



2024 Technology in metals survey report

Questions answered about how to
sustain growth with technology



This publication is dedicated to the people who tirelessly embrace volatility, discover new opportunities, and move the metals industry forward. From all of us at Crowe, thank you for continually inspiring us.

Contents

5	Introduction
6	Part 1: Digital technology investments
16	Part 2: Challenges and opportunities
30	Part 3: Digital transformation and enterprise systems
42	Part 4: Automation and data
52	Part 5: AI and advanced technology
64	Next steps: 3 strategies for embracing technology volatility
66	Resources



Sustaining growth with technology

In our 13th annual technology in metals survey, we discovered that while many metals companies are moving full speed ahead on their digital transformation journey, leaders are brimming with questions about how to sustain growth amid heightened technological advancement and economic uncertainty.

Navigating the unknowns can be difficult, but strategies and technology can give leaders a glimpse of what's around the corner so they can best prepare for what's to come.

Opportunities exist, even amid volatility.

Our 2024 report sheds light on industry trends, shares insights, and provides answers to questions that can help metals leaders make confident decisions and find value where they might not expect.

Our hope is that the industry discovers the information needed to adopt new technology and move courageously into the future.

A handwritten signature in white ink, appearing to read "Tony Barnes".

Tony Barnes
Principal, Consulting
Crowe

Digital technology investments

Putting technology to work

Metals companies continue to increase technology investments despite market headwinds.

Fifty-eight percent of respondents said they have increased their software investment plan spend for 2024 compared to 2023.

The continued increase in technology spending comes on the heels of sustained year-over-year growth, with nearly one in four indicating a significant increase in spending.

Many companies cited enterprise resource planning (ERP) implementations as the reason for significant investment increases, while others stated the increase would support the use of AI.

Only 10% of respondents said the age of their existing technology was the most important factor, indicating that metals leaders aren't increasing investments because it's time to upgrade but rather because they see the value in improving customer and employee experiences.

58%

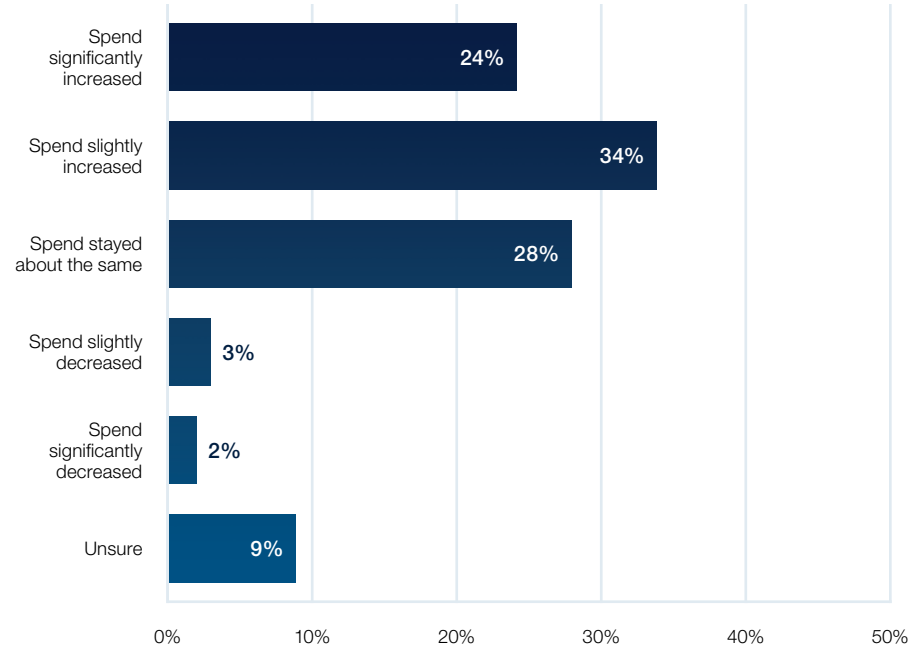
Metals companies that are increasing technology investments in 2024 compared to 2023

#1

Implementing a new ERP system is the top reason metals leaders noted for significantly increasing their technology investments in 2024.



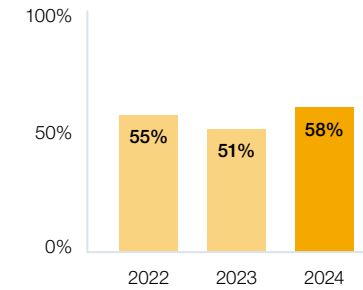
How have you adjusted your technology and software investment plan spend for 2024 compared to 2023?



Industry trend

Metals companies plan to increase technology investments in 2024, despite market headwinds.

Respondents who said they were increasing their technology and software investments compared to the previous year:



If your technology investment is increasing in 2024, why?

Reasons for increasing technology investments

Implementing a new ERP system

Upgrading outdated technology

Using AI

Moving from on-premises to the cloud

Reasons for decreasing technology investments

Cost cuts

The economy

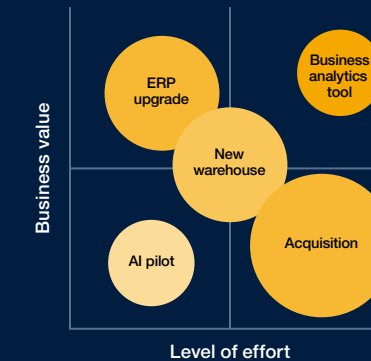
If your technology investment is decreasing in 2024, why?

Respondents used different words to describe their biggest challenges, but several key themes emerged among their responses.

Insider insight

When it comes to investing in new technology, how can metals leaders know where to prioritize?

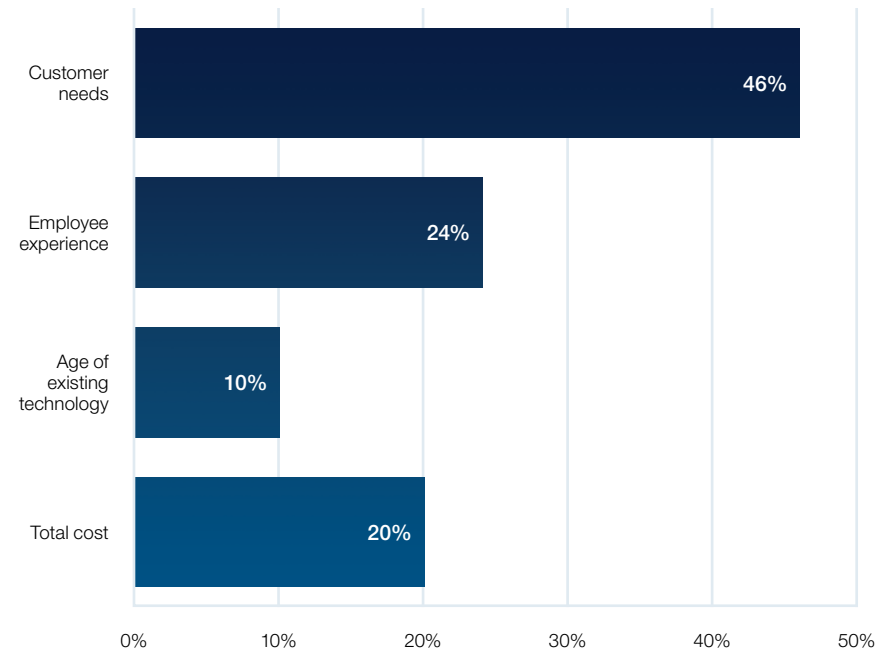
A comparison matrix can be a helpful way to bring technology investments together in one view to better gauge priority levels and make decisions. Following is a comparison of investments by business value and the level of effort required to implement them.



