



2025

Automatic Identification and Data Capture **Industry Direction Report**



AIM 2025 Automatic Identification and Data Capture Industry Direction Report

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About AIM

AIM is the leading international industry association, global authority and resource in automatic identification and data capture (AIDC) technologies and innovations. For more than 50 years AIM has championed the growth and acceptance of these technologies through industry education, standards and advocacy.

Since AIM's inception in the 1970s, industry leaders from the AIDC global community have continued to work within AIM to promote the adoption and application of emerging technologies and innovations. AIM actively supports the development of standards through its own committees as well as through participation at the industry, national (ANSI) and international (ISO) levels.

AIM members are manufacturers, distributors, resellers, educators, system integrators, and technology users of barcode, RFID, the Internet of Things (IoT), RAIN, RTLS and NFC services and solutions. AIM delivers accurate and unbiased information on technologies, standards, and applications. Through AIM committees and alliances, AIM provides an unbiased technology perspective to legislators, media and consumers.

About the author

This report was solely sponsored by AIM and written by John Burnell. He is principal of Burnell Reports, which provides market research and content development services to help educate technology end user communities. He began working in the AIDC industry in 1990 as an industry magazine editor (Automatic I.D. News, Frontline Solutions) and conference organizer (ID Expo, SCANTECH, Field Service Solutions) and has had more than 40 AIDC companies as clients. He is currently an adjunct advisor to an IT research and consulting company that produces reports on a variety of enterprise technologies including cloud, software-defined network infrastructure, 5G services, SAP, customer experience solutions and others, and does research and market development in telehealth. Burnell currently is a member of the AIDC 100. He can be reached at: john@burnell.com.

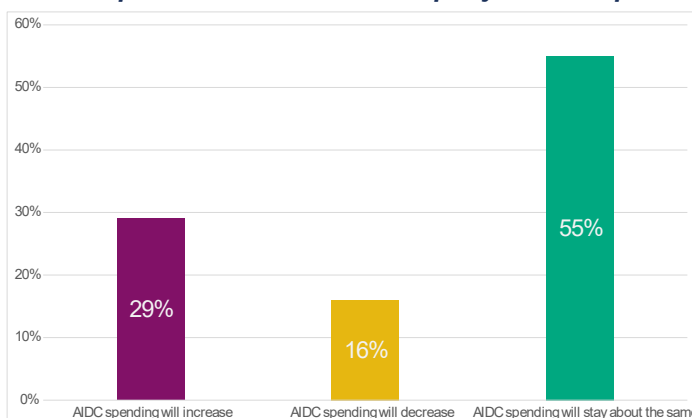
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Executive Summary

Automatic identification and data capture (AIDC) technologies have a clear path for growth at a time when other enterprise technology priorities are shifting and business confidence is fragile, the AIM 2025 AIDC Industry Direction study found. Motivation to become more responsive and to protect against supply chain disruption has enterprises exploring many digitalization strategies. Organizations are actively exploring how they can integrate artificial intelligence (AI), Internet of Things (IoT), robotics, vision, 5G and other advanced capabilities into their IT, manufacturing, supply chain and customer service operations, which is resulting in difficult decisions as leaders look for budgets to cut to help fund new digitalization programs. However, nearly twice as many end user organizations (29%) expect to increase their spending on AIDC technologies in 2025–26 than plan to decrease it (16%).

Figure 1: End User Expectations for Their Company's AIDC Spending in 2025–26



The demand strength is widespread and not skewed by a few hot market segments - most end users project at least modest spending increases for almost every AIDC category. Automatic identification and data capture industry professionals agree, as 71% expect AIDC demand to grow through the end of 2026. Budgets will be tight, but several opportunities are bright for solution providers to increase their share by educating prospects about how AIDC technologies can enhance the performance and return-on-investment (ROI) for IoT, 5G network infrastructure, artificial intelligence and other technologies that are getting enterprise attention and funding.

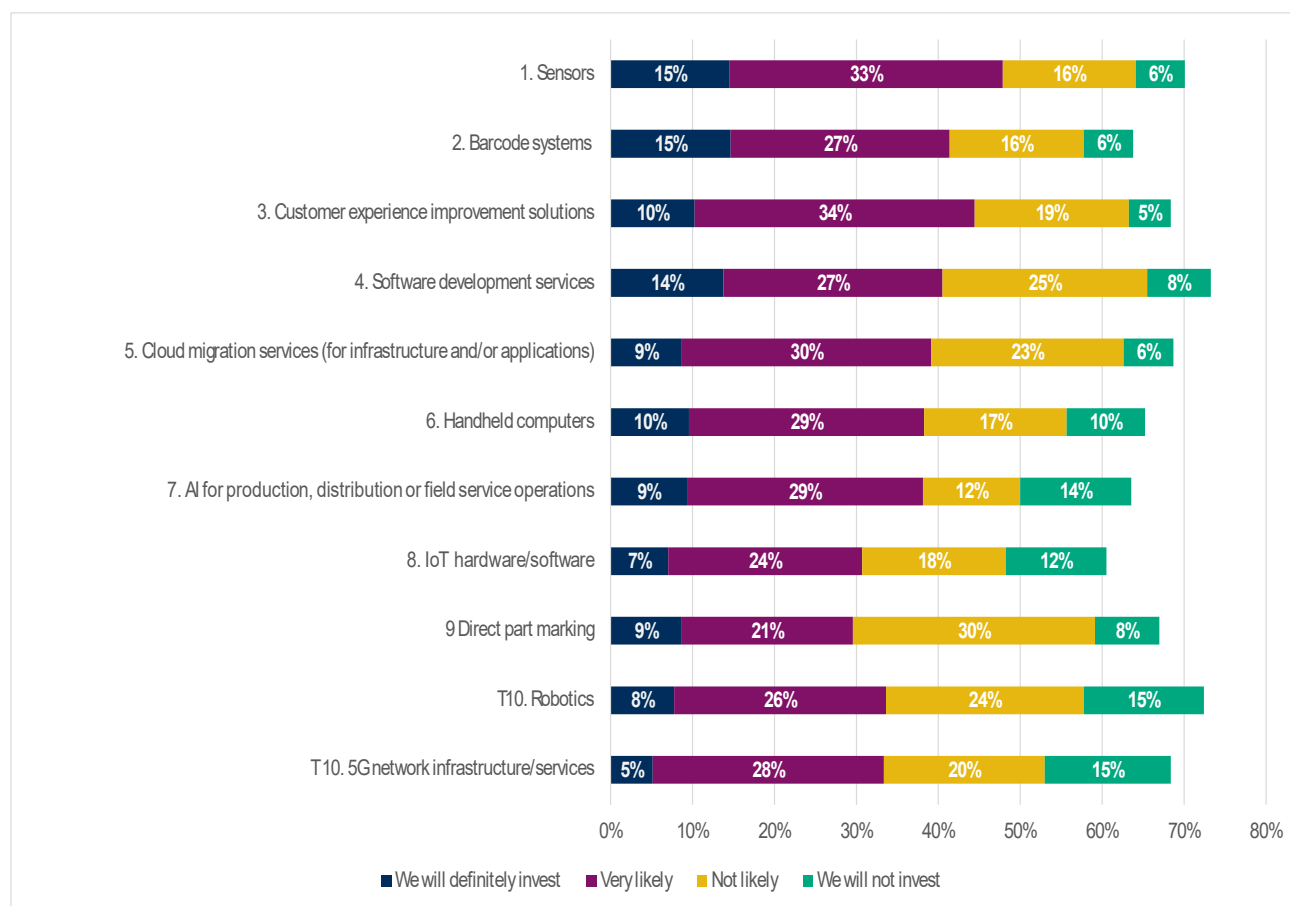
- Approximately half (55%) of end users say their AIDC budgets will be held near 2024 levels through 2026.
- Budgets are more likely to increase than to decrease for 19 of the 20 specific AIDC product categories measured.
- Sensors, mobile barcode readers and IoT infrastructure are positioned for the largest spending increases among AIDC products.
- When enterprises were asked about their spending plans not specific to AIDC, sensors and barcode systems still ranked as the technologies most likely to be purchased, followed by solutions to improve customer experience (CX), software development services, and services and infrastructure to support migration to the cloud.
- 38% of enterprises are likely to invest in artificial intelligence solutions for frontline operations (e.g. manufacturing, distribution, field service) by 2026.
- Labor and skills shortages are both a motivator for enterprises to invest in technology solutions and an inhibitor to completing technology rollouts.
- Several emerging mandatory and voluntary product identification and traceability programs present significant new AIDC solutions sales potential. To realize this potential, AIDC professionals will need to educate prospects about the requirements and the need to act.

This report provides more insight into these and other findings, including demand drivers, investment inhibitors and how enterprises are prioritizing AIDC among their other technology and strategy initiatives.

Introduction

AIDC budgets are holding or increasing as enterprises are pursuing many more (and often more expensive) far-reaching technology programs, such as modernizing infrastructure and migrating it to the cloud, reimagining customer experience and adopting artificial intelligence (see Figure 2, results for all 27 categories are in Appendix A). These programs can be viewed as competitors for resources, but in reality, many are potential catalysts for AIDC deployments because they all require large quantities of timely, reliable data. AIDC is the only mechanism that can deliver data at the speed and quality that modern systems need. For example, a new AI-based inventory management system won't succeed if its algorithms for picking, put-away and allocation are based on incorrect inventory counts and item locations.

