



Survey Report

How Today's Warehouses Are Incorporating AI and a Strategy For Greater Adoption

Executive Summary

This report is based on a survey of US supply chain, warehouse operations, and technology leaders across retail, food and beverage, consumer packaged goods, manufacturing, third party logistics, and automotive sectors. It examines where AI adoption actually stands today, what is genuinely driving investment, and what distinguishes organizations building durable AI strategies from those simply reacting to industry pressure.

Key Findings

Adoption is early-stage

- Over half of organizations are still evaluating or piloting AI rather than scaling it
- Nearly a quarter are not using AI today
- Only 10.6% describe AI as embedded across their operation

AI adoption is driven by practical problems: The top reason organizations explore AI is solving a specific operational challenge (35.2%), well ahead of competitive pressure or vendor recommendations.

Current use is mostly decision support, not autonomy

- AI is primarily used for reports and insights (31.3%)
- Just 2.5% say AI makes decisions autonomously

The biggest blockers are fundamentals: Budget (25%) and data quality (22.1%) are the top barriers to getting more value from AI.

Orchestration demand is growing

- 57.5% already coordinate AI across a few connected systems
- Cross-system orchestration is the #2 most requested future capability (22.1%)

Value delivered vs. opportunity ahead

- The leading value delivered so far is better operational visibility (33.3%)
- Autonomous decision-making is viewed as the greatest untapped opportunity (29.8%)

Human oversight remains the norm: Even as trust grows, 82.4% of operations teams still review AI recommendations before acting.

Warehouse AI adoption is happening in deliberate steps, and the best results come from starting with a clear operational problem. Adoption develops as organizational AI maturity increases, but authority remains a use-case decision: this isn't a race to maximum autonomy. Strong operations decide what to delegate, what to automate, and what must remain human-governed, then reassess as confidence grows.

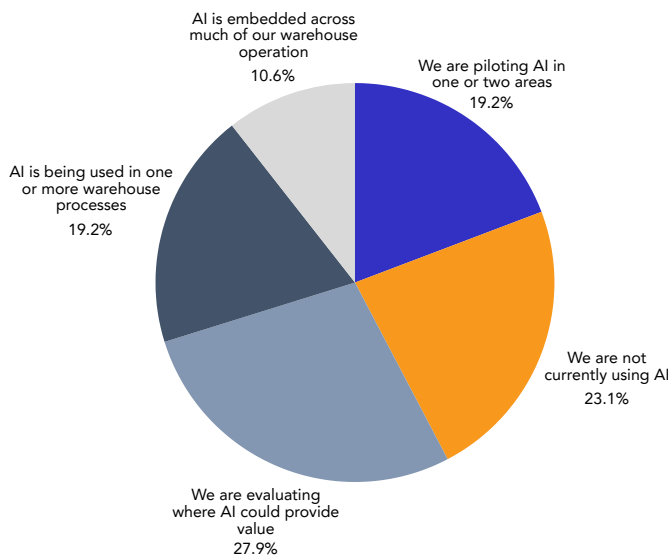
Short on time? Jump to “Best Practices for Moving Forward” on page 15



Where Warehouse AI Stands Today

The survey found that nearly half of respondents have not moved past the evaluation or early piloting stage. This includes the 27.9% still evaluating where AI can add value and 19.2% piloting AI in one or two areas. Another 19.2% say AI is being used in one or more warehouse processes while 10.6% say AI is embedded across much of their operation. A surprising 23.1% are not currently using AI at all.

Which best describes your organization's current use of AI in warehouse operations?



This pattern lines up with broader research on the same topic. A [2026 Boston Consulting Group analysis](#) found that only about 10% of logistics providers have scaled AI across their core operations, a figure that closely tracks the 10.6% of warehouse leaders in this survey who describe AI as fully embedded.

The survey also shows that AI use appears to climb alongside operational complexity, with companies managing more locations tending to have more mature AI programs. This suggests that operational scale is one of the strongest predictors of how far along a company is in its AI journey.

As warehouse networks become more complex, organizations increasingly need technology capable of coordinating inventory, labor, transportation, and fulfillment activities across multiple facilities. Those operational demands naturally create stronger opportunities for AI-driven visibility, orchestration, and decision support than many smaller, single-site operations require today.

