The State of Technology in the Manufacturing Industry

What's New, What's Changed, and What's Trending Now



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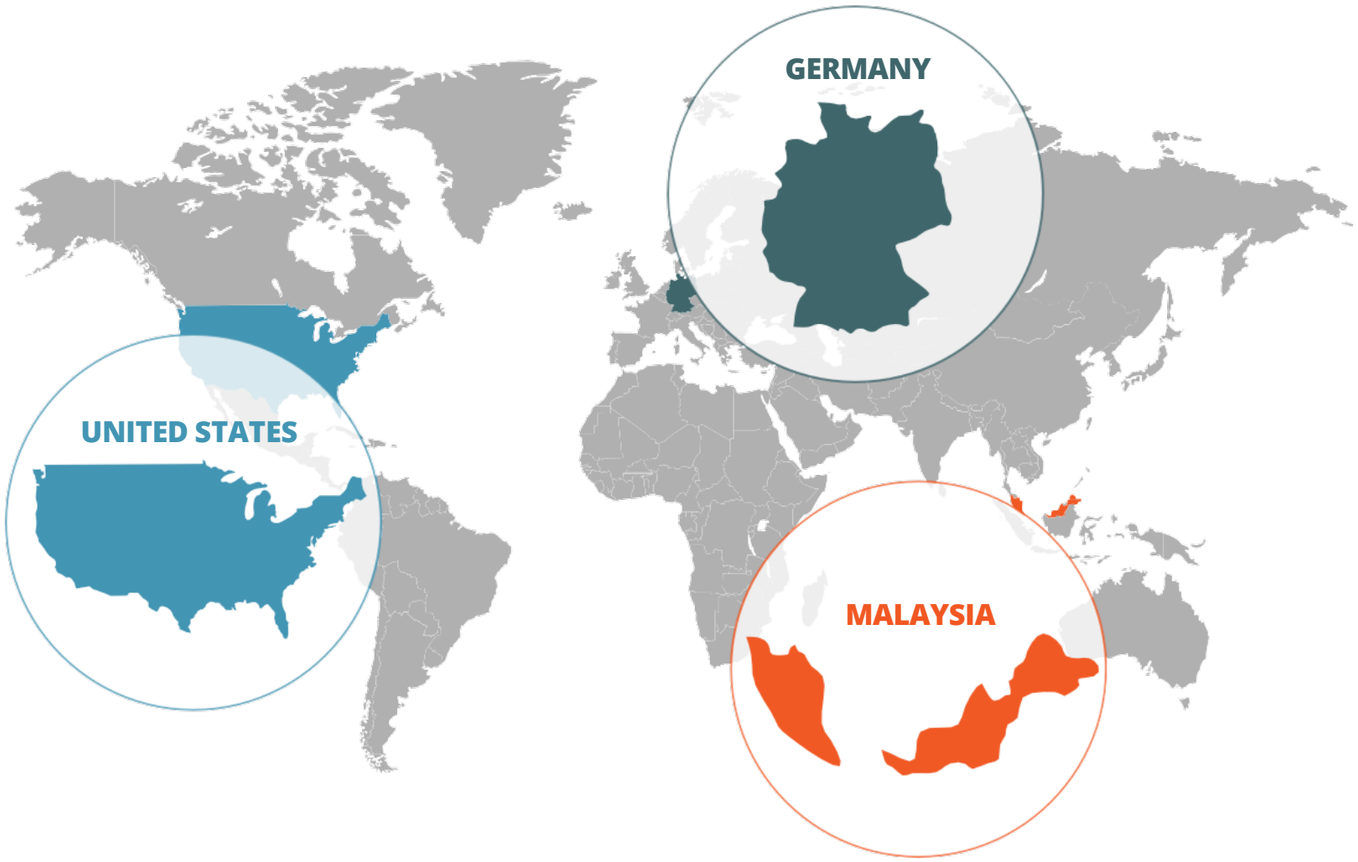
THE STATE OF TECHNOLOGY IN THE MANUFACTURING INDUSTRY

What's New, What's Changed, and What's Trending Now

Innovation is the cornerstone of success in the manufacturing industry, making a robust technology strategy essential. ABI Research's semiannual Manufacturers' Technology Adoption & Attitudes Survey can be part of that strategy.

The second wave of the survey was conducted in November 2024 and included 458 manufacturing decision-makers, with participants from the **United States** (154), **Malaysia** (151), and **Germany** (153).

Scroll for key takeaways.



HAVE QUESTIONS?

ABI Research invites you to become a sponsor of our next Manufacturers' Technology Adoption & Attitudes Survey. As a sponsor, you'll have the unique opportunity to include your own questions and gain access to tailored, actionable knowledge that will inform your decision-making and strategic planning. It's a unique way to gain a competitive edge in the rapidly evolving industrial and manufacturing landscape.

LEARN MORE

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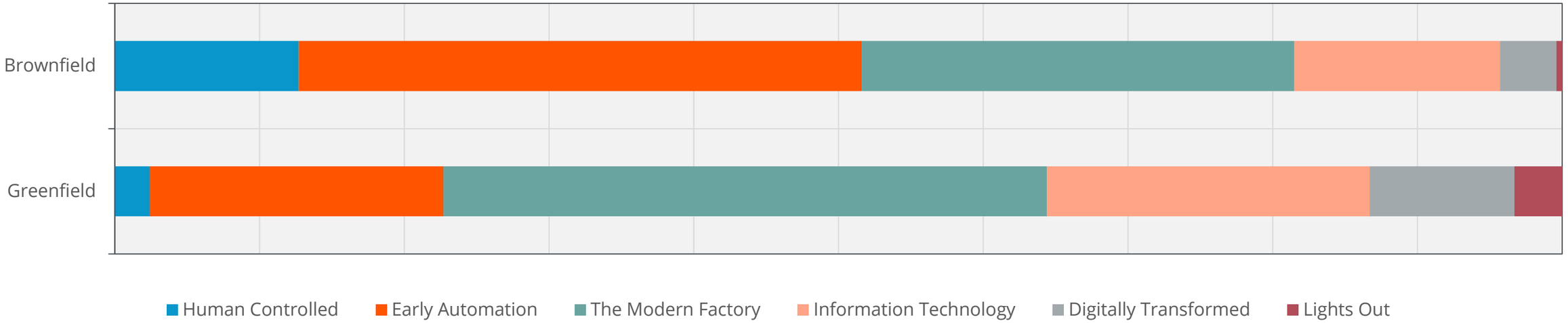
DIGITAL MATURITY

Key Takeaway
Digital transformation takes time. It's iterative, and the challenge for suppliers is achieving maturity in Brownfield facilities. To that end, Greenfield facilities are making slow progress towards digital transformation, while Brownfield facilities are catching up.

13% of Greenfield facilities are classified as being at least Digitally Transformed, up from just 1.1% in our previous survey.

51% vs. 49%
Just more than half of Brownfield facilities (51%) are no more advanced than early automation, with 49% characterized at least as a modern factory.

