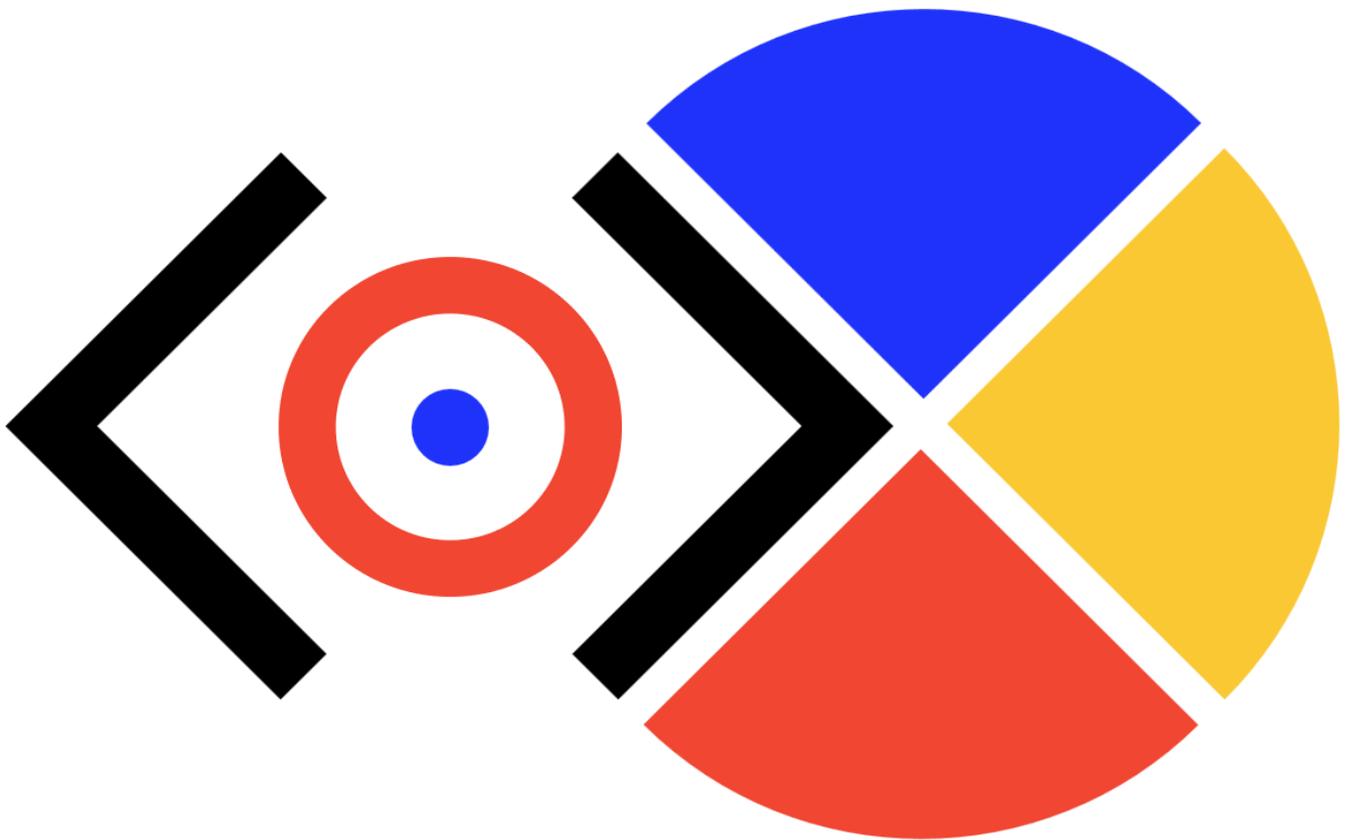




2026 Air Cargo Technology Trends

Mapping the future of air cargo



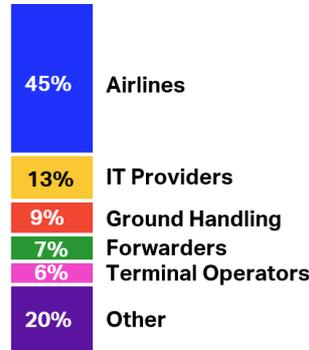
Introduction

The air cargo industry continues to navigate a period of significant transformation. Rising trade volumes, the sustained growth of e-commerce, evolving regulatory requirements, and mounting pressure to reduce environmental impact are reshaping the way cargo facilities operate and invest. Against this backdrop, technology is not simply an enabler of efficiency, but it has become a strategic imperative for competitiveness, resilience, and long-term sustainability.

In 2025, IATA published the [2025 Vision for the Future of Air Cargo Facilities](#), which introduced the first Technology Trend Radar for Cargo Facility Operations. Based on insights from 90 industry experts, the radar provided a structured evaluation of 24 technologies across six operational domains, assessing both their expected impact on cargo operations and their anticipated timeline for mainstream adoption. The industry's response confirmed the value of a data-driven, regularly updated view of technology priorities.

This article presents the 2026 edition of the radar, now part of an annual series. The 2026 survey gathered insights from more than **120 industry professionals** representing airlines, IT providers,

