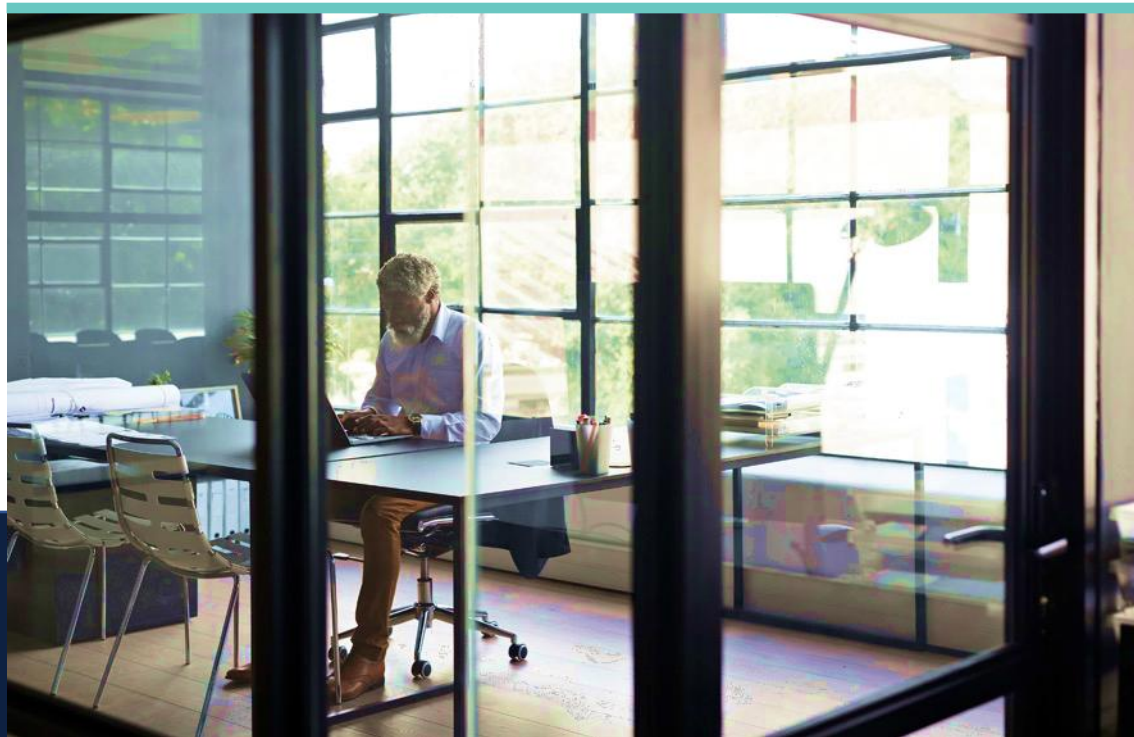


APPROACHES TO DIGITAL MANUFACTURING OPERATIONS

SUMMARY RESULTS



MARCH 2025

EXECUTIVE SUMMARY

- We surveyed leaders across industries such as biotech, manufacturing and engineering services, and healthcare to understand how they are optimizing and overcoming challenges in their manufacturing operations.
- To address their top priorities—quality control, workflow efficiency, real-time monitoring, and agility—leaders must navigate outdated manual processes, with many relying on Excel or paper-based systems, while most existing solutions lack full functionality to meet operational demands.
- AI and machine learning, automatic data capture, and real-time production visibility emerged as critical missing capabilities for improving manufacturing operations. Leaders also emphasized the importance of ease of validation and intuitive interfaces in ensuring efficient and effective system performance.

WHO DID WE SURVEY?



Between December 2024 and March 2025, Gatepoint Research invited selected executives to participate in a survey themed *Approaches to Digital Manufacturing Operations*.

Candidates from several industries were invited via email and 100 leaders and technical experts have participated to date.

Management levels include 8% who are VPs, 26% who are directors, 28% who are senior or department managers, and 38% are data, R&D, or manufacturing engineers.

Responders work for firms with revenue levels ranging from Fortune 1000 companies to small companies with less than \$250 million in revenues.