Level of Digital Maturity



(Source: ABI Research)

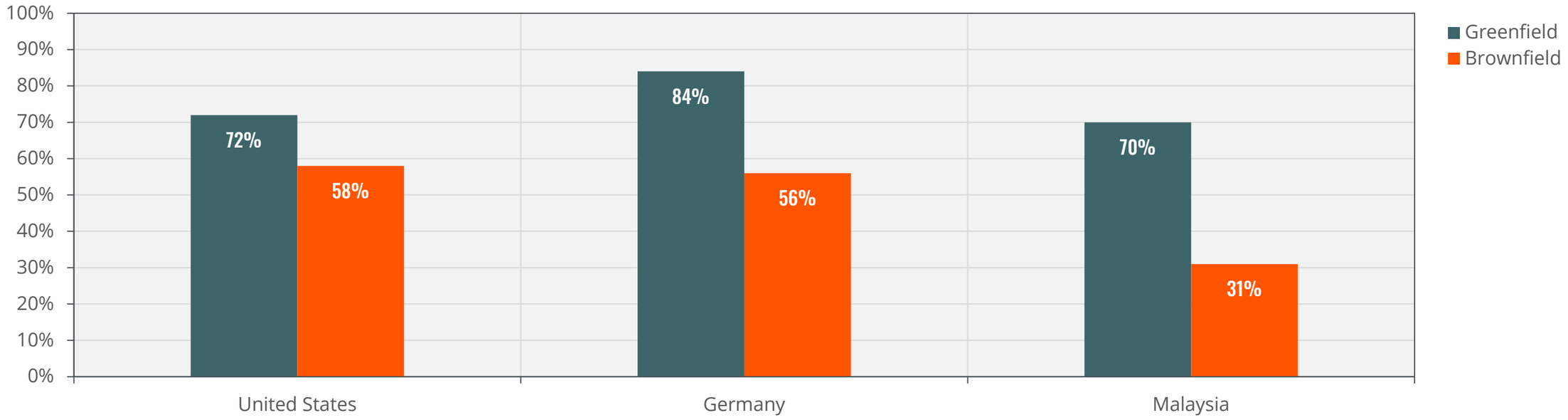
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DIGITAL MATURITY

Key Takeaway

More Greenfield facilities in Germany have achieved at least Modern Factory Maturity, while Malaysian Brownfield facilities lag behind other regions. In Malaysia, this is reflective of heavy investments in advanced areas with less investments in traditional or legacy areas.

Achieved Modern Factory Maturity



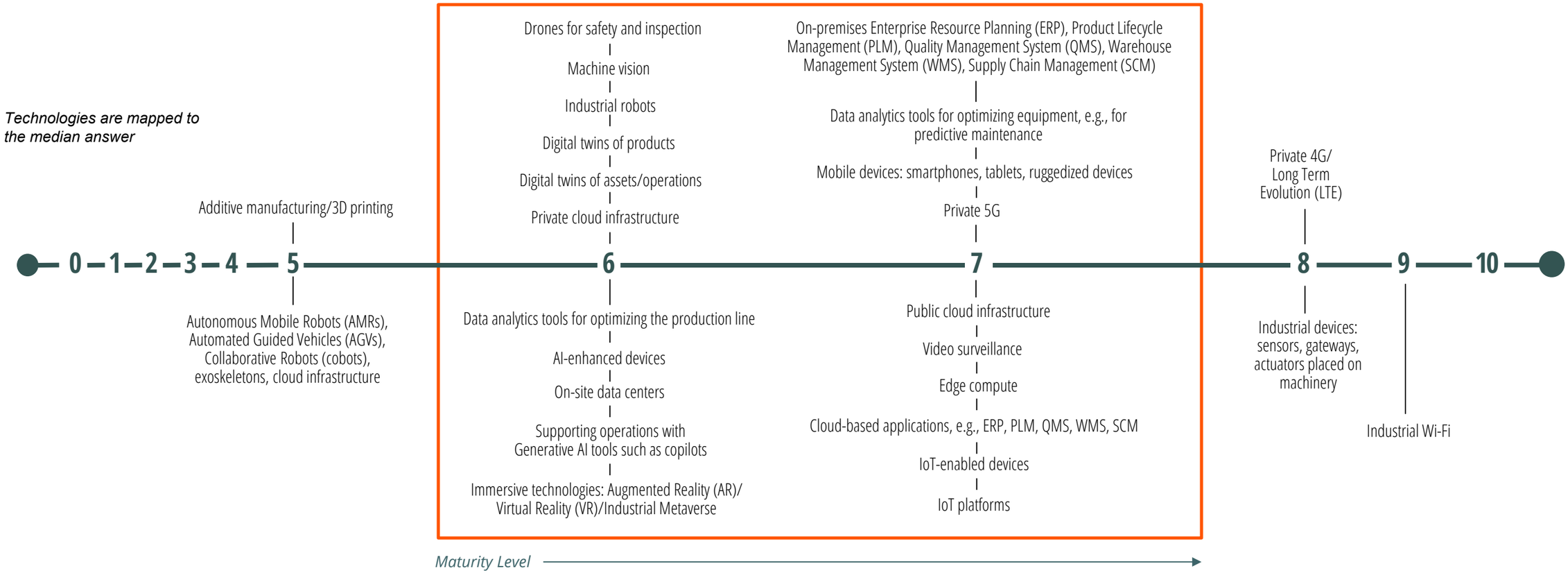
(Source: ABI Research)

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INVESTMENTS & IMPLEMENTATION

Key Takeaway
Most companies are evaluating suppliers and planning implementations.

Rolling Out: The technologies that saw the biggest increase in achieving stage 7 maturity are On-Premises Enterprise Resource Planning (ERP), Product Lifecycle Management (PLM), Quality Management System (QMS), Warehouse Management System (WMS), and Supply Chain Management (SCM) solutions.



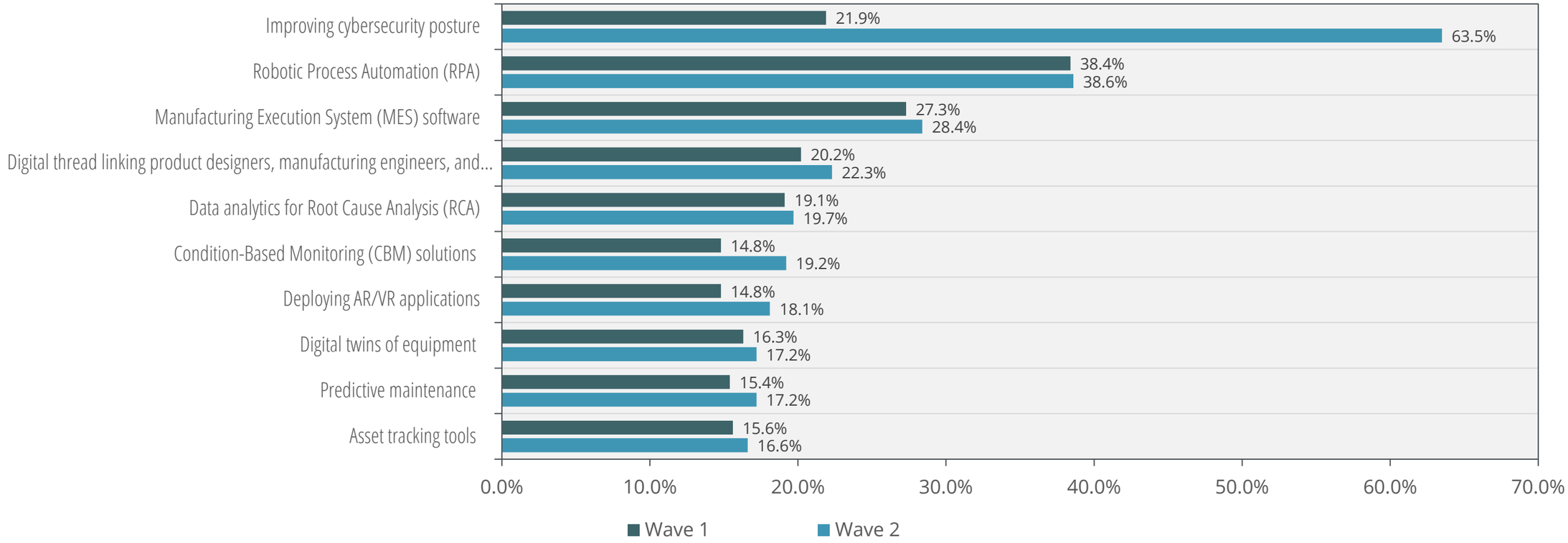
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INVESTMENTS & IMPLEMENTATION

Key Takeaway

Improving cybersecurity posture emerged as the most important investment for improving productivity. This comes on the heels of the CrowdStrike incident and increasing geopolitical tensions.

