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Stay Ahead of the AI Game

Transform your supply chain management and outperform the competition

With this report, we aim to offer a comprehensive understanding of how AI is shaping the future of supply chains and what it means for businesses striving to remain competitive in a rapidly evolving market. We examine the role of AI in companies' strategic agendas, as well as the benefits and challenges encountered by respondents.

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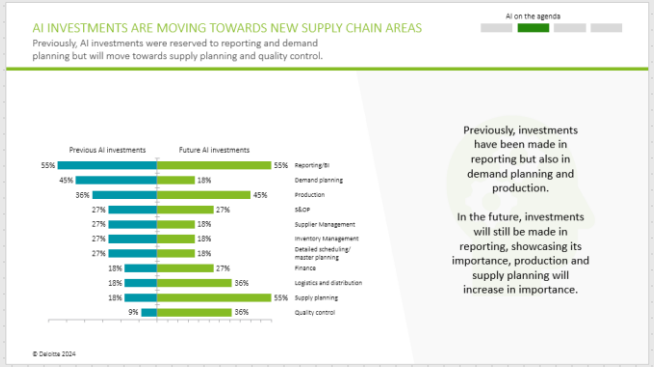
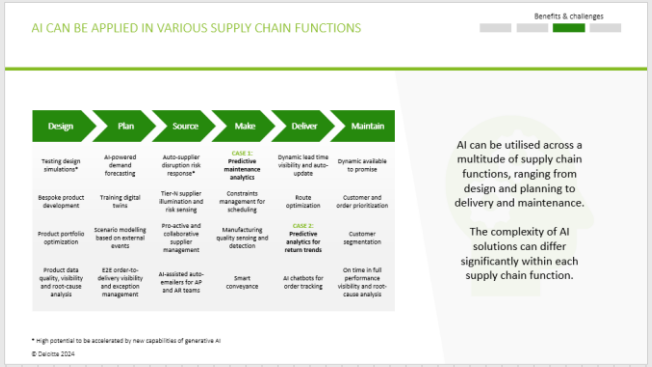
KEY TAKE-AWAYS

Significant differences between encountered- and anticipated challenges have been identified, indicating areas where the scale of future issues may be underestimated.

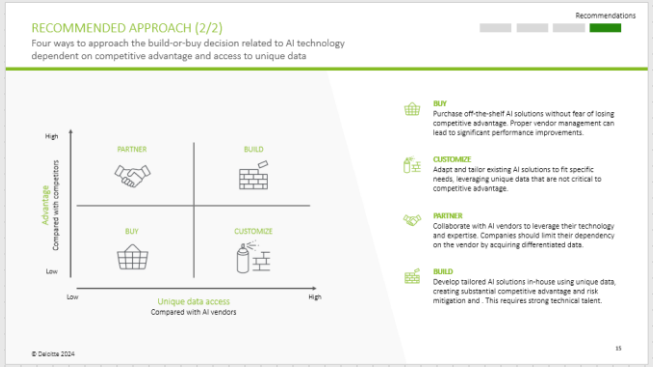
Shifting AI trends in supply chains …



… offer new possibilities …



… requiring a differentiated approach



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THERE IS A POSITIVE DEMAND TREND FOR AI TECHNOLOGIES

We can see a significant positive trend in the adoption of AI, suggesting a growing confidence in its potential benefits.

95% of respondents believe their companies are likely to invest in AI within their supply chain in the next 3 years

Over the past three years, the investment landscape has been balanced with 52% of respondents indicating that their companies have invested in AI, and 48% reporting no such investments.

The outlook is more optimistic as 82% of respondents whose companies have already invested in AI believe they will continue these investments in the next three years.

Additionally, half of the respondents whose companies have not invested in AI believe they will start investing in AI in the next three years.