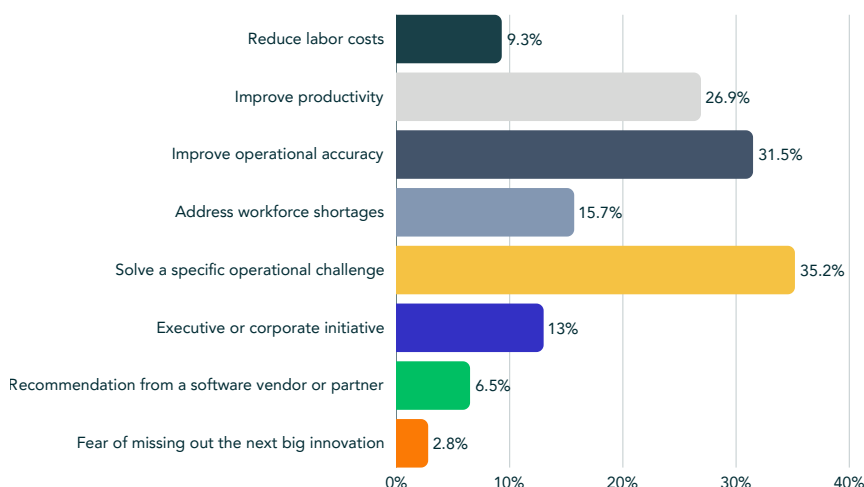
One important takeaway emerges from these findings: warehouse leaders are not resisting AI; they are approaching it deliberately. Most organizations are progressing through a measured adoption journey, validating business value before expanding into broader deployments. That cautious approach becomes even more apparent when examining what is actually motivating organizations to invest in AI in the first place.



What Is Actually Driving Adoption

When asked what initially drove their organization to explore AI, respondents pointed overwhelmingly to practical, operational reasons rather than trend chasing. Solving a specific operational challenge was the top driver at 35.2%, followed by improving operational accuracy at 31.5% and improving productivity at 26.9%. Addressing workforce shortages came in at 15.7%, and executive or corporate initiative accounted for 13%. Notably, reducing labor costs was cited by just 9.3% of respondents. Vendor recommendations drove just 6.5% of adoption decisions, and fear of missing out on the next big innovation ranked lowest of all, at only 2.8%.

What initially drove your organization to explore AI?



Successful AI initiatives begin with a clearly defined operational problem, not technology for technology's sake. Organizations that treat AI as a tool for augmenting their existing operations, improving accuracy, and increasing productivity are far more likely to achieve measurable returns than those chasing trends. The more durable question isn't whether AI can replace a task or role, but where it can strengthen the operation as a whole.

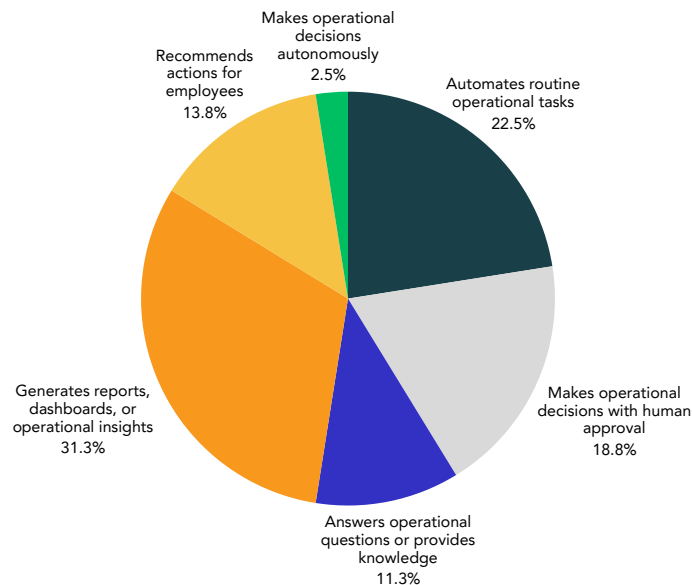
"Reducing headcount was the least common reason organizations adopted AI, cited by just 9.3%. What actually drives adoption are a specific operational challenge, improving operational accuracy, and increasing productivity."



AI Today: Decision Support, Not Decision Maker

Warehouse AI today is overwhelmingly a decision support tool rather than a decision maker. Asked what AI does in their warehouse now, 31.3% of respondents said it generates reports, dashboards, or operational insights, and 22.5% said it automates routine tasks. Only 18.8% said AI makes operational decisions with human approval, and a mere 2.5% said AI makes decisions autonomously.