Investments for Improving Productivity

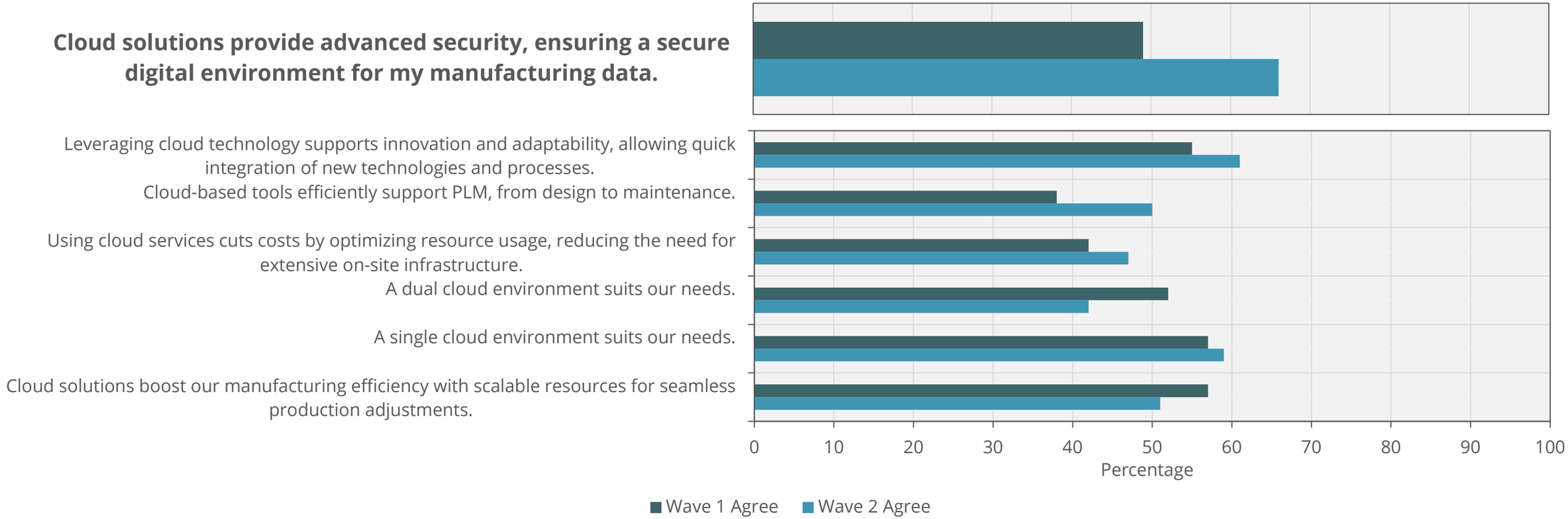


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CLOUD COMPUTING

Key Takeaway
Manufacturers are increasingly embracing cloud solutions for advanced security.



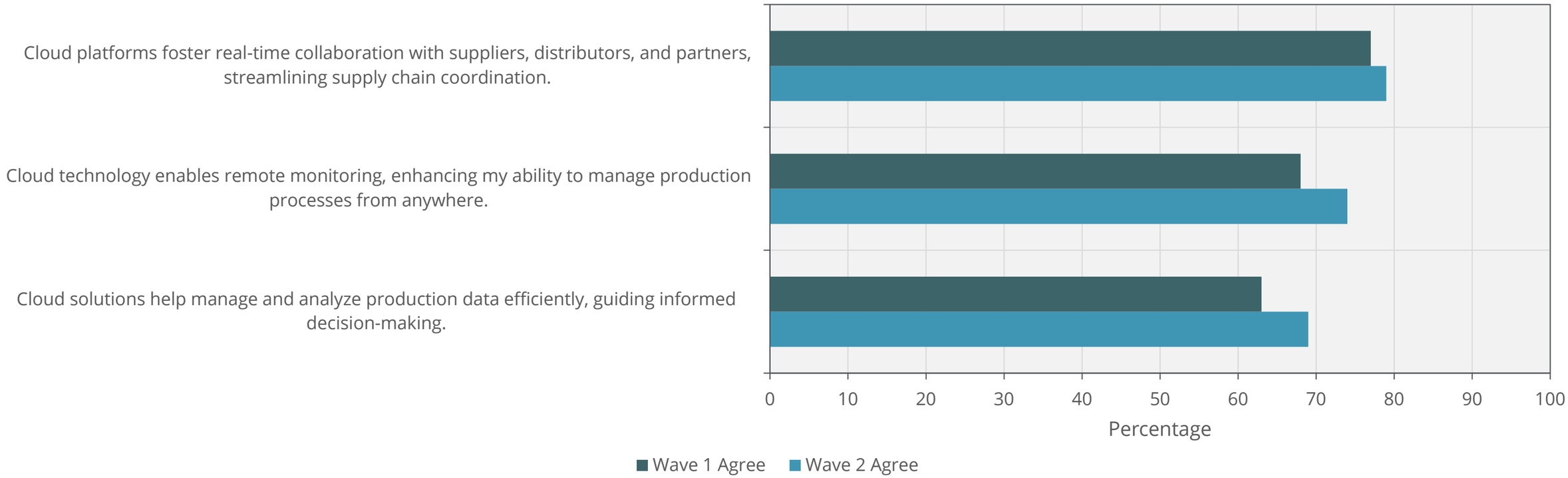
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CLOUD COMPUTING

Key Takeaway

Manufacturers agree that cloud solutions offer clear benefits around decision making, remote monitoring, and supply chain coordination.



(Source: ABI Research)

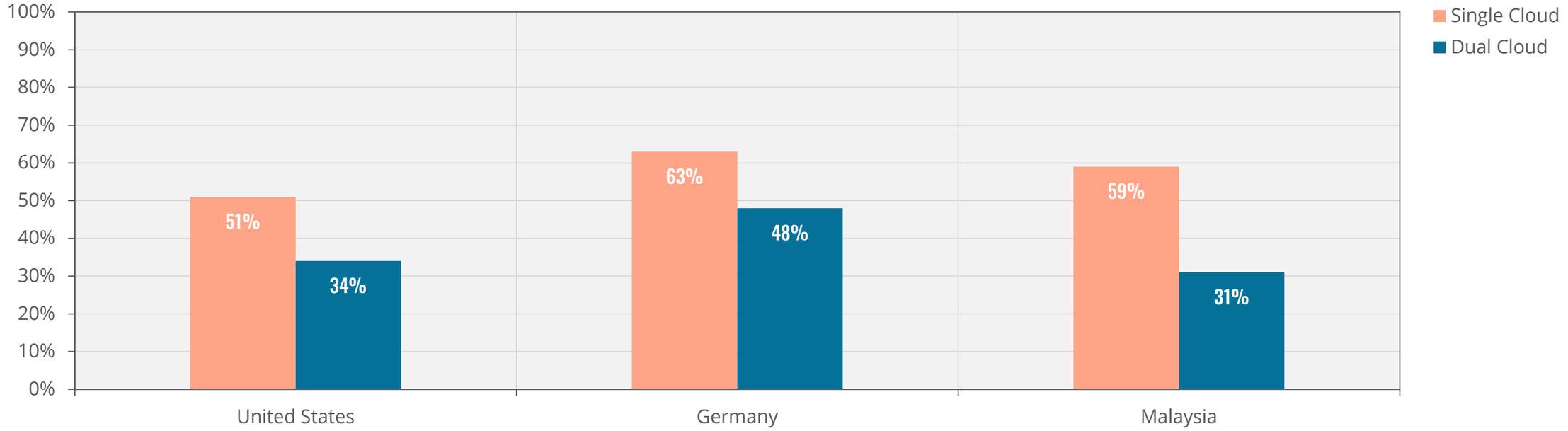
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CLOUD COMPUTING

Key Takeaway

Single cloud solutions are preferred across regions, and the gap between single cloud and dual cloud preference is consistent.