Figure 2: Top 10* Technologies Enterprises Are Likely to be Purchased 2025–26, ranked



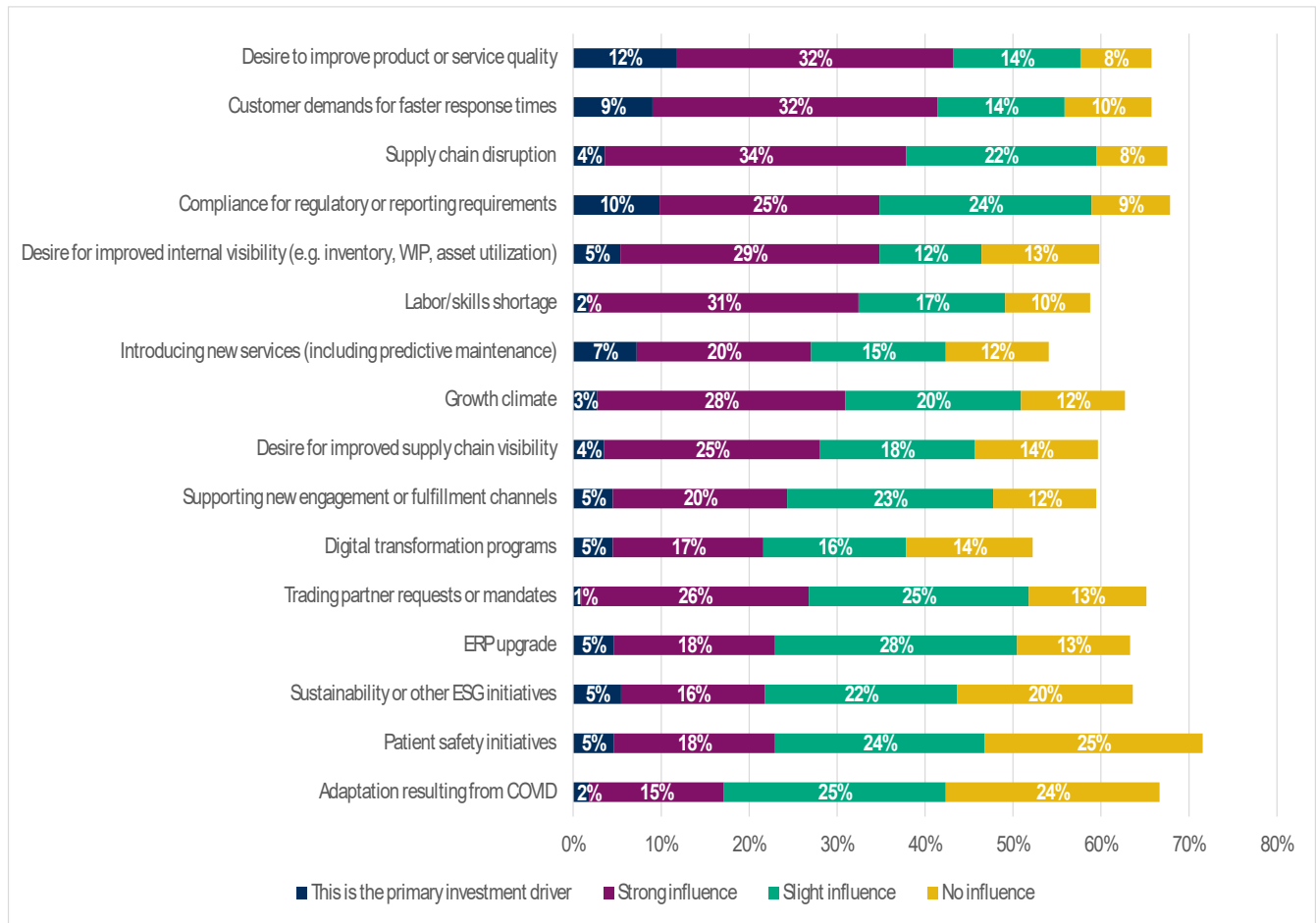
*There was a two-way tie for 10th place.

**Responses do not total 100% because "somewhat likely" responses were omitted. Full results are available in Appendix A

Although many enterprises are pursuing far-reaching, non-AIDC technology-based modernization strategies they will continue to invest in AIDC. For example, enterprises that are committing to 5G infrastructure are more likely to be buying barcode systems and handheld computers than others. Similarly, the companies that are investing in IoT systems are much more likely to be buying radio frequency identification (RFID) and real time locating systems (RTLS) over the same period. These and other correlations suggest enterprises consider AIDC technologies core to efficient operations, and whatever the enterprise is pursuing as the next big thing, commitment to AIDC systems won't be abandoned as part of the pursuit. The enterprise drive for more digitization creates non-traditional opportunities for AIDC solution sales.

What is driving enterprise investment ambitions? Internal pressure to improve quality and mitigate supply chain disruption, and external pressure to reduce response time and comply with customer or regulatory requirements are the strongest motivators to invest in technology (see Figure 3). AIDC industry professionals surveyed say the desire for better visibility, pressure to improve response time and overall digital transformation are currently the strongest forces pushing AIDC projects forward.

Figure 3: Influences on Enterprise Technology Investment Plans, Ranked



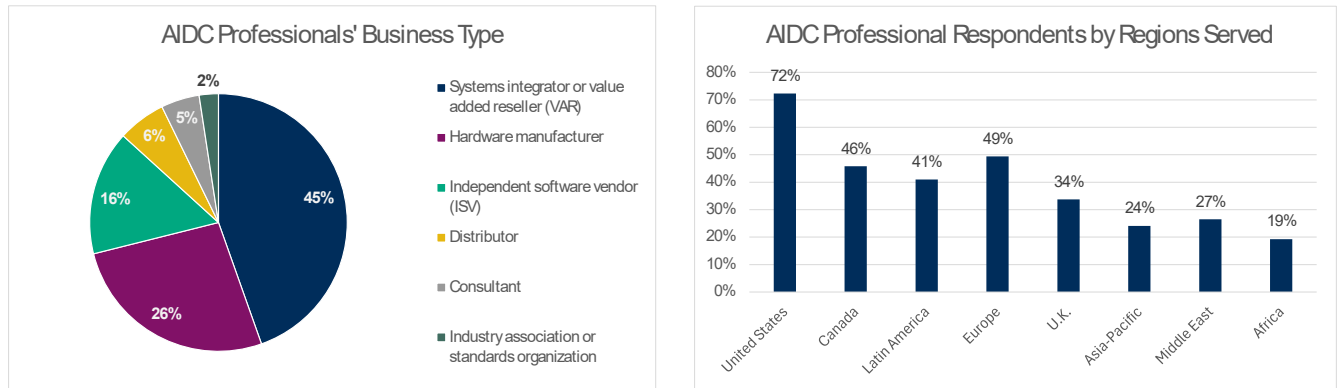
**Responses do not total 100% because "moderate influence" responses were omitted.*

Compliance programs are still a very important component of the AIDC market. Compliance was the fourth-highest rated driver for enterprise investment overall and is the highest-rated influence on technology investment plans for two-thirds of end user respondents. That influence could lead enterprises to spend more on AIDC technologies than they are expecting in the next two years because deadlines are nearing for several regulatory and other programs with item identification or data sharing requirements. These include the European Union's Digital Product Passport (DPP) requirement, the GS1 Sunrise 2027 program, the U.S. Food & Drug Administration's (FDA's) Food Safety Modernization Act (FSMA) Food Traceability Rule, the FDA's Unique Device Identification (UDI)/Global Unique Device Identification Database (GUDID) and similar international medical device traceability programs. These compliance programs are other examples of how digital modernization creates opportunities for the AIDC market. One third of respondents said compliance had little or no influence on their technology investment. It's possible these organizations are unaware of some of their impending requirements.

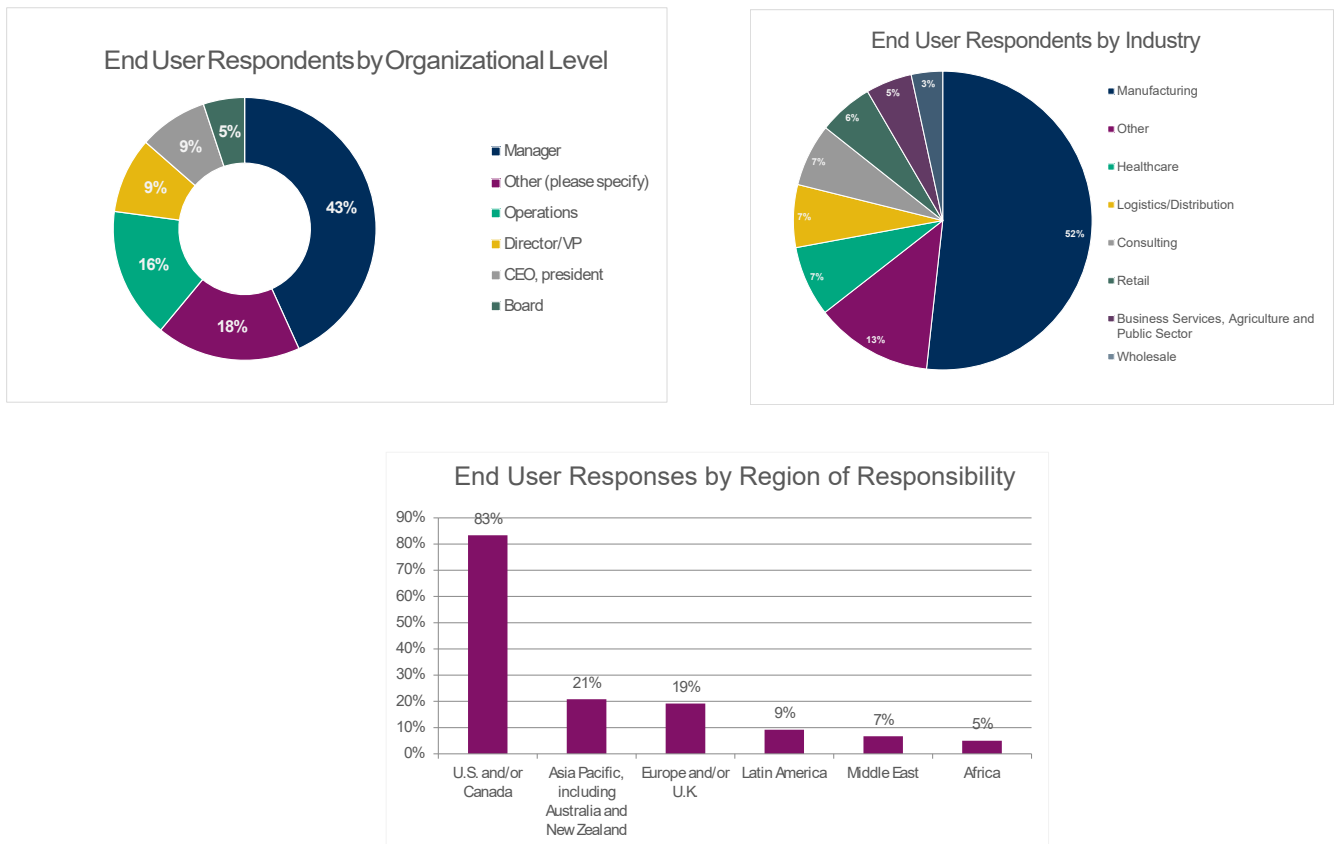
About the Report

This report is based on data collected from two separate online surveys AIM and its research partner Burnell Reports conducted concurrently in March and April 2025. One survey was of current and potential automatic identification and data capture technology users, the other of professionals who work in the AIDC industry. There were 120 usable responses for the end user survey and 84 for the AIDC professional version. Select survey demographics are presented in Figures 4 through 8.

Figures 4–5: Select Demographic Data for AIDC Professional Respondent



Figures 6–8: Select Demographic Data for End User Respondents



The surveys asked different questions but were structured to enable comparison between end users' and AIDC professionals' sentiments about market drivers, obstacles and outlook. They were based on the inaugural benchmark surveys AIM conducted in 2022. While questions in the 2025 and 2022 surveys were largely the same, the survey respondents were not.

The 2025 surveys did not specifically ask about tariffs but did ask respondents to rate the influence of "Uncertainty about the economy" and "Supply chain disruption." When the surveys were conducted, there was rhetoric about potential tariffs but none had been introduced. Many tariffs were announced after the survey closed and thus their potential impact is not reflected in response data.