Leadership teams can decide which factors are most important after plotting the various opportunities on an X and Y axis.



When making decisions about technology investments, what is the most important factor?



Insider insight

For years, customer needs have been the top deciding factor when making decisions about technology investments. But how can leaders be sure they have an accurate understanding of what customers need?

Following are three ways to gather accurate insights from customers.

Direct communication



Sending out **customer surveys** with multiple-choice questions helps gather quantitative data. With limited options for responses, it's easier to uncover trends and identify areas that need attention.

Hosting **focus groups** is a collaborative way to engage with customers and ask open-ended and follow-up questions. Interview-style questions help gather qualitative data that gives access to deeper insight.

Customer feedback and reviews



Increasing opportunities for **feedback mechanisms** such as online feedback forms and emails immediately after a product has been purchased or received gives customers a real-time opportunity to provide feedback while their experience is still fresh.

Reading through **online reviews** is another way to access honest opinions and feedback from customers that they might not have otherwise shared.

CRM tools



Using **customer relationship management (CRM) tools** to track customer interactions and history can help capture actual behaviors and preferences – as opposed to relying on what leaders think customers might choose.

Conducting **data analysis** can help identify trends and patterns and possibly predict future customer needs.



Metals leaders and updated technology

Survey results indicate that companies are after the value technology can bring and are willing to increase their spending to capture it. As companies increase their technology investments to get ahead, leaders who think they can compete with dated technology will likely fall behind.

Discovering opportunity

Advanced technology opens the door for increased productivity and efficiency, and it provides leaders with the tools they need to innovate. The way metals leaders ran their businesses 10 years ago was limited by the tools in their tool belts.

Using technology might not be a differentiating factor by itself, but the increased possibilities made available by technology give metals leaders the opportunity to rethink, recreate, and differentiate their businesses.

Challenges and opportunities

The double-edged sword of digital transformation

Technology has the potential to revolutionize the metals industry because of the benefits and value it offers. However, the road to realizing that potential can be complex.

The line between business issues and technology challenges is increasingly blurring as metals companies undergo digital transformation.

For example, respondents listed cybersecurity as both a technology challenge and a business issue they'd like to address, indicating the further down the digital path they go, the more the lines between technology and business can overlap.

Metals companies that want to be successful in the generation to come will view their business and the technology they use to run it as one and the same.

Metals leaders seem to be determined to uncover new opportunities amid the challenging landscape of digital transformation.

“We’ve always done it that way”

A mentality among employees that respondents noted as one of the biggest challenges in digital transformation and technology

Communication and training

Named by respondents as the most effective measures in increasing technology adoption among employees



What are your company's biggest digital transformation and technology challenges?

Respondents used different words to describe their biggest challenges, but several key themes emerged among their responses.

Adoption resistance

We've-always-done-it-that-way mentality

Difficulty changing the process when people have to change the way they've been doing their jobs

Cybersecurity

Avoiding cyberattacks

New threats

Secure IT

High cost

Managing spend

Budget

Lack of connectivity

Matching technology to processes

Integrating systems

Alignment across the organization

Matching customer systems

Using AI

How to address using AI

Integrating AI into processes

Industry trend

The pendulum seems to be swinging from best-of-breed back to single-platform solutions. But is it possible for metals companies to use technology to get the best of both worlds?



2000s

During the 2000s, many industries, including metals, used unified-platform ERP systems. The goal was to integrate various business functions into a single, cohesive system to experience greater efficiency and benefit from a single source of truth for the company.

2010s

During the 2010s, many companies shifted toward using best-of-breed solutions, adopting software intended to optimize unique business functions. However, using several platforms in a company tended to cause integration challenges, siloed information, and a lack of visibility into company data.

2020s

The noticeable trend seems to be a shift back to integrated solutions – but with the flexibility of modular systems. Metals companies are using solutions such as Microsoft Dynamics 365™ more because they can maintain integration across the company while providing tailored functionality for individual departments.

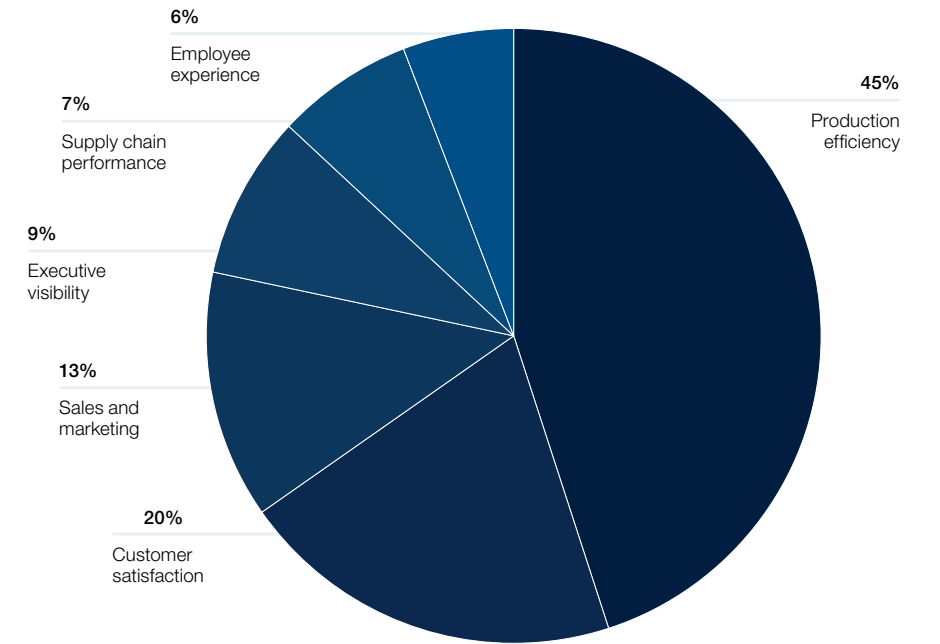
Companies struggling with a lack of connectivity among systems should consider a more advanced solution that offers a unified but flexible approach to business data.





Question 5

Where have your investments in technology had the greatest impact?



What measures have you found effective in increasing technology adoption among your employees?

Respondents used different words to describe their biggest challenges, but several key themes emerged among their responses.

Communication

Explaining the “why” before training starts

Keeping people at all levels informed

Keeping people in the loop as changes are made

Participation in decision-making

Training

Continual training

Immersive training

Preparing detailed end-user procedures for all activities

Personal interaction

None

Technology adoption seen as a weakness

Insider insight

Communication was the number one response for how companies have been effective in helping increase adoption among employees, but how do leaders use communication to achieve the results they’re looking for?

Following are five key components of effective communication.

Communicate early and often

Engage employees **as soon as possible** to create a sense of ownership and to allow employees time to accept the change, which helps reduce resistance. Use **multiple channels** such as emails and meetings to reinforce and remind employees what should be top of mind for them in the adoption process.

Be clear and consistent with messaging

Break down complex technological concepts into **simple language**. Confusion often leads to hesitation simply because people don’t understand. Make sure to **say the same thing consistently** across all channels and levels of leadership to help employees see a clear, unified vision they can buy into.

Highlight the benefits

Clearly **explain why** the company is choosing a specific solution and how it can benefit both the company and individual employees. Share **examples of success** from employees or teams who are further along in the process. One respondent stated that employees seeing teammates’ wins helped increase the adoption of more hesitant users.

Have honest and transparent conversations

Openly **discuss potential challenges** and give employees an opportunity to share their concerns as well. Outline the **plan for addressing challenges** to help users be more confident in overcoming potential setbacks.