Which Cloud Solution Fits My Needs?



(Source: ABI Research)

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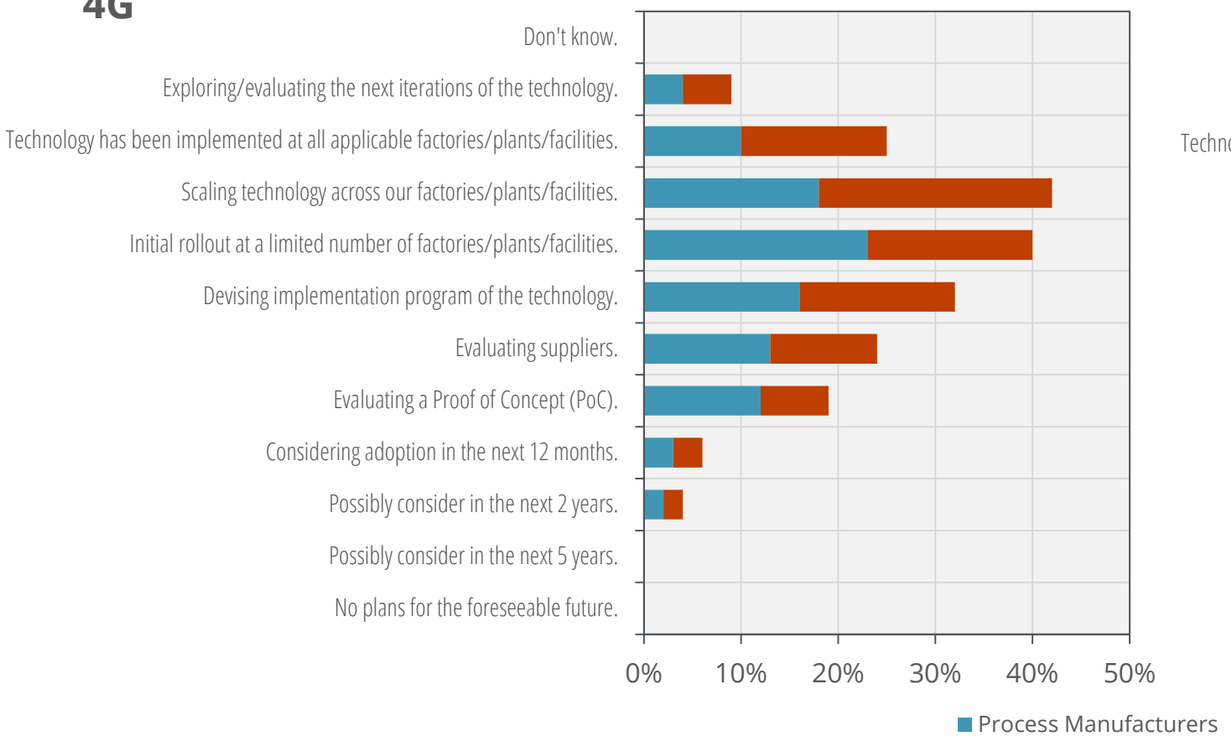
CONNECTIVITY

Key Takeaway
Private 5G is beginning to take hold in the manufacturing space.

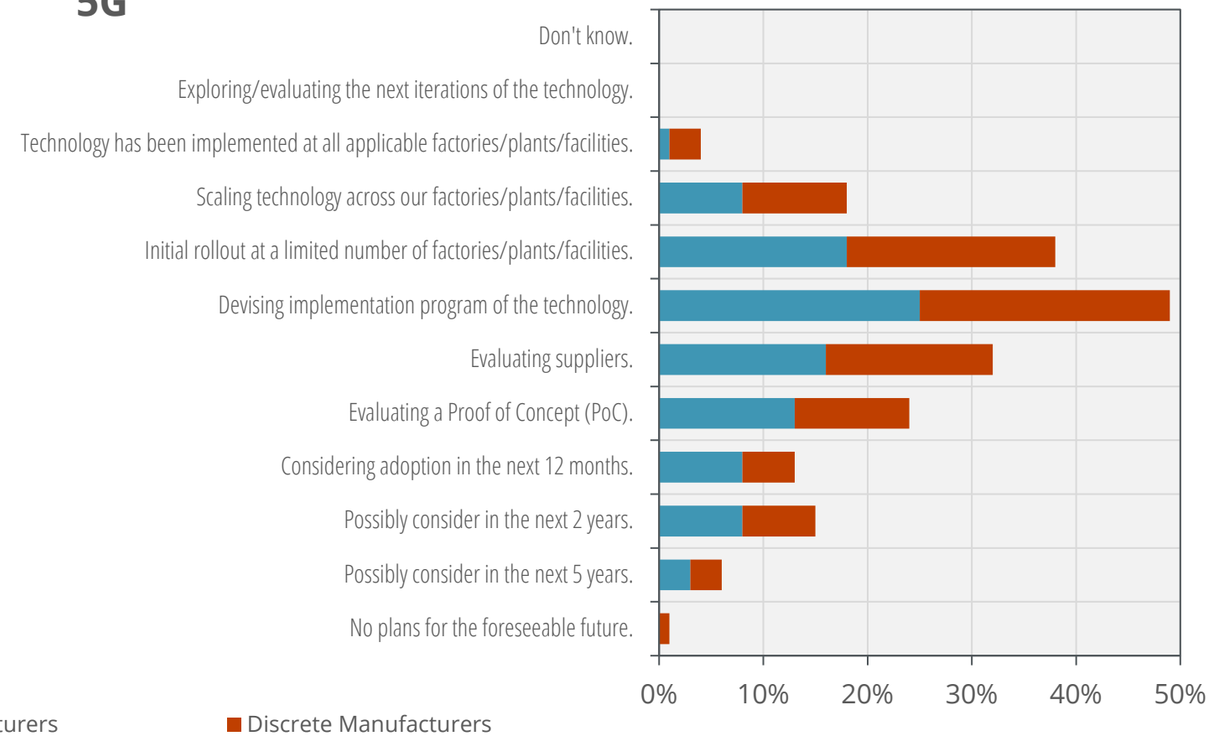
4G
21% are in Initial Rollout Phase for Enterprise 4G

5G
43% Devising an Implementation Program or Already Rolling Out Private 5G

4G



5G



(Source: ABI Research)

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CONNECTIVITY

Key Takeaway

German manufacturers have adopted 5G at a higher rate than their Malaysian and American counterparts.