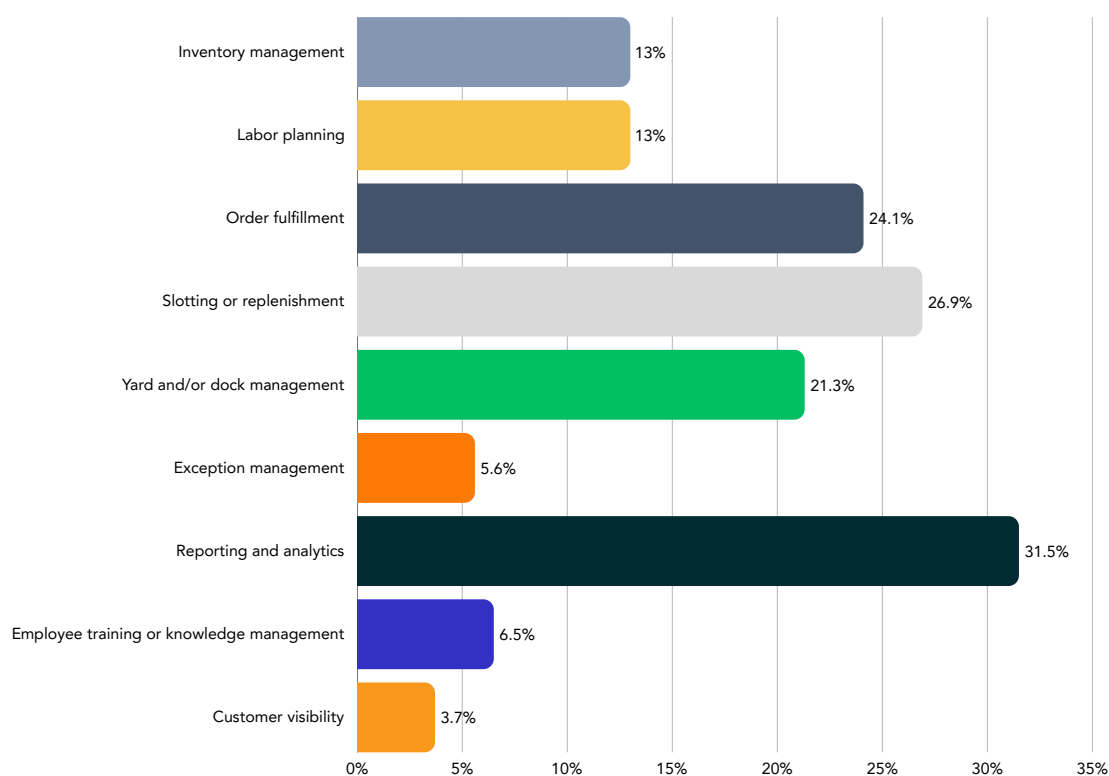
Which statement best describes what AI does in your warehouse today?



The survey's findings on where AI is currently being deployed provide additional context. Reporting and analytics is the most common application, cited by 31.5% of respondents, followed by slotting or replenishment at 26.9% and order fulfillment at 24.1%. Yard and/or dock management accounted for 21.3%, while inventory management and labor planning each accounted for 13%. Other applications included employee training or knowledge management at 6.5%, exception management at 5.6%, and customer visibility at 3.7%.



Where is AI currently being used within your warehouse operations?



