

Deep Dive

Retail Challenges Drive Edge Technology Investment

Executive Summary

Retailers are facing a host of challenges, including intense competition, macroeconomic headwinds and shifting consumer preferences, and they also need to grow revenues, manage costs and improve efficiency. In this report, we leverage proprietary survey findings to explore the perceived impacts of various business components on US retailers' revenues and assess retailers' current and planned investment levels in in-store technology to address these. We reveal how these significant investment plans require accompanying investment in proper supportive cloud and edge technology infrastructure.

Market Scale and Opportunity

- Our survey found that more than two-thirds of retailers plan to increase their investment in technology over the next three years, with nearly three in 10 planning to increase spending by at least 10%.

Coresight Research Analysis

- We identify five major aspects of business that impact retailers' revenues: associate empowerment, business insights, customer engagement, operational efficiency, and security and safety. On average, retailers rank security and safety as having the biggest impact on net revenue compared to other categories.
- Within safety and security, enterprise data security ranked highest, likely reflecting the enormous pressure on management to maintain customer trust and avoid the negative repercussions of a data breach.
- Our survey found that retailers experience significant impacts on revenue across a broad range of operational areas. Retailers recognize the potential of technologies to address these areas: at least 86% of retailers indicated that they either currently use or plan to use various emerging technologies across business categories—and over one-third of all retailers plan to increase their investment in each type of technology over the next three years.

What We Think

Our survey results show that retailers have a healthy outlook on IT spending and that they report both using several leading-edge technologies currently, with concrete plans to use them in the future. To increase flexibility and performance, retailers need to deploy additional computing power nearer to the physical store, which works in concert with the enormous computing power available in public clouds.

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Introduction

Retailers face brisk headwinds in 2023. With market competition increasing, retailers must invest in initiatives to boost revenue and differentiate their business offerings. At the same time, consumer expectations are rapidly shifting, with shoppers seeking a more experiential, flexible and seamless shopping experience than ever before. Given these factors in the context of an uncertain macroeconomic environment, retailers must address crucial business components and identify solutions to drive growth and weather near- and long-term challenges.

In this report, we examine retailers' rapid investment in in-store technology and the implications, leveraging proprietary findings from a Coresight Research survey of US-based IT decision makers conducted in November 2022. We explore the perceived impacts of business components on US retailers' revenues, across five major aspects of business: associate empowerment, business insights, customer engagement, operational efficiency, and security and safety. We assess retailers' investment levels in technology to address these components, maintain a competitive advantage and drive sales in a difficult environment.

Retailers can tap business gains through technology solutions, such as by leveraging cloud computing and deploying computing power closer to physical stores—also known as on-the-edge computing.

Retailers can tap business gains through technology solutions, such as by leveraging cloud computing, which enables them to turn fixed costs into variable costs, access near-unlimited computing power and develop new functions more quickly and easily. Yet the cloud on its own may not be enough; retailers also need to deploy computing power closer to physical stores—for example, on store premises—which is also known as on-the-edge computing, to enhance security and provide a quicker response for functions such as computer vision, which are sensitive to delays in the network (i.e., latency).

- **Cloud** describes computing infrastructure in which data is sent to a remote server or data center to be processed, managed and stored.
- **Edge** describes computing infrastructure in which data is processed closer to the source, rather than sending all data collected to a central data center (such as the cloud). Compared to cloud, edge computing can process smaller amounts of data at a time, process data faster and achieve faster response times once data is processed.

In fact, Coresight Research found that 68% of retailers are increasing their spending on in-store technology over the next three years, which we believe will predominantly be focused on edge computing, given our survey results (discussed in this report). Finally, we believe that retailers need a software platform that determines which actions need to be performed in the cloud and which actions are best performed locally.

This report is sponsored by VMware, an industry leader in multi-cloud services and infrastructure.

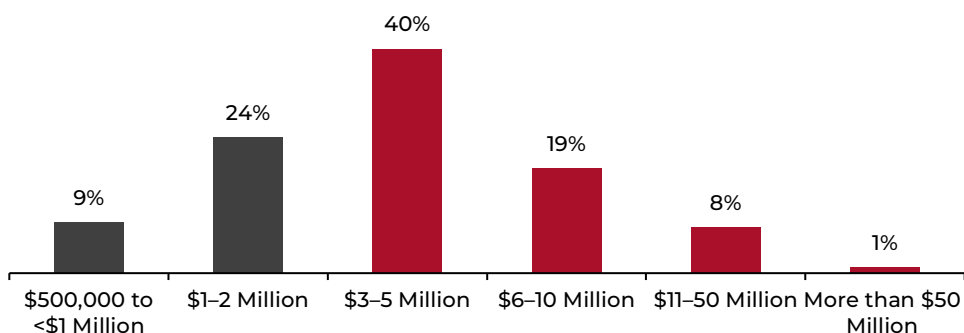
Market Scale and Opportunity

According to a Coresight Research survey of US-based IT decision makers who spend at least \$100,000 on IT solutions per year, conducted in November 2022, more than two-thirds (68%) of retailers spent at least \$3 million on IT in 2021 (the latest completed year at the time of the survey). Much of that spending is likely to have been focused on expanding e-commerce capabilities to adapt to rapidly

changing consumer needs during the pandemic, resulting in less spending on physical stores.

In the near term, we expect strong IT spending among physical retailers as consumers return to brick-and-mortar stores and expect a more engaging, responsive and tech-enabled shopping experience, as we discuss in our [Global Retail in 2023](#) report.

Figure 1. US Retailer Spending on Information Technology in 2021 (USD)



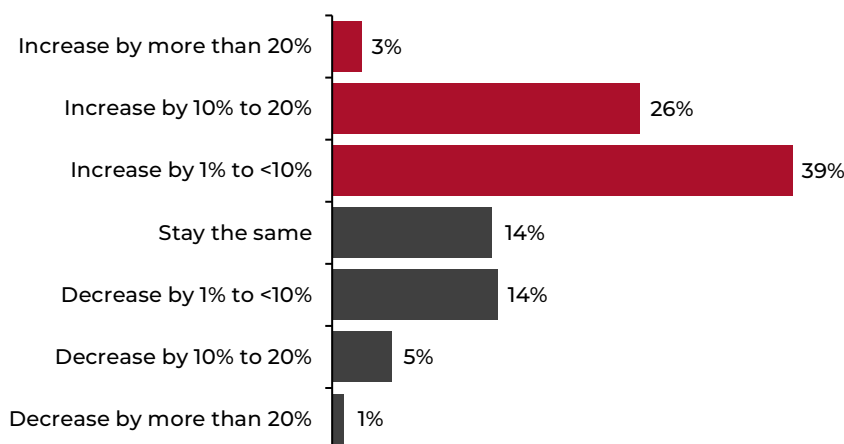
Over two-thirds (68%) of retailers spent **at least \$3 million** on IT in 2021

Percentages may not sum to 100 due to rounding
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

Nearly three in 10 (29%) retailers plan to increase retail technology spending by at least 10% in the near term.