UNITED STATES

27%



GERMANY

34%



MALAYSIA

27%

Have at Least Begun an Initial Rollout of Private 5G

(Source: ABI Research)

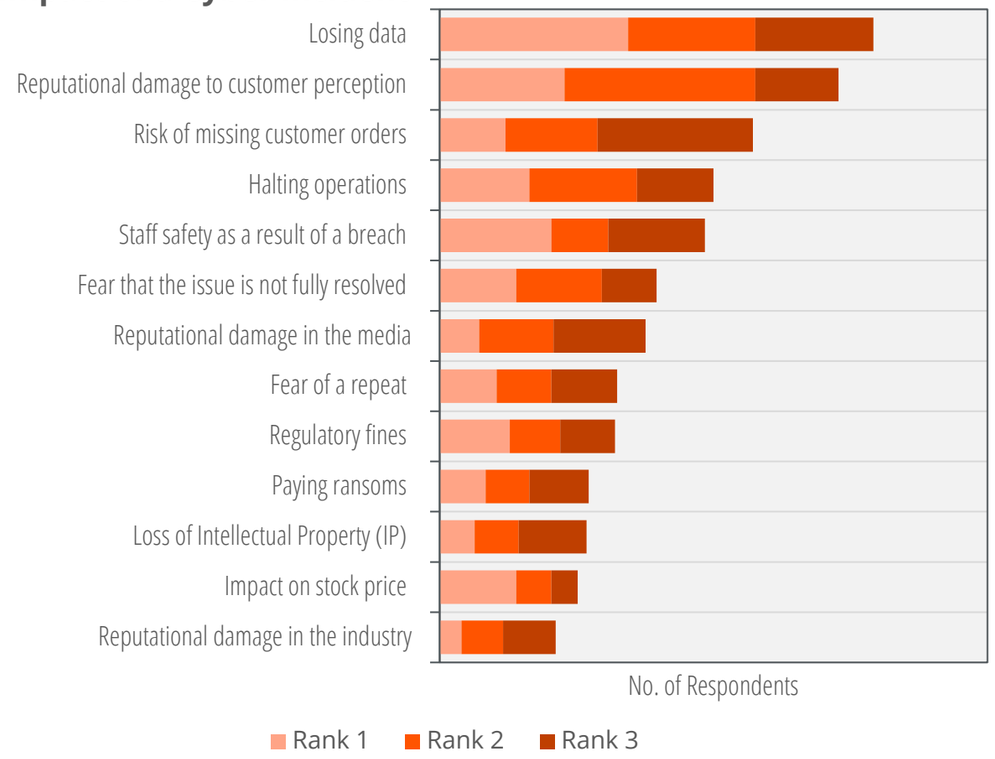
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CYBER & PHYSICAL SECURITY

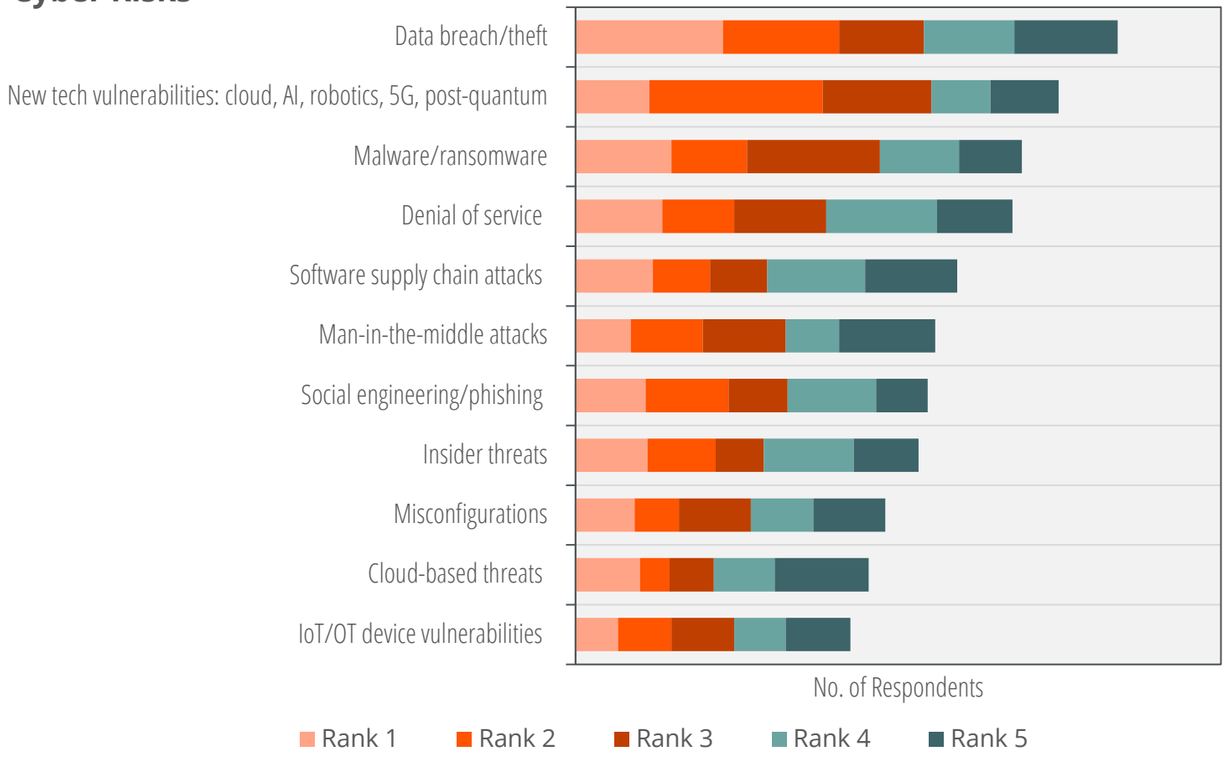
Key Takeaway

Introducing new technologies is perceived as a risk to losing data and, consequently, customer orders.

Impact of a Cyber Incident



Cyber Risks



(Source: ABI Research)

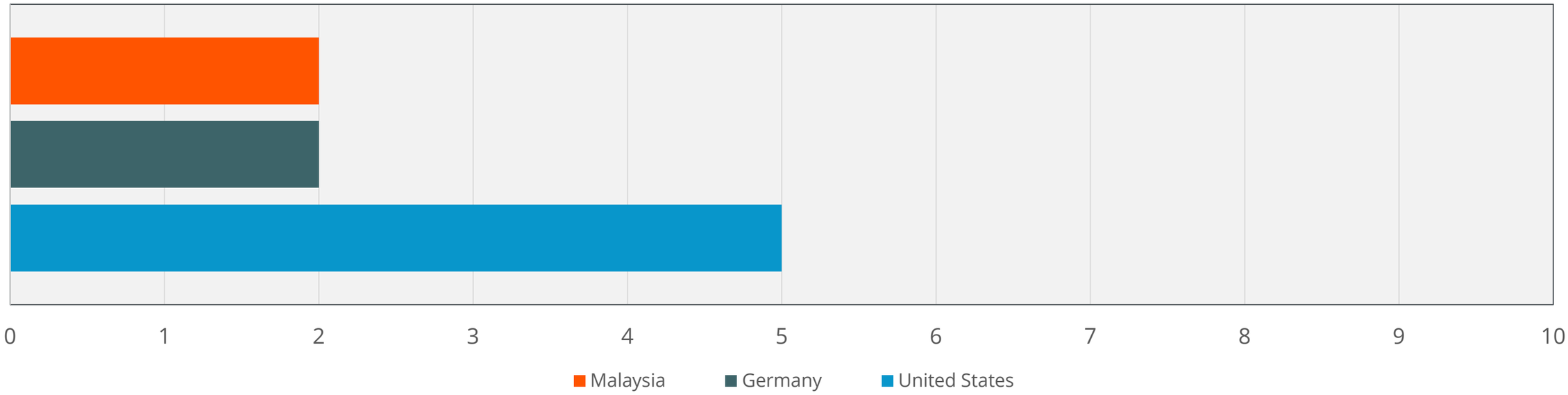
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CYBER & PHYSICAL SECURITY

Key Takeaway

The United States views software supply chain attacks as less of a threat compared to Germany and Malaysia.