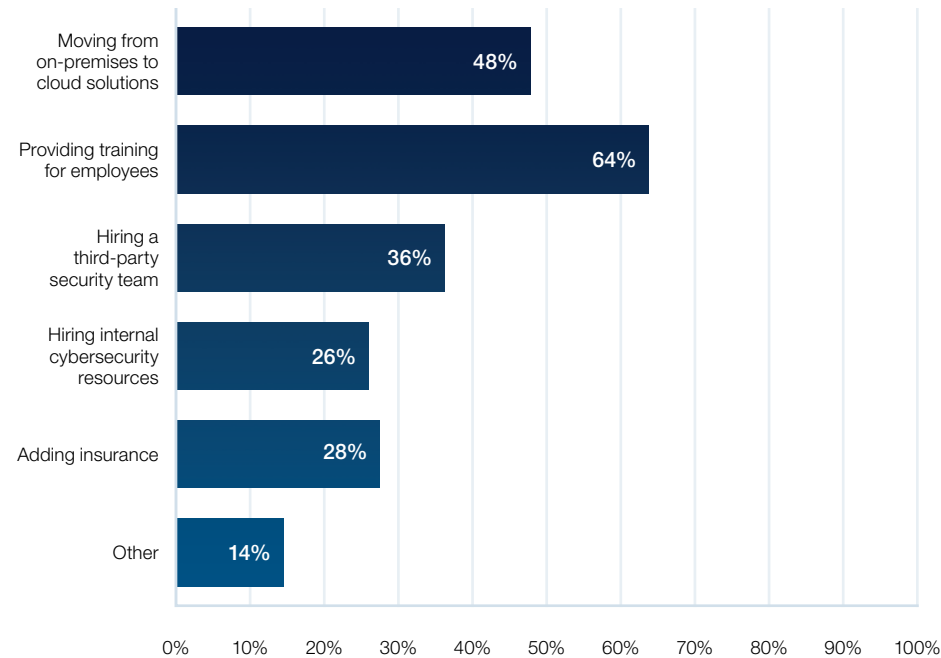
Provide a road map

Use a **step-by-step guide** to outline the technology adoption process so employees can have a clear understanding and expectation about how the company plans to get from here to there. Highlight **key milestones** and celebrate the achievements along the way so employees are actively engaged and following along in the journey.



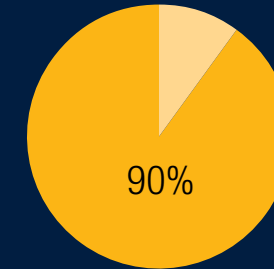
For four years, survey participants have named cybersecurity as the most significant IT-related risk. What steps have you taken to mitigate cybersecurity risks?

Participants could select multiple responses.



Insider insight

People are the number one cybersecurity vulnerability in an organization.



90% of cyberattacks are the result of a phishing email¹

While most (64%) of respondents said they have provided training for employees to mitigate cybersecurity risks, the remaining 36% should follow suit. How can metals companies make sure their employees are properly trained?

Following are three strategies for training employees to mitigate cybersecurity risks.



Conduct regular training programs

Keep employees aware of the latest threats and best practices to prevent incidents. Topics should include identifying phishing emails, using strong passwords, and safe internet browsing habits.



Provide incident response training

Teach employees what to do in the event of a cybersecurity incident. A robust response should include steps for reporting the incident, containing the breach, and recovering data.



Use interactive training methods

Administer phishing simulations, quizzes, simulated drills, and real-life scenarios to help employees stay engaged and better understand and retain the information after the training session.





Question 8

What are the most common business issues or challenges your company faces that you would like to address with technology?

Respondents used different words to describe their biggest challenges, but several key themes emerged among their responses.





Systems and people: No longer disconnected

Metals companies must navigate an unknown path in the journey of digital transformation. Implementing new technology often means responding to new challenges, including addressing the concerns of employees resistant to change and uniting systems. But the benefits businesses can experience from using advanced technology can help propel them forward.

Discovering opportunity

Companies operating with best-of-breed solutions that experience issues with siloed data now have access to solutions that unify data in one platform while maintaining the flexibility that individual departments need.

Implementing and using advanced technology and communicating the vision clearly to teams can help prepare businesses for greater advancements in the future.

Digital transformation and enterprise systems

The journey continues

A digital transformation road map helps leaders navigate their next steps toward a clear destination, but an enterprise system can provide a strong foundation that holds business data and operations together.

The data indicates that metals companies are making large-scale investments to establish their foundations without the required road map.

About half of metals companies have upgraded their ERP system in the last five years, and 58% of respondents said they're currently implementing or upgrading an ERP system.

Digital transformation is an ongoing journey, but less than half of metals companies have a road map or strategy in place.

If metals leaders aren't putting plans in place to modernize their technology, the company risks falling behind.

58%

Metals companies implementing or upgrading an ERP system this year

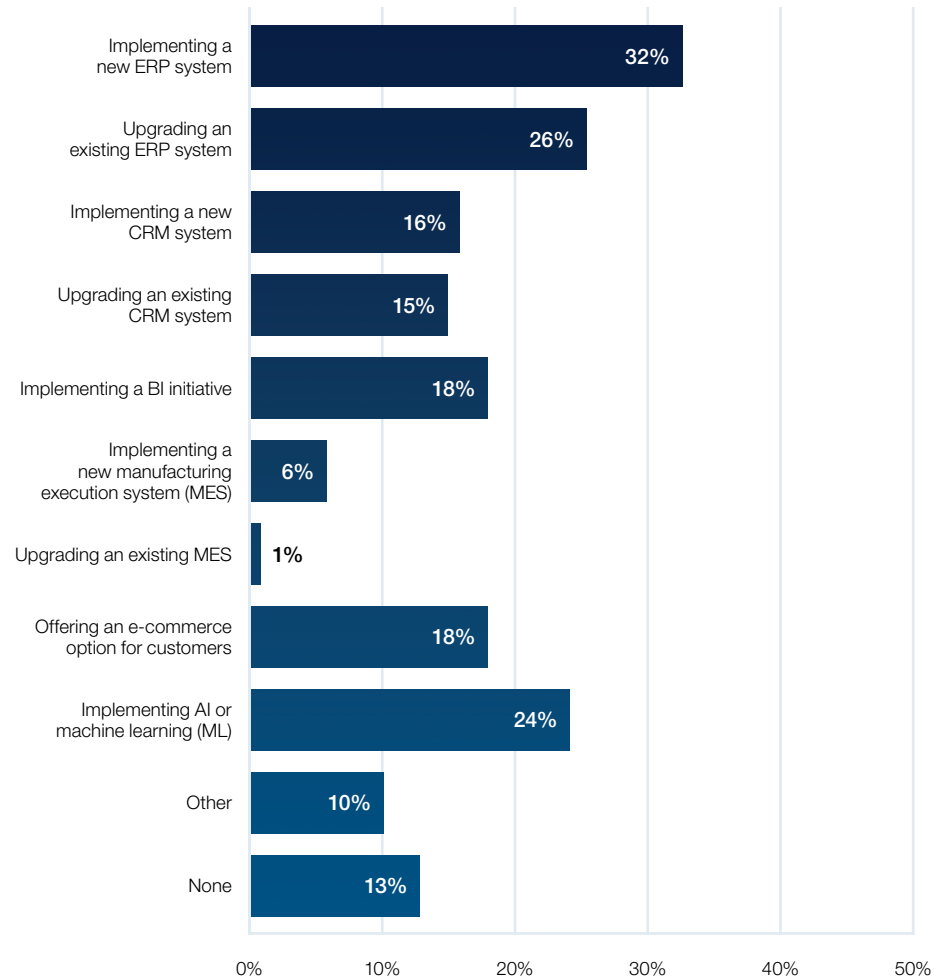
48%

Respondents who don't have a digital transformation road map or strategy in place



Which of the following IT projects do you currently have in progress?

