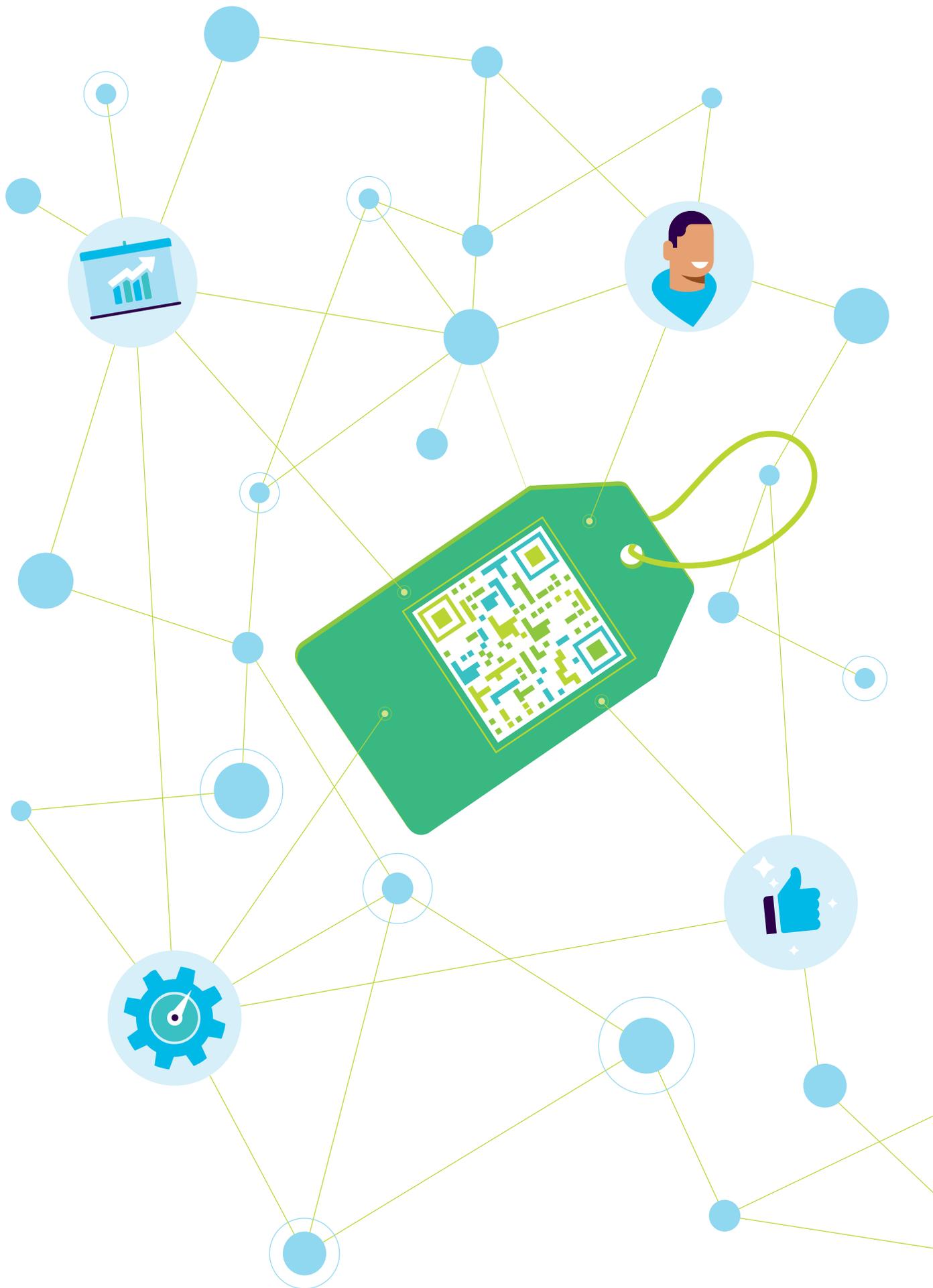




Smart Stores

Rebooting the retail store
through in-store automation



Introduction

In our always-on world, consumer expectations in retail have skyrocketed. With the advent of sub- two-hour delivery, where consumers can search for a product, read the reviews, and then get it ordered and delivered within hours, shopping at a physical store can seem like a chore. In fact, in our past research on digital's impact on retail, we found that consumers would rather wash dishes than go to a retail store.¹ Today, consumers increasingly expect that efficient and engaging online experience to be replicated in-store.