Some graphics only show a subset of respondents because of space and readability considerations. Complete results for all survey questions are available in Appendix A (end users) and Appendix B (AIDC industry professionals). Percentages shown in graphics and referenced in text may not equal 100% because of rounding or because some response options (e.g. "somewhat likely" and "some influence") were omitted. Rankings were determined by calculating the response average for each response option.

Throughout this report, end users are referred to as "buyers" and "investors" (e.g., barcode buyers, companies investing in traceability solutions). Respondents are considered buyers or investors if they responded they would "very likely invest" or "definitely invest" in the product category, or if their expected spending would increase moderately or significantly.

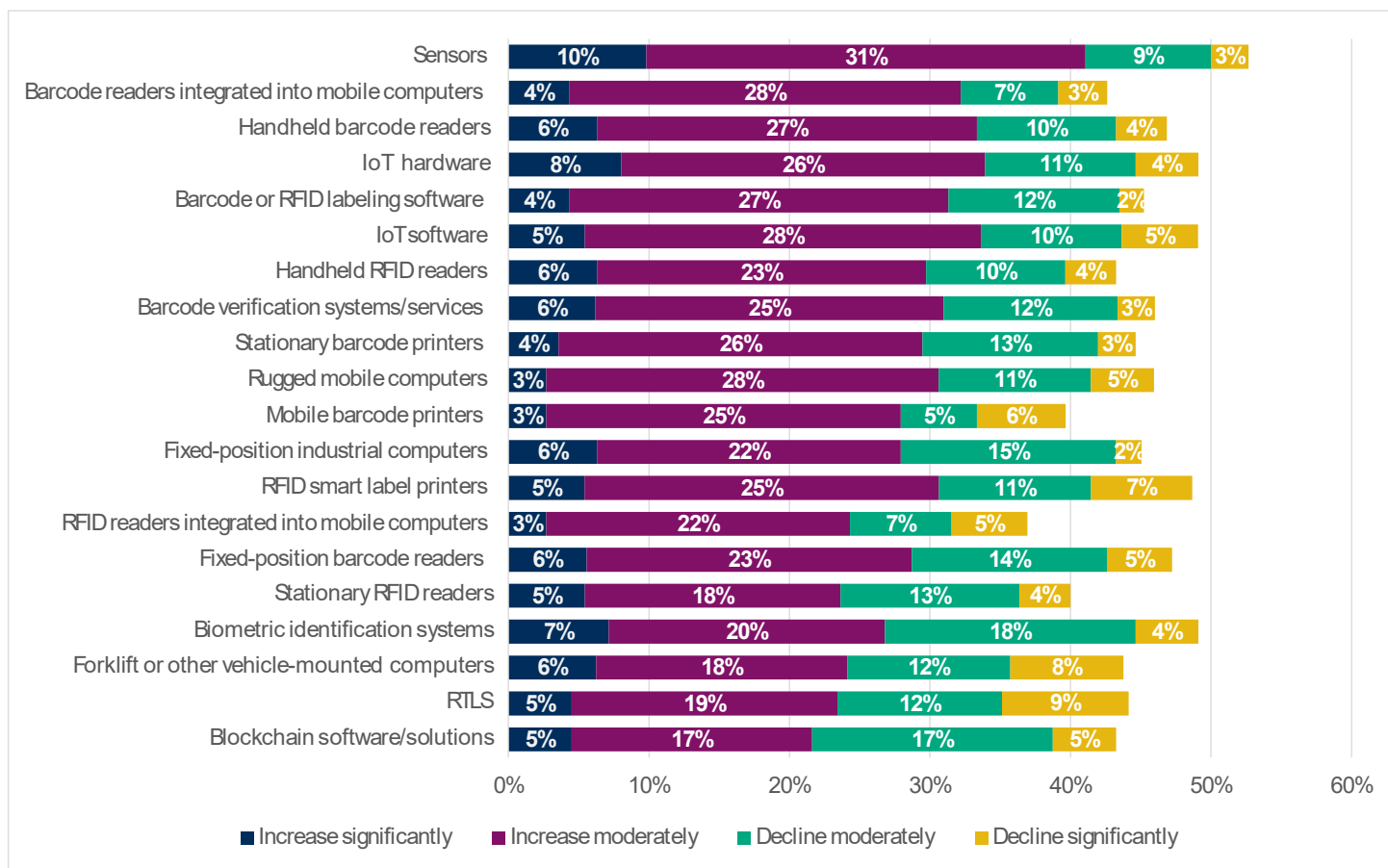


AIDC Technology Outlook

AIDC Technology Outlook

The AIDC market is better positioned to grow than contract through 2026, even with the headwinds that enterprises acknowledge. At least 80% of end users expect to maintain or increase their spending for almost every AIDC product category measured, as shown in Figure 9, and 71% of industry professionals expect increased demand over the same period. Most end users say their AIDC budgets will remain close to 2024 levels through 2026, which will increase competitive and margin pressures if demand grows at the level most industry professionals expect.

Figure 9: End User AIDC Spending Intentions 2025–26, ranked

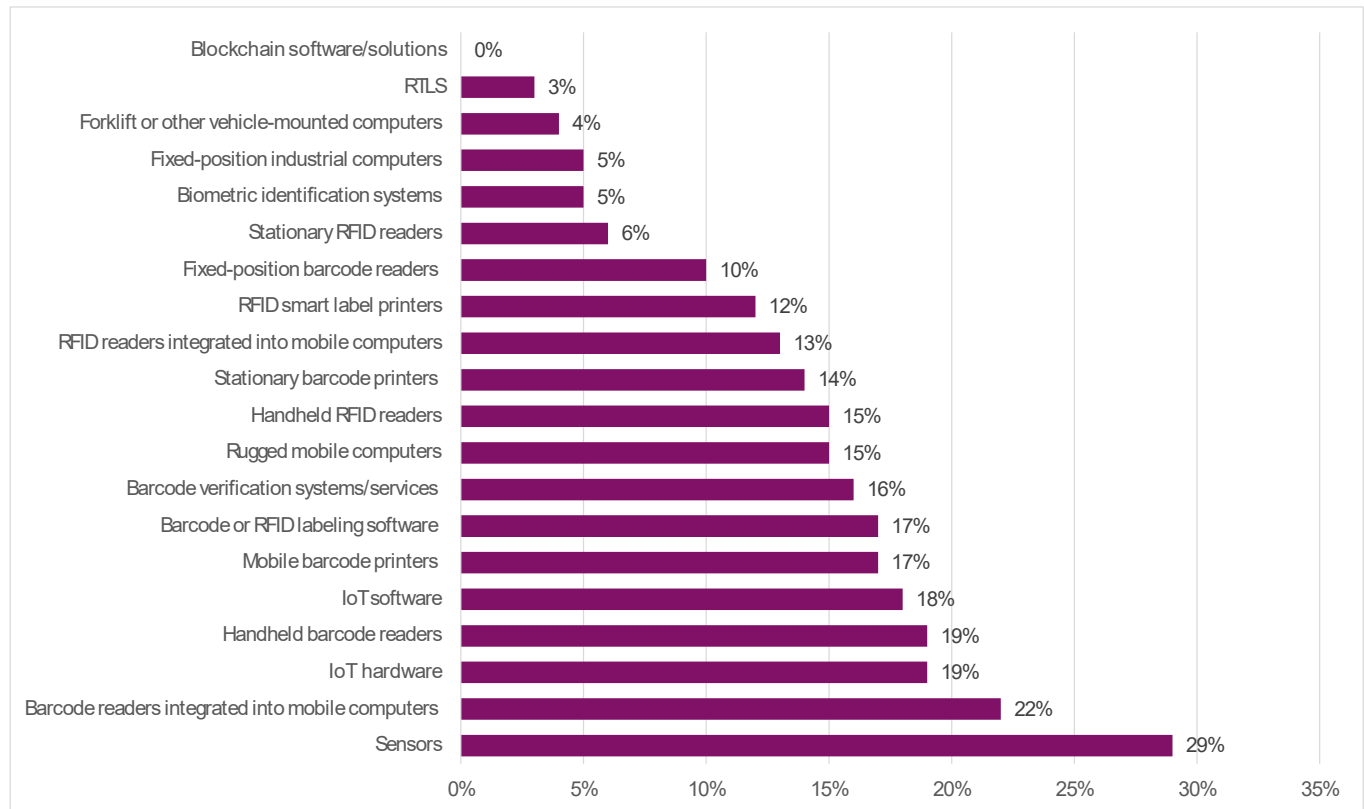


*Responses do not total 100% because “stay about the same” responses were omitted.

Sensors ranked first in expected AIDC investment and IoT hardware ranked fourth. These are signs that enterprises may be enhancing their traditional AIDC systems to support new data inputs in new types of systems where AIDC specialists can provide valuable technical and integration knowledge. This is consistent with the high priorities that many organizations are placing on AI, IoT, cloud, and 5G infrastructure, as referenced in Figure 2.

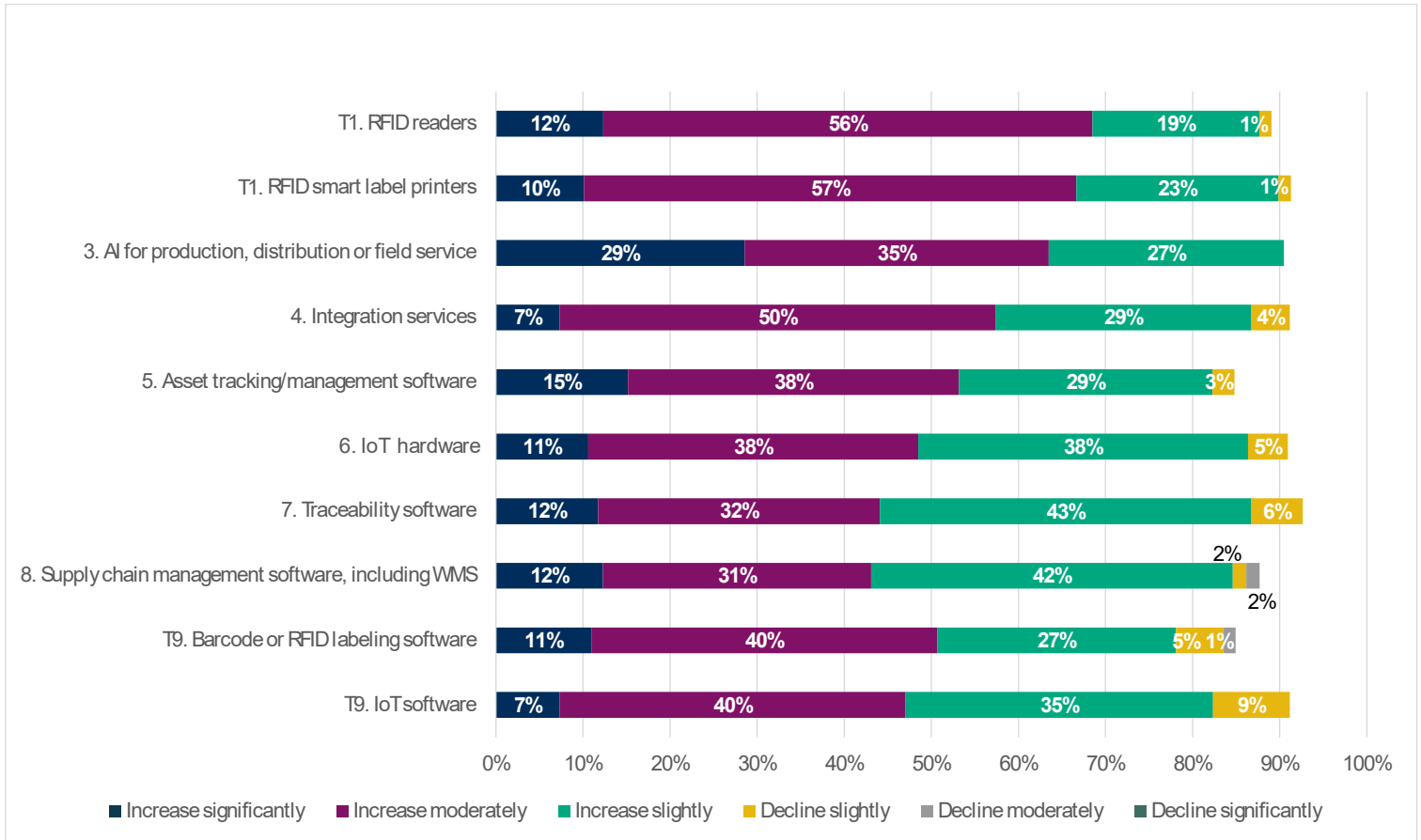
Demand momentum varies greatly across AIDC product categories. On average, 13% or more respondents plan to increase spending on a product category than plan to decrease it. Figure 10 summarizes Figure 9 by showing the net-positive percentage for each category, which ranges from sensors with the highest differential (+29%) to blockchain software/solutions with the lowest (0%).