Participants in the 2026 survey

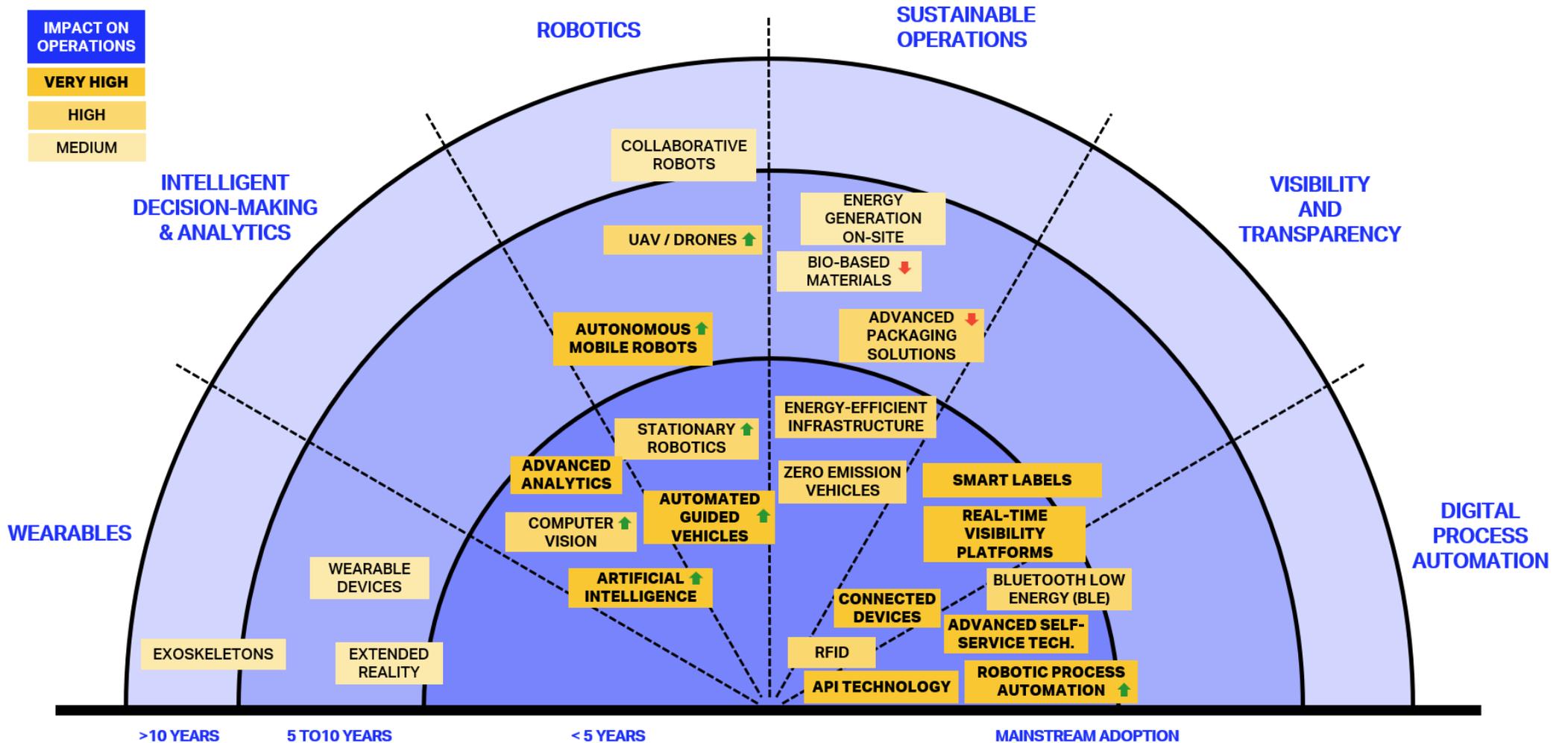


ground handling agents, freight forwarders, cargo terminal operators, and shippers.

Respondents assessed each technology across two dimensions: its expected impact on cargo operations (rated Very High, High, or Medium) and its estimated timeline for mainstream adoption (already mainstream, within five years, five to ten years, or beyond ten years). The results allow for meaningful year-on-year comparisons, revealing where industry expectations are converging and where they are shifting.

The Technology Trend Radar organizes 24 technologies into six domains: Intelligent Decision-Making & Analytics, Wearables, Robotics, Sustainable Operations, Visibility & Transparency, and Digital Process Automation & Integration.





How to Read the Radar

Each technology's position on the axis reflects the expected timeline to mainstream adoption, moving from the outer edge (beyond ten years) toward the center (already mainstream); the color of the technology label indicates the anticipated level of operational impact, with Very High on dark yellow, High in medium yellow, and Medium in a lighter shade. Technologies that appear closer to the center and in a darker color and are therefore those the industry considers imminent and highly impactful.



2026 Survey Findings

The 2026 survey results reveal a maturing picture. Across most domains, the broad direction of the 2025 radar is confirmed—but the 2026 data adds nuance, with several technologies registering meaningful shifts in perceived impact or adoption timeline. The following sections summarize the key findings by domain.

Most relevant impact increases

Artificial Intelligence

HIGH → VERY HIGH



Automated Guided Vehicles

HIGH → VERY HIGH



Stationary Robotics

MEDIUM → HIGH



Computer Vision

MEDIUM → HIGH