Where software supply chain attacks rank against other risks.



(Source: ABI Research)

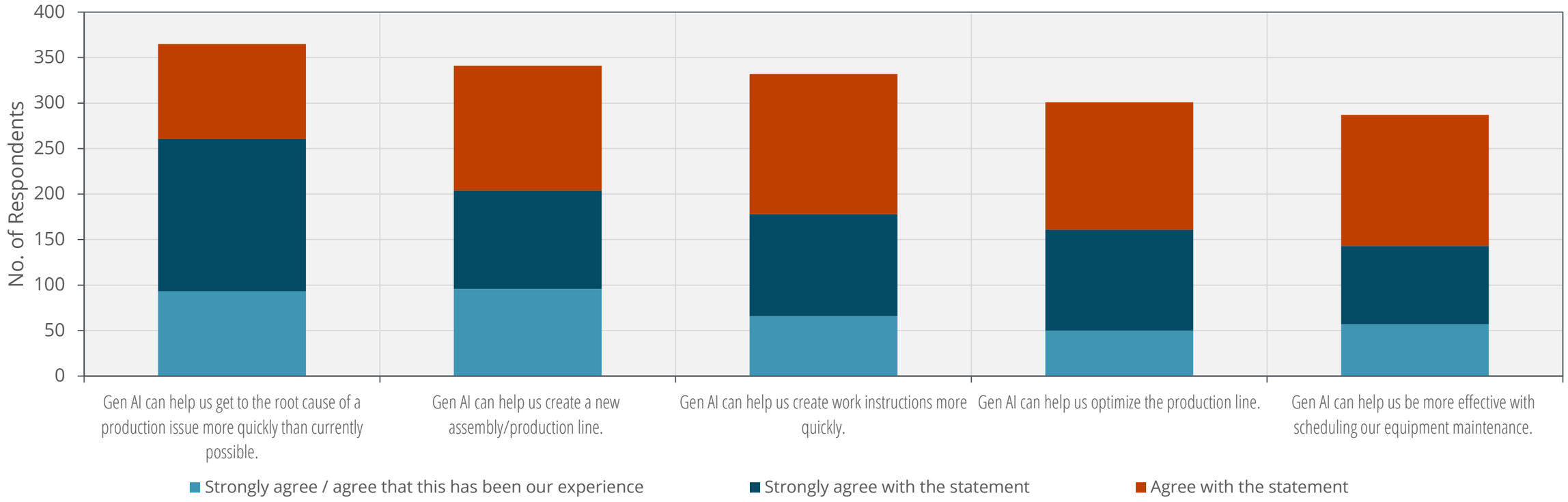
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GEN AI

Key Takeaway

Manufacturers believe that Generative Artificial Intelligence (Gen AI) can improve production lines both strategically (optimizing operations) and tactically (worker instructions and supporting equipment maintenance).

Top 5 Potential Use Cases for Gen AI



(Source: ABI Research)

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GEN AI

Key Takeaway
Manufacturers in the United States are less confident that Generative AI can help create work instructions.



UNITED STATES
62%



GERMANY
79%



MALAYSIA
76%

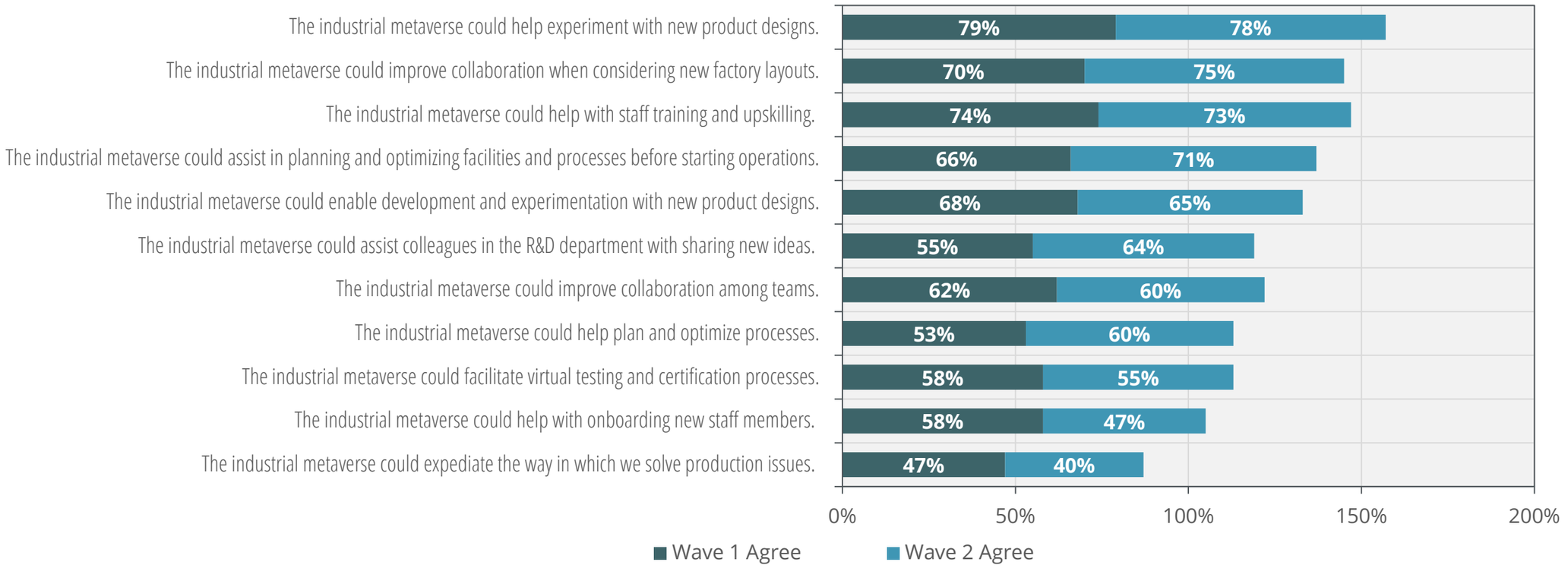
Of manufacturers believe that Gen AI can help us create work instructions more quickly.

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INDUSTRIAL METAVERSE

Key Takeaway

Manufacturers increasingly believe in the industrial metaverse's ability to fuel Research and Development (R&D) in conjunction with strategy, but belief in onboarding capabilities may be waning.



(Source: ABI Research)

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INDUSTRIAL METAVERSE

Key Takeaway

Germany shows less faith in the industrial metaverse's ability to solve production issues.



UNITED STATES

46%



GERMANY

36%



MALAYSIA

41%

The industrial metaverse could expedite the way in which we solve production issues.