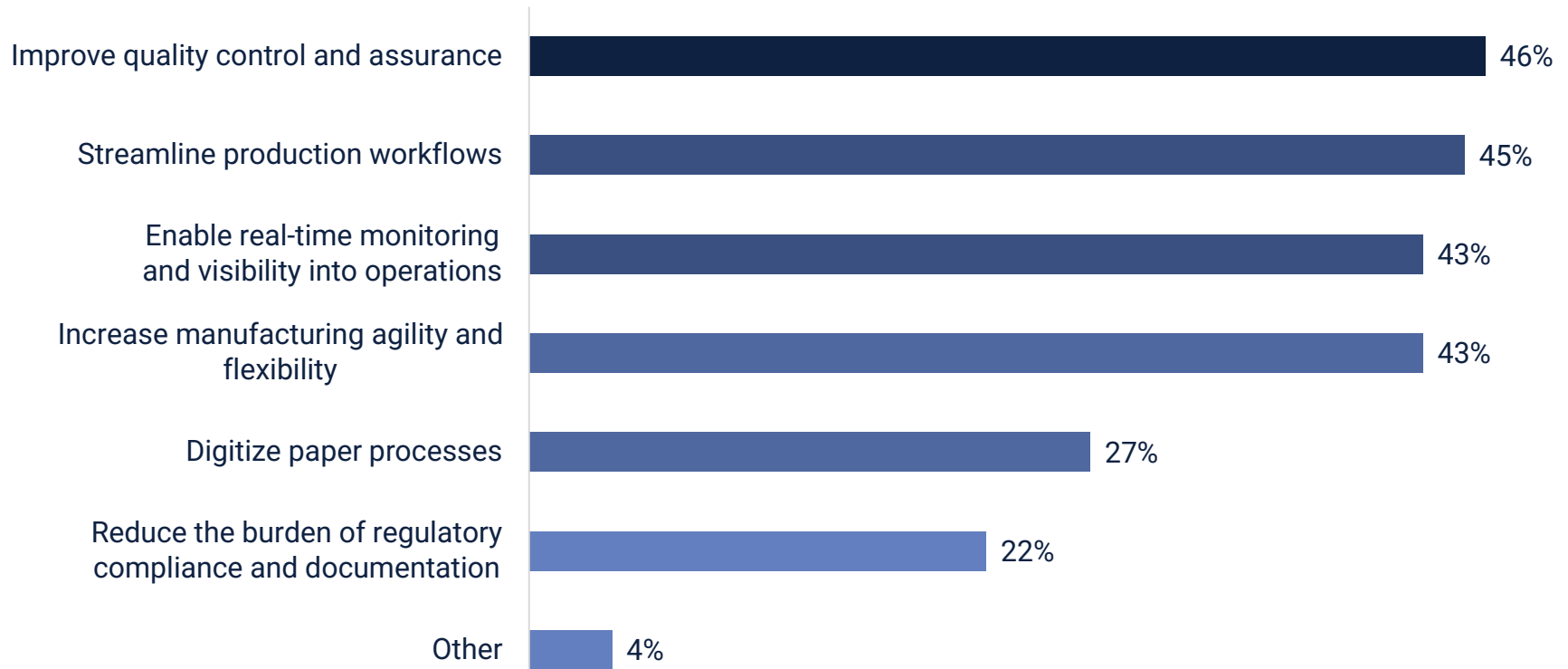
100% of responders participated voluntarily; none were engaged using telemarketing.

Summary Results | March 2025

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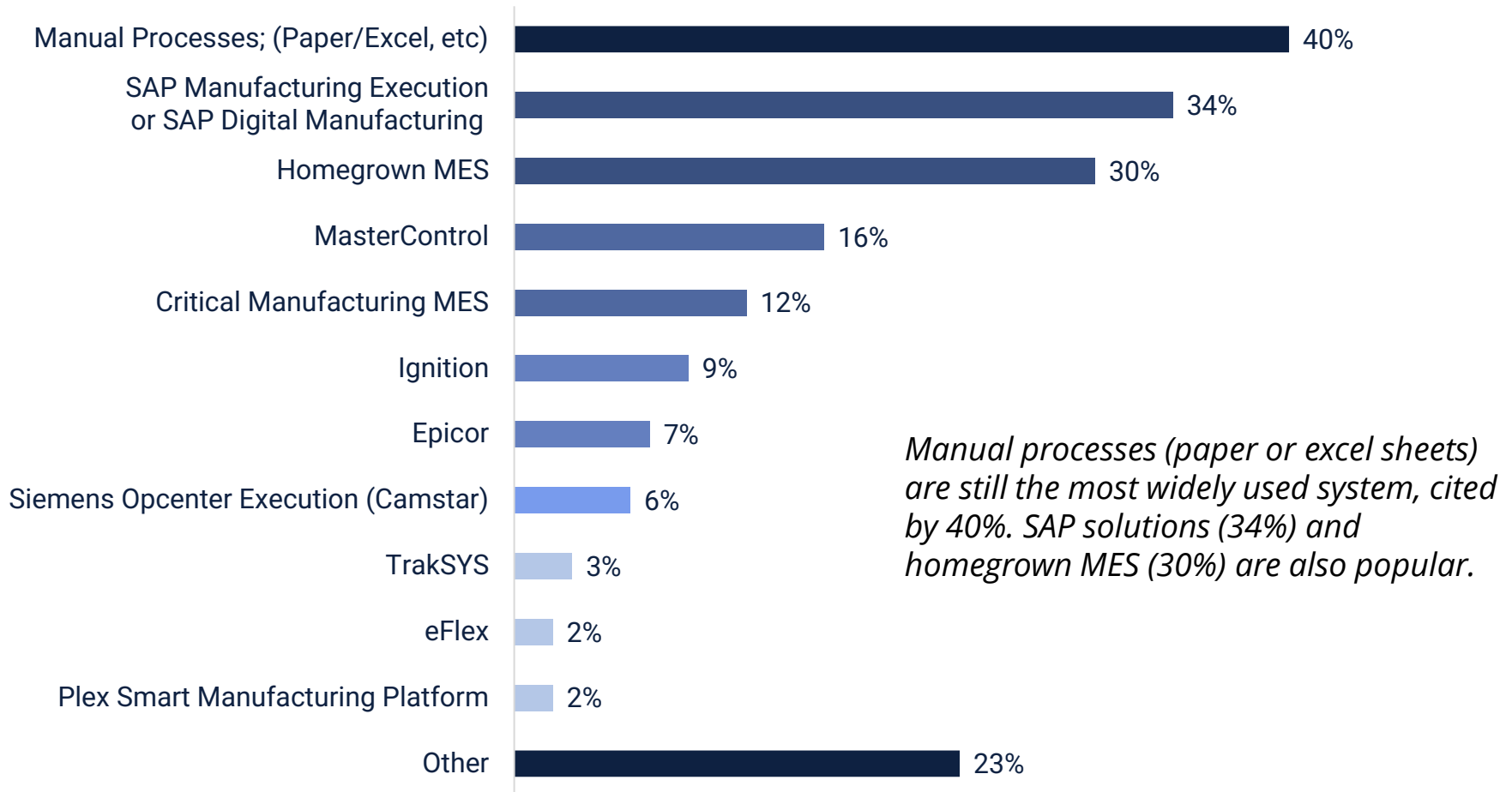
What are your manufacturing operations priorities in the next 12 to 18 months?