INTELLIGENT DECISION-MAKING & ANALYTICS

Artificial intelligence, predictive analytics, and computer vision form the backbone of this domain, and the 2026 data confirms their place at the top of the industry's technology agenda. *Advanced Analytics* and *Artificial Intelligence* are both rated Very High impact, with mainstream adoption expected within five years or less. Those are positions consistent with the 2025 findings, and a signal that confidence in these technologies has not diminished with time. API Technology, covered under Digital Process Automation, reinforces the picture: the integration layer that makes AI and analytics operationally useful is itself rated the strongest technology in the entire survey.

The most notable development in this domain is the upgrade of *Artificial Intelligence* from High to Very High impact compared to 2025. This reflects the speed at which AI has moved from experimentation to deployment across cargo operations, for example in predictive maintenance, demand forecasting, cargo build-up optimization, and automated document processing. *Computer Vision* also moved from Medium to High impact, driven by

growing operational experience with automated cargo scanning, damage detection, and security screening applications.

Together, these shifts suggest that the industry is no longer debating whether AI and its enabling technologies will be transformative, but that the question has shifted to how quickly organizations can implement them at scale.

WEARABLES

The wearables domain covers three distinct technologies (wearable devices, extended reality, and exoskeletons) that share a common purpose: augmenting the physical and cognitive capabilities of the cargo workforce. This domain continues to occupy the medium-to-long-term horizon of the radar, though the 2026 data suggests that views on timelines are beginning to tighten.