Our survey found that more than two-thirds of retailers plan to increase their investment in technology over the next three years, with nearly three in 10 (29%) planning to increase spending by at least 10% (see Figure 2). We think that this near-term focus on technology implementation indicates that retailers believe they can use technology solutions to realize real and important business benefits and address a range of current business components impacting net revenue.

Figure 2. US Retailers' Plans for Technology Investment over the Next Three Years Compared to Now (% of Respondents)



More than two-thirds (68%) of retailers plan to **increase their investment** in technology over the next three years

Percentages may not sum to 100 due to rounding
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

Retail Challenges Drive Edge Technology Investment: Coresight Research x VMware Analysis

Five Business Areas Impacting Retailers’ Revenues

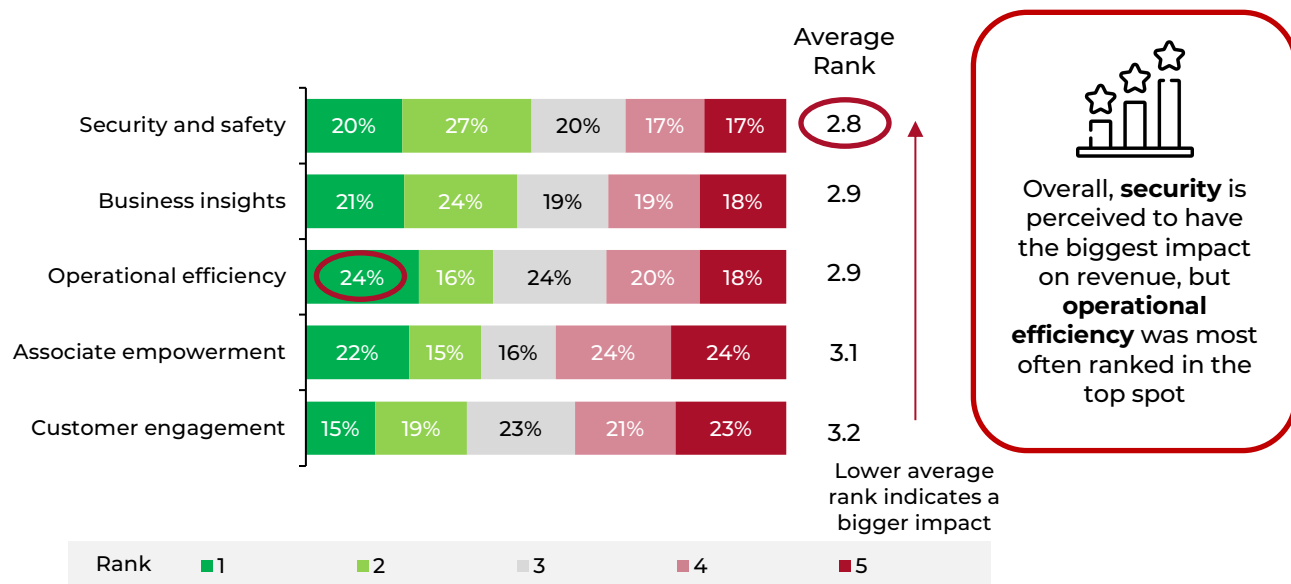
We identify five major aspects of business that impact retailers’ revenues: associate empowerment, business insights, customer engagement, operational efficiency, and security and safety. Given the background of our respondents (working in IT), we assumed that they would be well versed in the relevant components of these categories. Our survey analysis reveals retailers’ perceptions of how much these categories impact revenue, indicating the key focus areas and priorities of these companies. In the following sections, we explore each of the business categories in order of average ranking (with lower ranks signifying bigger impacts), shown in Figure 3.

Overall, security is perceived to have the biggest impact on revenue, but operational efficiency was most often ranked in the top spot.

On average, retailers rank security and safety business elements as having the biggest impact on net revenue compared to other categories, with nearly half (47%) of all respondents placing this category in Rank 1 or Rank 2 (the biggest impacts). However, operational efficiency was placed in the Rank 1 spot by the highest proportion of retailers (24%)—and the average weighted rankings of each category are very close, ranging from 2.8 to 3.2.

Coupled with the strong intentions to increase technology investments, as discussed above, the close rankings reveal that retailers are likely experiencing elements impacting net revenue across business categories, leading them to seek a more holistic and infrastructure-level approach to maximizing revenue through technology implementation.

Figure 3. Five Business Categories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the five categories based on their potential impact on net revenue, from 1 (biggest impact) to 5 (lowest impact)
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

Among security and safety concerns, retailers indicated that enterprise data security was the most important element impacting net revenue.

1. Security and Safety: The Most Pressing Category Impacting Revenue

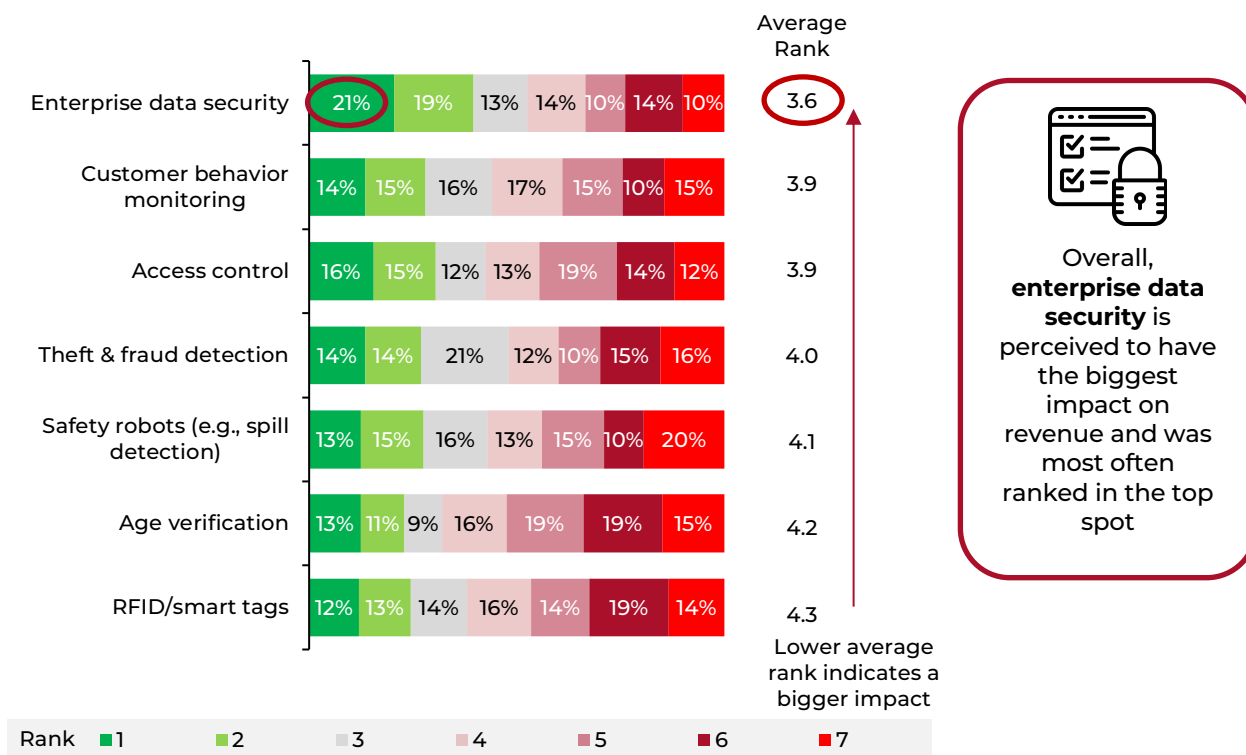
According to our survey, as shown in Figure 3, US retailers ranked security and safety as the most significant element impacting net revenue. Retailers face a growing number of potential threats and challenges, including cybersecurity breaches—a particularly sensitive issue due to potential loss of sensitive customer data and the ensuing damage to the retailer’s reputation. In addition, organized retail crime, fraud at the checkout terminal and threats to associates’ safety are increasing concerns for retailers.