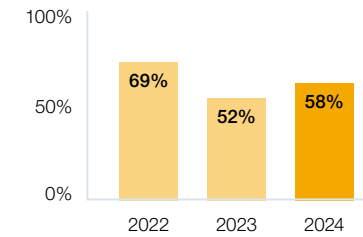
Participants could select multiple responses.



Industry trend

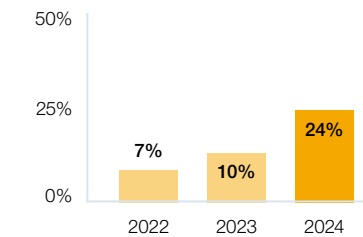
After a dip in 2023, metals companies implementing or upgrading an ERP system are back up to 58% this year.

Respondents who said they're implementing or upgrading an ERP system



The number of metals companies implementing AI or ML is rapidly increasing.

Respondents who said they're implementing AI or ML

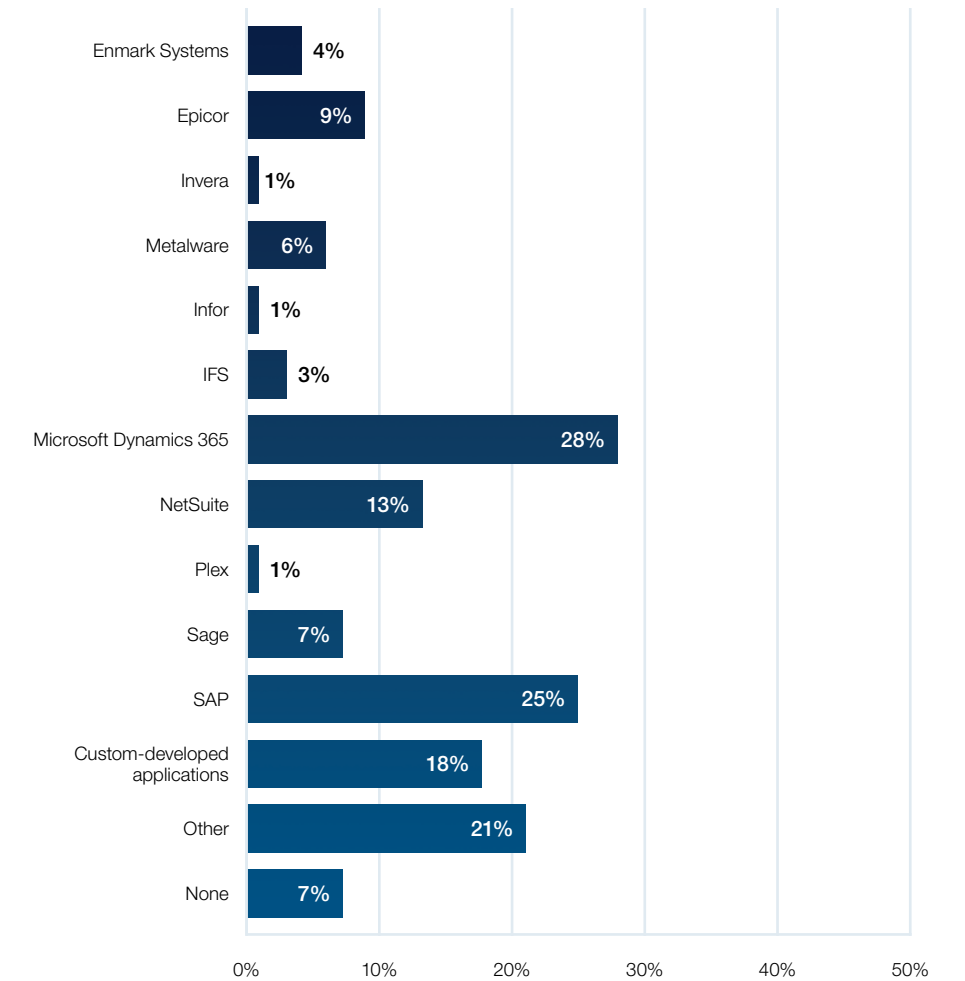




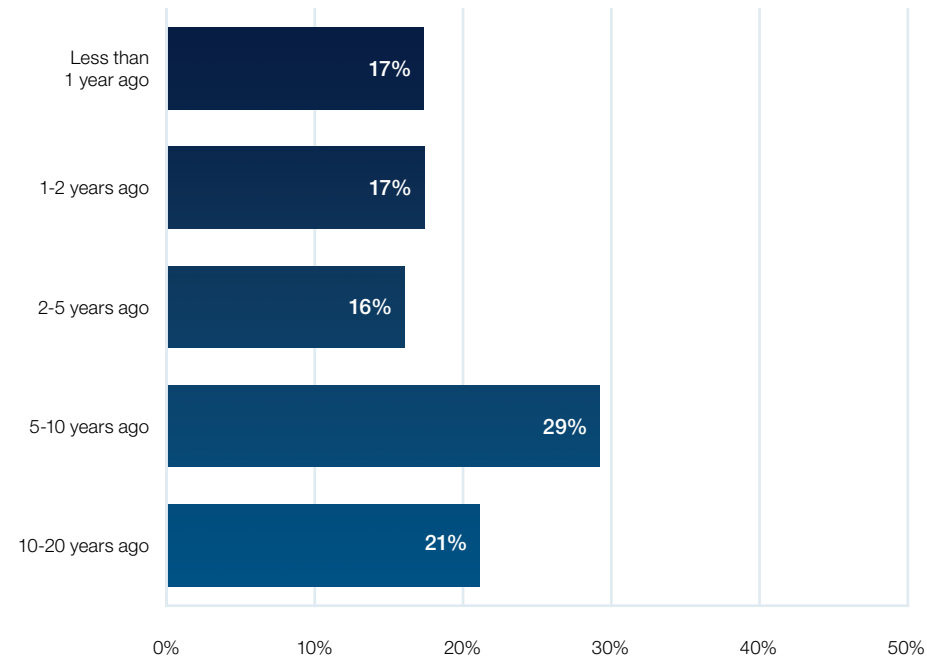
Question 10

What ERP providers and systems are currently in use at your company?

Participants could select multiple responses.



When was the last time you upgraded your ERP system or implemented a new ERP system?



Insider insight

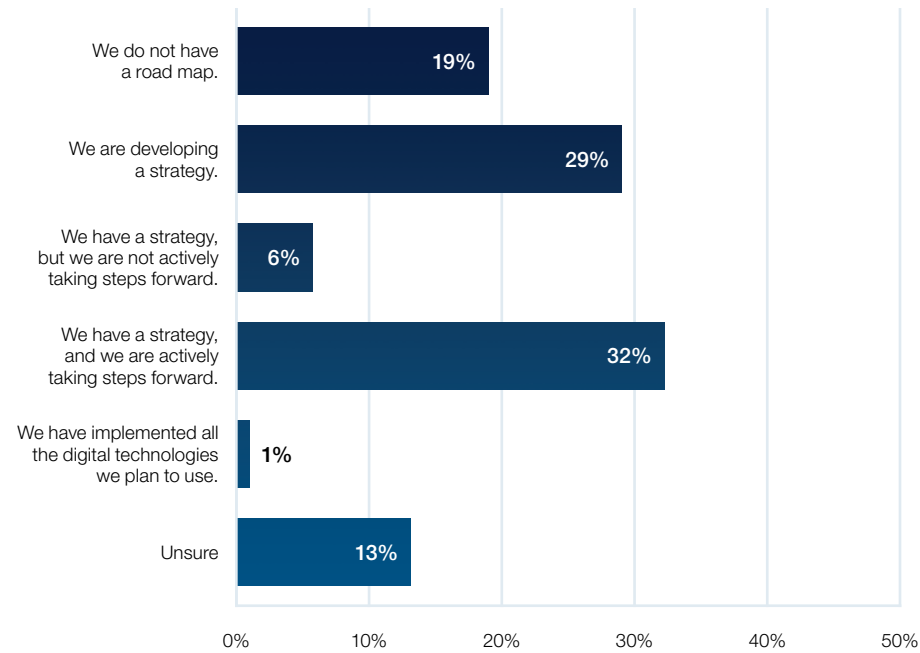
While 80% of respondents said they've implemented or upgraded their ERP system in the last 10 years, what can that group do to continue optimizing their systems?