At the same time, retailers across the world are facing an onslaught from ecommerce players such as Amazon and Alibaba. We found that while large traditional retailers such as Walmart are fighting their ground by digitizing and automating their physical stores, only 40% of retailers consider automation a strategic imperative. With nearly half of consumers stating they would shift purchases from a non-automated store to a store with automated technologies if they have a positive experience, automation has become a real battleground.

Fortunately, the technology exists to enhance the customer experience and make physical stores attractive destinations. Automation can help consumers meet whatever their needs are – getting in and out of a store quickly, discovering new and exciting products, or providing an enhanced interaction with a sales associate. It will also help traditional retailers to fight back and ensure they are not driven into irrelevance or obsolescence by the digital natives muscling in on their turf. The fact that our research shows that many retailers are lacking automation at scale means there is a real urgency to accelerate.

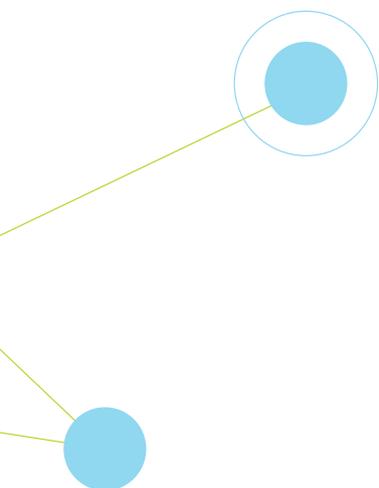
This report explores four key themes:

1. Why automation in retail stores appeals to consumers and what technologies they are most comfortable using in-store
2. The benefits that companies are reaping from automating retail stores
3. Why in-store automation depends on winning customer trust and confidence
4. How organizations should think about accelerating and scaling in-store automation.

To examine this topic, we launched an integrated global research study across 10 countries and two dimensions:

- The consumer view: We surveyed more than 5,000 consumers, with the majority of them having visited stores that use automation technologies. The aim was to build a richer understanding of what consumers want from automation.
- The business view: In addition to conducting one-on-one interviews with retail executives, we surveyed 500 of the industry's executives across five sub-sectors – grocery, fashion/apparel, electronics, home improvement, and quick-service restaurants. The goal was to understand their perceptions of the benefits and challenges of implementing automation in stores.

In this research, we define automation technologies as the in-store use of robots, sensors, cameras, digital signage, electronic shelf labels, or mobile apps to help customers with questions and product information, make payments, enhance the quality of interactions with sales associates, and improve in-store operations such as replenishment, inventory, and facilities management. More details on the research methodology can be found in the appendix.



Key Findings

Overall, automation in retail stores appeals to consumers.

It is most attractive to the younger demographic – notably Gen Z and millennials. In fact, 59% of consumers who have previously visited stores with automation would shift purchases to a store with automation technologies if they had a positive experience. The majority of consumers (66%) believe that automation can improve their shopping experience by solving the challenges they face when they shop in retail stores, such as long queues for checkout and payment. They also believe it can be a means for retailers to be more sustainable. For example, 69% of consumers overall prefer to shop with retailers that use automation technology to reduce food waste.

In-store automation can bring significant benefits.

Most consumers would reward a store by visiting more often or purchasing more if automation helped them in their in-store shopping journey. Nearly half (46%) of consumers are also willing to shift their online purchase from a wholly online retailer to a retailer with stores that use automation technology. Retailers are also beginning to see the impact of their automation technology on the top and bottom lines. For example, because of automation, retailers have witnessed an 11% increase in visits by customers and a 9% decrease in costs from avoiding shrinkage.

Retailers must recognize that in order to scale, they must win consumer trust and confidence.

Most retailers are in their infancy when implementing automation use cases at scale, with fewer than a quarter of stores deploying the leading use cases. Even though consumers are positive on how automation can address their in-store challenges, they feel that retailers are mainly focused on implementing automation solely to reduce costs. This expectations mismatch is supported by the research – only around a third of retailers (35%) consider “solving customer pain points” as the important criteria when deciding which automation use cases to implement. In addition, consumers want some level of human interaction within stores, yet only 39% of retailers tell consumers that they will have employees available to help with the automated task. Furthermore, despite consumers being very wary of facial recognition technologies (59% would avoid a store that uses it), only 23% of retailers are aware of this strong preference.

In order to drive scale and capitalize on the benefits that automation can bring, retailers should focus on the following best practices:

- Prioritize automation as a strategic imperative
- View automation initiatives through consumers’ eyes
- Ensure a data-driven approach to scaling automation use cases
- Determine your automation operating model
- Secure employee’s buy-in for automation through training and reskilling.