The National Retail Federation (NRF) reported that retailers experienced an average 26.5% increase in [organized retail crime](#) incidents in 2021. Social and legal changes may be accelerating retail crime. For example, variation by state in felony theft thresholds enable individuals to steal more or higher-value items without the fear of stronger penalties. According to the NRF’s Organized Retail Crime Survey in 2020, 64% of retailers reported that they saw an increase in the average organized retail case value in states that had increased the felony threshold, up from 51% in 2019. In addition, the Covid-19 pandemic was an accelerant as thieves were emboldened since courts were closed and law enforcement was not responding to nonviolent property crimes.

To protect against retail crime, retailers may shift their investment priorities: while next-generation technologies can provide bells and whistles, retailers are feeling more pressure since the pandemic to focus on data and asset protection.

Within security and safety, we asked retailers to rank subcategories (specific business components impacting net revenue) based on their impact on net revenue, as shown in Figure 4. Our survey results reveal that enterprise data security is perceived to have the biggest impact on revenue (with the lowest weighted average rank of 3.6) and was most often ranked in the top spot (21% of respondents). We attribute this to increased threats of cybercrime and returns fraud, as omnichannel expansion by retailers during the pandemic has resulted in a greater number of potential points of weakness in networks, and cybercriminals have recently targeted technology providers in order to gain access to networks.

Figure 4. Security and Safety Subcategories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the seven categories based on their potential impact on net revenue, from 1 (biggest impact) to 7 (lowest impact)
 Base: 200 US-based IT decision makers, surveyed in November 2022
 Source: Coresight Research

Computer vision can analyze customer behavior to determine loitering, dangerous behavior or theft and fraud at self-checkout terminals. This analysis requires a substantial amount of computing power that needs to be available on demand and located on the edge of the network to guarantee acceptable availability and response times (i.e., with low latency).

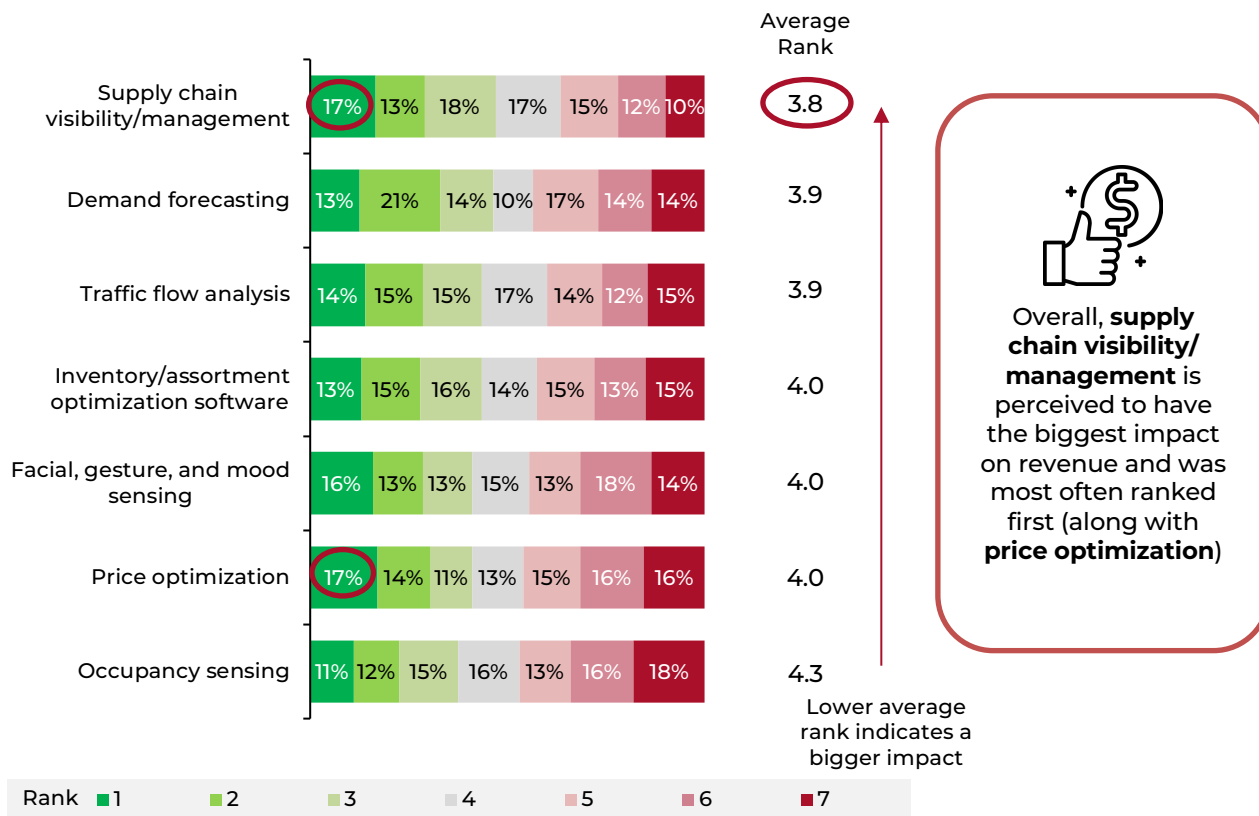
2. Business Insights: Supply Chain Challenges and Inflation Remain Revenue-Generation Obstacles for Retailers

“Retailers ranked “business insights” as the second most significant category overall.

