and profit performance.

Indeed, the benefits of AI align extremely well with the aspirations of the consumer products supply chain to identify opportunities to reduce costs and provide the necessary supply chain visibility/agility to react more quickly and effectively to disruptions.

Considerations

Automation sits as the most intriguing technology (or technologies) for supply chain executives, with GenAI a close second. Eventually GenAI is likely to join the pantheon of automation technology, but it is new enough to remain distinct. GenAI will certainly become integrated with "traditional" deterministic AI. The supply chain was an early proving ground with some vendors building constraint-based planning on top of neural network processing. Also, while GenAI has come out of the starting gate quickly, the reality is that AI more broadly is a multiyear journey, with some inevitable fits and starts due to data challenges, disjointed point solutions that can often compete against each other, and costly upgrades. IDC also hears concerns from consumer products companies that today's best-in-class AI tools will become obsolete quickly in favor of something better tomorrow, meaning that efforts to train these learning tools will need to be repeated.

It is also important to call out the state of data quality within consumer products supply chain organizations. Certainly, AI tools are yielding benefits for organizations where effective data governance is in place. For some, however, the reality is that data quality is quite poor and the AI tools so eagerly promoted by technology vendors will struggle to provide value unless that data quality improves. Making sure to focus on data quality will be an essential part of successful AI implementation. Further, these considerations are intended to guide adoption of AI, not inhibit it, and to ensure that companies understand potential issues and take the necessary steps to avoid or mitigate them.

> Technology, particularly automation generally and AI more specifically, is now inexorably intertwined with business performance progress.

Conclusion

As a veteran supply chain practitioner, it has always been my view that looking at technology through the lens of solving business problems or seizing on new business opportunities must be the focus for consumer products companies. Yet IDC data clearly shows that companies further along on their business transformation journey see differentiated business performance. Technology, particularly automation generally and AI more specifically, is now inexorably intertwined with business performance progress. Given the volumes of data, or the vast variety of data sources, people are overwhelmed without technology. Organizations should focus on business problems or opportunities of course but also accept that technology is now a critical driver of change and transformation for the consumer products supply chain.

About the Analyst

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As Group Vice President, Simon Ellis currently leads the U.S. Manufacturing Insights, U.S. Energy Insights, and Global Supply Chain Strategies practices at IDC, specializing in advising clients on manufacturing/energy strategies, supply chain digital transformation, sustainability, cloud migration, network, and ecosystem design. Mr. Ellis works with end-user companies, supply chain organizations, and technology providers to develop best practices and strategies leveraging IDC quantitative and qualitative data sets. Within the Supply Chain practices, Ellis contributes extensively to the Supply Chain Planning and Multi-Enterprise Networks Strategies practice while overseeing the Supply Chain Execution practices.

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