Following are five ways to optimize an ERP system.

- Regular training and development**
 Provide employees with access to training, workshops, and seminars to educate teams about new updates and best practices.
- Performance monitoring**
 Conduct regular system audits to identify and resolve issues and measure efficiency and effectiveness based on key performance indicators.
- Data management**
 Regularly clean and update data for accuracy and relevancy, especially when new data has been integrated into the system.
- System updates**
 Update the ERP software to make sure it's operating on the latest version with the newest features and security patches.
- Continual improvement and customization**
 Establish a feedback loop to identify areas of improvement and benchmark the system's performance against industry standards.



Where are you on your digital transformation road map?



Insider insight

One common misconception about digital transformation is that the process is linear and leaders must follow a step-by-step order. The reality is that volatility is ever present, and metals companies on a digital transformation journey are often thrown off course, which prompts a reevaluation of next steps.

Changes such as an acquisition, a shift in the economy, or a pandemic, to name a few, can distract attention from technology implementations. How can a company get back on track once those disruptions have settled?

Following are three strategies for continuing a digital transformation journey, especially amid volatility.



Establish clear and defined goals

It can be easy to get caught up in the weeds of an ongoing process such as digital transformation. When disruptions occur, it can be difficult to get back on track if leaders are unsure about their desired destination. Setting goals can provide a helpful perspective for leaders in determining next steps.



Set aside time for regular check-ins

Whether a company has undergone an acquisition or is in the middle of a big technology implementation, it's critical for executives to take a step back and evaluate where they are in the process compared to the goals they're working to achieve. The accelerated rate of technology development might mean leaders must make changes to their digital strategy in real time.



Consider the various on-ramps

Digital transformation doesn't have to happen in linear steps. If a company gets sidetracked by a disruption, it can get back on track through various on-ramps. On-ramps can include a large ERP implementation or adopting a generative AI tool.





Technology implementation: An ongoing process

While data indicates that about half of metals companies have upgraded their ERP systems in the last five years, the journey of digital transformation continues. If companies aren't continually evaluating their progress, they could lack the agility needed to stay competitive, even if some are currently ahead of the curve.

Discovering opportunity

Digital transformation doesn't have to be intimidating or laborious. Leaders should set goals, create a road map, and start taking steps forward. Once companies have clarity on where they're going and an idea of how to get there, everyone can explore possibilities along the way.

Transformation doesn't often occur through a rigid series of steps. Most of the time, companies need a little wiggle room to try something new while staying inside a set of boundaries.

Automation and data

Realizing what technology can do

The journey of digital transformation might involve some twists and turns, but metals leaders seem committed to discovering how to use technology to their advantage.

Metals leaders are experiencing the benefits technology can offer, from the impacts automation can have on production, sales, and customer service to how data can inform decision-making.

Survey responses about where their companies experience the greatest effect from automation are surprising compared to previous years' responses about where leaders believed automation would have the greatest effect.

Using data to drive decision-making is now ubiquitous among metals leaders, but opportunities remain to realize new ways of using data to gain insights about customers, improve quality, or build a unique AI model.

49%

Respondents who said automation has had a significant impact on sales and customer service

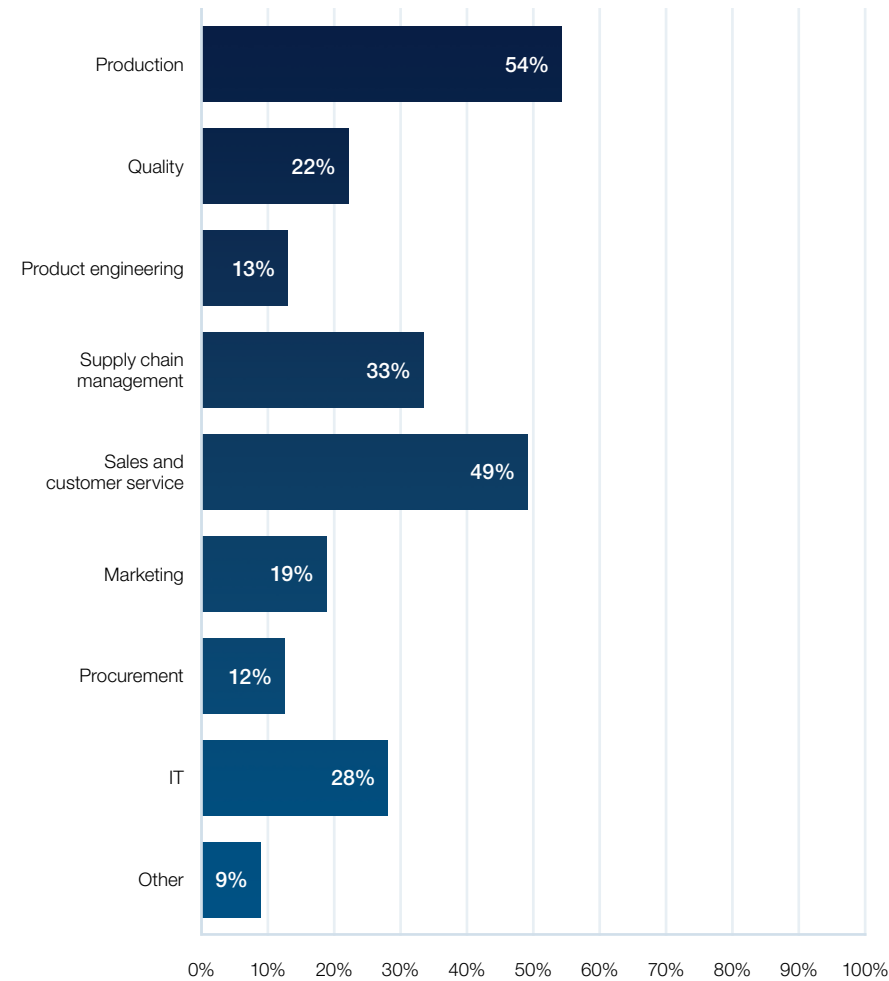
70%

Metals companies that are using data in the decision-making process



Please select the top three areas in which automation has had the greatest impact on your business.