Retailers continued to combat supply chain bottlenecks and high inventory levels in 2022 due to inflation and global conflict. Nearly half of all survey respondents ranked supply chain visibility/management as one of the top three components impacting net revenue in the business insights category (see Figure 5).

Supply chain visibility/management was also ranked by 17% of respondents as having the biggest impact on revenue (rank 1) among all business insights subcategories, tied with price optimization. Price optimization is a major challenge affecting retailer revenue, particularly in the current inflationary environment.

Figure 5. Business Insights Subcategories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the seven categories based on their potential impact on net revenue, from 1 (biggest impact) to 7 (lowest impact)
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

The highest proportion of surveyed retailers (24%) ranked operational efficiency as the business category with the biggest impact on revenue. The top-ranked element among operational efficiency components was energy monitoring.

Business intelligence and analytical functions are typically not time-sensitive and can be performed in the public cloud. However, required response times for insights from functions such as demand and price optimization are becoming shorter and shorter as the need for data in retail approaches a real-time level.

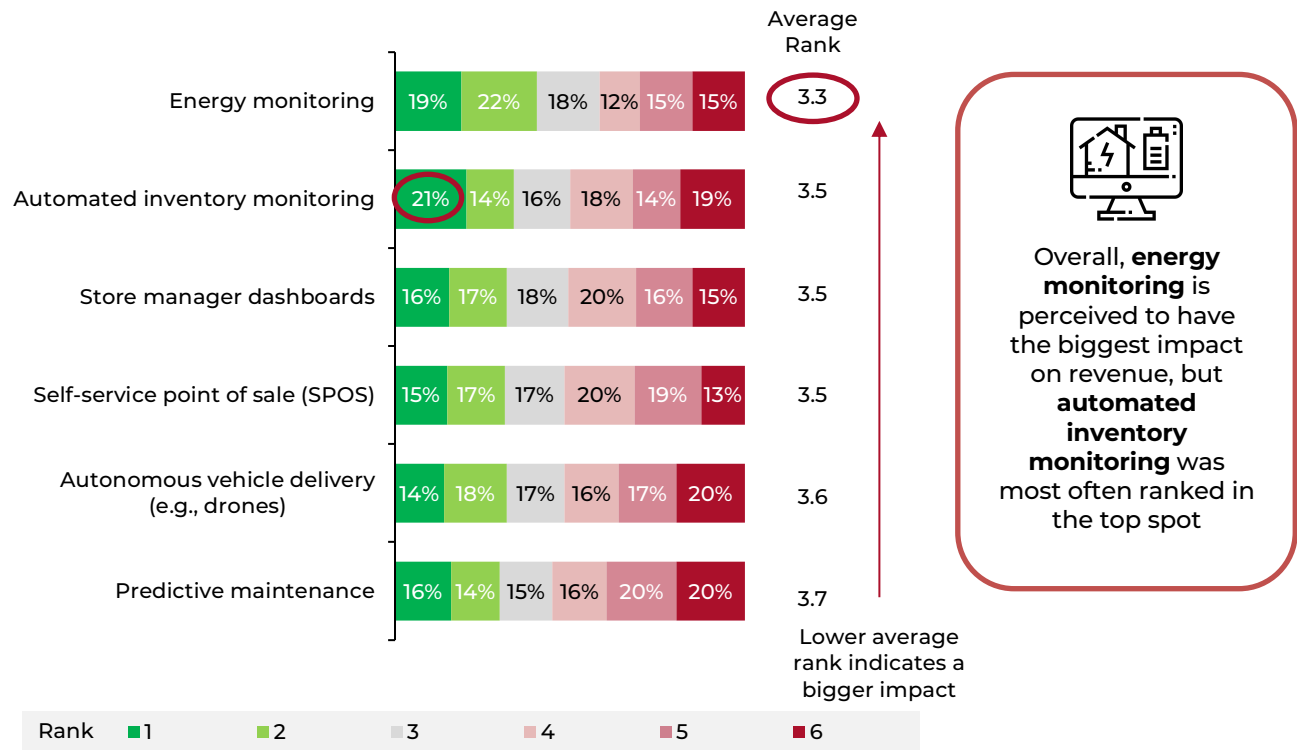
3. Operational Efficiency: Retailers Require Increased Visibility into Operations Management

As we highlighted earlier, the highest proportion of surveyed retailers (24%) ranked operational efficiency as the business category with the biggest impact on revenue, as shown in Figure 3.

Within the operational efficiency category, our survey found little differentiation between various elements impacting net revenue, given that three of the six categories tied with an average rank of 3.5. Energy monitoring emerged as the top-ranked elements impacting net revenue, on average (with a weighted rank of 3.3). As discussed earlier, global supply chain disruption continues to present major challenges to retailers, with current high energy costs compounding these problems. Retailers seek to address energy costs not only because they are a financial burden, but also to achieve long-term sustainability goals as they attempt to find alternative energy sources.

Two of the three subcategories impacting net revenue tied for second place—automated inventory monitoring and store manager dashboards—reveal retailers’ needs for increased visibility into their online and brick-and-mortar operations, to enable them to cut costs and save time.

Figure 6. Operational Efficiency Subcategories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the six categories based on their potential impact on net revenue, from 1 (biggest impact) to 6 (lowest impact)
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

The processing of data from in-store sensors (such as thermostats and lighting), delivery vehicles and other equipment should logically be performed as close to the source as possible to ensure fast response times and not to be hindered by network connectivity issues.