In-store automation appeals to consumers

Consumers like in-store automation as an enabler to improve the store experience. It helps solve shopping challenges and they also believe it can help retailers become more ethical and sustainable.

Gen Z and millennials are particularly keen automation advocates

Close to half of consumers overall have visited stores that use automation technologies, and this increases to approximately two-thirds (64%) for millennials (aged 22–36).

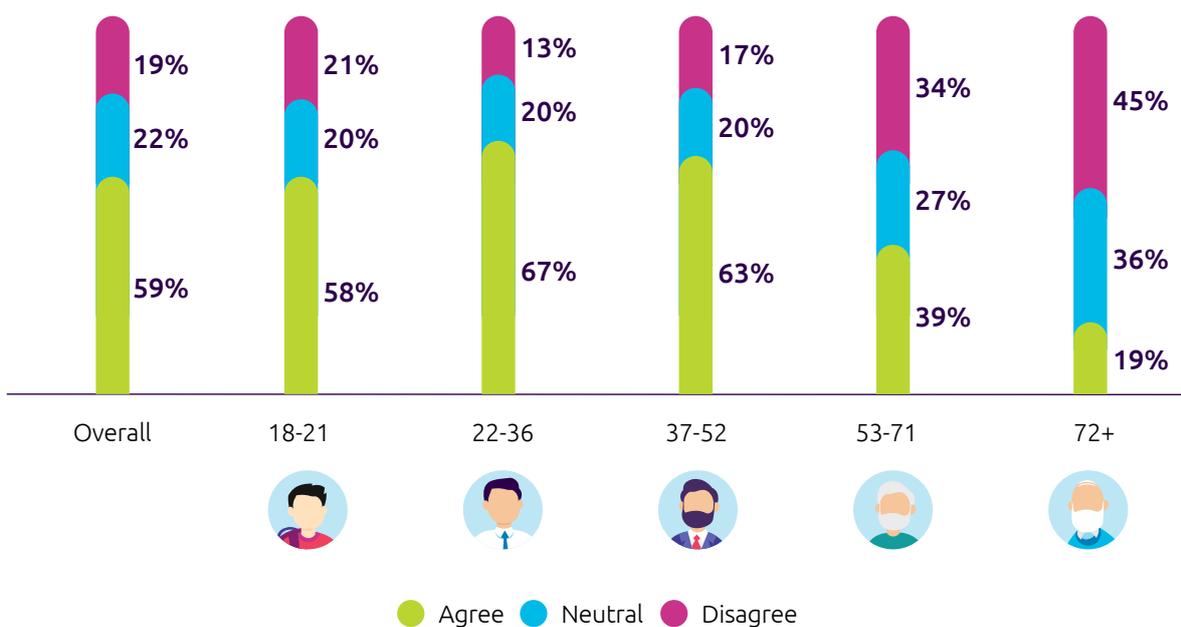
Consumers who have visited stores with automation technologies would shift purchases from a non-automated store to a store with automated technologies if they had a positive experience. This is true for 59% of consumers overall and 67% of millennials (see Figure 1).

Consumers believe automation can solve issues they encounter when they shop in stores

Consumers feel automation can solve major pain points they face when they shop in stores, such as long queues for payment and checkout, or difficulties in locating products. For example, as Figure 2 shows, 60% say long queues are a pain point and 66% say automation could help resolve it.

Figure 1. Gen Z and millennials are most positive about automation technology in a store

Percentage of consumers by age group who have visited stores with automation technologies and are willing to shift their in-store purchases from a retailer with no automation technology in stores to a retailer that uses automation technology



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=2,552 consumers who have visited stores with automation technologies.

Consumers want to shop with retailers who use automation to promote sustainability

Sustainability is becoming an important differentiator for retailers and automation is key to achieving this. Seventy-five percent of retailers view automation as a way to offer more sustainable and environmentally-friendly solutions to customers. Leveraging automation as a means for retailers to become more ethical or sustainable is also attractive to consumers. For example, 69% percent of consumers overall – and more than 80% of consumers in China and India – prefer

to shop with retailers that use automation technology to reduce food waste (see Figure 3).