Wearable devices (such as smart glasses, head-mounted scanners, health-monitoring equipment) are rated Medium impact with a short adoption window, placing them ahead of their counterparts in this domain. The practical applications are well-understood: hands-free cargo tracking, real-time instructions for handling staff, and fatigue monitoring for roles with high physical demands. Extended reality and exoskeletons sit further out on the timeline, with adoption expected in the five-to-ten-year range and beyond. For exoskeletons in particular, the appeal is clear in environments where manual lifting and loading place significant physical strain on workers, but cost, ergonomics, and integration with existing workflows remain obstacles to widespread deployment.

When analyzing the results of this question, it was visible that non-airline respondents, including ground handling agents and terminal operators who are closest to these operational realities, hold a notably more optimistic view of wearable and exoskeleton adoption than the full-sample results show.

ROBOTICS

Robotics is the domain that has moved most decisively between editions. Two technologies (*Automated Guided Vehicles* and *Stationary Robotics*) saw their impact increased in comparison



with the 2025 results, reflecting the rapid pace at which structured automation is being deployed in cargo facilities. Both are now rated Very High and High impact respectively, with near-term adoption timelines. This is consistent with broader logistics industry trends: AGVs handling ULD and pallet movement between airside and landside operations and on the ramp, and stationary robotic arms automating cargo sorting and build up within facilities.

Autonomous Mobile Robots and *Unmanned Aerial Vehicles* occupy the mid-range of the domain and are rated High and Medium impact respectively, with adoption timelines in the five-to-ten-year window. The UAV/drone category is one where the 2026 survey reveals a divide: non-airline respondents assess its impact and timeline more optimistically than the full-sample average, which may show that airlines engage with drone applications less directly. *Collaborative robots* (cobots) remain in the Medium impact band with a longer adoption horizon, though the gap between airline and non-airline views on this technology is among the widest in the entire survey, with non-airline stakeholders being more optimistic about the time for adoption and impact.

SUSTAINABLE OPERATIONS

Sustainability technologies span a wide range of applications, from facility-level energy systems to packaging materials and ground transport. The 2026 survey reflects both the urgency the industry attaches to this agenda and the varying timelines across different solution types. *Energy-efficient infrastructure* and *zero-emission vehicles* are rated the highest-impact technologies in this domain, both achieving Very High and High ratings respectively with near-term adoption expected. This aligns with the regulatory and investor pressure that cargo facility operators face to reduce energy consumption and decarbonize ground operations, but also with the reality that cargo stakeholders are investing in these technologies because of they are cost-efficient in addition to being sustainable.

Advanced packaging solutions (reusable containers, bio-based materials, and smart packaging with embedded sensors) are rated High impact, though with a slightly more cautious adoption timeline. It reflects the practical complexity of transitioning packaging ecosystems across multi-stakeholder supply chains, where

standardization and supplier readiness are as important as the underlying technology.

Energy generation on site, including solar installations and combined heat and power systems, is rated Medium to High impact with a five-to-ten-year horizon. As capital costs for renewable energy infrastructure continue to fall, this timeline may accelerate in future editions.

VISIBILITY & TRANSPARENCY

This domain encompasses the technologies that underpin real-time cargo tracking, condition monitoring, and data exchange across the supply chain. It is the most uniformly high-performing domain in the 2026 survey: all five technologies—connected devices, real-time transportation visibility platforms, smart labels, RFID, and Bluetooth low energy—are rated High or Very High impact, and all are expected to reach mainstream adoption within five years or less.