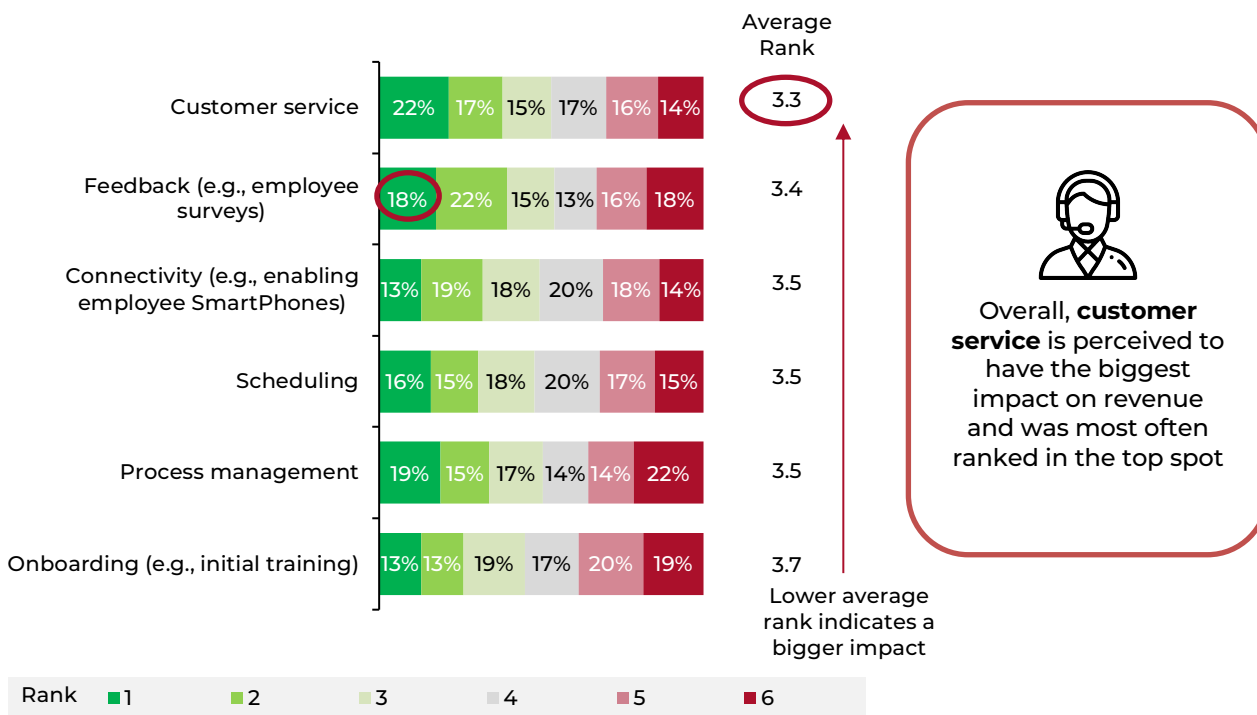
4. Associate Empowerment: Equipping Staff Effectively To Serve Customer Needs Drives Revenue

In terms of associate empowerment, customer service is perceived to have the biggest impact on revenue. Retailers may believe that meeting customer-facing needs is more significant in driving revenue than addressing employee needs.

When asked about specific subcategories impacting net revenue related to associate empowerment, 22% of survey respondents indicated that customer service has the biggest impact on revenue. Notably, this is the only associate empowerment subcategory directly focused on customers rather than employees, and reflects the idea that edge-enabled devices can allow employees to gain a better understanding of customers. This suggests that retailers may believe that meeting customer-facing needs is more significant in driving revenue than addressing employee needs. However, recent scandals, such as the Southwest Airlines’ debacle in December 2022, reveal the detrimental effects of deprioritizing investments in updated IT systems that support employees, including scheduling systems, onboarding and process management.

Other subcategories impacting net revenue generated little differentiation in their rankings, as shown in Figure 7.

Figure 7. Associate Empowerment Subcategories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the six categories based on their potential impact on net revenue, from 1 (biggest impact) to 6 (lowest impact)
Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

Activities that affect customer sentiment, such as associate enablement via tablets or other devices, need to be managed on the network edge to offer speedy service and to be available during network connectivity issues.

5. Customer Engagement: Retailers Want To Invest in Online and Offline Integration

Retailers ranked customer engagement as the least impactful category for company net revenue, which may reveal a gap in understanding between what customers want versus what retailers think customers want.

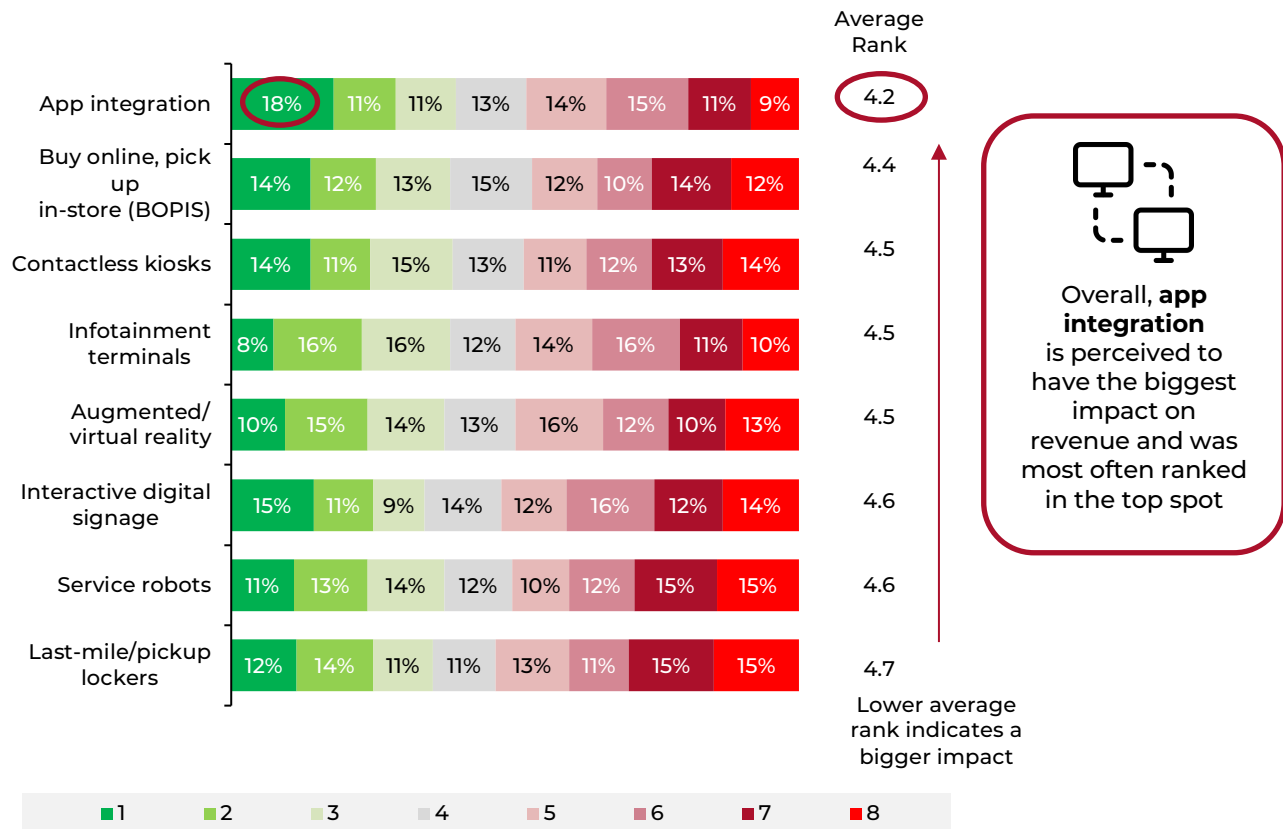
Retailers ranked customer engagement as the least impactful category of the options given for company net revenue, as shown earlier in Figure 3. This may reveal a gap in understanding between what customers want versus what retailers think customers want. For example, consumers think brands and retailers are not doing enough when it comes to personalization: 71% of brands and retailers think they excel in marketing personalization, but only 34% of consumers think the same, according to Coresight Research surveys conducted in the UK and the US in October 2021.