Surveyed organizations have a lot on their plate in the next 12-18 months. 43% or more say they are prioritizing improvements to quality control and assurance (46%), streamlining production workflows (45%), enabling real-time monitoring and visibility (43%), and increasing manufacturing agility and flexibility (43%).

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Which system(s) do you currently use in your manufacturing operations?

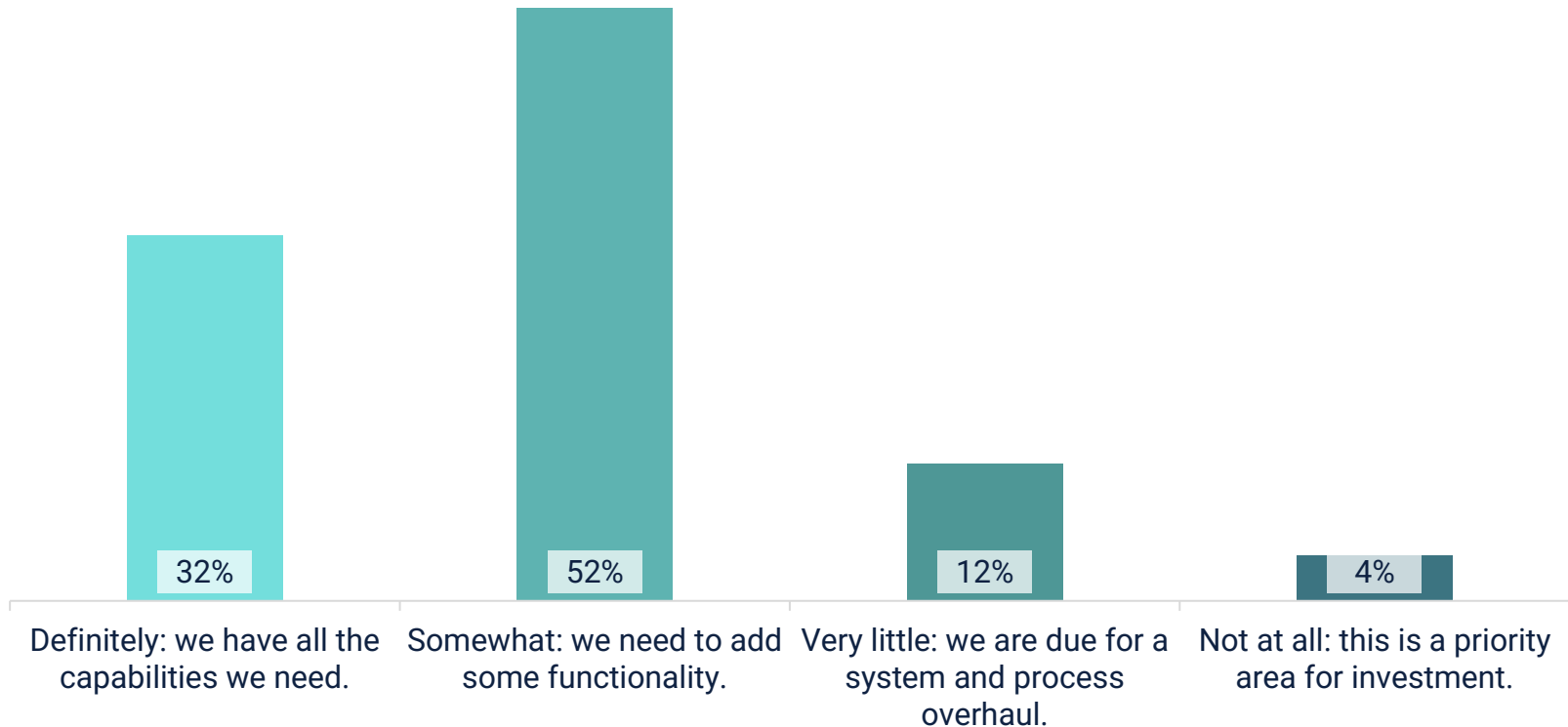


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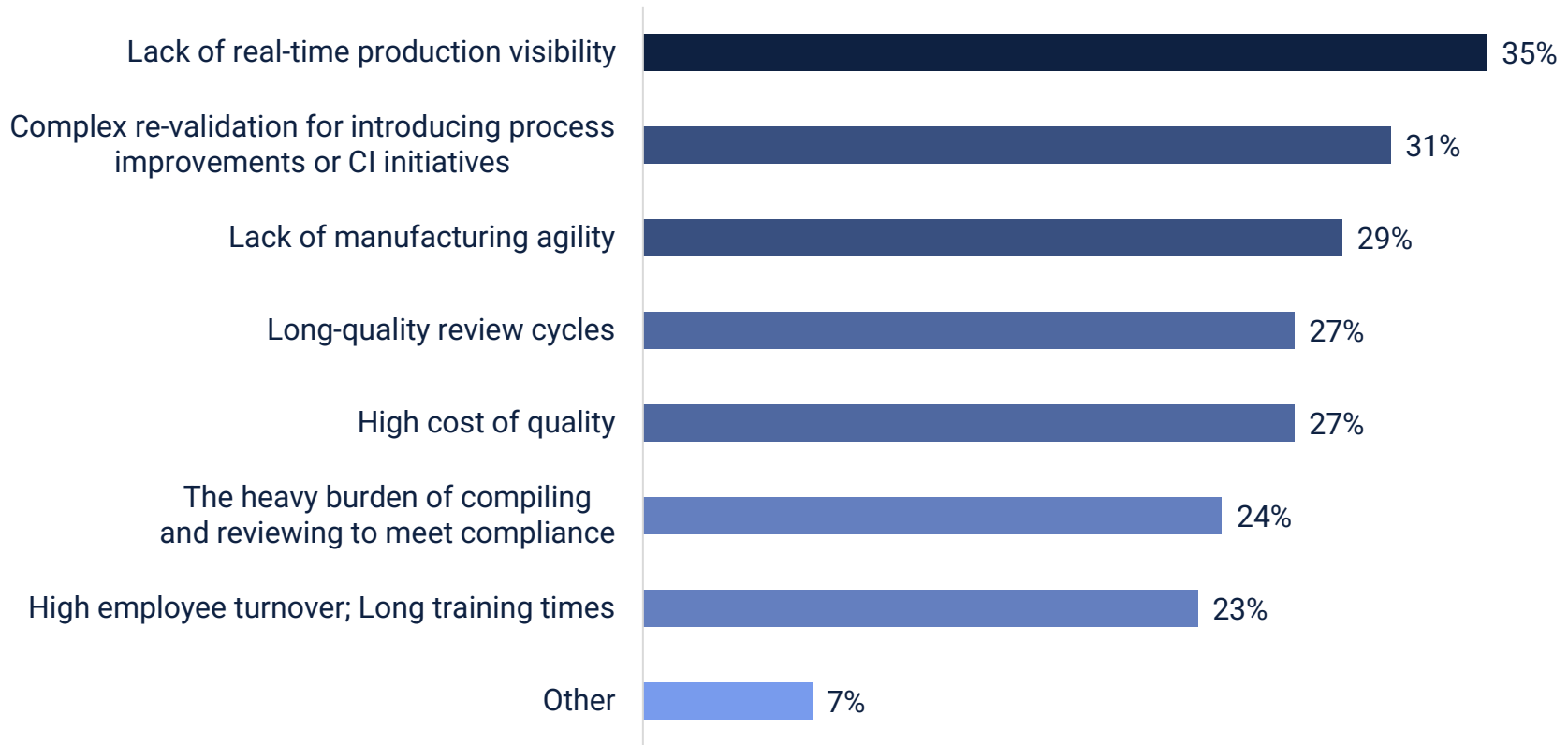
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Do your current systems support your manufacturing operations priorities?