Figure 10: Differential Between End User Organizations That Are Increasing or Decreasing AIDC Spending



The top 10 categories for which AIDC professionals' demand expectations are highest are shown in Figure 11. Professionals expect demand to be highest for RFID readers, smart label printers and AI solutions for production, distribution or field service environments. Sensors ranked 11th, with 39% of industry professionals expecting a moderate or significant demand increase; among end users, sensors are the most likely category to have increased spending.

Figure 11: Top 10* Categories for Demand Increases, Ranked by AIDC Professionals

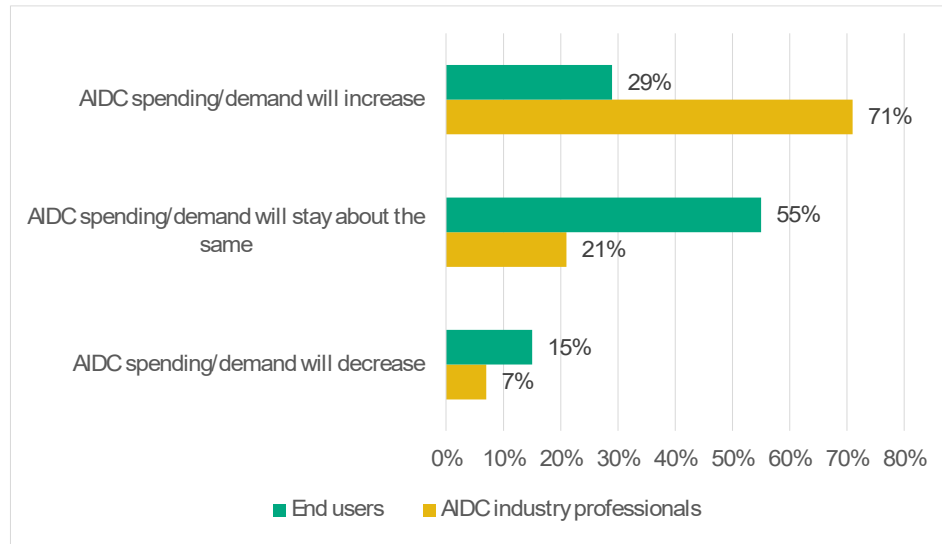


*There was a two-way tie for 1st and 9th place.

**Responses do not total 100% because "stay about the same" responses were omitted.

Sensors was not the only topic where AIDC professionals' collective outlook did not completely align with end users'. Across all AIDC categories, an average of 71% of AIDC professionals expect demand to increase, however, only 29% of the end user respondents reported they expect to increase their spending.

Figure 12: End User and AIDC Professional Perspectives on How Spending Will Change for AIDC Product Categories (all category averages)



End user misunderstandings or lack of awareness of upcoming item marking and traceability requirements for Digital Product Passport, FSMA, GS1 Sunrise 2027 and other programs may account for some of the gap in demand expectations. Industry professionals have opportunities to get end users to expand their budgets by educating enterprises about how these programs could affect them, and also by showing how AIDC solutions add value to adjacent, high-priority enterprise digital transformation programs.



End User Demand: Separating the Signals from the Noise

The product category spending momentum rankings can tell a misleading story because there is generally little variance within spending expectation options (for example, among end users, no category has fewer than 3% of respondents planning to increase spending significantly, but only three have more than 6%). Nonetheless, a few things stand out when AIDC product categories are studied relative to each other: mobile products tend to outperform their stationary counterparts (e.g. handheld barcode readers ranked third in expected investment, fixed-position barcode readers tied for 14th), and barcode categories rank higher than their RFID equivalents, although spending expectations are very similar. End user intentions show sensors, IoT hardware and mobile barcode gear should be the highest-growth segments.

While many categories are only separated by a few percentage points in their spending expectations, there is more variance when categories are compared by how spending expectations have changed (Figure 13). Among the top five AIDC categories that will receive investment in 2025–26, only one (sensors) ranked in the top five for expected investment in 2022–23. Sensors and IoT infrastructure are not only high priorities among enterprises for 2025–26, they have become higher priorities than in recent years.

Figure 13: Ranking Changes for Top 5 AIDC Categories for 2025–26

Rank		Category
2025	2022	
1	5	Sensors
2	8	Barcode readers integrated into mobile computers
3	T12	Handheld barcode readers
4	8	IoT hardware
5	19	Barcode or RFID labeling software

The strong showings for sensors and IoT components (hardware ranked fourth, software was sixth) suggest end users want to add sense-and-respond capabilities or other intelligence to their traditional data collection systems. That aligns with two other surveys released in 2025. Supply chain software provider Logility reported 71% of enterprises have digital transformation programs for their supply chains that are fully funded for the next three yearsⁱ. Nearly half (49%) of organizations are using sensors and automatic identification technologies in their supply chains today, but 77% expect to within five years according to the Material Handling Institute’s annual industry report for 2025ⁱⁱ. Consumer goods manufacturers and retailers entered 2025 with “improving collaboration among trading partners” among their top priorities, another studyⁱⁱⁱ found. 5G network infrastructure also rose in the priority rankings among non-AIDC categories, which is another sign that enterprises are preparing for more intelligent infrastructure.

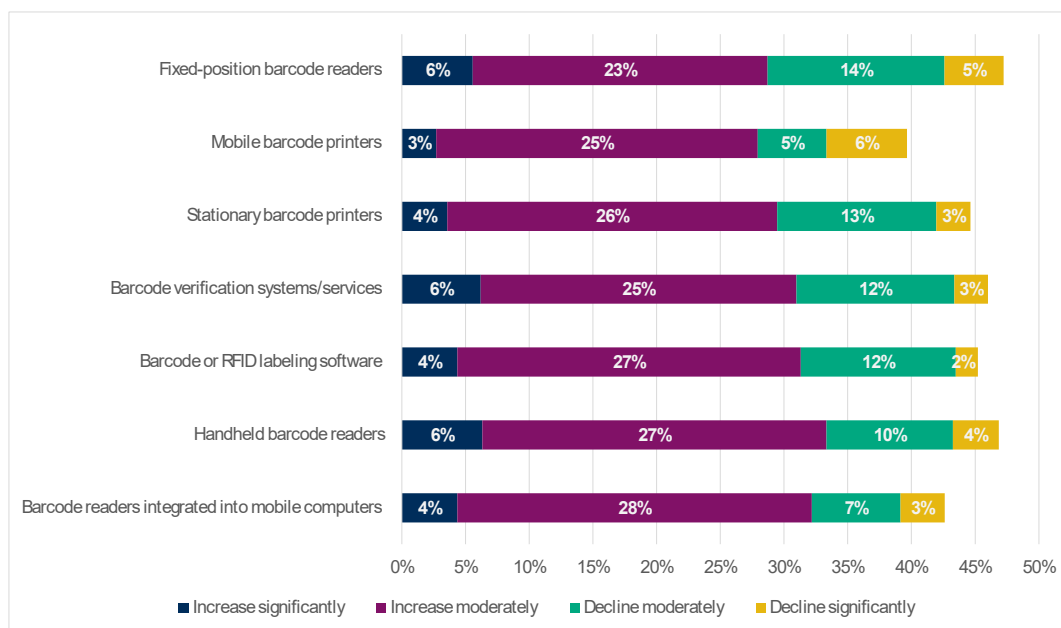
Plans for more sophisticated systems could lead to longer sales cycles. It has become harder for end users to justify the business case for their technology investments, as 14% now say business case is “very challenging” to overcome, up from 6% in the previous study. An additional 30% of end users say justifying the business case is an “obstacle” to their ambitions. Business case is now rated the fourth-strongest challenge (out of 12), after ranking next-to-last in 2022. Business case concern can be a selling point for AIDC solution providers, who can show how their solutions can add value to almost any system by enabling data to be more accurate, complete (e.g. by enhancing item identification with sensor data) and available in real time.

Barcode Highlights

End users are more likely to purchase barcode systems over the next two years than any other technology except sensors. The barcode demand is partly a reflection of the survey audience, but also an acknowledgment of barcoding's fundamental role in enterprise operations. Consider this: enterprises may want to explore using AI in their warehouse operations but know they can run their warehouses without it. They also know they can't get orders processed and shipped on time without functioning barcode systems, so there will be a budget to keep those systems running.

Only about one in five enterprises is unlikely to invest in barcoding (Figure 2), and approximately twice as many enterprises are planning to increase their barcode spending than plan to reduce it (Figure 9). Demand will be strongest for mobile readers.

Figure 14: End User Spending Expectations for Barcode Product Categories, ranked



**Responses do not total 100% because "stay about the same" responses were omitted.*

Because barcode buyers make up such a large part of the survey audience, their results tend to align with the overall. The top five technologies that barcode buyers also plan to purchase are sensors, cloud migration services, customer experience improvement solutions, AI for frontline environments and handheld computers, which all rank in the top six among overall respondents.