In terms of specific components, respondents ranked app integration and BOPIS (buy online, pick up in-store) as having the biggest impact on revenue, on average (see Figure 8), indicating retailers' need for better online and offline integration.

In addition, highly ranked technologies such as infotainment terminals, reality technologies and contactless kiosks are likely reflective of shoppers' desire for increased digitalization features in-stores and immersive experiential retail. A

Coresight Research survey of US respondents conducted in February 2022 found that online return kiosks and contactless payment options in stores ranked among the top three most popular in-store technologies among US consumers, with 23% and 29% of respondents, respectively, reporting that they would like to see these technologies in stores. On the other hand, non-technology related services, such as shoe repairs/shines and massages, ranked low on the list of 16 options.

Figure 8. Customer Engagement Subcategories: Potential Impact on Net Revenue (% of Respondents)



Respondents were asked to rank the eight categories based on their potential impact on net revenue, from 1 (biggest impact) to 8 (lowest impact)
 Base: 200 US-based IT decision makers, surveyed in November 2022
 Source: Coresight Research

Applications such as in-store signage and entertainment and augmented/virtual reality, in particular, are highly sensitive to latency and therefore require edge-computing power and continuous availability.

Retail Technology: Current and Future Deployment Plans

Our survey revealed that retailers believe business components which impact net revenue exist. We believe that technology solutions are key to helping retail companies solve a multitude of current business challenges and drive business growth in both the short and long term. Advanced technologies can be integrated throughout the in-store shopping journey across multiple business areas, as depicted in the image below.

Technology solutions are key to helping retail companies solve a multitude of current business challenges and drive business growth in both the short and long term.

Retail Use Cases



Diagram of next-generation technology retail use cases
Source: VMware

The survey results indicate that retailers recognize the potential of technologies to address business components impacting net revenue, with most survey respondents having already deployed or planning to deploy various emerging technologies across business categories, as shown in Figure 9: at least 86% of retailers indicated that they either currently use or plan to use each of the 17 retail technologies that we asked retailers about.

The most widely deployed technology is RFID (radio-frequency identification) or smart tags for tracking, according to our survey—currently used by 56% of respondents. RFID tags aid in loss prevention and improve sales, store productivity and self-checkout, addressing rising labor costs and shortages. According to a 2018 University of Leicester study of 10 retail companies that invested in RFID technology, the retailers saw a 1.5%–5.5% increase in sales, while their inventory accuracy improved from 65%–75% to 93%–99%.

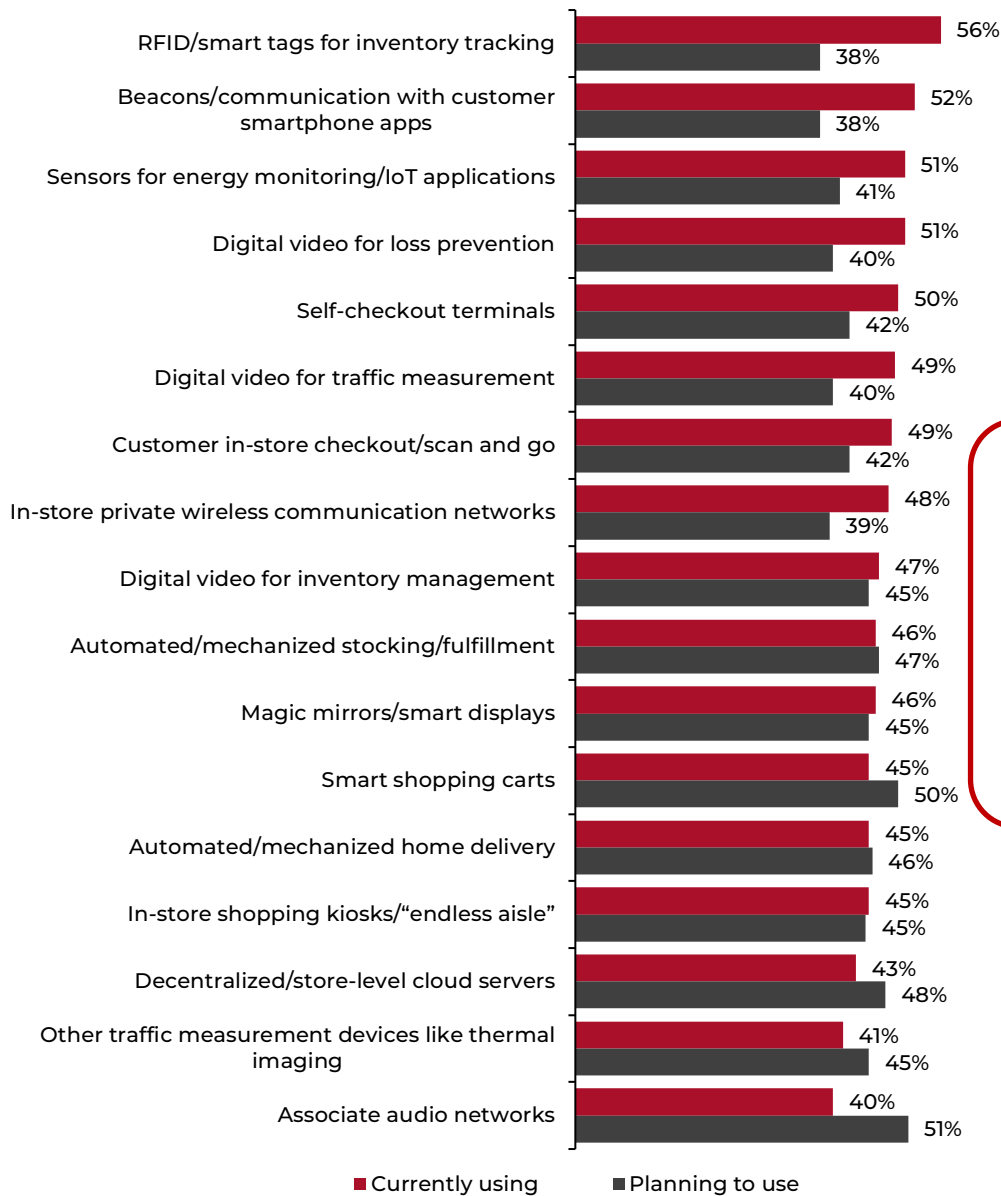
Coupled with RFID, the other top technologies, such as digital video for loss prevention, reveal retailers’ focus on enhancing safety and security, which is consistent with survey respondents ranking it as the most impactful business category.