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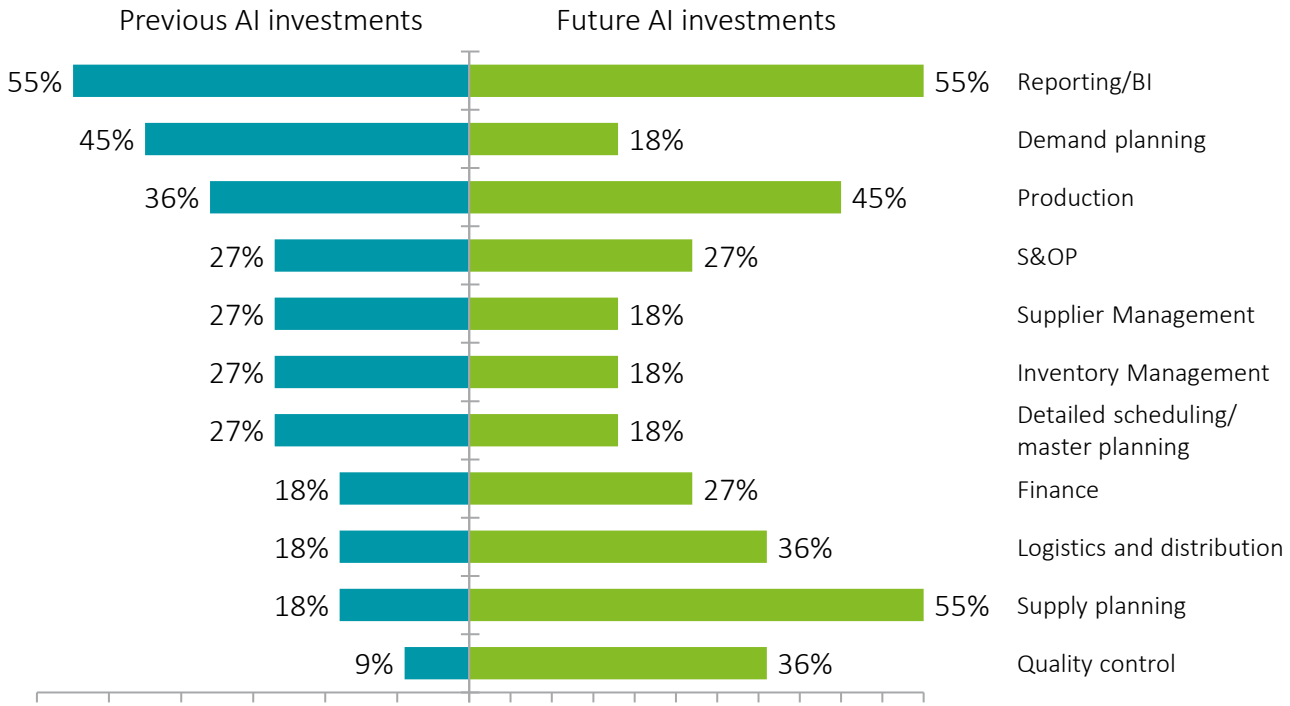
AI INVESTMENTS ARE MOVING TOWARDS NEW SUPPLY CHAIN AREAS

Previously, AI investments were reserved to reporting and demand planning but will move towards supply planning and quality control.



Previously, investments have been made in reporting but also in demand planning and production.

In the future, investments will still be made in reporting, showcasing its importance, production and supply planning will increase in importance.

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THE ATTITUDE TOWARDS AI IS GENERALLY POSITIVE

While supply chain professionals generally have a positive attitude towards the technology, it also gives rise to many questions.

63% of company's have incorporated AI in their current leadership team's agenda

93% of Supply Chain experts agree that their companies supply chain can be enhanced through AI