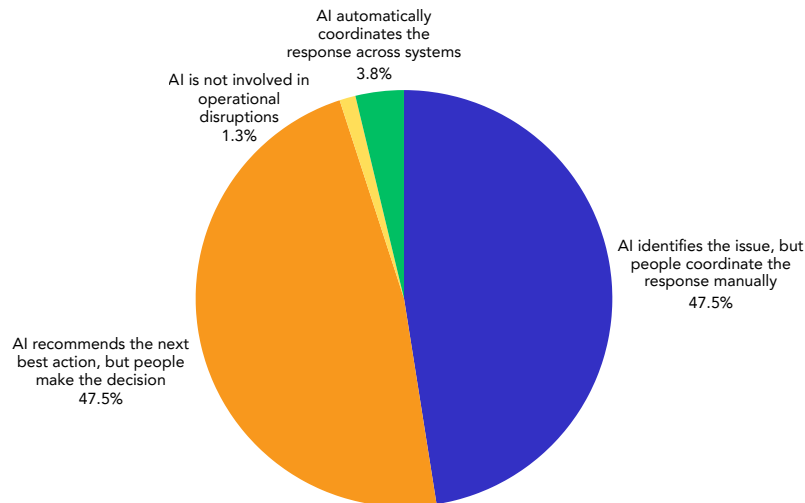
The distribution suggests that AI adoption is currently concentrated in areas where organizations can improve visibility, analyze information, and optimize specific warehouse processes rather than hand over broad operational control. Reporting and analytics, slotting and replenishment, and order fulfillment are all areas where AI can provide recommendations or automate defined activities without requiring organizations to relinquish overall decision-making authority.

How AI Performs Under Pressure

The same pattern holds when something actually goes wrong. When an operational disruption occurs, such as an inventory shortage, labor issue, delayed shipment, or equipment failure, 47.5% of respondents said AI identifies the issue but people coordinate the response manually, and another 47.5% said AI recommends the next action while people still make the final call. Just 3.8% said AI automatically coordinates the response across systems.



When an operational disruption occurs (inventory shortage, labor issue, delayed shipment, equipment failure, etc.), what role does AI typically play?



The current state of warehouse AI therefore points to a measured progression. Organizations are applying AI to specific processes where it can improve visibility, efficiency, accuracy, and decision support, while human employees continue to oversee broader operational decisions. The survey's findings on trust, human oversight, current business value, and future potential provide a clearer picture of what that progression could look like.

Those findings are explored later in the report, where the data shows not only where organizations are realizing value from AI today, but also what capabilities they believe offer the greatest opportunity for the future.

47.5%

AI identifies the issue, but people coordinate the response manually

47.5%

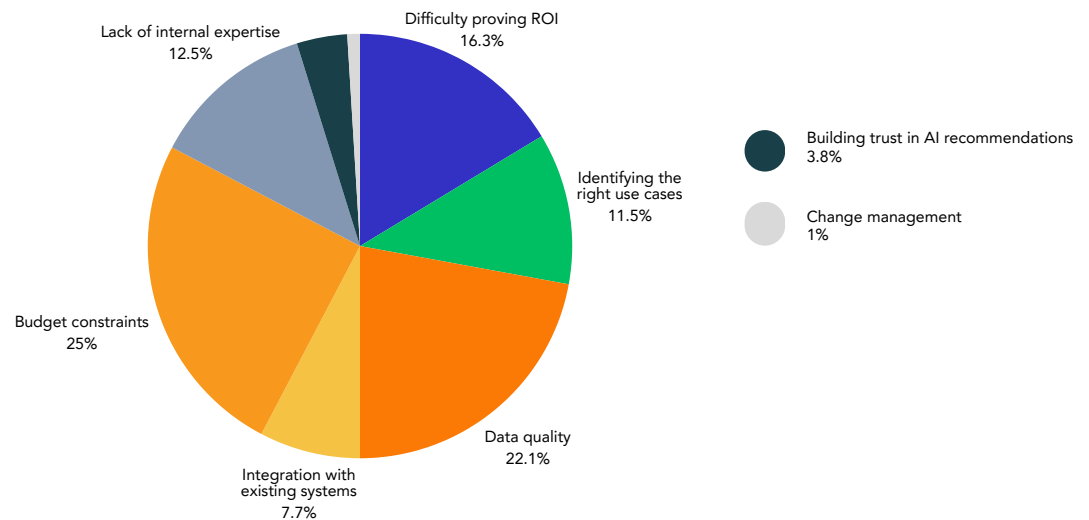
AI recommends the next action, but people still make the final call



Data Quality: The Barrier That Will Not Go Away

Budget constraints topped the list of obstacles preventing organizations from implementing or getting more value from AI, cited by 25% of respondents. Data quality followed closely at 22.1%, ahead of difficulty proving return on investment at 16.3%, lack of internal expertise at 12.5%, and difficulty identifying the right use cases at 11.5%.

What is the biggest obstacle preventing your organization from implementing and/or getting more value from AI?