Coupled with RFID, the other top technologies, such as digital video for loss prevention, reveal retailers’ focus on enhancing safety and security, which is consistent with survey respondents ranking it as the most impactful business category. As discussed earlier, an increase in retail crime likely led to retailers to invest in tech-based security solutions. According to the 2022 National Retail Security Survey from Appriss, NRF and the Loss Prevention Research Council, 69% of surveyed retail respondents experienced increased in-store fraud in 2021.

At least 38% of respondents indicated that they plan to deploy each type of technology solution we asked about. The most popular technology that respondents plan to use associate audio networks (cited by 51% of respondents), which is unsurprising given that it is currently the least deployed technology (currently used by 40% of respondents) and because implementation of associate audio networks addresses multiple business categories impacting net revenue—

most notably, security and safety. Associate audio networks enable associates to communicate and offer better service, as well as aid retailers in the management and deterrence of crime, in addition to informing customers of safety protocol through recorded messages and in real time.

Figure 9. Technologies that Retailers Are Currently Using or Planning To Use (% of Respondents)



Overall, **technology adoption** is remarkably high, with at least **86%** of retailers indicating they either currently use or plan to use each technology

Base: 200 US-based IT decision makers, surveyed in November 2022
Source: Coresight Research

Over one-third of all retailers plan to increase their level of investment over the next three years in each type of technology we asked about.

Corresponding to their strong plans to adopt different technologies in future, surveyed retailers reported plans to increase their investment in those technologies over the next three years: over one-third of all retailers plan to increase investments in each type of technology (see Figure 10).

The four technologies that saw the highest proportion (17% each) of retail companies indicate plans to decrease investment were traffic measurement devices, digital video for traffic measurement, digital video for inventory management and self-checkout terminals. The function of thermal traffic counters is likely being integrated into existing multifunctional store cameras. Similarly, the ubiquity of cameras in retail stores likely reduces the need for standalone digital-video platforms for inventory management, though shelf-edge cameras are a promising technology. Finally, consumers are divided on self-checkout terminals: some consumers consider them difficult to use and likely to require intervention from a store associate, and finance managers need to be convinced of the units' ROI (return on investment).

None of the top five technologies that retailers plan to increase investments in explicitly empower associates, which is interesting given that several of the top technologies retailers currently deploy address this category. This, coupled with the fact that retailers ranked associate empowerment as the second-lowest category, implies that retailers are looking to get value out of the investments they made in this category during the pandemic rather than investing further in the near future. Although associate empowerment technologies may have a more indirect impact on revenue, retailers should not ignore their ability to reduce operating costs.

The top technology for future investment is in-store checkout, cited by 47% of respondents.

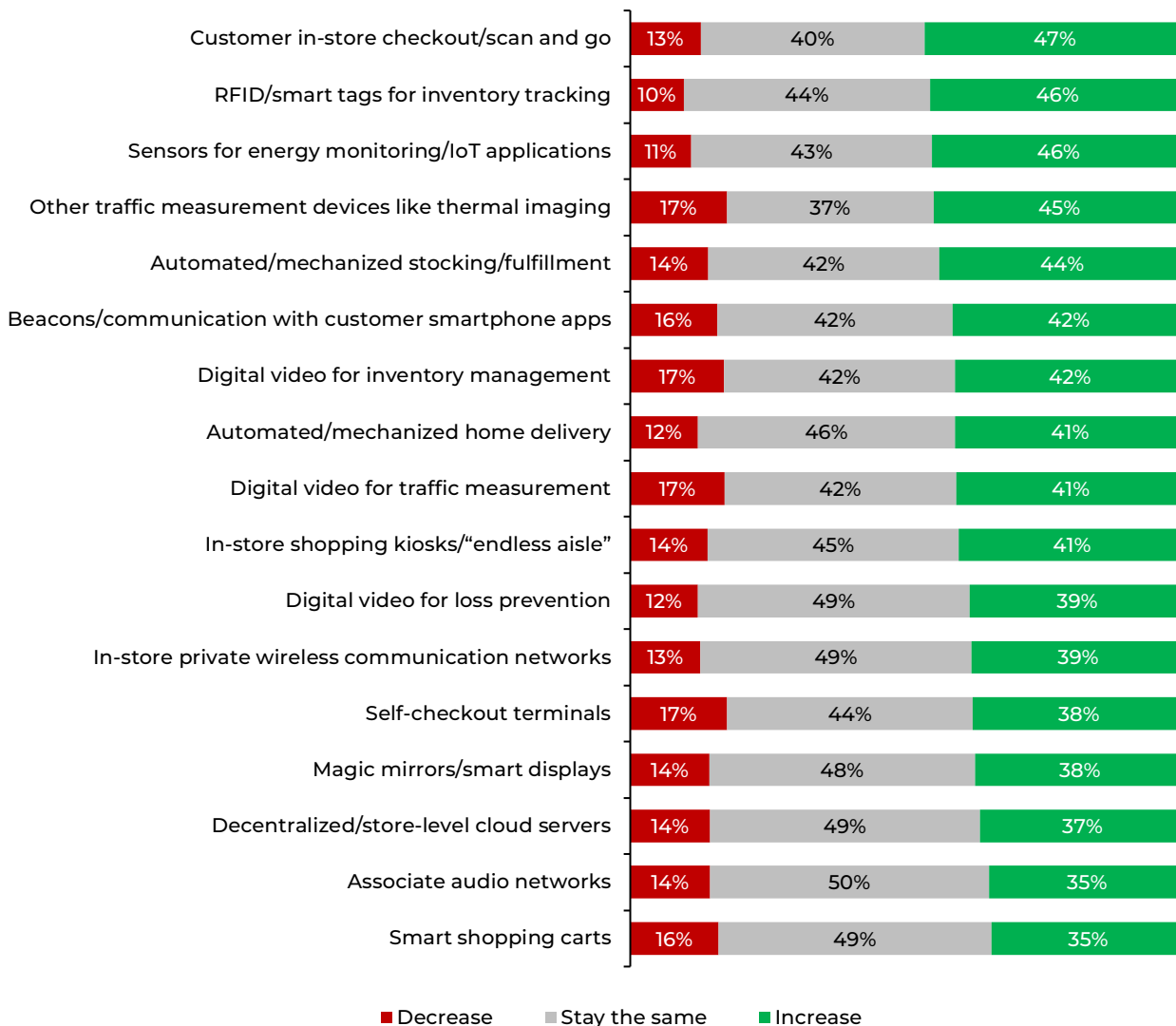
The top technology for future investment is in-store checkout, cited by 47% of respondents. This may be due to a focus on cutting labor costs and increasing efficiency, which can also improve conversion: shoppers may not complete a purchase if there are slow, long lines.