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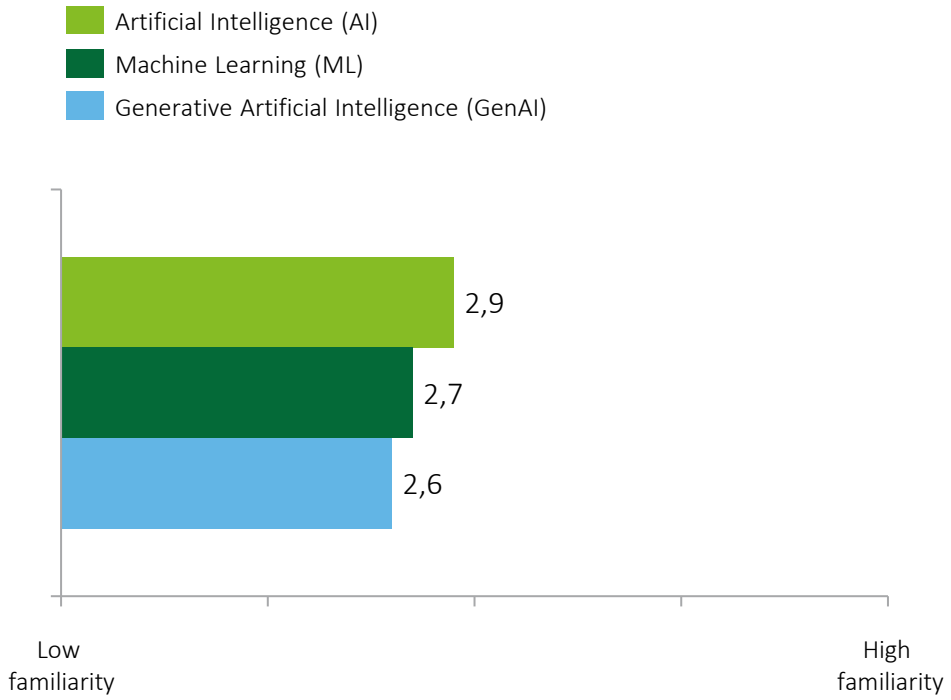
SUPPLY CHAIN PROFESSIONALS LACK KNOWLEDGE OF AI

Despite an industry-wide AI hype, many supply chain professionals are not very familiar with AI and its difference to Machine Learning



Artificial Intelligence (AI)
The ability of machines to perform tasks that would normally require human intelligence. This includes data processing, robotics, and problem solving.

Machine Learning (ML)
The training of algorithms to learn from data and make predictions or decisions.

Generative AI (GenAI)
The generation of new content, such as images or text, using AI.

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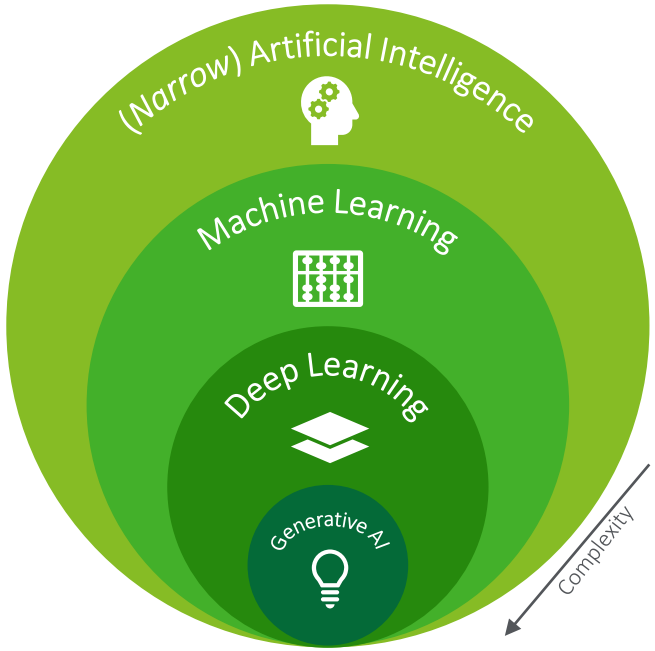
ARTIFICIAL INTELLIGENCE INCORPORATES MULTIPLE ASPECTS (1/2)

As a branch of computer science, AI aims to create systems that can perform tasks typically requiring human intelligence.



(Narrow) artificial intelligence

(Narrow) artificial intelligence is a type of AI that is designed to excel in a specific task or a limited set of related tasks. This makes it highly specialized and efficient in performing those tasks, but it is not versatile and cannot adapt to new tasks outside of its predefined scope without additional programming.

Some examples include recommendation systems, which are used to suggest products or services based on a user's preferences and behavior. Image recognition is another example, where AI is used to identify objects or people in images. Spam filters are also an example, which are used to identify and filter out unwanted emails.