Barcode buyers and overall respondents are also consistent in their technology program motivations and obstacles, with one important exception. Approximately half of barcode buyers say lack of standards is either very challenging to overcome (7%) or is an obstacle (42%) to making their desired technology investments, but only 18% of non-barcode buyers feel hampered by lack of standards. The question asks about standards in general and not about standards specific to barcode, RFID or any other technology or program. Barcode and other AIDC technologies are well supported by standards that promote interoperability and usability, so solution providers should emphasize this strength when engaging potential customers. Demonstrating how AIDC standards simplify integration, reduce vendor lock-in and improve long-term scalability can help position these technologies as lower-risk, future-ready investments. That positioning is especially important in an environment where enterprise decision makers are wary of complexity and uncertain ROI.

RFID Highlights

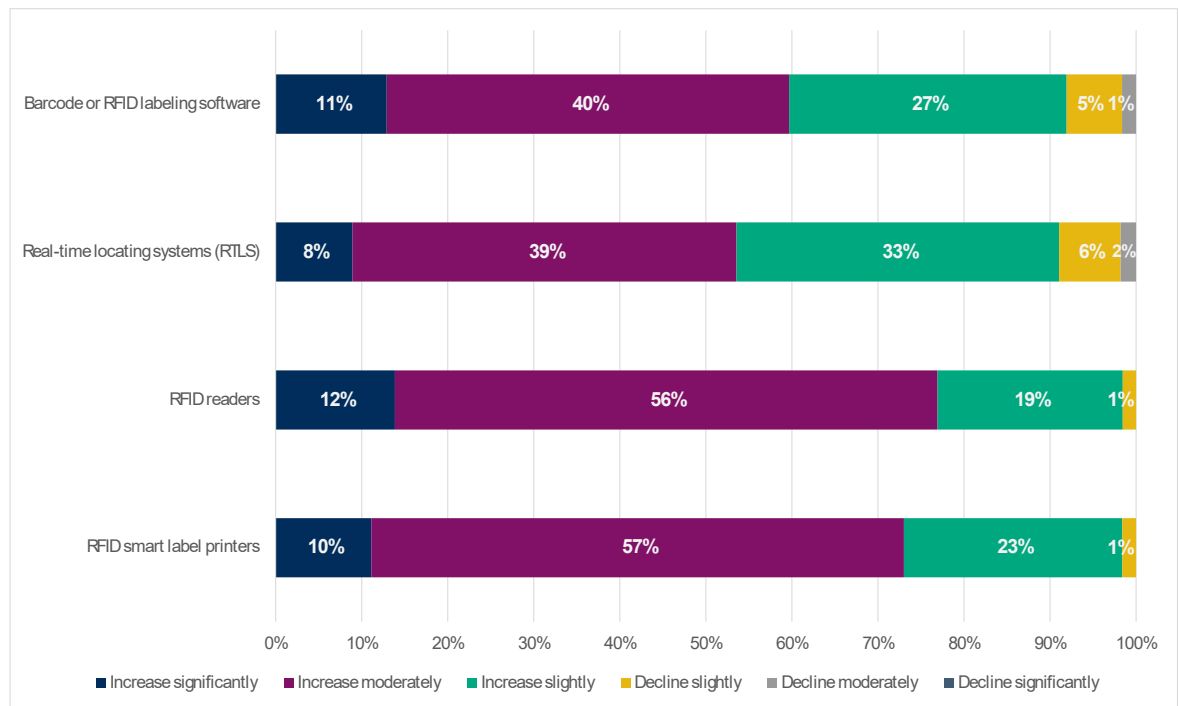
RFID budgets are not as well insulated as barcode and are more at risk for spending cuts or freezes, as highlighted in Figure 15. RFID systems ranked 15th among all technologies that end users plan to purchase (compared to second for barcode systems). RFID purchasing intentions are strong among organizations focusing on traceability, ERP upgrades and IoT, which are all large market segments.

Figure 15: End User Spending Expectation Comparisons for Barcode and RFID Product Categories

	Increase significantly	Increase moderately	Stay about the same	Decline moderately	Decline significantly	Weighted Average	Rank
Barcode readers integrated into mobile computers	4%	28%	57%	7%	3%	4.44	2
RFID readers integrated into mobile computers	3%	22%	63%	7%	5%	4.21	T14
Fixed-position barcode readers	6%	23%	53%	14%	5%	4.21	T14
Stationary RFID readers	5%	18%	60%	13%	4%	4.16	16
Handheld barcode readers	6%	27%	53%	10%	4%	4.42	3
Handheld RFID readers	6%	23%	57%	10%	4%	4.35	T7
Stationary barcode printers	4%	26%	55%	13%	3%	4.29	T9
Mobile barcode printers	3%	25%	60%	5%	6%	4.29	T9
RFID smart label printers	5%	25%	51%	11%	7%	4.23	13

The RFID market is also strong on vendor optimism. Approximately 84% of AIDC industry professionals expect RFID demand to increase in 2025–26 (as measured by the average for all RFID product categories).

Figure 16: AIDC Professionals' Expectations for RFID Demand



*Responses do not total 100% because "stay about the same" responses were omitted.

Traceability Unlocks AIDC Demand

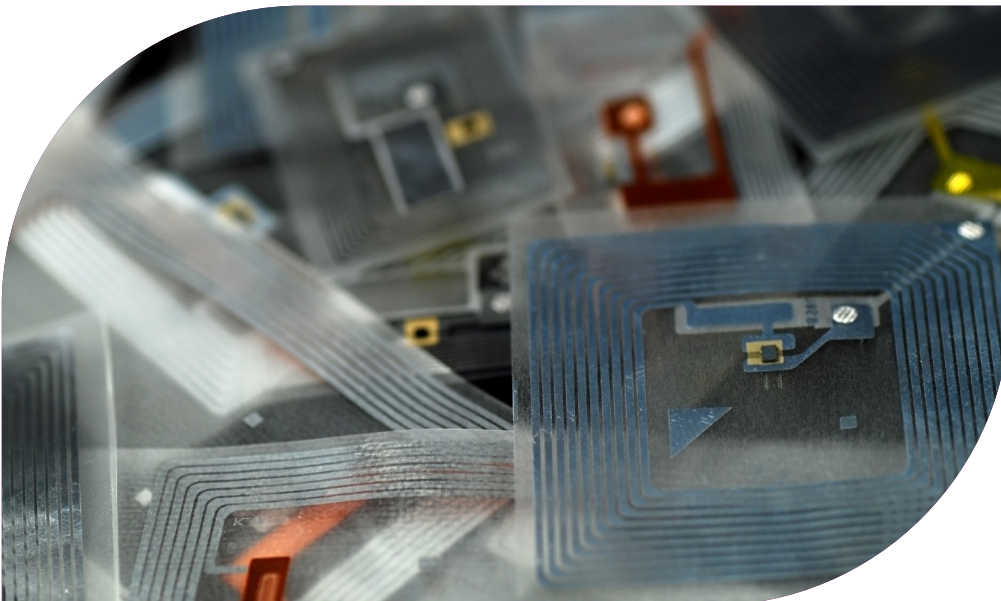
Enterprises that identify themselves as very likely or definitely investing in traceability systems may represent the strongest target market for AIDC technologies. Traceability buyers are much more likely to be buying RFID systems (69% plan to purchase) than enterprises that are not motivated by traceability (only 5% are investing in RFID) and are even more likely to buy barcode systems (75% have firm investment plans). Traceability buyers are also more likely than others to be investing in RTLS systems and supply chain management/warehouse management system (WMS) software; sensors rank behind all those categories on traceability buyers' likelihood to purchase list.

Traceability demand goes beyond specific programs. Among the 100% of companies that are very likely or definitely investing in traceability systems, 56% plan to purchase systems or services for the UDI program and 47% are investing to accommodate Digital Product Passports. Traceability buyers also represent a strong market for solution development and system integration services: 38% say their lack of internal skills is a strong barrier to realizing their technology ambitions, and 26% say finding qualified solution providers is a problem.

Manufacturers Under Pressure

Manufacturing represents the largest market for AIDC solution sales and the largest segment (52%) of survey respondents. Manufacturers strongly influence overall results but have several important characteristics that help define their AIDC market opportunity. External pressures are a relatively stronger motivator to invest in technology than internal improvement goals. The top three drivers for tech investment by manufacturers are the labor and skills shortage, trading partner requests or mandates and supply chain disruption, and about a third of manufacturers say they are still adapting to the aftermath of the COVID-19 pandemic. Improving product or service quality ranked as the strongest influence on technology investment among all respondents, but ranked 14th among manufacturers, with just 4% saying it is their primary investment driver and 43% saying it has little or no influence.

Manufacturers are most likely to purchase sensors (48%) and barcode systems (41%); 25% say they are likely to buy RFID systems but 35% say they are unlikely. Approximately 30% of manufacturers are strongly motivated by digital transformation and 30% are pursuing ERP upgrades, which are both characteristics associated with above-average AIDC demand.



Highlights from Other Buyer Personas

Sensors and barcode systems are the categories most end users will be purchasing, and those buyers generally align with overall results for technology investment influences, obstacles and other products and services they are purchasing. The following sections present highlights for other buyer personas.