Dutch food retailer Ahold Delhaize is rolling out electronic shelf labels in its stores that show product information and allow automatic price changes such as price reductions for products approaching the expiration date.² UK-based startup Wasteless uses automation to dynamically change the prices of food based on expiration dates, helping supermarkets combat food waste.³ Albert Heijn, the largest Dutch supermarket chain is the first grocer to implement this technology in the Netherlands.⁴

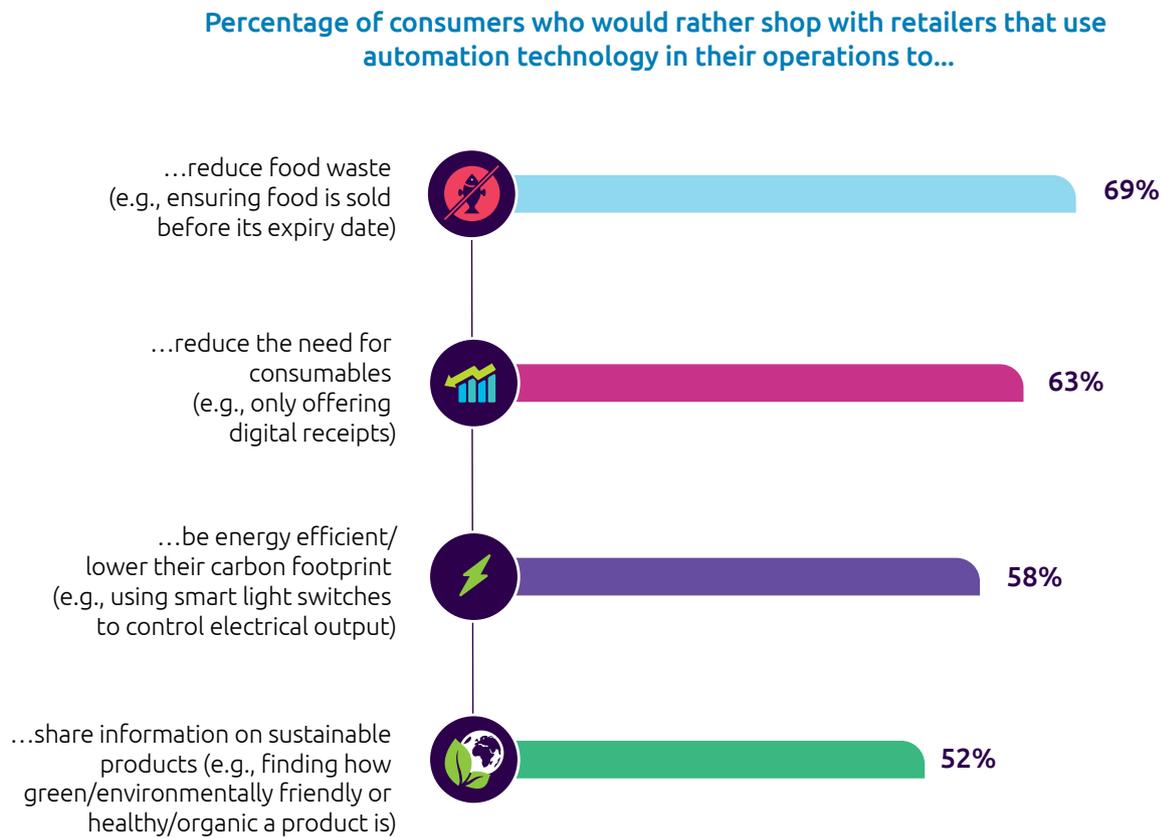
Figure 2. More than half of consumers believe automation can solve traditional retail store challenges

Top five consumer pain points in stores and whether consumers believe automation can help solve them



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

Figure 3. Consumers prefer retailers use automation to be more environmentally sustainable