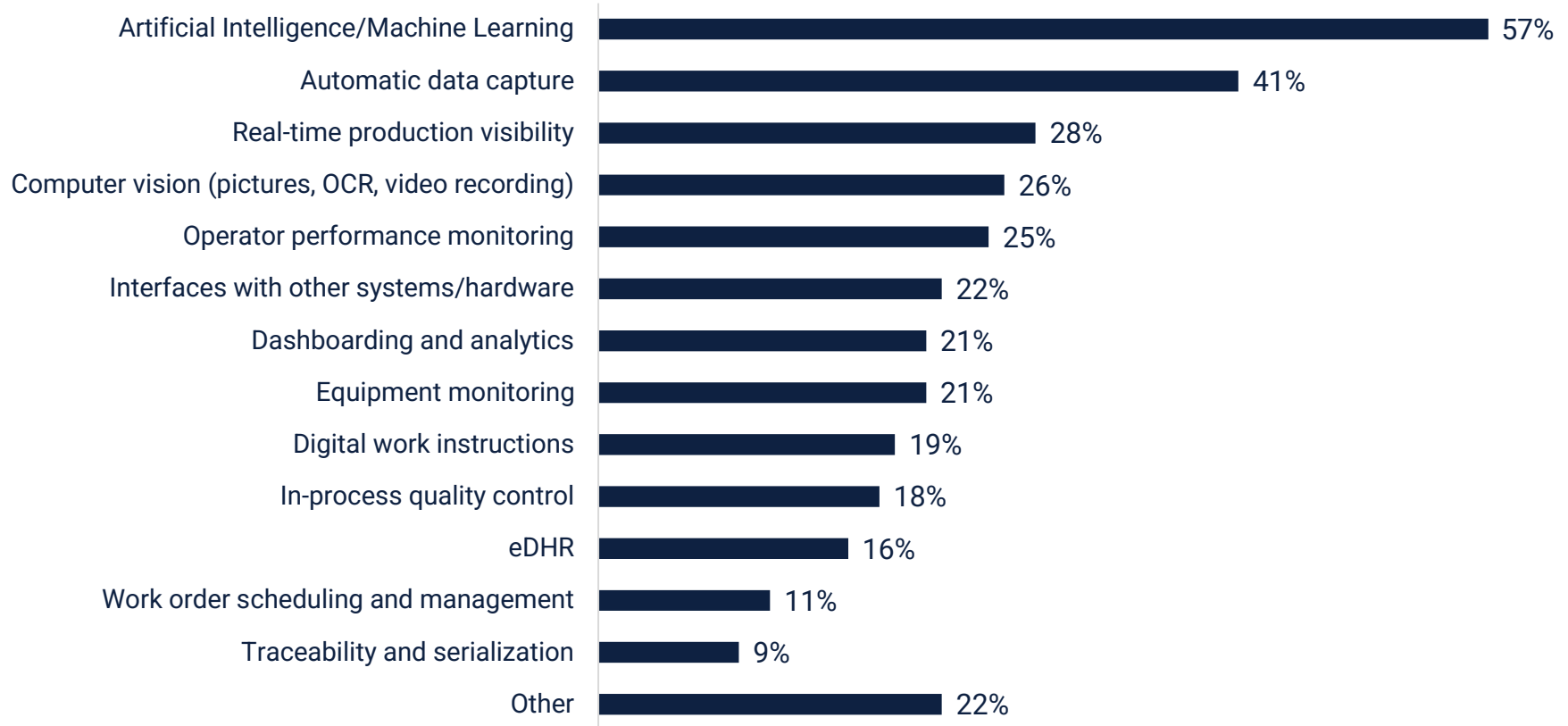
The majority say their current solution lacks full functionality and falls short in supporting operations priorities; only 32% have all the capabilities they need.

What manufacturing process challenges do you need to overcome?



While all of these challenges are present on some level, lack of real-time production visibility (35%) and complex re-validation for improvements and initiatives (31%) are cited the most.

What capabilities are missing from your existing manufacturing system(s)?