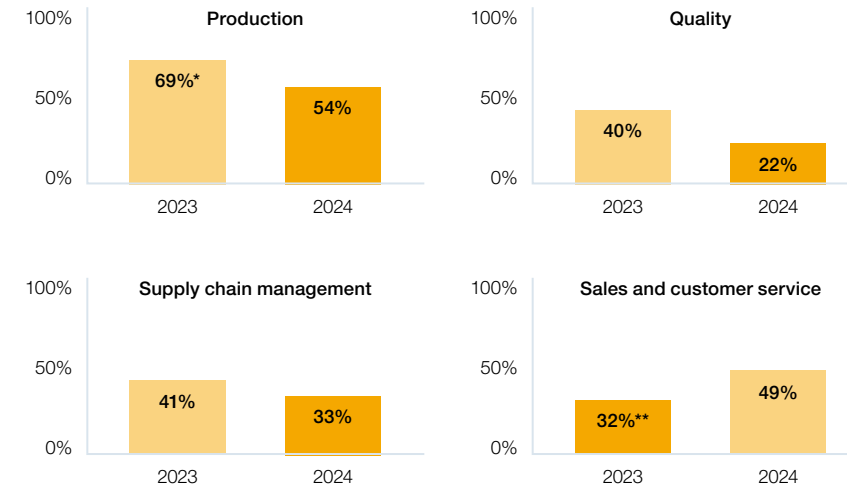
Participants could select multiple responses.



Industry trend

The 2023 survey asked metals leaders to select the top three areas where they thought automation could have the greatest impact, but is automation affecting the areas they predicted, based on 2024 results?

Where respondents thought automation could have a significant impact last year versus where respondents reported automation was making an impact this year:



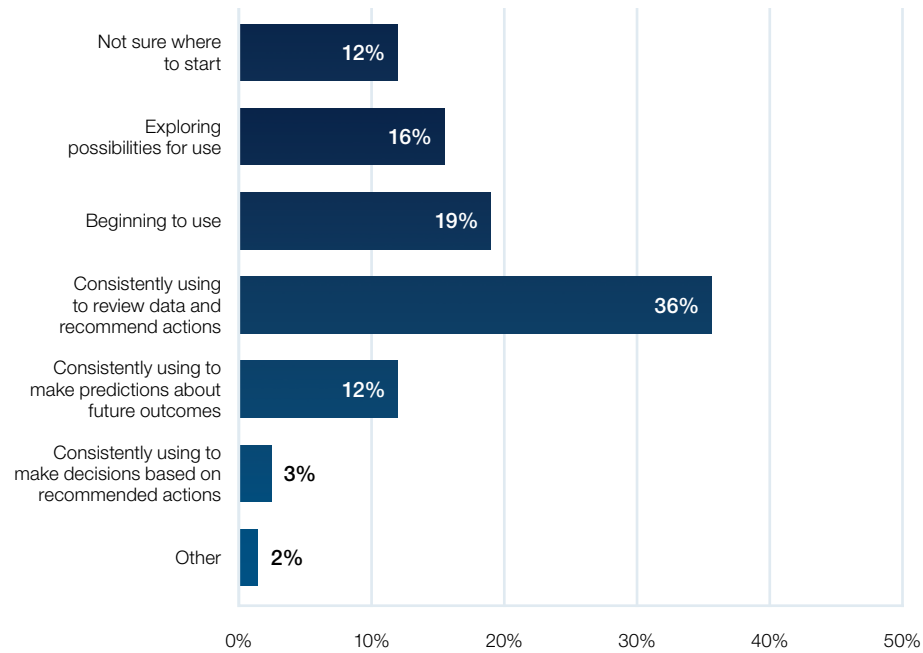
* This question included operations and production.

** This question included sales and marketing, not customer experience.

Survey results do not demonstrate a direct correlation between the areas where respondents thought automation could have an impact and the areas where automation has had the greatest impact. **However, the data suggests that metals leaders should take a second look at where technology is making an impact compared to where they thought it might.**



Please select the statement that best describes your company's use of business data analytics tools for decision-making.



Insider insight

Using data to inform decision-making is no longer a differentiator for metals companies, but how can leaders use data to gain a competitive edge?

Following are five strategies for going beyond simply collecting and analyzing data.

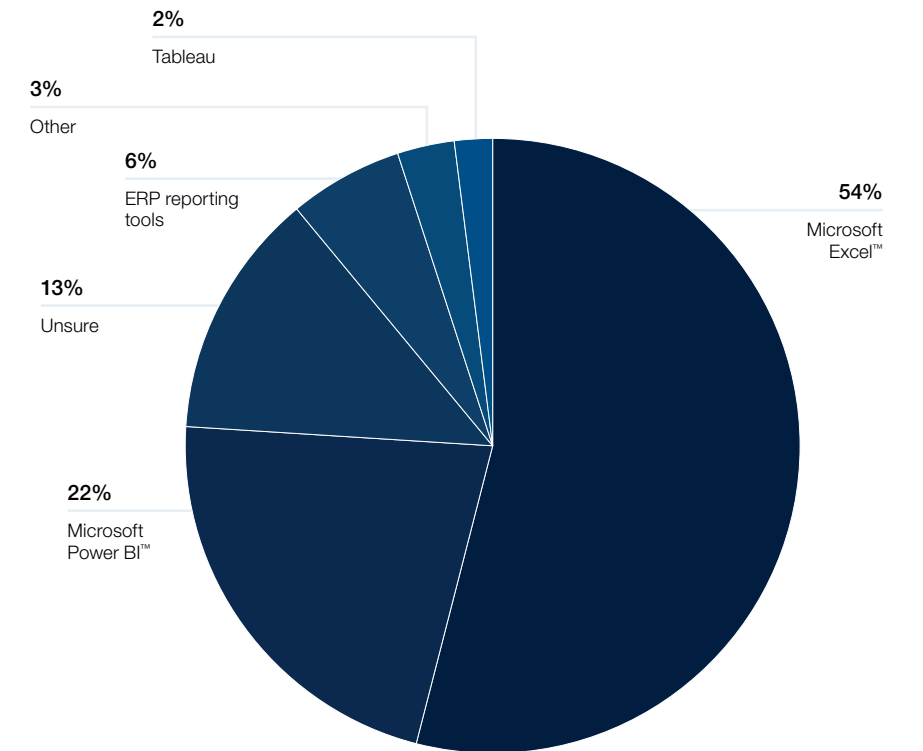
- Predictive analytics**
 Use ML to help **forecast demand, sales, and market trends** and make more accurate decisions ahead of time.
- Customer personalization**
 Make **product or service recommendations** based on behavior and preferences and create personalized marketing campaigns.
- Empowered employees**
 Don't limit which team members can use data. Maximize effectiveness by educating all employees on how to use it in their **day-to-day work**.
- Scenario simulation**
 Use **simulation tools** to explore different scenarios and the potential effects they might have before making decisions.
- External data**
 Integrate information from **market reports, competitor analysis, and economic indicators** to get a more comprehensive view.





Question 15

What is the most common provider or tool your nontechnical employees use for business data analytics?





Metals leaders and the effect of technology

Metals leaders are seeing the effect technology can have on their businesses, but perhaps not in the ways they expected. While companies realizing these benefits are gaining momentum, it's critical for executives to be open to discovering new and unique ways to use technology.

Discovering opportunity

Once metals companies have begun using technology tools like automation or data analytics, it's critical to keep exploring new possibilities and ways to use them. It's not enough to simply view data in easy-to-read formats. Analytics software has the capability to tie data points together and provide actionable insights.

To truly differentiate their business, leaders should identify what unique story their data tells and use it to make intentional decisions to move their companies further in that direction.

AI and advanced technology

Integrating lessons learned

The effect AI has had on the industry and the ramifications it likely will have on future productivity cannot be understated.

Although respondents cited the use of AI as a reason for increased technology investment, the number of metals companies currently using AI remains low. Only 22% of respondents said they're currently using AI, while 41% of respondents plan to use AI in the next five years.

One in four respondents said their companies are still investigating and learning about AI, and 28% of respondents said their biggest hesitation about using AI is not understanding it well enough.

While metals leaders might be motivated to implement advanced technologies, the data suggests a knowledge barrier between companies' intentions and actualizing their plans.

