

Competition has never been higher in manufacturing, and outside factors can cause major disruptions overnight. The benefits of automation and real-time visibility on the plant floor continue to be a prime opportunity for digital investment.

Fostering Operational Excellence Through Process Automation

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Introduction

Customer and market expectations for more personalized products, deliveries, and services — as well as unanticipated events and sudden demand shocks — are driving change and creating opportunities for companies to transform how their operations stay aligned with the market. Lean and other types of continuous improvement philosophies used by operations teams in factories and plants will always be important. While operational performance has markedly advanced over the years, organizations face significant pressure to push the envelope of performance. Attaining near-perfect levels of operational predictability, reliability, and efficiency is now what leading manufacturers are aiming for, as it is an achievable goal.

Manufacturers have encountered many challenges in their efforts to further optimize operations, but one of the most-cited issues is outdated/legacy infrastructure. Many manufacturers tend to rely upon a mix of plants, assets, and technology systems that are decades old and limited in functionality. This situation results in information being difficult to access and analyze, hindering the ability to make the most effective decisions in the necessary time frame. With the speed and complexity of manufacturing operations increasing faster than ever, organizations hoping to compete in the digital economy can no longer accept manual/paper-based processes. Effective decisions are always based on data analysis and information, not speculation or conjecture, and this is no different for operational decisions. Process automation is the basis for creating the real-time enterprise and is usually a telltale sign of a successful organization versus a poorly performing one. When examining the operational initiatives that manufacturers are focused on, there are consistent themes of cost, productivity, quality, and reliability (see Figure 1).

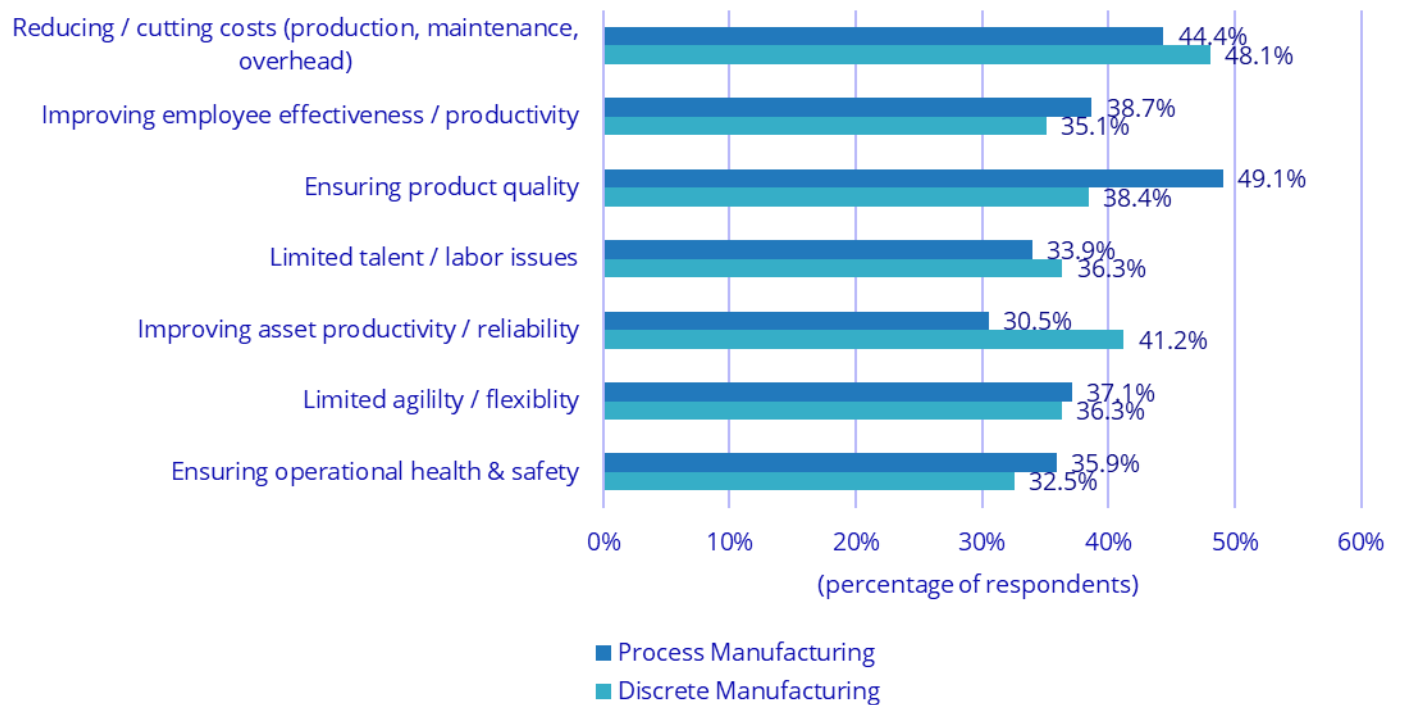
AT A GLANCE

KEY STAT

Over the past 12 months, manufacturers have seen double-digit improvements in operational efficiency, employee productivity, time to market, and cost reductions because of their investments in digital technology.