Connected devices and real-time visibility platforms both achieve Very High impact ratings, reflecting the industry's deep investment in IoT-enabled cargo monitoring and the growing expectation from shippers and forwarders for end-to-end shipment transparency. RFID is one of the technologies that shows the largest divergence between airline and non-airline respondents: when the airline cohort is excluded from the analysis, RFID rises to Very High impact—a reflection of the foundational role it plays in acceptance, tracking, and inventory management for terminal operators and freight forwarders. The convergence of these visibility technologies with digital data standards such as IATA ONE Record reinforces their importance: the value of real-time tracking is fully realized only when shipment data flows seamlessly across organizational boundaries.

DIGITAL PROCESS AUTOMATION & INTEGRATION

API technology, advanced self-service technologies, and robotic process automation constitute this domain, and collectively they represent the most consistently high-rated group in the survey. API Technology achieves the strongest score of any technology in the 2026 radar—rated Very High impact with mainstream adoption already underway. This finding reflects the central role that application programming interfaces now play in connecting cargo management systems, booking platforms, customs data flows, and tracking



infrastructures across the supply chain. As the industry advances toward full ONE Record adoption, API connectivity is the technical prerequisite that makes interoperability possible.

Advanced self-service technologies (automated kiosks, driver check-in systems, online booking portals) are rated Very High impact with a sub-five-year adoption timeline, and have moved up from

their 2025 position. Robotic process automation, which automates repetitive back-office workflows including documentation, invoicing, and customs declarations, is rated High impact in the full-sample results but rises to Very High when non-airline respondents are considered in isolation. This is an indication that the administrative burden these tools address is felt most acutely outside airline operations.

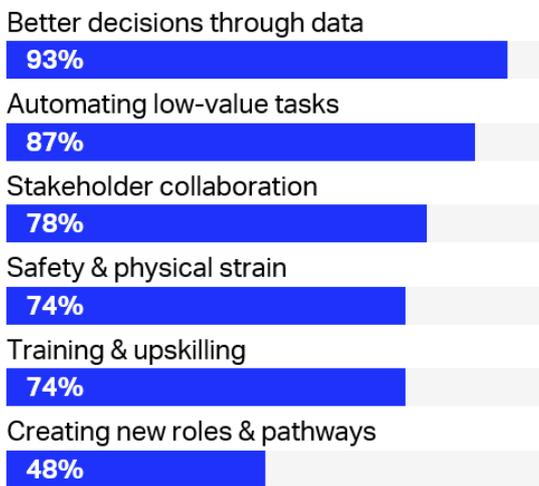
Technology	Impact '25	Adoption '25	Impact '26	Adoption '26	Change
INTELLIGENT DECISION-MAKING & ANALYTICS					
Artificial Intelligence	HIGH	<5 years	VERY HIGH	<5 years	↑ Impact
Computer Vision	MEDIUM	5–10 years	HIGH	<5 years	↑ Impact + adoption
Predictive / Advanced Analytics	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
Cloud Computing	VERY HIGH	Mainstream	REMOVED	REMOVED	Removed
WEARABLES					
Extended Reality	MEDIUM	5–10 years	MEDIUM	5–10 years	→ Stable
Wearable Devices	MEDIUM	5–10 years	MEDIUM	5–10 years	→ Stable
Exoskeletons	MEDIUM	>10 years	MEDIUM	>10 years	→ Stable
ROBOTICS					
UAV / Drones	MEDIUM	5–10 years	HIGH	5–10 years	↑ Impact
Automated Guided Vehicles	HIGH	<5 years	VERY HIGH	<5 years	↑ Impact
Autonomous Mobile Robots	HIGH	5–10 years	VERY HIGH	5–10 years	↑ Impact
Stationary Robotics	MEDIUM	5–10 years	HIGH	<5 years	↑ Impact + adoption
Collaborative Robots	MEDIUM	>10 years	MEDIUM	>10 years	→ Stable
SUSTAINABLE OPERATIONS					
Bio-based Materials	MEDIUM	5–10 years	MEDIUM	5–10 years	→ Stable
Energy-efficient Infrastructure	HIGH	<5 years	HIGH	<5 years	→ Stable
Energy Generation on Site	MEDIUM	5–10 years	MEDIUM	5–10 years	→ Stable
Advanced Packaging Solutions	HIGH	<5 years	HIGH	5–10 years	↓ Adoption timeline
Zero Emission Vehicles	HIGH	<5 years	HIGH	<5 years	→ Stable
VISIBILITY & TRANSPARENCY					
Bluetooth Low Energy (BLE)	NEW	NEW	HIGH	<5 years	New in 2026
Connected Devices	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
RFID	HIGH	<5 years	HIGH	<5 years	→ Stable
Real-Time Visibility Platforms	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
Smart Labels	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
DIGITAL PROCESS AUTOMATION & INTEGRATION					
Advanced Self-Service Tech.	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
API Technology	VERY HIGH	<5 years	VERY HIGH	<5 years	→ Stable
Robotic Process Automation	HIGH	<5 years	VERY HIGH	<5 years	↑ Impact