65%

Metals companies that plan to use at least one form of advanced technology in the next five years

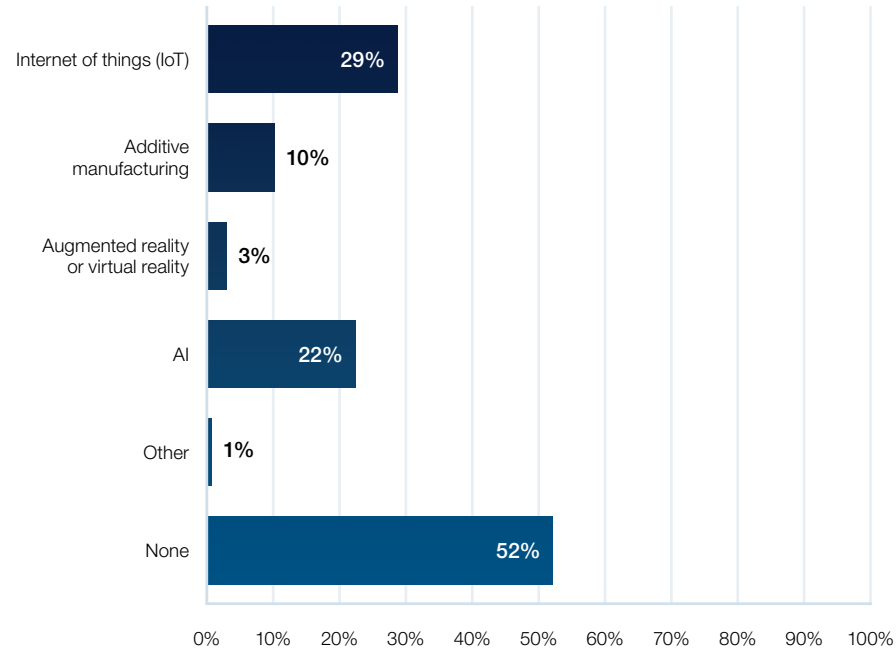
39%

Metals companies that are not using AI



Which of the following technologies and approaches are currently in use at your company?

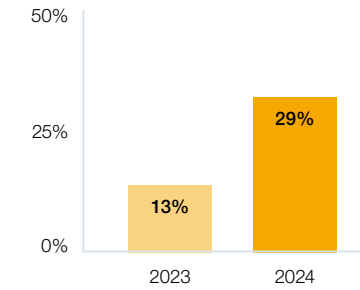
Participants could select multiple responses.



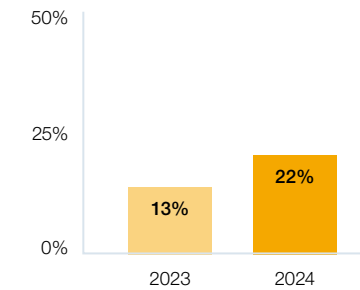
Industry trend

Metals companies are increasing their use of IoT and AI tools this year compared to last year.

Respondents who said they currently use IoT tools

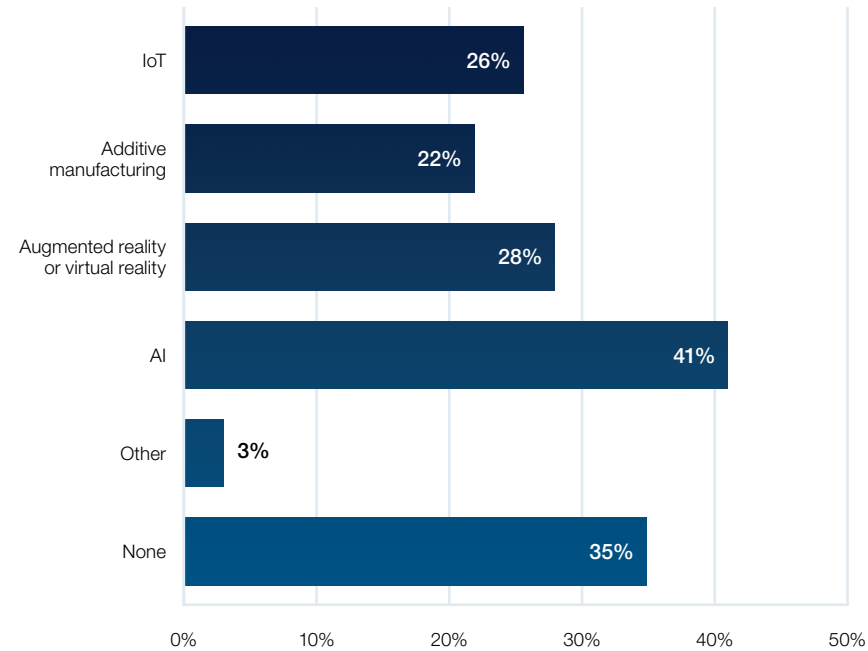


Respondents who said they currently use AI tools



Which of the following technologies and approaches are currently not in use at your company but that you plan to put in place within the next five years?

Participants could select multiple responses.



Insider insight

AI isn't a flash in the pan. Technology like blockchain might have made headlines and gained popularity, but the use cases for it were minimal, especially for metals companies. Use cases for AI, however, are much more expansive.

If a company isn't using AI or planning to use it within the next few years, they're already behind the curve. But how can leaders be more confident in taking steps toward using AI?

Following are three common steps to begin using AI.

Identify company challenges

Instead of asking, "How can we use AI?" leaders should be asking "What problems do we need to solve?" For example, executives might identify a need to improve the customer experience. Figuring out where solutions can benefit the company is a better strategy than searching for reasons to implement a specific technology.

Determine how AI might address those challenges

Once leaders have identified what problems they need to solve, they can pinpoint how AI might be able to help. For example, a chatbot might help improve the customer experience if customer questions elicit common answers. Depending on the problem, companies can use AI as a solution in various ways.

Discover AI tools with the necessary features

If leaders decide to use a chatbot to help answer customer questions, they must choose which tool to implement. Determining which tool to use can depend on features and usability.

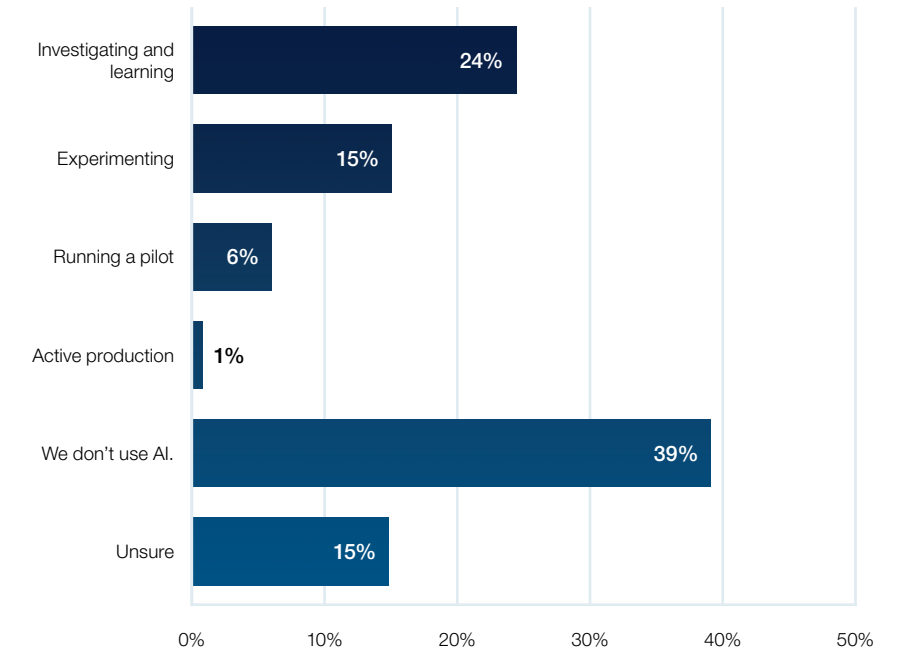
When to call a specialist: If leaders get stuck at any point, a team of specialists can help. Often, executives choose to bring in outside expertise when they need help determining how AI can solve a problem or when they are unsure what tools might be the right fit for their needs.