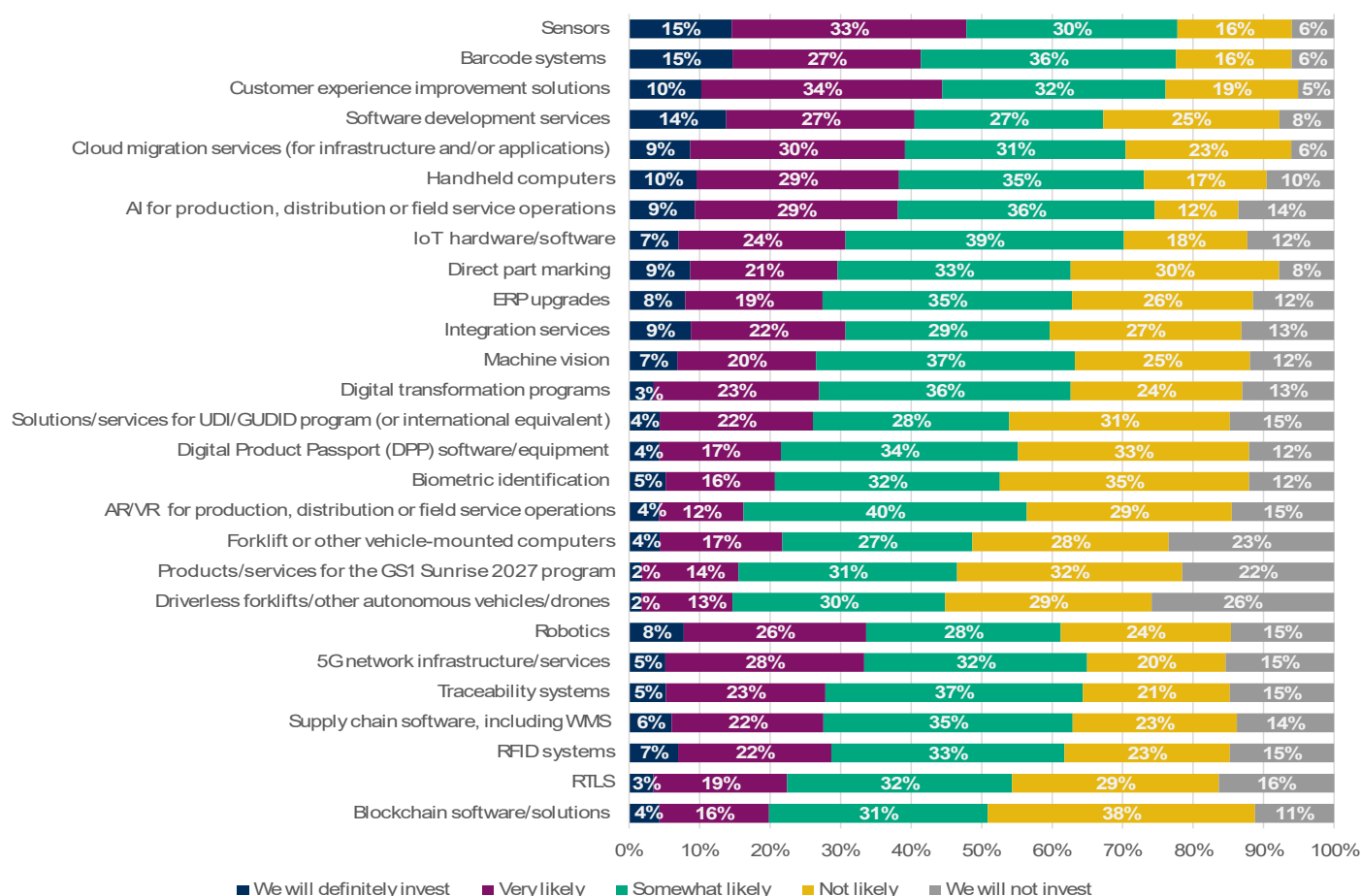
- Enterprises undergoing ERP upgrades:** Fewer enterprises are undergoing ERP upgrades now than three years ago, but such projects still boost AIDC product demand. For example, 58% of organizations that are upgrading their ERP systems are also very likely (39%) or definitely (19%) investing in RFID systems, but only 10% of organizations that are not upgrading their ERP say they are very likely to invest in RFID, and none say they definitely will. For barcode systems, 71% of ERP upgraders are very likely (32%) or definitely (39%) investing, which is 40% higher than organizations that are not upgrading their ERP (29% are very likely to invest in barcoding, 2% say they are definite). Enterprises that are undergoing ERP upgrades are a strong niche for RTLS sales; 58% of ERP buyers are very likely (52%) or definitely (6%) investing in RTLS in the same time frame, and 48% of them expect their RTLS spending to increase moderately (32%) or significantly (16%). The top four AIDC product categories that upgraders plan to increase their budgets for are handheld RFID readers, IoT software, smart label printers and sensors.
- AI buyers:** AI made the largest rise among technologies likely to gain investment, from a tie for 20th in the previous survey to seventh for 2025-26. However, the attention and expectations AI is getting may be disproportionate to actual enterprise activity. Only 38% of enterprises are definitely or very likely to be investing in AI for production, distribution or field service operations in the next two years. Among AIDC professionals, 29% expect AI demand to increase significantly in that period, up from 15% from the previous study. AI buyers have sophisticated systems needs and report stronger technical barriers than overall respondents. Many companies that are pursuing AI for industrial operations are also purchasing IoT infrastructure and they have above-average likelihood to be purchasing RFID. AI buyers are more than twice as likely as others to be purchasing machine vision systems.
- IoT buyers:** The 31% of enterprises that are buying IoT hardware or software over the next two years are also very likely to be upgrading their infrastructure (77% are investing in cloud, 63% in 5G networking and 54% are upgrading their ERP). More than half (57%) of IoT buyers are also buying sensors, but handheld computers, AI for production, distribution or field services, supply chain/WMS software and customer experience management solutions all rank slightly ahead of sensors among technologies likely to be purchased. The top four AIDC product categories that IoT buyers plan to increase their budgets for are sensors, smart label printers, handheld RFID readers and labeling software. Compliance was the top driver for technology investment among IoT buyers (64% cited it as a strong or primary influence) and half are motivated by introducing new services. Despite the integration required for IoT systems, "Finding solutions that work" was the lowest-rated obstacle. IoT buyers are more than 10 times more likely (63%) to be investing in 5G infrastructure than non-IoT buyers (6%).
- 5G buyers:** 5G buyers are slightly above average in the difficulties they face in finding solutions that work, integration and finding qualified partners, which indicates a market opportunity for skilled solution providers. Approximately 62% of enterprises that are moving to 5G are also buying handheld computers and 67% are introducing artificial intelligence into their production, distribution or field service operations. The top five AIDC product categories for which 5G buyers are increasing their spending are IoT software (58% of 5G buyers expect to increase their IoT software spending, compared to 26% of non-5G buyers), sensors, barcode readers integrated into mobile computers, fixed-position industrial computers and forklift-mounted or other vehicle-mounted computers. Although half of 5G buyers are investing in vehicle-mounted computers, two-thirds are not planning to purchase driverless forklifts, drones or other autonomous vehicles, which are 5G use cases that network providers promote.

AIDC's Place on the Enterprise Investment Spectrum

AIDC's Place on the Enterprise Investment Spectrum

End users rated “Too many competing priorities” as the top obstacle to being able to carry out the technology investments they want to make – the study asked about 27 potential enterprise technology and strategy priorities and found support for all of them. Results are presented in Figure 17, which is an expanded version of Figure 2 that shows the relative strength for all 27 options. Sensors and barcode systems top the list, but no other dedicated AIDC categories rank within the top 10. The average category has 29% of end users likely to invest, 38% unlikely and the balance indicating they are somewhat likely.

Figure 17: Technologies Enterprises Are Likely to Purchase 2025–26, ranked



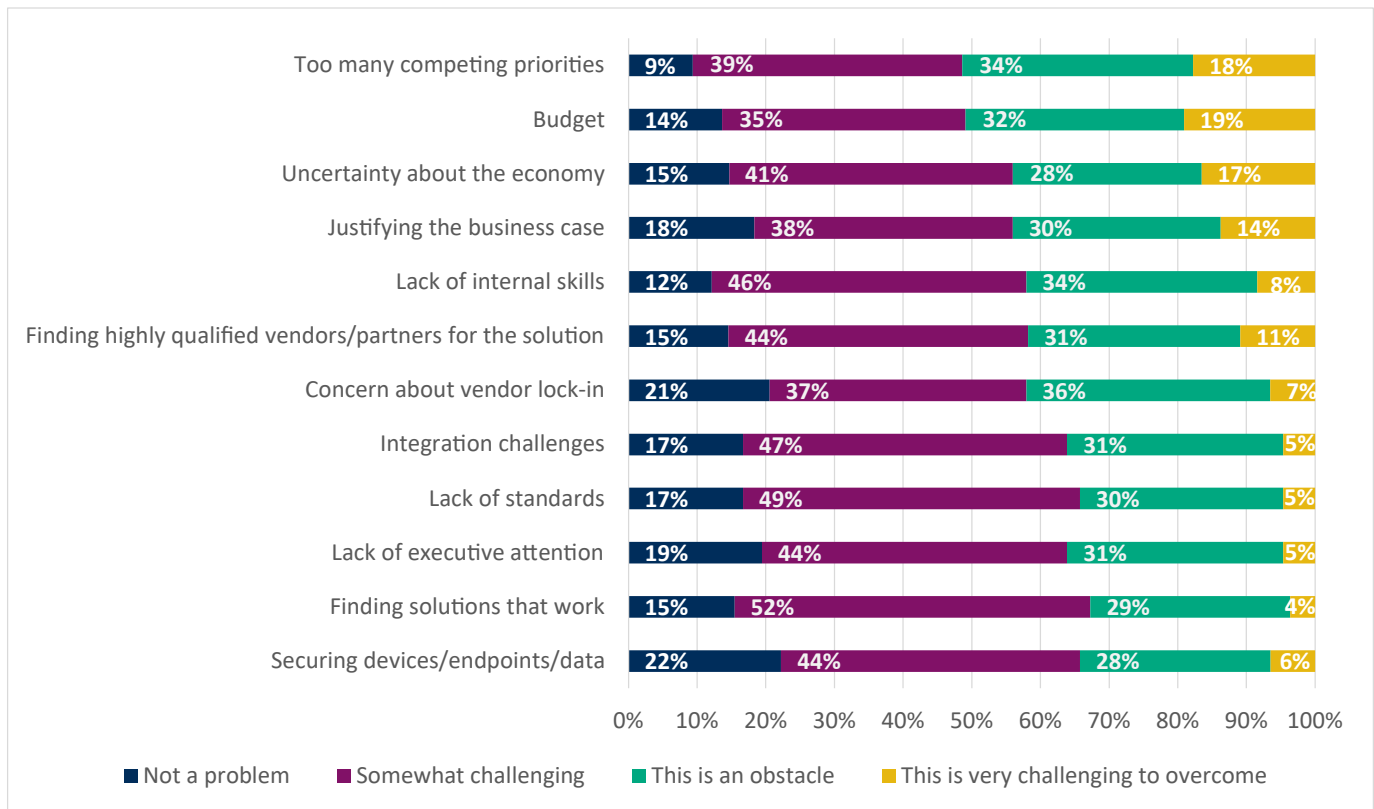
At first glance it appears most product categories have bright sales prospects because a majority of end users are at least somewhat likely to invest in 23 of the 27 options by 2027. However, when results are filtered to likely buyers (those that say they are very likely or definitely investing), no technology reaches the 50% threshold and only four break 40% (sensors, barcode systems, customer experience improvement solutions and software development services). For AIDC demand to grow as strongly as many industry professionals expect, providers will need to convert many of the somewhat likely respondents into actual AIDC buyers. That will require educating enterprise decision makers about how identification and data collection solutions can integrate with and enhance their higher-priority programs.

Eleven categories can be considered top 10 in likelihood to attract end-user investment because robotics and 5G infrastructure tied for 10th place. 5G was one of three categories whose momentum carried them into the top 10 after ranking outside it in the previous benchmark; the others are AI solutions for manufacturing, distribution or field service environments (which rose from twentieth to seventh) and direct part marking (which ranked ninth after previously ranking eighteenth).

Most categories had an increase in “We will not invest” respondents. The response averaged 13% across all categories, more than double the previous 6% level. The 25% average for “Not likely” responses represented a 7% increase, and the “Somewhat likely” category declined 10%. Collectively, these changes suggest enterprises are concentrating their efforts.

Enterprise technology project leaders may be frustrated with the current state. They cite “Too many competing priorities” as the strongest barrier to funding the projects they want (Figure 18). The competition for budget is more of a barrier than competition for executive attention – budget is the second-strongest obstacle, while lack of executive attention ranks second-last. AIDC professionals identified another aspect of the budget challenge: they rated “Interest rates and available financing” as the strongest negative influence on enterprise technology spending.