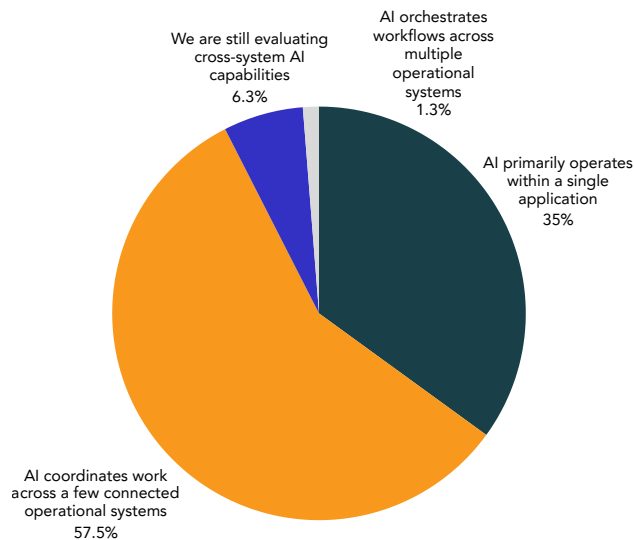
Data quality's persistence near the top of this list is notable given how long it has been a known issue in enterprise technology circles. Gartner has projected that 60% of AI projects unsupported by properly prepared data will be abandoned, underscoring that the typical obstacle to AI success is the underlying data rather than the model itself.

For warehouse operators, this points to a clear best practice. Before investing further in new AI capability, organizations should audit the quality, structure, and accessibility of the data already flowing through their other systems, since AI recommendations are only as reliable as the data feeding them.



Building a Technology Strategy That Can Grow

How broadly does your AI coordinate and optimize work across your operational systems?



One of the more encouraging findings in the survey is how respondents think about coordination across systems. Currently, 57.5% say their AI coordinates work across a few connected operational systems, while 35% say AI still operates primarily within a single application. Looking forward, orchestrating decisions across multiple systems, such as warehouse management, transportation management, labor, robotics, and automation platforms, was the second most requested future capability at 22.1%.

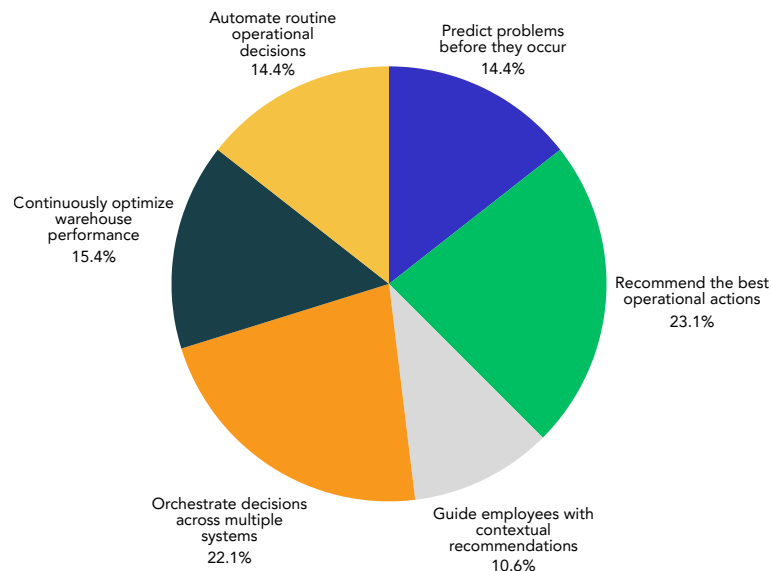
22.1%

of respondents named
orchestrating decisions across
multiple systems as the capability
they most want AI to provide next



This points toward a broader industry shift away from single purpose point solutions and toward platforms built for expansion and integration. As AI moves beyond individual use cases such as reporting, slotting, replenishment, and fulfillment, the ability to connect information and coordinate activity across operational systems will become increasingly important.

Looking ahead, what is the next capability you want AI to provide in your warehouse that it isn't today?



As one supply chain technology panel recently put it in [Logistics Management's 2026 technology roundtable](#), the objective for warehouse operators should be best practice design regardless of vendor, using modern integration standards, shared data access, and control tower visibility to avoid becoming locked into a single vendor's technology stack as needs evolve.