Advanced Analytics is another example, which is used to analyze large amounts of data and provide insights and predictions. While (narrow) AI is limited in its scope, it can be highly effective in performing specific tasks and improving efficiency in various industries.

Machine learning

Machine learning is a subset of AI that enables systems to learn from data and improve their performance over time without explicit programming. This is achieved by dynamically adjusting and refining the algorithms' performance with exposure to more data, allowing the system to adapt to new inputs and perform tasks with increasing accuracy without requiring explicit instructions to dictate its behavior. There are two main types of machine learning: supervised and unsupervised learning.

In supervised learning, the system is trained on labeled data, which means that the input data is already categorized or classified. The system then uses this labeled data to make predictions or decisions on new, unlabeled data. Unsupervised learning, on the other hand, involves training the system on unlabeled data and allowing it to find patterns and relationships on its own.

Advanced predictive analysis is another example of machine learning, which is used to analyze large amounts of data and make predictions about future events or trends.

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ARTIFICIAL INTELLIGENCE INCORPORATES MULTIPLE ASPECTS (2/2)

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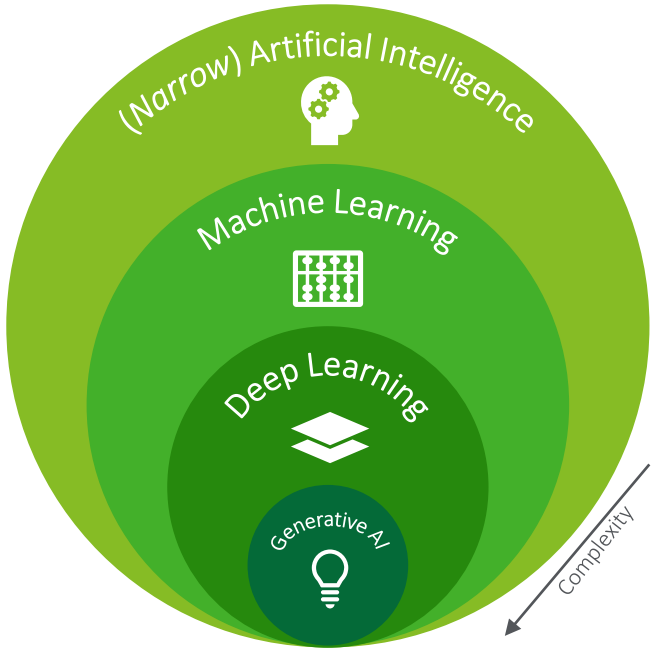

Deep Learning

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Generative AI

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AI CAN BE APPLIED IN VARIOUS SUPPLY CHAIN FUNCTIONS

Design	Plan	Source	Make	Deliver	Maintain
Testing design simulations*	AI-powered demand forecasting	Auto-supplier disruption risk response*	**CASE 1: Predictive maintenance analytics**	Dynamic lead time visibility and auto-update	Dynamic available to promise
Bespoke product development	Training digital twins	Tier-N supplier illumination and risk sensing	Constraints management for scheduling	Route optimization	Customer and order prioritization
Product portfolio optimization	Scenario modelling based on external events	Pro-active and collaborative supplier management	Manufacturing quality sensing and detection	**CASE 2: Predictive analytics for return trends**	Customer segmentation
Product data quality, visibility and root-cause analysis	E2E order-to-delivery visibility and exception management	AI-assisted auto-emailers for AP and AR teams	Smart conveyance	AI chatbots for order tracking	On time in full performance visibility and root-cause analysis

AI can be utilised across a multitude of supply chain functions, ranging from design and planning to delivery and maintenance.

The complexity of AI solutions can differ significantly within each supply chain function.

* High potential to be accelerated by new capabilities of generative AI

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DEEP DIVE INTO AI USE CASES IN SUPPLY CHAINS

Take an in-depth look into a few AI applications and their impacts to spark ideas for enhancing your own supply chain operations.