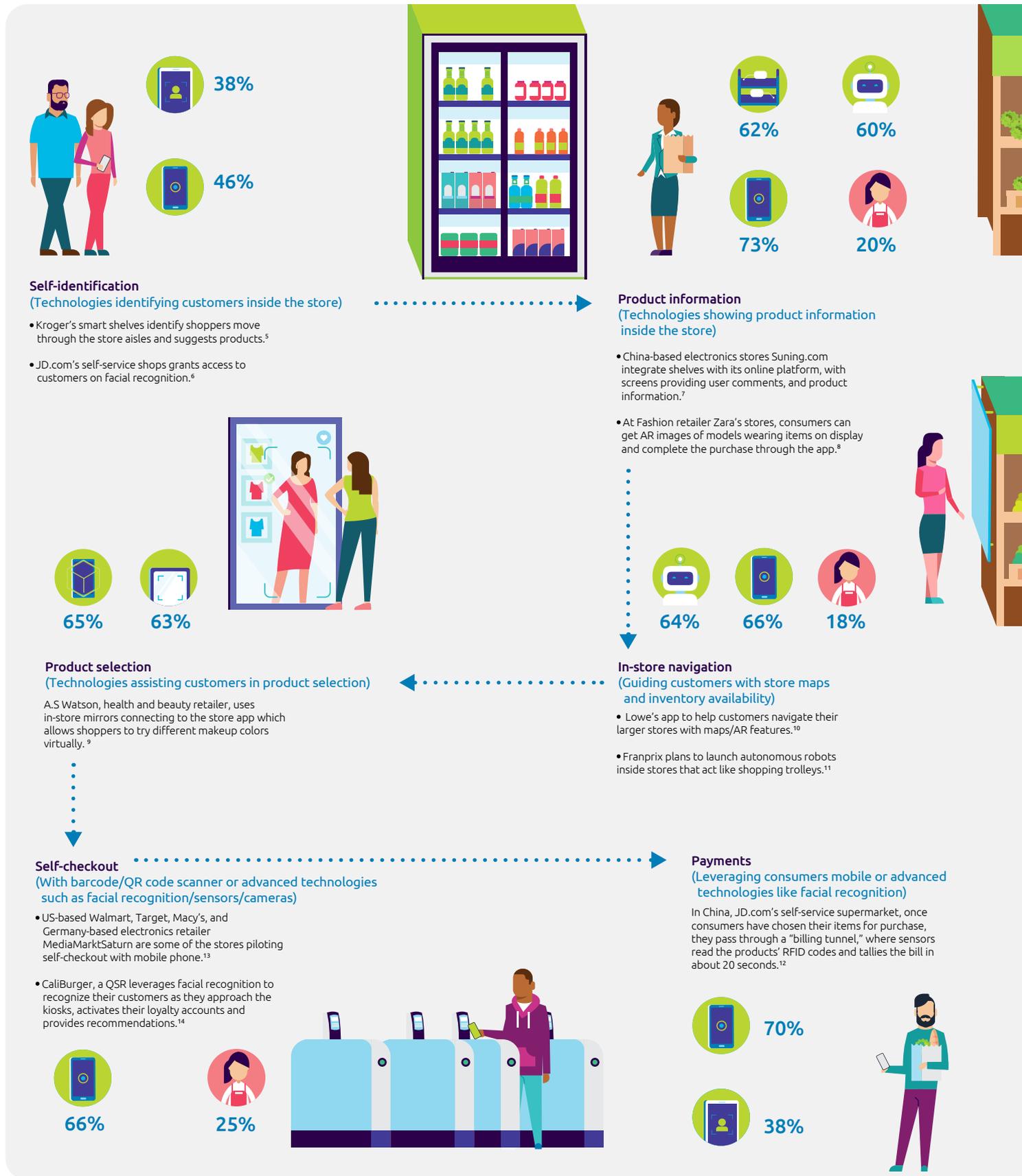


Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

60% Share of consumers that believe automation could help solve difficulties in locating products in the store

Smart Stores

Using automation in the customer journey



Using automation in store operations



Product replenishments (e.g., robots, cameras scanning shelves for out of stock products and alerting employees)

- At Lowe's, "Lowebots" assists in product replenishment by scanning the shelves multiple times a day¹⁵
- Walmart is experimenting with in-store cameras to detect empty shelves, ripened food products, and floor spills¹⁶



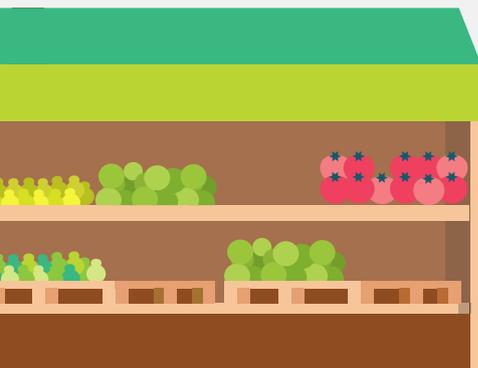
14%

Automation of customer tracking within stores (facial recognition, in-store cameras tracking everything in store – merchandise, associates, shoppers, products)

- Walgreens tested cameras and sensors in its cooler doors to track consumer shopping habits.¹⁷
- Metro AG invested in Sensei, a firm that offers video-recognition solutions to retailers to measure in-store customer traffic, product performance, out of stocks, etc.¹⁸



10%



Facilities management (e.g., store mounted cameras identifying spills, robots to clean the floor, motion-detection lights, IoT devices to detect temperature)