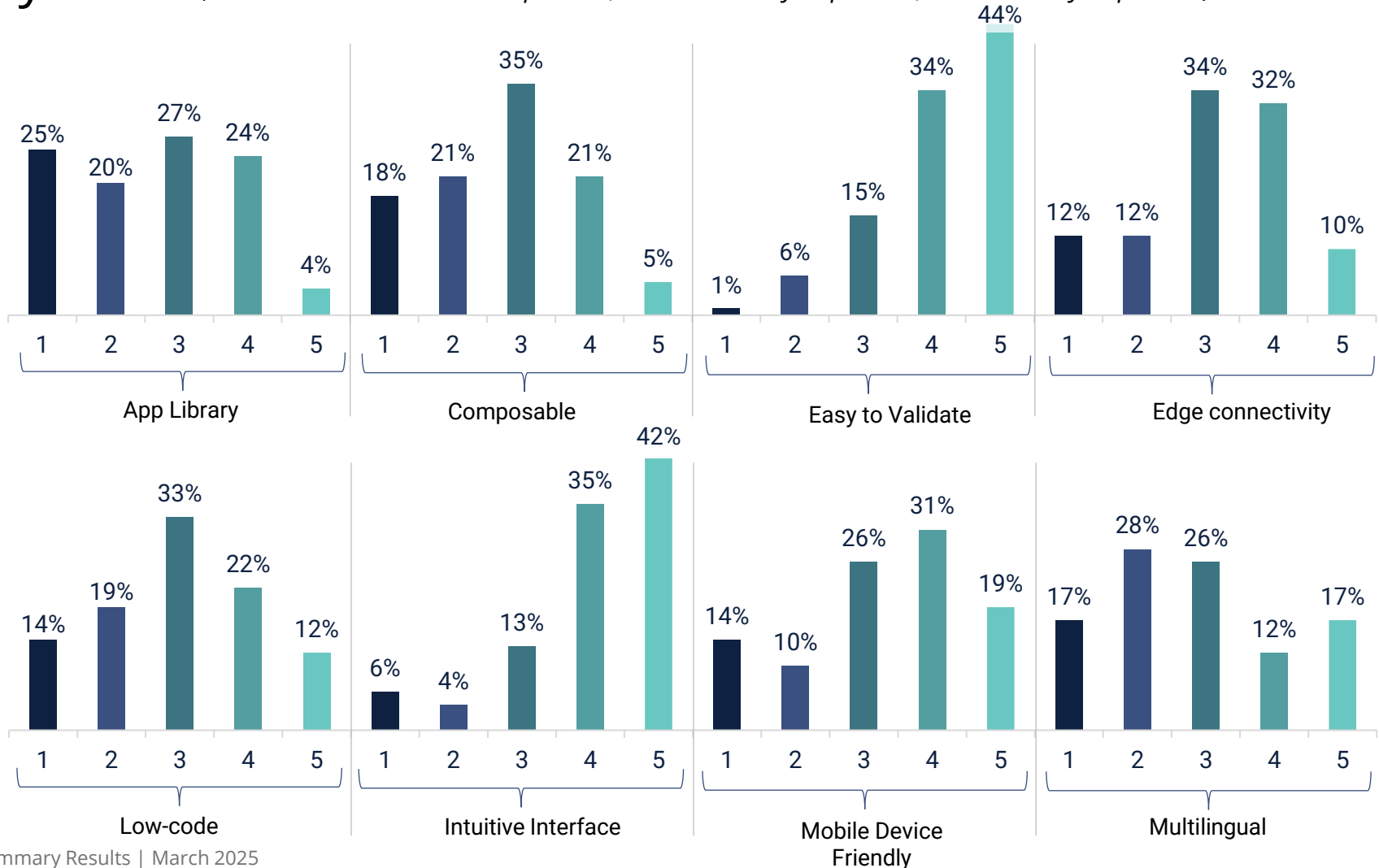
AI and machine learning (57%) and automatic data capture (41%) are important capabilities that are missing for many.

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How important are the following characteristics of manufacturing systems? *(Rate 1 to 5: 1 = not at all important, 3 = moderately important, 5 = extremely important)*