KEY TAKEAWAYS

- » Process automation is the basis for creating the real-time enterprise and is a telltale sign of a successful organization.
- » Applying analytics to newly expanded/contextualized data removes bottlenecks and empowers workers to make rapid and confident decisions.

FIGURE 1: **Most Significant Operational Challenges to Address**

Source: IDC's Future of Operations Survey, August 2023

To address these concerns, manufacturers are creating, gathering, and analyzing critical data throughout their operations to increase visibility and automate decision making. This approach provides employees with real-time information, detailed insights on performance, and analytics that can be applied to further improve the decision-making process across the manufacturing value chain. It is important to keep in mind that operational excellence goes beyond the delivery of more reports, dashboards, or other indicators of past performance or status of operations. Rather, it means the ability to deliver actionable information in the context of its recipient. This is where true value can be derived, and it is what will differentiate successful manufacturers from those that struggle to compete.

Benefits

While the notion of a "lights-out factory" may be years away, the goal should be to continuously improve decision making by using a foundation of data and analytics. This will allow employees to be empowered by the right data at the right time and place to make decisions quickly and confidently. The result will be higher quality, more timely decisions and a reduction of reliance on historical precedent and subject matter expertise. In addition, organizational structures will flatten out and traditional, top-down, decision-making processes will give way to more distributed, collaborative decision making.

Leading manufacturers are 67% more likely to have real-time visibility into operational performance.

While manufacturers are more automated today than they were five years ago, significant opportunities to better leverage technology remain. Resilient decision making through automation not only speeds conclusions through decision support but also potentially limits dependency on human involvement in more repetitive decision-making tasks. An advanced level of automation in decision making provides more rapid and effective actions in times of disruption and addresses an overall need to draw insights from the rapidly growing amounts of data being generated and ingested by the organization. Yet resilient decision making is not solely about predicting or responding to larger and potentially longer-term disruptions. It is also about deftly navigating the multitude of small "divergences" that occur almost continuously within global operations.

Manufacturers also need flexible business processes to translate these insights into proactive and automated actions. Becoming more proactive can drive improvements across operations. Assets and processes can be monitored in real-time and adjusted if thresholds are exceeded, without the need for human intervention. Maintenance can be scheduled automatically based upon asset conditions. These are just a few use cases where automating actions to make them proactive rather than reactive can drive value to a manufacturer. However, the impact on all areas of the business should be considered when automating decision making.

The pursuit of perfection in operations is no longer optional. To experience marked increases in operational performance, organizations must continue to embrace digital technologies to become more data driven. On average, respondents to IDC's August 2023 *Future of Operations Survey* identified the following operational improvements over the past 12 months due to digital investments:

- » Cost savings — 13.7% improvement
- » Operational efficiency — 16.3% improvement
- » Profits margins — 16.9% improvement
- » Employee productivity — 17.2% improvement
- » Revenue growth — 17.5% improvement
- » Time to market — 17.7% improvement

Those manufacturers that prioritize effective operational data management can move past the inherent cognitive biases of human-led processes to reduce operational risk and uncertainty. With the right digital technologies and operational data management processes in place, organizations can not only survive but also thrive and become industry leaders.

Considerations

While manufacturers realize the importance of becoming digital and more data-driven, many still lack the expertise to build out a road map and execute on it. Manufacturers have been combating a growing talent gap for years. Many organizations lack the necessary resources and knowledge around data architecture, data science, and cybersecurity to take advantage of the latest technology. Working with partners that can help with developing and executing a digital road map is an important step that the industry has started to embrace. However, even with a strong digital plan in place,

there are significant external and internal challenges to becoming a resilient organization. One of the most important aspects of the entire transformation process is setting priorities for digital initiatives.

Conclusion

The manufacturing environment is changing faster than ever before. As the industry comes to terms with this shift, it will be those organizations that embrace automation and real-time visibility that will become the most successful. The improvements realized through this approach are too important to overlook, but it is necessary to focus on the most impactful use cases to maximize value. Successful manufacturers are those that have embraced process automation to address cost, productivity, quality, and reliability concerns in pursuit of promoting operational excellence.

About the Analyst



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Reid Paquin is a research director for IDC Manufacturing Insights responsible for the IT Priorities and Strategies (ITP&S) practice. Mr. Paquin's core research coverage includes IT investments made across the manufacturing industry and manufacturers' progress with digital transformation. Based on his background covering the manufacturing space, Mr. Paquin's research also includes an emphasis on the technology enablers that help manufacturing executives make better-informed operational decisions.

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