Technology and the Future of Work in Air Cargo

New to the 2026 survey, respondents were asked to reflect on the human dimension of technology adoption: the positive effects they expect on the workforce, and the concerns they associate with accelerating technology deployment. The results offer a nuanced picture that complements the technology ratings.

POSITIVE EFFECTS



On the positive side, there is near-consensus around two outcomes. Improving decision-making through better data and visibility was selected by 93% of respondents, making it the most widely endorsed statement in the entire survey. Automating repetitive or low-value tasks followed at 87%.

Both findings are consistent with the high ratings assigned to analytics, API technology, and process automation throughout the radar. Enabling more efficient collaboration across stakeholders (78%), enhancing safety and reducing physical strain (74%), and supporting training and upskilling (74%) complete the picture of an industry that is broadly optimistic about what technology can deliver for its workforce.

One finding stands apart from this optimism: only 48% of respondents believe that technology

adoption will create new roles and skill pathways. This is the only positive outcome that failed to achieve majority consensus, and the gap between it and the next-lowest response is significant. The implication is that while the industry is largely aligned on the operational benefits of technology, it is considerably less confident that workforce transformation will be managed in a way that generates new opportunities to offset automation-driven displacement. This is a challenge that the industry will need to address as technology adoption accelerates.

CONCERNS



On the concerns side, cybersecurity risks are the dominant preoccupation, cited by 83% of respondents—a higher rate than any positive outcome except decision-making improvement. This is notable given that the technologies rated most favorably in the radar—API connectivity, connected devices, real-time visibility platforms—are precisely those that expand the digital attack surface of cargo operations. Increasing dependency on technology and the risk of system outages (70%), resistance to change within teams (58%), and concerns about job reduction or rapidly changing role requirements (55%) round out the picture. Notably, only 25% of respondents believe that technology will increase workload or complexity—suggesting that the industry broadly expects net efficiency gains, even as it recognizes the transition risks involved.



Moving from awareness to action

The 2026 Air Cargo Technology Trends Radar presents a picture of an industry that is moving from awareness to action. The broad technology priorities identified in 2025 are confirmed, but the year-on-year shifts (particularly in artificial intelligence, computer vision, automated guided vehicles, and stationary robotics) reflect genuine progress in deployment more than sustained aspiration. The direction of travel is consistent: greater automation, deeper data integration, and more transparent, connected supply chains.

At the same time, the 2026 data surfaces tensions that the industry cannot afford to overlook. The gap between technology optimism and workforce confidence shows that the same organizations investing in automation and AI are, by their own assessment, uncertain about how to manage the human transition. Cybersecurity concerns are rising in step with connectivity investment. And the perspectives of different stakeholder groups diverge significantly on the technologies that will most directly affect physical cargo handling.

Air cargo is entering a period of technology-enabled transformation that will improve operational performance, reduce environmental impact, and increase resilience in a sector that enables global trade. Realising this opportunity will require not only investment in the right technologies, but the organisational commitment to deploy them at scale, develop the workforce alongside them, and foster the collaboration that will define the air cargo industry of the future.