- Ahold Delhaize plans to bring about 500 robots to identify food and liquid spills and alert associates¹⁹
- Kroger's 'EDGE' digital shelves use sensor-enabled lightings instead of traditional overhead lightings as part of the organization's broader goal to reduce electricity consumption by 40%²⁰



19%

Order delivery and returns from/to stores (robots deliver/hand over merchandise to customers/using vending machines/smart lockers)

At South American department stores Falabella, robots dispense click and collect orders when customers arrive to receive their orders²¹

Click and collect orders



61%



11%



57%



15%

Returns



19%

Order fulfillment from stores (robots for picking click and collect/online orders or using automated micro fulfillment centers)

Albertsons, Ahold are some of the retailers automating a part of their store for order fulfillment operations²²



Share of consumers comfortable with the technology



Smart Shelves



Using facial recognition



Using customers' mobile phone



Using smart mirrors



Using AR/VR



Using robots



Share of retailers who have automated use cases with some or no human intervention

Automation offers significant benefits

Consumers are willing to shift online purchases to retailers that use in-store automation

If consumers had a positive experience with in-store automation, 46% would shift their online purchases from digitally focused retailers (retailers that mostly operates through websites/apps and with minimal stores) to retailers with stores that use automation technology (see Figure 4).

The research shows that:

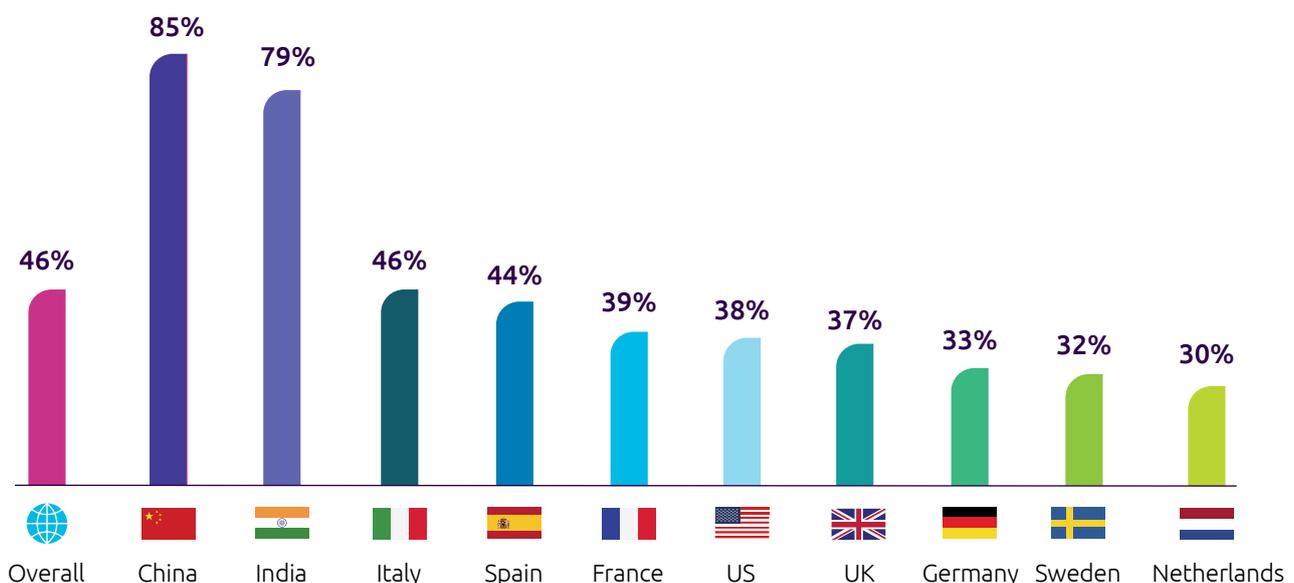
- This trend is more pronounced in urban consumers (55%) and millennials (58%). The fact that urban millennials prefer to shop with retailers that use automation to promote sustainability and mitigate the pain points of a traditional store is driving them to automated stores.
- Of those consumers who purchase more than half of their shopping online, 63% would consider shifting their spending.

We also asked this consumer segment about the quantum of spend that they would shift to retailers that use automation technologies. We found that on an average, these consumers would shift 20% to 25% of their purchases.

Automation is a driver not just to improve the efficiency of stores, but also to augment the customer experience. In-store automation improves the quality of customer engagement and can help create a similar experience to online, for example, eliminating checkout queues and offering personal recommendations. This improvement in the in-store experience will help drive customers to physical stores. It will also cement loyalty to retailers which provide an augmented experience through automation. *“Physical retailers have not been able to leverage retail technology to provide the same level of engagement as their e-commerce counterparts. Retailers must focus on digital interactions in-store to enrich the store experience and help consumers make more informed purchase decisions,”* says Lindon Gao, co-founder and CEO of Caper, a maker of smart shopping carts.