Figure 18: Enterprise Obstacles to Making Desired Technology Investments, ranked



The combination of budget, economic uncertainty and relatively high interest rates raises the bar for achieving return on investment from technology programs, which make it harder to get them approved. As previously noted, 14% of end users say “Justifying the business case” is very challenging to overcome, up from 6% in 2022, and another 30% consider it an obstacle. The trend toward more sophisticated systems could also make project costs and ROI more difficult to measure and justify.

Conclusions & Recommendations

Conclusions & Recommendations

Sensors and barcode systems have secured a place in technology budgets for 2025-26 as enterprises prioritize investment to create more intelligent infrastructure featuring new cloud, AI, IoT, robotics and 5G components. Those far-reaching modernization areas don't always have an AIDC component that is obvious to end user organizations. Conversely, programs like DPP that clearly will require AIDC do not have high visibility or urgency within many enterprise buyers surveyed.

Here are some recommendations and considerations for product development, market development and ecosystem development that AIDC providers can take to align their solutions with current enterprise priorities and market drivers.

- **Market Development** – Solution providers have a very successful history of educating potential buyers about how AIDC technologies make inventory control, WMS, materials management, ERP and other systems more effective. Can you show how AIDC can improve customer experience, enhance industrial AI programs, supplement supply chain software or support the other systems and strategies enterprises are most interested in today? There is another clear opportunity to grow the market by helping enterprises become aware of upcoming compliance requirements and establishing reasonable expectations for the time and effort that will be needed to comply.
- **Product Development** – The trend toward sophisticated systems means enterprises will likely be integrating disparate components from multiple manufacturers. AIDC products need to be integration-friendly, supporting the standards and protocols customers favor for various environments. Based on current enterprise investment plans, that means AIDC products should be able to easily integrate with IoT infrastructure, be cloud compatible (if appropriate) and support 5G connectivity for remote monitoring or control. Native integration to leading ERP, supply chain management, WMS and other software solutions could also be advantageous.
- **Ecosystem Development** – Skills shortages that help drive automation can also make it difficult for providers to add the talent needed to keep up with demand. As enterprise ambitions pull AIDC technologies in new directions, it becomes more important for providers to have partners with expertise in different technology and market domains. AIDC technology providers should consider looking beyond their traditional distribution and development channels and to partner with specialists in industrial AI, robotics automation to enhance CX, IoT, advanced networking and other adjacent markets. Examples include large global systems integrators (GSIs) like Accenture, Capgemini, TCS, Wipro and others, who are currently helping many companies upgrade ERP systems to support IoT inputs. Cellular network providers are another option. They are actively trying to modernize networks in factories and distribution centers besides providing wide-area connectivity, and have partner programs to develop and promote IoT solutions.

Enterprise AIDC budgets currently appear tight but stable. Solution providers can ignite demand by aligning their offerings with higher-priority programs and stronger business drivers, such as enablers for improving quality and responsiveness, or as a protection to mitigate supply chain disruption. Providers can make preparing for compliance with DPP, GS1 Sunrise 2027, FSMA and other programs more of an enterprise priority by educating enterprises about the requirements and AIDC's role in meeting them. AIDC can improve the performance of almost any system by making more data available, making data more accurate and making data more timely. Those are underlying value propositions that have fueled AIDC's past growth and will ensure its fit within future enterprise systems.

Endnotes

- i Logility "Supply Chain Horizons 2025" <https://www.logility.com/white-papers/sc-horizons-2025-market-report/>.
- ii MHI "2025 Industry Report" <https://og.mhi.org/publications/report#download11>.
- iii Consumer Goods Technology "2024 Supply Chain Technology Study: Recalibrating for the Future Normal" <https://consumergoods.com/2024-supply-chain-technology-study?email-confirmed=1740663956642>.

Appendix A

End User Response Data

Appendix A - End User Response Data

What is your organization's primary industry?

Manufacturing	52%
Logistics/Distribution	7%
Wholesale	3%
Retail	6%
Healthcare	8%
Business Services	2%
Agriculture	1%
Public Sector	3%
Consulting	7%
Other (please specify)	13%

If you answered Manufacturing, which vertical best describes your company?

Industrial goods	27%
Consumer goods	11%
Tech products	21%
Medical equipment/supplies/pharmaceuticals	16%
Food or beverage	11%
Chemicals	1%
Other (please specify)	12%

***What region(s) are you responsible for?
(Check all that apply)***

U.S. and/or Canada	83%
Asia Pacific, including Australia and New Zealand	21%
Europe and/or U.K.	19%
Latin America	9%
Middle East	7%
Africa	5%

What best describes your level?

Board	5%
CEO, president	8%
Director/VP	9%
Manager	43%
Operations	16%
Other (please specify)	18%

How likely is your organization to purchase the following technologies or services by the end of 2026?

Category	We will not invest	Not likely	Somewhat likely	Very likely	We will definitely invest	Weighted Average	Rank
Sensors	6%	16%	30%	33%	15%	3.34	1
Barcode systems	6%	16%	36%	27%	15%	3.28	2
Customer experience improvement solutions	5%	19%	32%	34%	10%	3.26	3
Software development services	8%	25%	27%	27%	14%	3.14	4
CMS (for infrastructure and/or applications)	6%	23%	31%	30%	9%	3.12	5
Handheld computers	10%	17%	35%	29%	10%	3.11	6
AI for production, distribution or field service	14%	12%	36%	29%	9%	3.08	7
IoT hardware/software	12%	18%	39%	24%	7%	2.96	8
Direct part marking	8%	30%	33%	21%	9%	2.93	9
5G network infrastructure/services	15%	20%	32%	28%	5%	2.88	T10
Robotics	15%	24%	28%	26%	8%	2.88	T10
ERP upgrades	12%	26%	35%	19%	8%	2.87	12
Integration services	13%	27%	29%	22%	9%	2.86	13
Machine vision	12%	25%	37%	20%	7%	2.85	14
RFID systems	15%	23%	33%	22%	7%	2.83	T15
Supply chain software, including WMS	14%	23%	35%	22%	6%	2.83	T15
Traceability systems	15%	21%	37%	23%	5%	2.83	T15
Digital transformation programs	13%	24%	36%	23%	3%	2.80	18
Solutions/services for UDI/GUDID program (or international equivalent)	15%	31%	28%	22%	4%	2.70	19
Digital Product Passport (DPP) software/equipment	12%	33%	34%	17%	4%	2.69	20
Biometric identification	12%	35%	32%	16%	5%	2.66	21
Blockchain software/solutions	11%	38%	31%	16%	4%	2.64	T22
Real-time locating systems (RTLS)	16%	29%	32%	19%	3%	2.64	T22
AR/VR for production, distribution or field service	15%	29%	40%	12%	4%	2.62	24
Forklift or other vehicle-mounted computers	23%	28%	27%	17%	4%	2.51	25
GS1 Sunrise program products/services	22%	32%	31%	14%	2%	2.42	26
Driverless forklifts/other autonomous vehicles/drones	26%	29%	30%	13%	2%	2.35	27

How do you think your organization's investment in automatic identification and data collection (AIDC) technologies will change from the start of 2025 through the end of 2026?

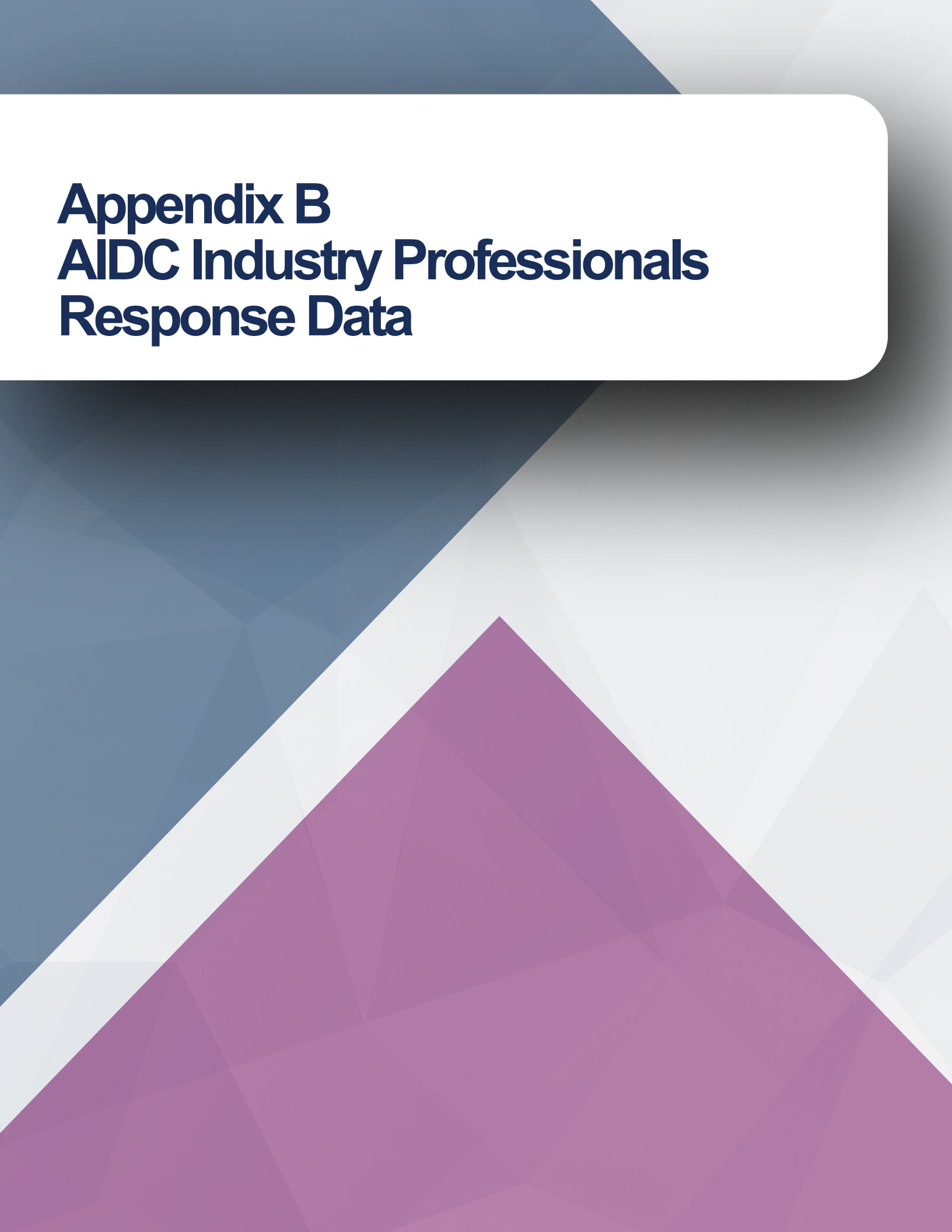
	Decline significantly	Decline moderately	Stay about the same	Increase moderately	Increase significantly	Weighted Average	Rank
Sensors	3%	9%	47%	31%	10%	4.66	1
Barcode readers integrated into mobile computers	3%	7%	57%	28%	4%	4.44	2
Handheld barcode readers	4%	10%	53%	27%	6%	4.42	3
Internet of Things (IoT) hardware	4%	11%	51%	26%	8%	4.41	4
Barcode or RFID labeling software	2%	12%	55%	27%	4%	4.37	5
IoT software	5%	10%	51%	28%	5%	4.36	6
Barcode verification systems/services	3%	12%	54%	25%	6%	4.35	T7
Handheld RFID readers	4%	10%	57%	23%	6%	4.35	T7
Mobile barcode printers	6%	5%	60%	25%	3%	4.29	T9
Rugged mobile computers	5%	11%	54%	28%	3%	4.29	T9
Stationary barcode printers	3%	13%	55%	26%	4%	4.29	T9
Fixed-position industrial computers	2%	15%	55%	22%	6%	4.26	12
RFID smart label printers	7%	11%	51%	25%	5%	4.23	13
Fixed-position barcode readers	5%	14%	53%	23%	6%	4.21	T14
RFID readers integrated into mobile computers	5%	7%	63%	22%	3%	4.21	T14
Stationary RFID readers	4%	13%	60%	18%	5%	4.16	16
Biometric identification systems	4%	18%	51%	20%	7%	4.12	17
Forklift or other vehicle-mounted computers	8%	12%	56%	18%	6%	4.07	18
Real-time locating systems (RTLS)	9%	12%	56%	19%	5%	4.01	19
Blockchain software/solutions	5%	17%	57%	17%	5%	4.00	20

How much influence do the following business conditions and strategies have on your current technology investment plans?