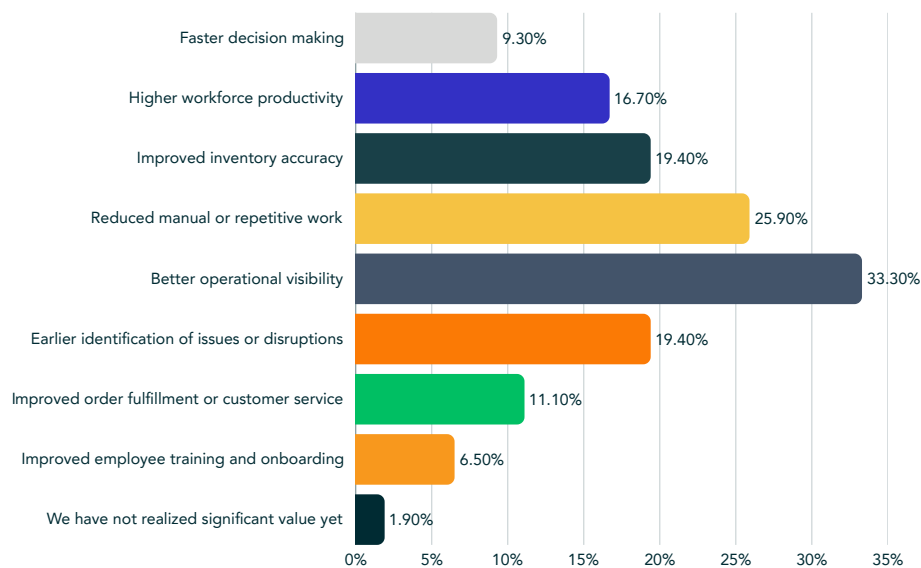
The practical takeaway is straightforward. Organizations evaluating AI platforms should prioritize vendors whose systems can grow alongside them, expanding from a narrow starting point, such as visibility or reporting, into broader orchestration over time. Selecting a system based only on today's needs risks forcing a costly platform change later, once the appetite for more advanced capability grows.



From Measurable Value to Greater Autonomy

The survey suggests that warehouse organizations are already realizing meaningful value from AI, even though most have not reached advanced stages of autonomy. When asked what has delivered the greatest business value from AI so far, better operational visibility was the leading response at 33.3%. Reduced manual or repetitive work followed at 25.9%, while improved inventory accuracy and earlier identification of issues or disruptions each accounted for 19.4%. Higher workforce productivity was cited by 16.7%, improved order fulfillment or customer service by 11.1%, and faster decision making by 9.3%.

What has delivered the greatest business value from AI so far?

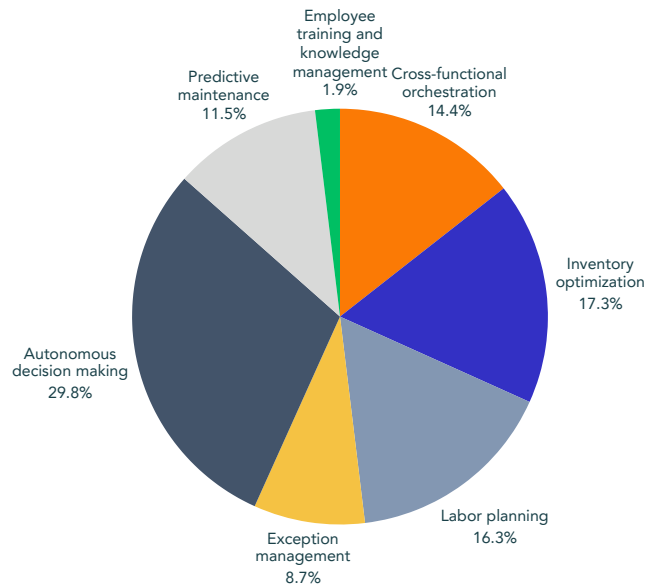


These findings add an important dimension to the survey's broader picture of adoption. AI is already producing value through relatively practical applications: giving teams better visibility, reducing repetitive work, improving accuracy, identifying problems earlier, and supporting productivity. The results suggest that organizations do not need to reach full autonomy before AI begins delivering measurable business impact.

At the same time, respondents see substantial opportunity beyond those current applications. When asked where AI has the greatest untapped potential in warehouse operations, autonomous decision making ranked first at 29.8%, followed by inventory optimization at 17.3%, labor planning at 16.3%, and cross-functional orchestration at 14.4%.