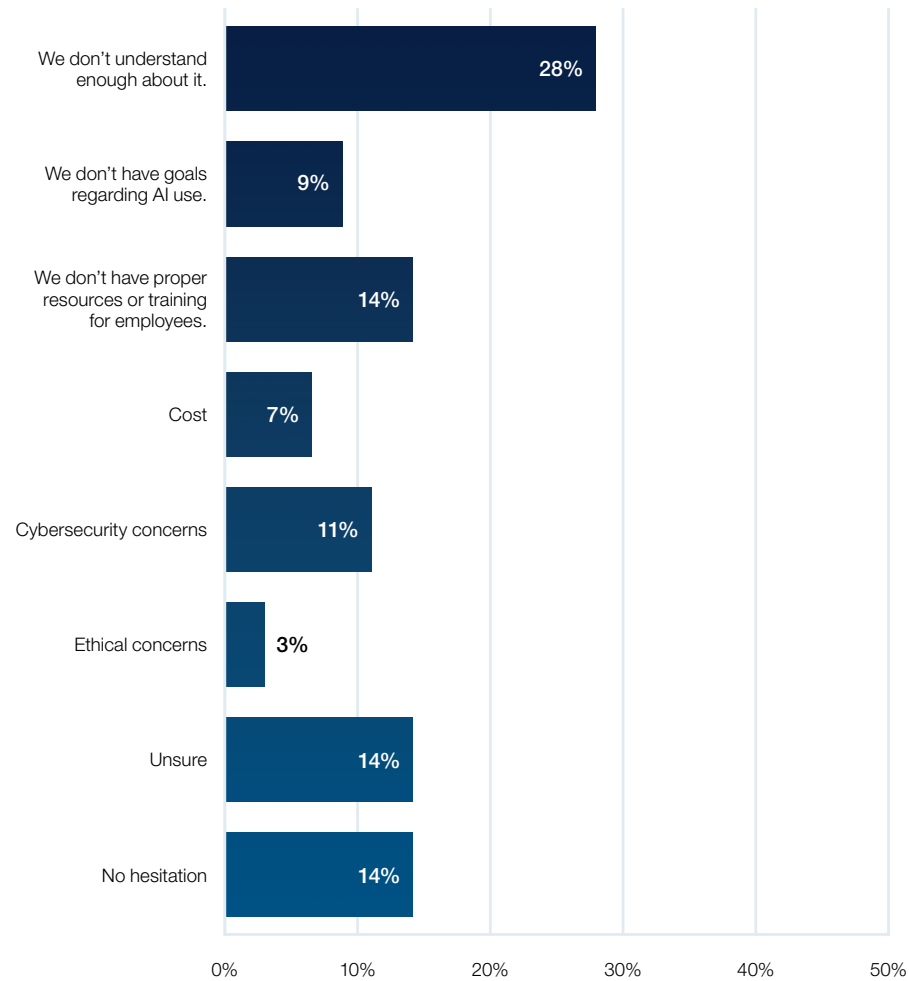


Question 18

How is your company currently using generative AI?



What is your number one hesitation about using AI?



Insider insight

Sixty-three percent of metals companies are not actively using AI, and more than a quarter of respondents stated a lack of understanding about AI as their number one hesitation for using it. What do metals leaders need to know about AI before starting to use it?

Following are five essential elements metals leaders should know before using AI.

- Understand the **basics of AI**, including the distinction between AI, ML, and deep learning and know key terms such as algorithms, models, training, and inference.
- Become familiar with the **common applications of AI**, such as chatbots for customer service, recommendation systems in e-commerce, automated image recognition, and predictive analytics.
- Understand **what data is needed**, how it is used, and the importance of data quality.
- Increase awareness of **ethical considerations**, including bias in AI models and privacy issues.
- Gain an understanding of the **limitations and challenges of AI** technologies, such as dependency on large amounts of data and the costs associated with developing and maintaining AI systems.

It can be easy to get lost in the sea of information, but once leaders have a basic comprehension of these five items, they can run a pilot.





AI: An opportunity to innovate

While many metals companies are actively investing in and using AI tools, most have yet to integrate AI into the operations process. The data indicates metals leaders are hesitant to move forward due to the risks and unknowns associated with AI. Perhaps the best way to uncover how to use it is not to wait for someone else to figure it out but rather to simply begin and learn along the way.

Discovering opportunity

The possibilities with AI might seem endless, but learning how to take full advantage of it is not an impossible undertaking. Leaders should review company goals and challenges and begin asking the question, “How might AI be able to help the company move forward?” or “How might AI be able to help solve this problem?”

AI might still be new, but it is possible to integrate it gradually to give users exposure to the tool while minimizing risk.

3 strategies for embracing technology volatility

The accelerated rate of technology development can create an intimidating and volatile environment for metals leaders navigating digital transformation. Often, more questions emerge than answers, but even amid an ever-changing technology landscape, metals leaders can uncover valuable opportunities.

Following are three strategies to help metals leaders embrace technology volatility.



Focus on a clear end goal for the business

Outside of the technological landscape, leaders should set clear and defined goals for where the business is heading. Knowing where leaders want to be tomorrow is critical for making decisions today.



Establish a process for what happens when technology changes

The question is not if the technology landscape will change but how it will change – and what it means for metals businesses. Having a plan in place to respond to changes can help companies stay ahead of the curve.



Keep doing the same thing – but with technology

The metals industry has faced price volatility for years, and metals leaders likely are well-versed in responding to change and disruptions regularly. Fortunately, the tools and skills used to navigate volatility in the market can be applied to navigating volatility in technology.



Resources



Metals 4.0 insights

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Technologies such as cloud computing, AI, and ML create efficiencies and can help cut costs for forward-thinking companies. Learn how to apply these powerful strategies to accelerate business growth by reading Metals 4.0 insights from Crowe specialists.



Crowe Metals Accelerator and Dynamics 365

Crowe Metals Accelerator, built on Dynamics 365, is a specialized metals ERP solution with the power to transform your business.

Whether you want to improve operations, better manage costs, or grow your company, you need the ability to adjust rapidly without cutting into your bottom line. Crowe Metals Accelerator is a scalable, robust metals ERP cloud solution that directly addresses the unique business demands of metals companies.



AI workshop

Getting in the game with AI can be daunting, but training your team can help you make more confident decisions about investing in and using AI.

Our team at Crowe combines decades of metals industry experience with our deep technical knowledge to bring unbiased advice to metals leaders. If you're interested in learning more about how to make successful AI investments, we are prepared to work with you and deliver a vendor-agnostic educational workshop for your company.



Have questions?

I'll do my best to answer those for you.



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Endnote

¹ “Shields Up: Guidance for Families,” Cybersecurity and Infrastructure Security Agency, accessed June 2024, <https://www.cisa.gov/shields-guidance-families>



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About the survey

This year's online survey elicited responses from senior executives and managers across the global metals industry. Respondents represented various metals-based companies, including manufacturers, service centers, mills, scrap recyclers, producers, and processors, with annual revenues from less than \$25 million to more than \$1 billion.