Case 1:

Driving safety and savings: how AI revolutionized maintenance issue detection through customer feedback

A major car manufacturer faced challenges sorting through a high volume of customer feedback on potential maintenance issues. Silos across functions hindered the quick collection and resolution of these issues. By implementing an AI "alert" system, the company identified critical issues, resulting in multimillion-dollar savings. Additionally, a generative AI assistant could prompt ideas for swift production fixes, enhancing overall benefits.

Case 2:

Revolutionizing package delivery: how IoT and AI transformed maintenance operations

A company that handles millions of daily packages relies on efficient facilities. However, machine breakdowns can disrupt operations, especially as the company's facility volume grew by nearly 30%. To address this, the company implemented Internet of Things (IoT) technologies, including ultrasonic inspection devices and sensors, paired with AI/machine learning. This proactive approach is expected to unlock almost 5% capacity and reduce equipment downtime by 20% to 30%, with over 30 predictive maintenance use cases. Additionally, the solution sets the stage for future IoT, AI, and big data initiatives.

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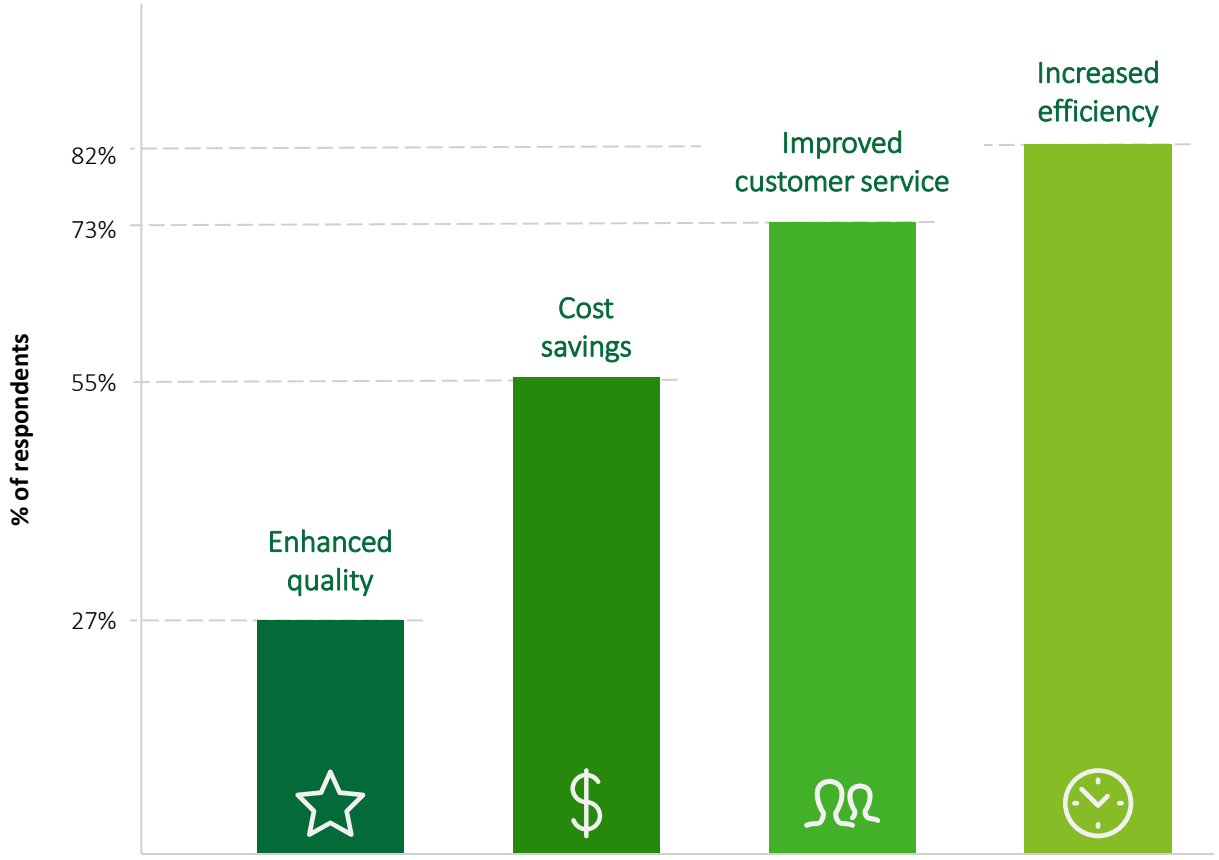
UNLOCKING THE BENEFITS OF AI IN COMPANY OPERATIONS

Our findings reveal that the integration of AI allows companies to benefit from cost savings, enhanced efficiency, customer service, and quality.