Where do you believe AI has the greatest untapped potential in your warehouse operations?



The contrast between what has delivered the greatest business value from AI and where respondents believe AI has the greatest untapped potential is particularly revealing. The capabilities delivering the greatest value today are largely centered on visibility, efficiency, accuracy, and early issue identification. The greatest untapped opportunity, by contrast, is autonomous decision making. This suggests that many organizations see today's AI applications not as the endpoint, but as building blocks toward a more capable and increasingly autonomous warehouse.

33.3%

say better operational visibility is where
AI delivers the most value today

29.8%

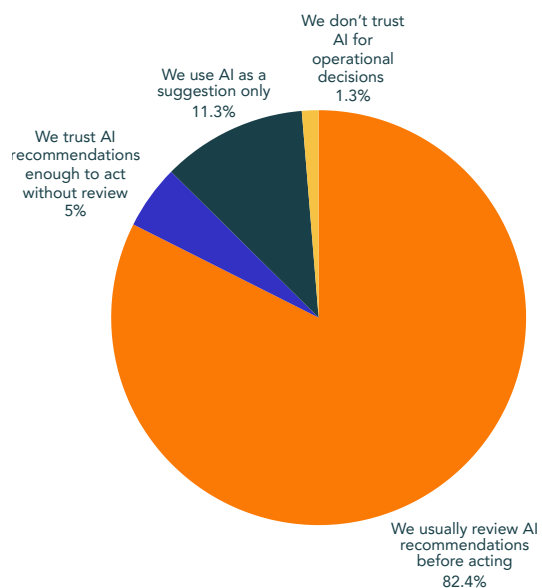
say autonomous decision making is
where AI has the greatest untapped
potential



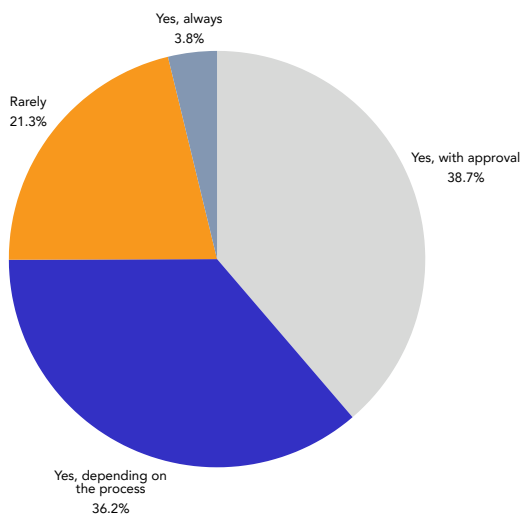
Building Trust as AI's Role Grows

Realizing that progression will require more than technology. It will require trust. The survey found that 82.4% of operations teams usually review AI recommendations before acting, while 11.3% use AI as a suggestion only. Just 5% said they trust AI recommendations enough to act without review, and 1.3% said they do not trust AI for operational decisions.

How much do your operations teams trust AI recommendations?



When AI makes a recommendation or decision, can employees override it?



Employee override capabilities reinforce the same pattern. When AI makes a recommendation or decision, 38.7% of respondents said employees can override it with approval, while another 36.2% said employees can override it depending on the process. Another 21.3% said employees can rarely override AI, and 3.8% said employees can always override it. No respondents said employees have no ability to override AI decisions.



Together, these findings show that human oversight remains a defining characteristic of warehouse AI today. Organizations are willing to use AI to surface information, identify problems, automate repetitive work, and recommend actions, but most have not yet reached the level of trust required to allow AI to operate without review.

That does not necessarily represent resistance to autonomy. Instead, it may represent a progression toward it. Trust can be established through repeated evidence that AI recommendations are accurate, consistent, explainable, and aligned with operational objectives. As organizations gain confidence in those systems, they can gradually expand AI's role from visibility and recommendations toward optimization, orchestration, and eventually more autonomous decision making.

For warehouse executives, the implication is clear: the path toward autonomy should be viewed as a long-term capability-building exercise rather than a one-time software implementation. The technology selected today should be capable of delivering measurable value now while providing a credible path toward the capabilities organizations identify as their greatest opportunities tomorrow.