Figure 4. Nearly half (46%) of consumers are willing to shift their online purchases to stores that use automation

Percentage of consumers who would shift online purchases from a retailer that mostly operates through websites/apps with minimal stores to a retailer with stores that use automation technology



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

Most consumers would visit more frequently if automation helped them in stores

If automation helped consumers find products more easily – or if they could pay more quickly – they would visit stores more often. The majority of consumers (61%) will visit stores with automation technology more frequently if it helps them find products easily:

- For the millennial segment, this increases to 68%. For Gen X this is at 64% and for Gen Z this is close to the overall average at 60%.
- In India and China, it is true for more than 85% of consumers.

In fact, consumers say having their visit facilitated by automation would lead to them visiting four more times in

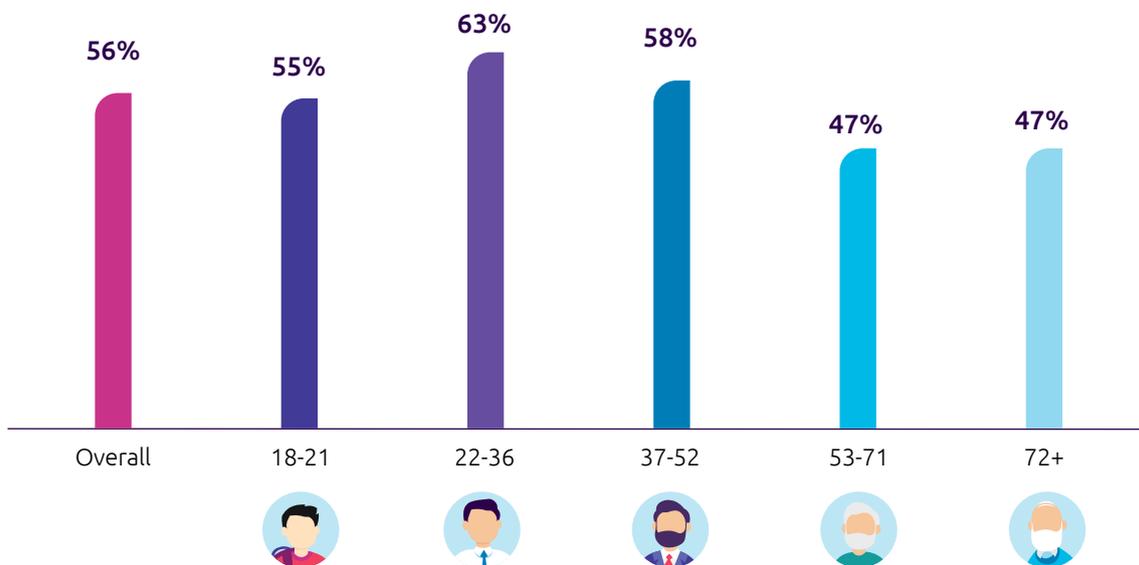
one month. For context, a shopper in the US made an average 6.4 shopping trips per month in 2018 to a grocery store.²³

When Marks & Spencer launched a trial of its “Mobile, Pay, Go” self-checkout capability, which lets customers scan and buy their food in under a minute without approaching a register, it quickly found that 20% of the store’s sales came from the app. Sacha Berendji, Retail – operations and property director at Marks & Spencer – says: *“Our customers – especially those who come to us for lunch – are so busy, any tech that can speed up the shopping experience is a massive benefit to them.”*²⁴

Consumers also prefer going to stores over shopping online with a competitor if automation makes the in-store experience more fun and engaging. This is true for 56% of consumers overall and increases to 63% for millennials (see Figure 5)

Figure 5. Consumers prefer stores if automation makes the in-store experience more fun and engaging

Percentage of consumers agreeing to “If automation technologies made the in-store experience more fun and engaging, I would rather go to a store than shop online from a competitor”



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

Most consumers would spend more in stores with automation

Stores are now also becoming fulfillment centers for online and click-and-collect orders and automation can help retailers achieve this. Increasingly, customers want the same convenience for returning products ordered online as placing

orders online. Retailers who use automation to achieve this stand to benefit, as 60% of consumers overall (and 86% of consumers in India and China) are willing to purchase more online from retailers who accept returns of online orders in stores using automation technologies. Consumers expect they would purchase 22% more in one month (see Figure 6).