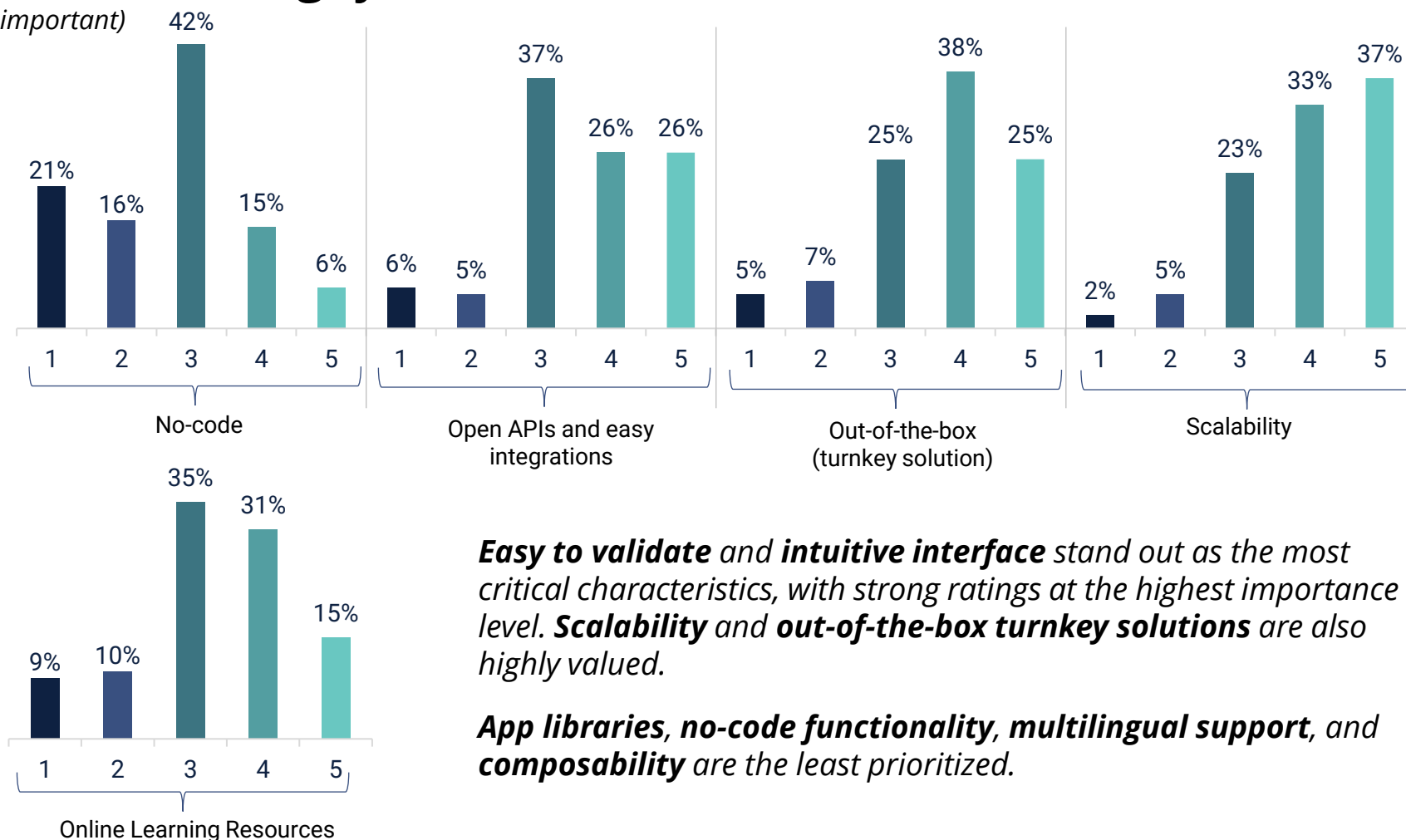


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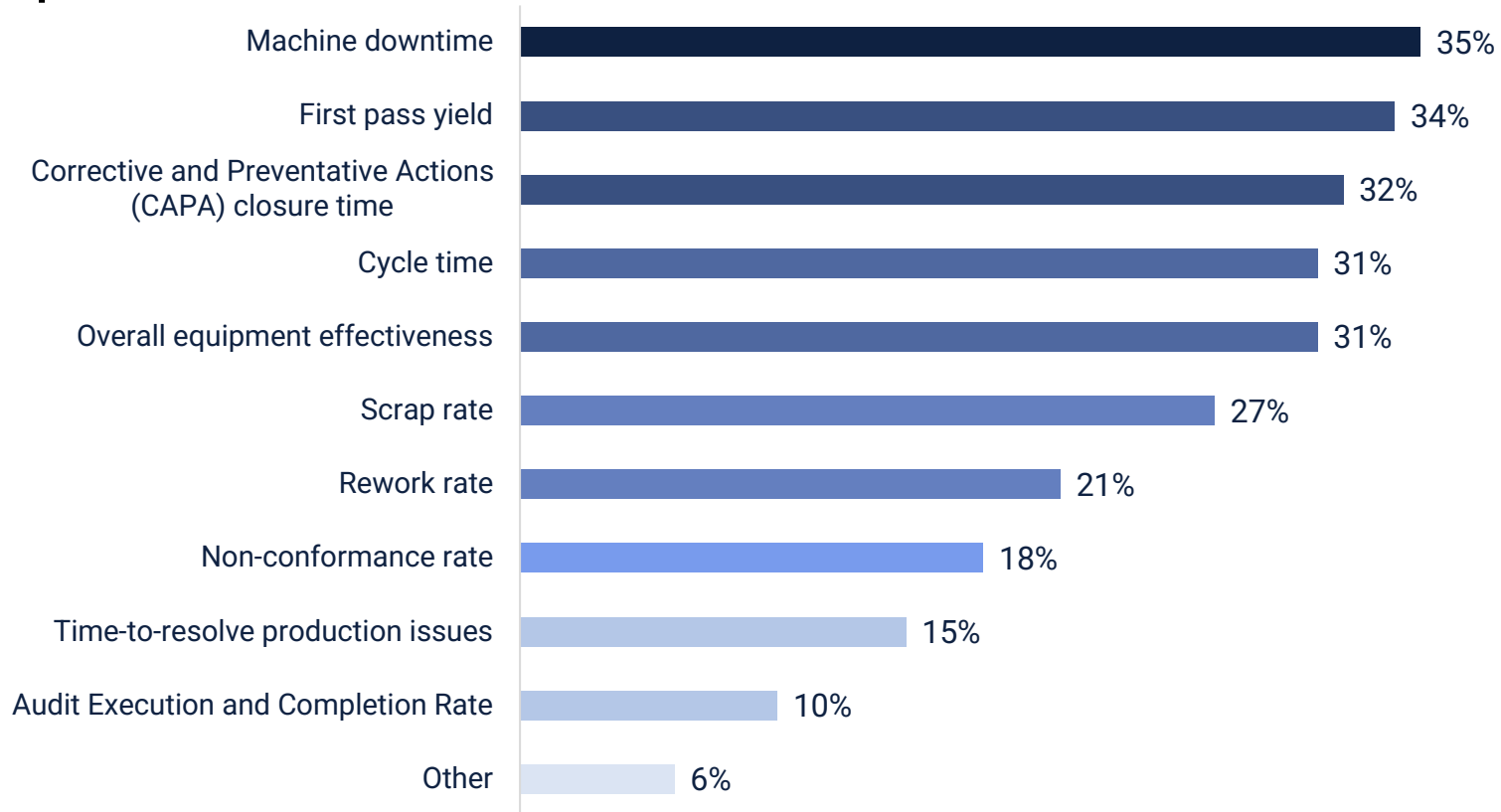
Continued... How important are the following characteristics of manufacturing systems? *(Rate 1 to 5: 1 = not at all important, 3 = moderately important, 5 = extremely important)*



Easy to validate and **intuitive interface** stand out as the most critical characteristics, with strong ratings at the highest importance level. **Scalability** and **out-of-the-box turnkey solutions** are also highly valued.