Bringing It All Together

Organizational AI maturity and AI authority aren't the same thing, and confusing them is where AI strategies go wrong. Organizational AI maturity is about governance, trust, and experience built up over time. Authority is a decision made use case by use case: whether a given agent should inform, recommend, act, coordinate, or operate autonomously, based on the risk and confidence specific to that task. A mature organization doesn't set every agent to maximum autonomy. It runs a portfolio: some agents still just surfacing insight, others already trusted to act within defined limits, reassessing each one as evidence builds. That's what separates a durable AI strategy from a one-time technology rollout.



Best Practices for Moving Forward

Based on the survey data and the broader industry research it aligns with, **several practices distinguish organizations further along the AI adoption curve**. One theme runs through all six: organizational AI maturity and AI authority are not the same thing. Maturity is what an organization builds over time; authority is what's granted to a specific use case, and it should be decided deliberately, not by default.

- 1 **Solve a business problem first** rather than undertake a general AI initiative, since the data shows this remains the most common and most effective starting point.

- 2 **Fix data quality** before investing further in new AI tools, since data readiness continues to determine whether AI projects succeed or are abandoned.

- 3 **Choose platforms designed to expand**, prioritizing vendors that support integration across warehouse management, transportation, and labor systems rather than single purpose tools.

- 4 **Build trust through human oversight** as most operations teams continue to review AI recommendations, and employees generally retain some ability to override AI decisions.

- 5 **Treat autonomy as a per-use-case decision** rather than scaling every use case to the same level at once. Some processes are ready for AI to act autonomously within guardrails; others should stay at recommend or inform for now. Reassess each one as organizational AI maturity and trust build.

- 6 **Frame adoption around strategic value** rather than cost cutting or competitive anxiety, since the data shows this framing better reflects why most organizations actually adopt AI.



Logistics Reply Puts These Practices Into Action

Warehouse leaders evaluating technology partners should prioritize platforms built to scale, not just meet today's needs. Logistics Reply's LEA Reply platform is cloud-native and microservices-based, letting companies activate only the capabilities their operations require today, configure the system without custom coding, and expand free of a major architectural overhaul.

Best Practice	LEA Approach
Solve a business problem first	Embedded AI focused on real warehouse processes
Keep people in control as trust develops	Human-in-the-loop recommendations and decision support
Build for connected operations	Open, microservices-based architecture designed for configurability and integration
Establish a strong data foundation	Real-time operational data supporting visibility, analytics and AI
Treat autonomy as a use-case decision	Evolve authority deliberately, from insight and recommendation toward autonomous action, as trust builds

Built directly into LEA Reply is LEA Dynamic Intelligence which leverages leading large language models (LLMs) together with warehouse-specific operational intelligence developed alongside real warehouse customers. It's guided by the LEA AI Agent Authority Model, Logistics Reply's framework for pairing two dimensions: **organizational AI maturity**, which builds in stages as governance, trust, and experience grow, and **AI authority**, a five-level scale from inform to recommend to act to coordinate to governed autonomy. Authority expands deliberately use case by use case, as maturity grows, rather than defaulting to maximum autonomy. Today, most LEA Dynamic Intelligence agents operate at the inform and recommend levels: answering natural language questions, generating reports on demand, flagging labor and inventory risk, and recommending corrective action, always with a human making the final call. As trust builds for a given use case, an agent can be granted authority to act within agreed limits, and eventually coordinate across systems. Companies put LEA Dynamic Intelligence into practice, starting from a defined operational need and operating within guardrails people define, whether that means a human making the final call or an agent acting autonomously within agreed limits.



About Logistics Reply

Logistics Reply delivers cloud-native WMS solutions for modern warehousing and logistics, with AI integrated directly into execution rather than layered on top. Our microservices-based architecture means new capability comes through configuration, not custom code, letting you activate what you need now and adapt as your operations and AI strategy evolve. It's not just a WMS, it's a foundation built to keep pace with change.

With Logistics Reply, you're not just implementing a WMS; you're investing in a partnership that understands the pulse of modern warehousing needs and is committed to driving your success. Logistics Reply's track record of successful implementations, robust customer support, and continuous innovation makes it an ideal choice for companies looking to stay ahead in a competitive market.

We've spent years building AI into warehouse execution, working alongside real customers to learn what actually works. Wherever you are on that journey, we can help you move forward.

→ [Contact us to schedule a conversation](#)



lea@reply.com | logistics-reply.com