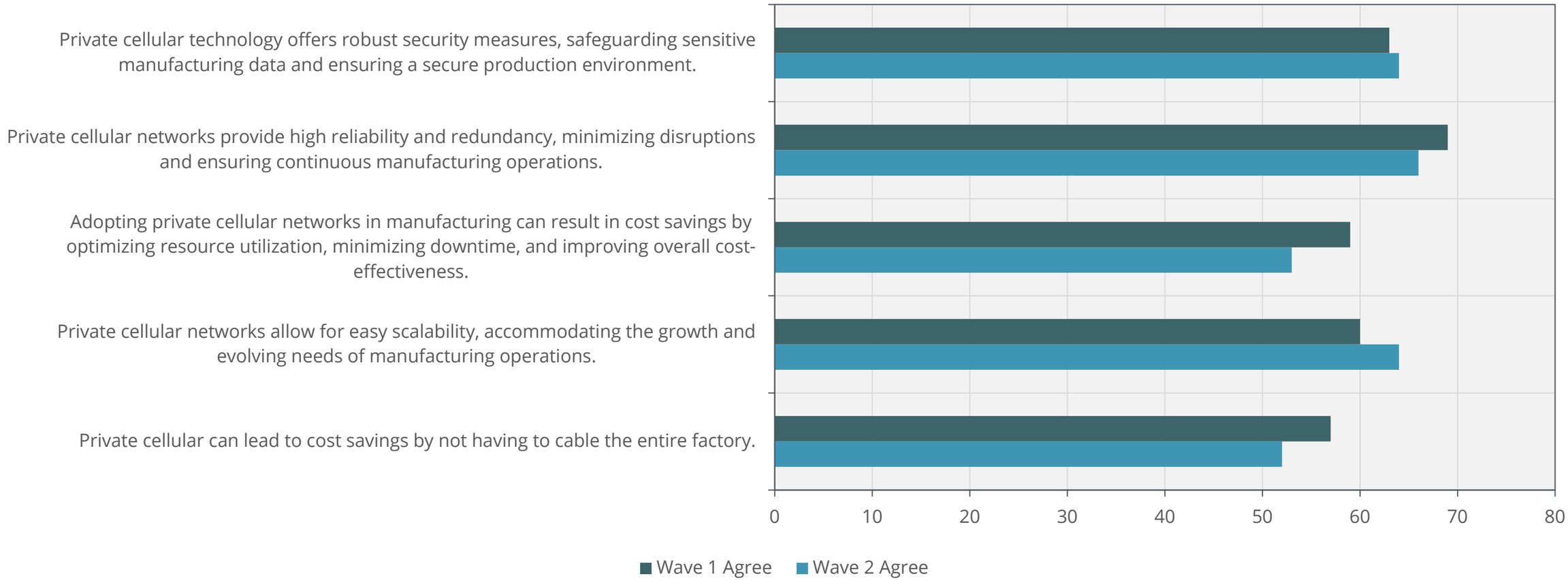
(Source: ABI Research)

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PRIVATE CELLULAR

Key Takeaway

Private wireless networks can underpin digital transformation projects, but the cost-benefit analysis may be shifting.



(Source: ABI Research)

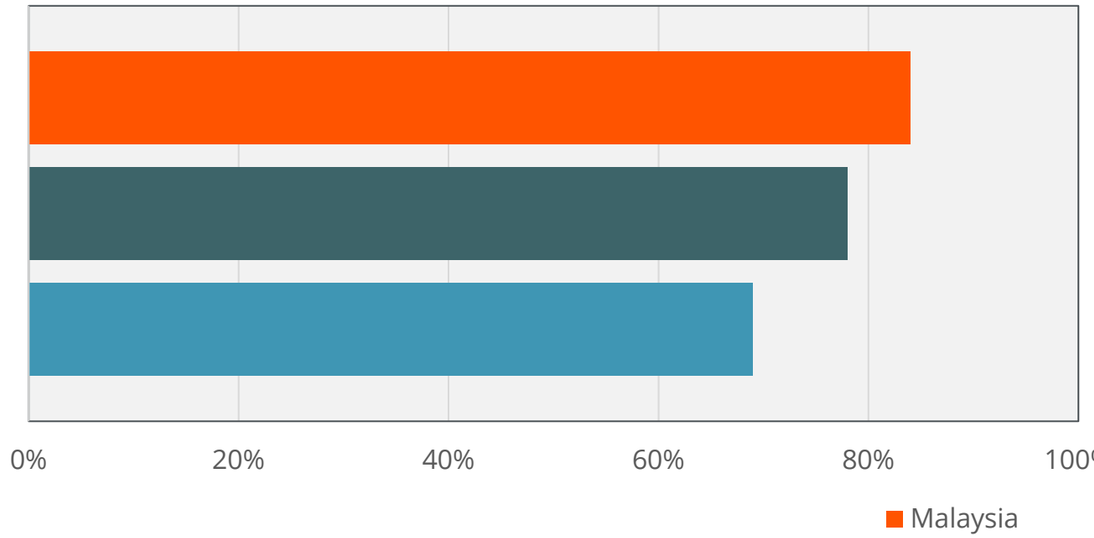
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PRIVATE CELLULAR

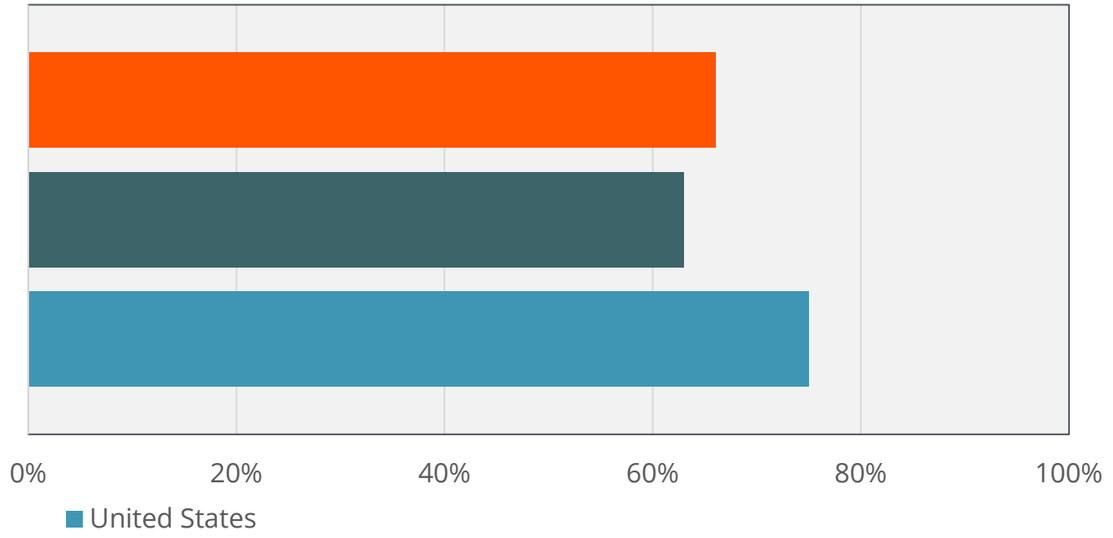
Key Takeaway

Malaysian manufacturers believe strongly in the connectivity, reliability, and security benefits of private cellular technology… while U.S. manufacturers see operational efficiencies and productivity as a strong benefit, reflective of labor savings and reduction of input costs, whether they are components or raw materials.

Believe private cellular technology enhances connectivity, ensuring reliable and secure communication across various manufacturing facilities for streamlined operations.



Believe implementing private cellular networks leads to increased operational efficiency and productivity on the manufacturing floor, optimizing production processes.