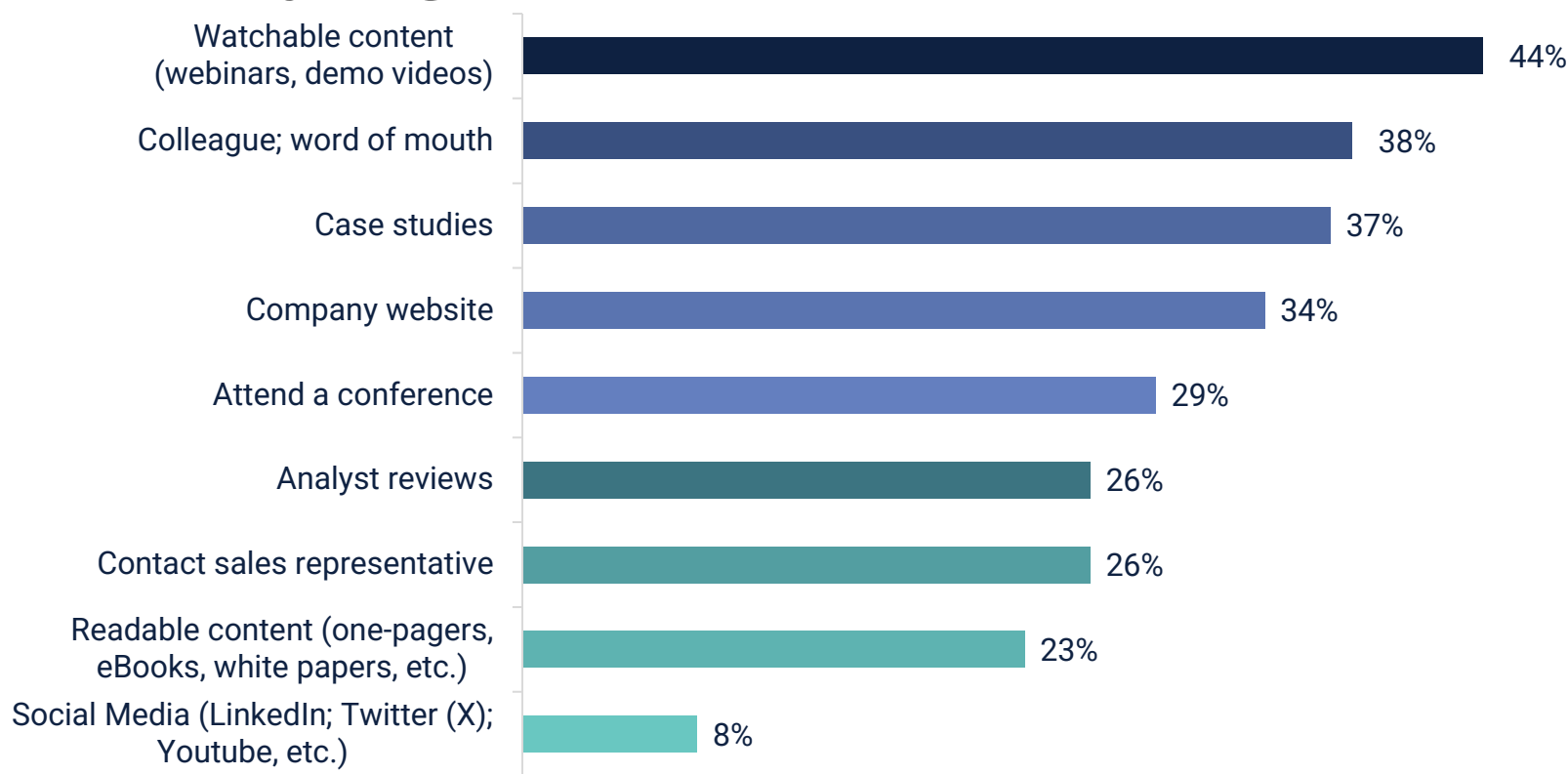
App libraries, **no-code functionality**, **multilingual support**, and **composability** are the least prioritized.

Which key performance indicators do you need to improve within the next 12 to 18 months?



Machine downtime (35%) and first pass yield (34%) are the top KPIs respondents need to improve, followed by CAPA closure time (32%), cycle time (31%) and overall equipment effectiveness (31%).

When researching a technology vendor and its offerings, where do you gather information?



Respondents predominantly research tech vendors through watchable content, such as webinars and demo videos (44%).



About the Company

Tulip provides a composable MES and extensible, low-code platform for manufacturers. It empowers them to digitize and optimize their frontline operations to enhance efficiency, ensure compliance, and unlock real-time insights for continuous improvement in their production processes.

[Learn more at tulip.co](https://tulip.co)