It seems AI has the biggest potential to increase efficiencies in diverse supply chain areas, followed closely by improved customer service in the deliver stage.

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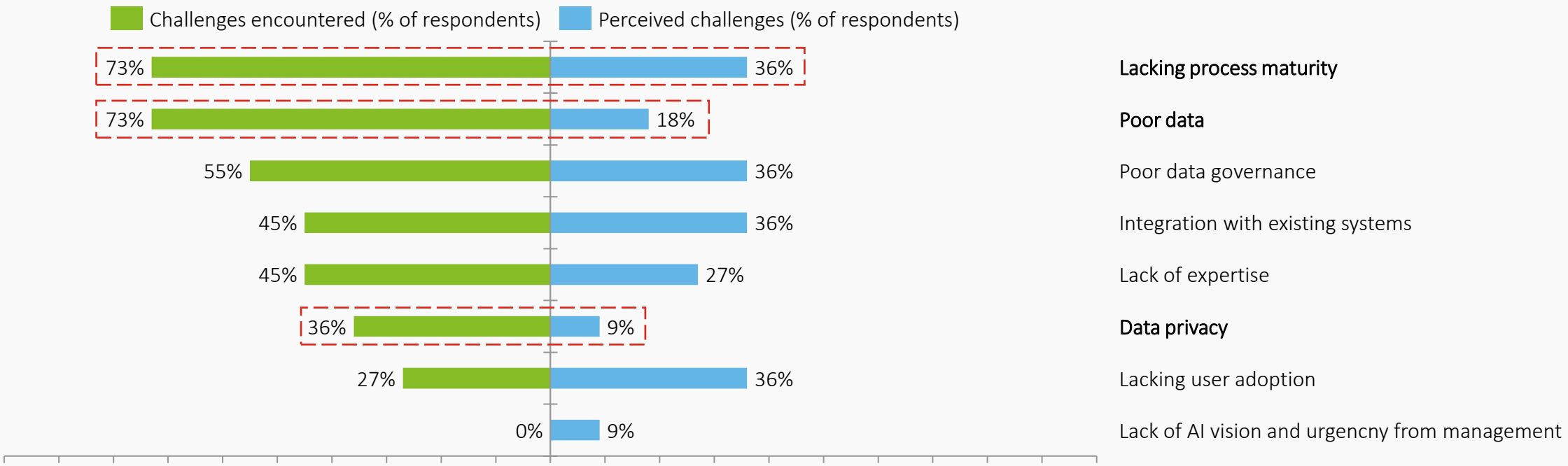
COMPANIES NEED TO BE AWARE OF POTENTIAL AREAS OF SURPRISE

Significant differences between encountered- and anticipated challenges have been identified, indicating areas where the scale of future issues may be underestimated.

While individuals from companies that have not yet invested in AI foresee certain challenges, there are significant discrepancies in certain areas between these perceived expectations and the actual challenges encountered by companies that have invested in AI.

These discrepancies highlight potential areas of surprise and help companies anticipate and address these challenges more effectively.



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RECOMMENDED APPROACH (1/2)

Five critical steps to facilitate a comprehensive approach to integrating AI into your supply chain

1. **STRATEGY AND ROAD MAP**
   As with any major initiative, a clear strategy and detailed road map is key. Sound strategic choices can make or break the implementation of AI for your supply chain.

2. **CHANGE MANAGEMENT AND ADOPTION / VALUE TRACKING**
   Employee trust and adoption are essential to realize value. Encourage adoption of AI solutions, and promote a robust and continuous system of tracking, reporting, and communication of adoption and value metrics.