Malaysia Germany United States

(Source: ABI Research)

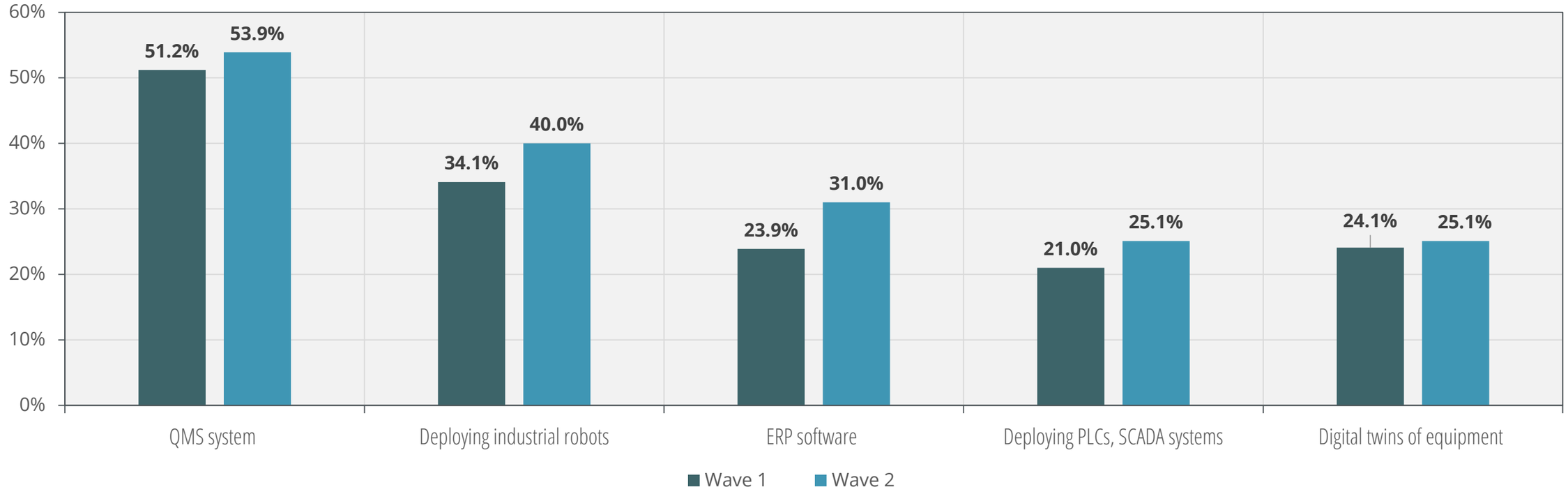
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PRODUCTIVITY AND QUALITY IMPROVEMENT

Key Takeaway

Manufacturers increasingly prioritizing QMSs, industrial robots, and ERP software as priority investments to improve quality levels, firming up their view of which technologies can improve quality.

Top 5 Investment Priorities for Improving Quality Levels



(Source: ABI Research)

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PRODUCTIVITY AND QUALITY IMPROVEMENT

Key Takeaway
German manufacturers feel more secure in their QMS infrastructure, ranking it as less of a quality concern.



UNITED STATES
58%



GERMANY
46%



MALAYSIA
58%

QMS ranked as a top 5 quality investment priority.

(Source: ABI Research)

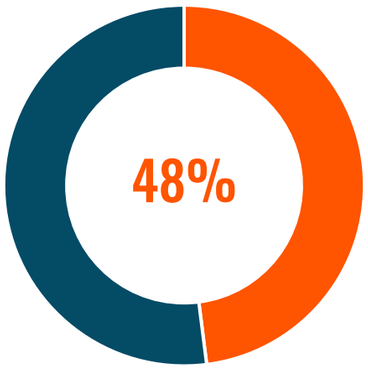
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WHAT'S HOLDING MANUFACTURERS BACK?

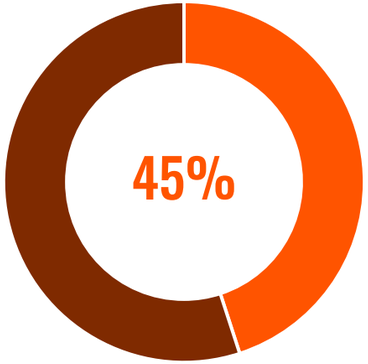
Key Takeaway

People and processes both present formidable challenges to digital transformation in the industrial and manufacturing industry.

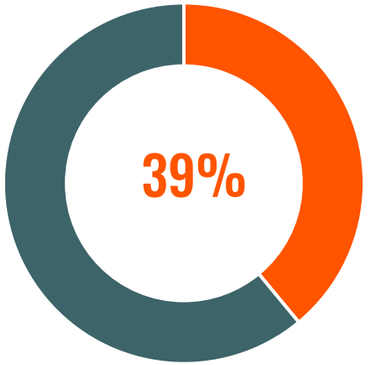
The most urgent people barriers to digital transformation:



We lack the expertise to fully grasp the potential of new technologies.



We don't have sufficient time to conduct the necessary planning to scale innovations.



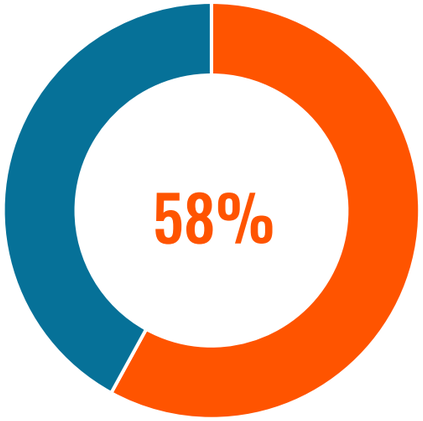
Staff do not have the skills to utilize the new technologies.

(Source: ABI Research)

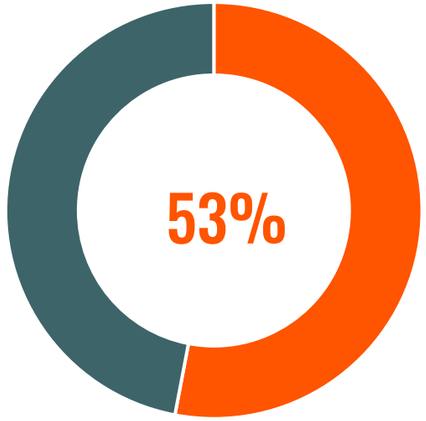
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WHAT'S HOLDING MANUFACTURERS BACK?

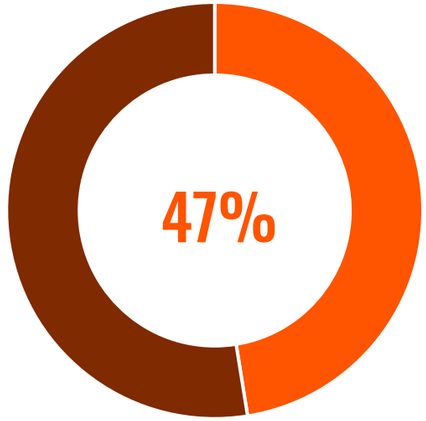
The most urgent process barriers to digital transformation:



An inability to articulate our needs holds us back



We struggle to align technology investments with our commercial objectives



We often cannot articulate the Return on Investment (ROI) for a digital transformation project

(Source: ABI Research)

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SHAPE THE NEXT SURVEY.
SHARPEN YOUR STRATEGY.

ABI Research is now inviting a small set of participants to join our survey efforts as we launch a semiannual survey targeting respondents in industrial and manufacturing companies. This semiannual survey will offer invaluable insights into industry trends, market sentiment, and emerging opportunities, enabling informed decision-making and strategic planning for sustained growth and competitive advantage.

JOIN THE SURVEY



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