	No influence	Slight influence	Moderate influence	Strong influence	This is the primary driver for the investment	Weighted Average	Rank
Desire to improve product or service quality	8%	14%	34%	32%	12%	3.24	1
Customer demands for faster response times	10%	14%	34%	32%	9%	3.16	2
Supply chain disruption	8%	22%	32%	34%	4%	3.04	3
Compliance for regulatory or reporting requirements	9%	24%	32%	25%	10%	3.03	4
Desire for improved internal visibility (e.g. inventory, WIP, asset utilization)	13%	12%	40%	29%	5%	3.02	5
Labor/skills shortage	10%	17%	41%	31%	2%	2.98	6
Introducing new services (including predictive maintenance)	12%	15%	46%	20%	7%	2.95	7
Growing climate	12%	20%	37%	28%	3%	2.90	8
Desire for improved supply chain visibility	14%	18%	40%	25%	4%	2.86	9
Supporting new engagement or fulfillment channels	12%	23%	41%	20%	5%	2.82	10
Digital transformation programs	14%	16%	48%	17%	5%	2.81	11
Trading partner requests or mandates	13%	25%	35%	26%	1%	2.76	12
ERP upgrade	13%	28%	37%	18%	5%	2.74	13
Sustainability or other ESG initiatives	20%	22%	36%	16%	5%	2.65	14
Patient safety initiatives	25%	24%	28%	18%	5%	2.54	15
Adaptation resulting from COVID	24%	25%	33%	15%	2%	2.45	16

What are your leading obstacles to making these investments?

	Not a problem	Somewhat challenging	This is an obstacle	This is very challenging to overcome	Weighted Average	Rank
Too many competing priorities	9%	39%	34%	18%	2.60	1
Budget	14%	35%	32%	19%	2.56	2
Uncertainty about the economy	15%	41%	28%	17%	2.46	3
Justifying the business case	18%	38%	30%	14%	2.39	4
Finding highly qualified vendors/partners for the solution	15%	44%	31%	11%	2.38	T5
Lack of internal skills	12%	46%	34%	8%	2.38	T5
Concern about vendor lock-in	21%	37%	36%	7%	2.28	7
Integration challenges	17%	47%	31%	5%	2.24	8
Lack of standards	17%	49%	30%	5%	2.22	9
Finding solutions that work	15%	52%	29%	4%	2.21	T10
Lack of executive attention	19%	44%	31%	5%	2.21	T10
Securing devices/endpoints/data	22%	44%	28%	6%	2.19	12



Appendix B

AIDC Industry Professionals

Response Data

Appendix B - AIDC Professionals Charts

What best describes your business type?

Hardware manufacturer	27%
Systems Integrator or Value Added Reseller (VAR)	45%
Distributor	6%
Independent software vendor (ISV)	16%
Consultant	5%
Industry association or standards organization	2%

Which geographic regions do you serve? (Check all that apply)

U.S. - national	72%
U.S. - regional	19%
Canada	46%
Latin America	41%
Europe - all	49%
Europe - some countries/regions	11%
U.K.	34%
Asia-Pacific - all	24%
Asia-Pacific - some countries/regions	22%
Middle East	27%
Africa	19%
Other (please specify)	4%

What are the main industries and use cases you provide AIDC technologies for? (check all that apply)

Manufacturing	78%
Distribution/logistics	77%
Warehouse management	72%
Inventory control	70%
Asset management	70%
Packaging & labeling	57%
Healthcare	53%
Production control	51%
Retail - in store systems	47%
Field services	39%
Public sector	30%
Other (please specify)	10%

From the start of 2025 until the end of 2026, how much of your AIDC sales do you expect to be replacing existing equipment, and how much will be for new systems?

Replacements will account for more than 75% of projects/sales	5%
Replacements will account for approximately 55% to 75% of projects/sales	13%
Replacement projects and new projects will be approximately even	33%
New implementations will account for 55% to 75% of projects/sales	24%
New implementations will account for more than 75% of projects/sales	24%

How much do you think the demand for AIDC technologies and services will change in the following industries and use cases between the start of 2025 and the end of 2026? Please only answer for categories you are familiar with.

	Decline significantly	Decline moderately	Decline slightly	Stay about the same	Increase slightly	Increase moderately	Increase significantly	Weighted Average	Rank
RFID readers	0%	0%	1%	11%	19%	56%	12%	5.55	T1
RFID smart label printers	0%	0%	1%	9%	23%	57%	10%	5.55	T1
AI for production, distribution or field service	0%	0%	0%	10%	27%	35%	29%	5.54	3
Integration services	0%	0%	4%	9%	29%	50%	7%	5.40	4
Asset tracking/management software	0%	0%	3%	15%	29%	38%	15%	5.33	5
IoT hardware	0%	0%	5%	9%	38%	38%	11%	5.30	6
Traceability software	0%	0%	6%	7%	43%	32%	12%	5.25	7
Supply chain management software, including WMS	0%	2%	2%	12%	42%	31%	12%	5.23	8
Barcode or RFID labeling software	0%	1%	5%	15%	27%	40%	11%	5.21	T9
IoT software	0%	0%	9%	9%	35%	40%	7%	5.21	T9
Sensors	0%	0%	4%	11%	46%	30%	9%	5.2	11
Digital Product Passport (DPP) products/services	2%	2%	3%	12%	32%	34%	15%	5.19	12
Real-time locating systems (RTLS)	0%	2%	6%	13%	33%	39%	8%	5.17	T13
Robotics	0%	0%	2%	21%	36%	26%	15%	5.17	T13
Machine vision	0%	0%	9%	13%	34%	34%	11%	5.14	15
Handheld computers	0%	2%	3%	20%	37%	31%	8%	5.08	16
Rugged mobile computers	0%	2%	3%	21%	39%	30%	5%	5.02	17
Maintenance software	0%	0%	6%	28%	35%	26%	6%	4.93	T18
UDI/GUDID program (or international equivalent) products/services	0%	2%	6%	26%	31%	22%	13%	4.93	T18
5G network infrastructure/services	0%	0%	6%	27%	35%	23%	8%	4.92	20
Wi-Fi 6	0%	2%	2%	33%	37%	18%	8%	4.84	21
Driverless forklifts/other vehicles/drones	0%	0%	4%	26%	53%	15%	2%	4.83	22
Speech recognition/speech data input	0%	0%	4%	37%	33%	14%	12%	4.80	23
Mobile OS upgrades	0%	0%	6%	35%	38%	15%	6%	4.75	24
Enterprise resource planning (ERP) software	0%	2%	3%	39%	32%	19%	5%	4.74	25
Forklift or other vehicle-mounted computers	0%	2%	7%	27%	47%	17%	2%	4.73	26
GS1 Sunrise 2027 products/services	4%	2%	4%	26%	34%	23%	6%	4.72	27
Direct part marking	0%	3%	7%	39%	22%	17%	12%	4.66	T28
Manufacturing execution systems (MES)	0%	0%	8%	36%	40%	13%	4%	4.66	T28
Barcode printers	0%	6%	6%	32%	29%	22%	4%	4.65	30

Do you think the current enterprise focus on digital transformation is helping or reducing demand for AIDC technologies and systems?

Digital transformation programs are strongly boosting demand for AIDC products and services	38%
Digital transformation programs are resulting in some increased demand for AIDC products and services	49%
Digital transformation programs have little to no effect on AIDC demand	8%
Digital transformation programs are taking some spending away AIDC products and services	5%
Digital transformation programs are significantly reducing investment in AIDC products and services	1%

How much influence to the following business conditions and strategies have on your customers' and prospects' technology investment plans?

	Strong positive influence	Moderate positive influence	Little or no influence	Moderate negative influence	Strong negative influence	Weighted Average	Rank
Desire for improved supply chain visibility	17%	57%	10%	14%	2%	4.30	1
Desire for improved internal visibility (e.g. inventory, WIP, asset utilization)	23%	49%	12%	15%	1%	4.26	2
Customer demands for faster response times	16%	51%	21%	9%	3%	4.20	3
Desire to improve product or service quality	9%	54%	22%	12%	3%	4.09	T4
Digital transformation programs	14%	49%	24%	9%	4%	4.09	T4
Compliance for regulatory or reporting requirements	11%	53%	21%	12%	4%	4.07	6
Desire to improve IT/data security	14%	42%	29%	10%	4%	3.94	7
Patient safety initiatives	6%	42%	41%	10%	1%	3.83	8
Introducing new services (e.g. predictive maintenance, X-as-a-Service, etc.)	9%	38%	43%	7%	3%	3.81	9
Supporting new engagement or fulfillment channels	8%	38%	41%	13%	0%	3.79	10
Transitioning applications and systems to the cloud	3%	39%	46%	11%	1%	3.71	11
Supply chain disruption	9%	41%	24%	23%	4%	3.70	12
Labor/skills shortage	12%	39%	20%	21%	8%	3.66	13
Trading partner requests or mandates	13%	32%	35%	18%	3%	3.65	14
Growth climate	2%	39%	44%	13%	3%	3.63	15
ERP upgrade	4%	33%	45%	14%	3%	3.55	16
Sustainability or other ESG initiatives	0%	37%	47%	13%	3%	3.54	17
Adaptation resulting from COVID	3%	19%	67%	9%	3%	3.29	18
Reorganization after M&A	2%	19%	58%	20%	2%	3.17	19
Finance terms/interest rates	6%	9%	45%	34%	6%	2.85	20

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