3. **TECH STACK ENABLEMENT**
   Put in place a scalable, flexible architecture that supports data collection, modeling, and workflow integration. Poor tech stack development is more common than not and has long-term implications.

4. **DATA PREPARATION**
   Identify, capture, clean, and provide context for data to use in priority use cases. Data is typically segmented, incomplete, and inconsistent. The true value of raw data can only be extracted by AI if it is prepared correctly

5. **USE CASE ACTIVATION**
   Develop priority use cases that are business-minded and enable a self-funded AI program that can grow in impact. Use cases built solely for technology's sake typically flop and should be co-created with supply chain executives .

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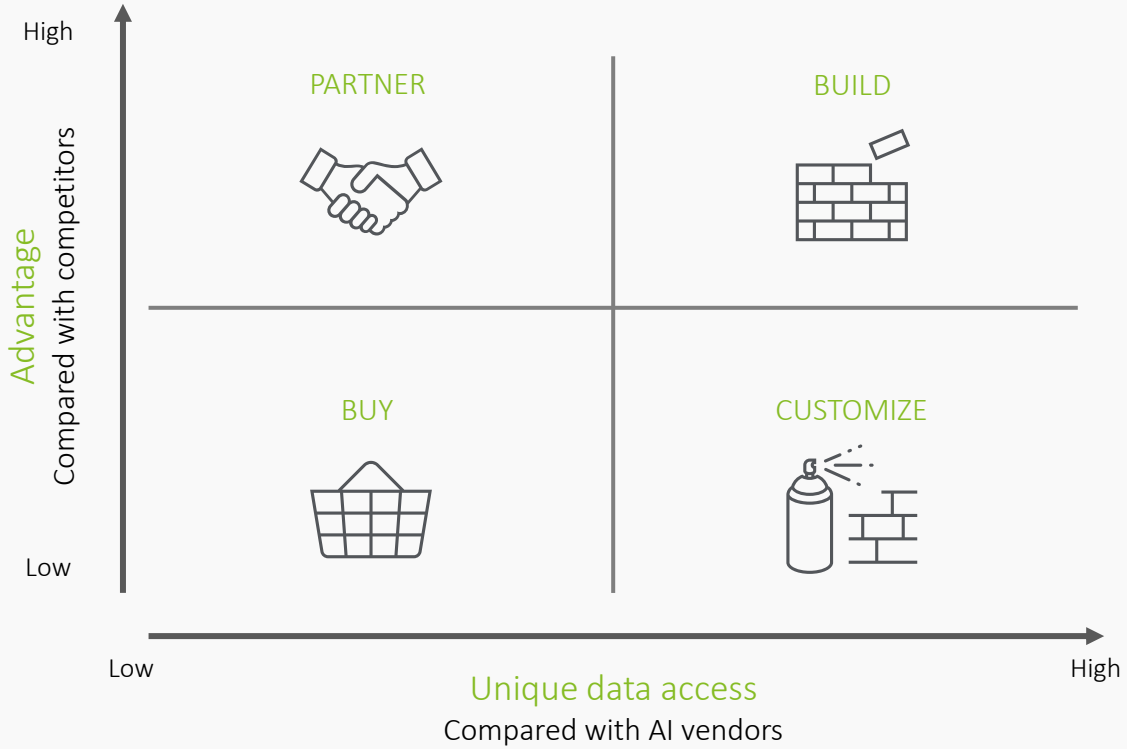
RECOMMENDED APPROACH (2/2)

Four ways to approach the build-or-buy decision related to AI technology dependent on competitive advantage and access to unique data



BUY
Purchase off-the-shelf AI solutions without fear of losing competitive advantage. Proper vendor management can lead to significant performance improvements.

CUSTOMIZE
Adapt and tailor existing AI solutions to fit specific needs, leveraging unique data that are not critical to competitive advantage.

PARTNER
Collaborate with AI vendors to leverage their technology and expertise. Companies should limit their dependency on the vendor by acquiring differentiated data.

BUILD
Develop tailored AI solutions in-house using unique data, creating substantial competitive advantage and risk mitigation and . This requires strong technical talent.

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