Other popular technologies retailers plan to increase their investments in include RFID tags, energy monitoring and Internet of Things (IoT) applications.

We think that the distribution of investment across business categories impacting net revenue surveyed underlines how crucial technology is in optimizing the future store.

Figure 10. Retailers' Plans for Technology Investment over the Next Three Years Compared to Now: Breakdown by Type of Technology (% of Respondents)

Over **one-third** of all retailers plan to increase investments in each type of technology



Ordered by proportion of respondents that plan to increase investment, from highest to lowest
 Base: 200 US-based IT decision makers, surveyed in November 2022
 Source: Coresight Research

VMware's retail solutions enable retailers to benefit from a cloud-native, scalable and secure platform that positions them for growth.

About VMware

VMware is a leading provider of multi-cloud services for all applications, enabling digital innovation with enterprise control. The company's retail solutions enable retailers to benefit from a cloud-native, scalable and secure platform that positions them for growth by accelerating the consumer experience and offering frictionless employee engagement. Some of VMware's latest innovations involve its edge infrastructure, which is crucial in efficiently processing data to optimize customer experience in retail scenarios.

Case Studies

Below, we analyze two company case studies to understand how VMware's edge infrastructure optimizes in-store technology deployment and drives revenue.

The Vitamin Shoppe, a US-based retailer of nutritional supplements, has a vision for a simpler, higher-performance "network-less" architecture, with fewer potential points of failure that could hurt reliability.

VMware and Hughes Managed Services x The Vitamin Shoppe

The Vitamin Shoppe, a US-based retailer of nutritional supplements, views its physical stores as a key element of the digital transformation of its approximately 700 US retail stores. The company's vision is for a simpler, higher-performance "network-less" architecture, with fewer potential points of failure that could hurt reliability. In the new architecture, processing a credit-card transaction involves the store platform contacting the card processor directly, rather than having to connect through a VPN to the retailer's data center, which would then connect to the card processor, as was done previously.

The Vitamin Shoppe has a loyal customer base, nearly 90% of which belong to the retailer's loyalty program. The need to provide high-quality service to these customers plus nearly every interaction requiring high-speed connectivity makes reliability and performance crucial. In addition, store associates use mobile devices to perform customer lookup, manage inventory, execute transactions and fulfill BOPIS (buy online, pick up in-store) and ship-from-store orders, which have demanding connectivity requirements.

With key criteria regarding security, performance (including the flexibility to serve future needs) and cost, The Vitamin Shoppe evaluated solutions from a variety of service providers, ultimately selecting Hughes Managed Services, a network and technology solutions provider whose solution is built on the VMware platform plus its own network management service. Thus far, the solution has exceeded the retailer's expectations in terms of bandwidth, security, reliability and cost, according to company management. Moreover, the solution is "futureproof," offering the flexibility to add other devices in the future, such as electronic shelf labels, digital media and self-checkout terminals.

VMware and Hughes Managed Services x Major Sporting Goods Retailer

With more than 400 locations in the Western US, a major sporting goods retailer sought to update its technology infrastructure, specifically aiming to improve on-premises network security, enhance multi-cloud infrastructure to support retail operations, and migrate to the cloud.

The retailer turned to Hughes Managed Services, which worked in partnership with VMware to deploy Azure VMware Solution and VMware SD-WAN to address these technology priorities. VMware SD-WAN was quickly installed at each retail location, usually in less than 30 minutes, and was up and running to support and connect the retailers' operations at multiple locations, and successfully improved network performance, security, and capacity.

An executive at Hughes Managed Services reported that for retailers with many applications running, VMware's suite of solutions enables consistent high levels of performance and is visually intuitive, enabling retailers to quickly respond to network issues.

VMware x International Supermarket Retailer

An international supermarket retailer with over 4,000 stores leveraged VMware's edge computing stack to improve its customer experience, fraud detection and existing applications. To enhance customer experience, the retailer leveraged VMware's smart point-of-sale (POS) systems, enabling convenient checkout experiences anywhere in-store and a personalized customer marketing experience during the customer's in-store journey. This significantly impacted the retailer as it completes nearly 20 million in-store transactions every week. Additionally, VMware deployed computer vision and machine learning technology to help the retailer detect POS and self-checkout fraud. Finally, VMware improved the retailer's in-store agility by deploying its Tanzu TKG, a technology solution that helps run various applications, enabling various business units, including business and IT teams, to work autonomously alongside existing applications.

To increase flexibility and performance, retailers need to deploy additional computing power nearer to the physical store, which works in concert with the enormous computing power available in public clouds.

What We Think

Our survey results show that retailers have a healthy outlook on IT spending and use several leading-edge technologies currently, with concrete plans to use them in the future. Respondents ranked business insights and operational efficiency nearly as highly as security and safety. To offer the low latency and high degree of local performance on demand that this growing number of in-store devices requires, retailers need to deploy additional computing power nearer to the physical store—and hybrid-cloud platforms direct which tasks need to be performed locally, versus public clouds.

Implications for Brands/Retailers

- In the current uncertain economic environment, retailers and brands have to determine spending priorities, from technology to other investment areas that can also benefit business operations (e.g., sustainability and market diversification) and then justify them to their investors.
- The technologies outlined in this report offer numerous ways for retailers to increase revenues, reduce costs, enhance customer experiences, increase efficiency, and reduce friction for employees and customers. Given the popularity of many wide-ranging technologies, we think that retailers should consider how these tools can be implemented to improve business operations across the board.
- Retailers also need to complete their move to the cloud and deploy computing power nearer to physical stores to improve performance, which requires a platform to manage what computing needs to be performed locally versus in the cloud.

Implications for Technology Vendors

- There are considerable opportunities for sensor and display vendors and installers to help create retailers' desired in-store experience.
- Leading-edge platforms help retailers manage operations and efficiency in-store by more securely processing data and improving data processing speed.

- There are also many opportunities for technology vendors and software firms to develop industry-specific applications and services for retailers.

Methodology

In November 2022, Coresight Research surveyed 200 US-based IT decision makers at retail companies with at least 50 consumer retail locations and which spend at least \$100,000 per year on IT solutions. Respondents did not include wholesale club, business services/office supplies or auto parts businesses.

About Coresight Research Custom Reports

Coresight Research Custom Reports are produced as part of commercial partnerships with leading firms in the retail, technology and startup ecosystems. These Custom Reports present expert analysis and proprietary data on key topics in the retail, technology and related industries, and enable partner companies to communicate their brand and messaging to a wider audience within the context of brand-relevant research.

This report is sponsored by VMware, an industry leader in multi-cloud services and infrastructure. For more information, visit [VMware.com](https://www.vmware.com).

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