Figure 6. Consumers would purchase more if automation helped them return products or find product information

Percentage of consumers agreeing to the statements



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

56% Share of consumers that prefer going to stores over shopping online with a competitor if automation makes the in-store experience more fun and engaging

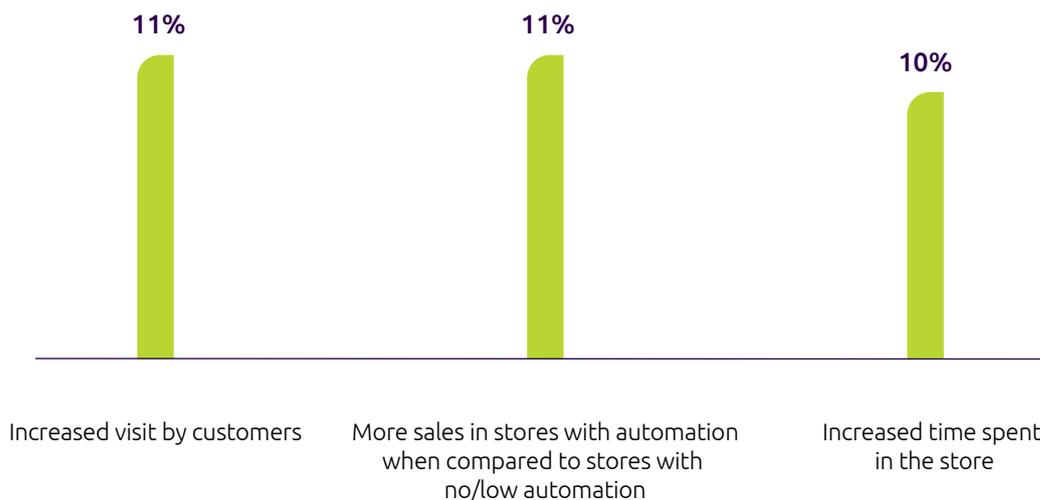
Retailers are beginning to see the impact of automation in driving revenue

Retailers are beginning to see the upside of using automation in the customer experience and internal store operations. As Figure 7 shows, retailers report an 11% increase in visits by customers due to implementing automation. In

addition, automation helps to enhance the in-store customer experience as retailers report a 10% increase in time spent in store. Paulina Fogel, VP strategic alliances at Trax, a firm that specializes in computer vision solutions for retail, outlines the potential benefits on offer: *“Retailers typically see benefit in terms of increased customer satisfaction through product availability on shelf and order availability through reduced time in order picking,”* she says.

Figure 7. Retailers have witnessed an 11% increase in visits by customers because of implementing automation in stores

Customer experience-related benefits retailers have experienced from automation in stores



Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=250-280 retail organizations that have experienced benefits in these areas.

Given these benefits, automation continues to gain traction. Self-service checkouts constitute 40% of in-store transactions at Waitrose and Matt Clifton, head of retail change and development, expects it to increase further. *“Ironically, 40% was our target when we started, and we thought it would be amazing to reach that goal,”* he says. *“Since we got there relatively quickly, there’s no doubt the percentage will grow.”*²⁵

After it deployed automated checkout and payment functions, electronics retailer MediaMarktSaturn has seen a positive response from consumers. *“The smartphone has become many people’s remote control for life,”* says Martin Wild, chief innovation officer at the MediaMarktSaturn Retail Group. *“The very positive response from customers to our first pilot projects in Innsbruck and Munich has encouraged us to offer mobile self-checkout across a large floorspace for the first time.”*²⁶

Retailers are realizing cost savings from in-store automation

Across internal store operations, retailers are also beginning to see a positive impact. Retailers report that they have saved 10% of costs due to faster delivery of click-and-collect orders from stores (see Figure 8). Walmart started implementing “Pickup Towers” for online orders in 2017 and plans to have 1,700 towers installed across its US stores.²⁷ In 2018, more than half a million orders were retrieved from pick-up towers at Walmart.²⁸

Ahold Delhaize aims to optimize pick-up and last mile delivery costs with their mini-robot enabled warehouses.

These automated “warehouses” are deployed within stores for click-and-collect orders. *“With the robotized solution we can optimize those picking costs and be closer with micro-fulfillment to our catchment areas. We also reduce the cost of the last mile,”* says Frans Muller, chief executive at Ahold Delhaize.²⁹

At IKEA, “smart bins” equipped with sensors and cameras reduced food waste by 26% within a year of implementation by identifying and recognizing the most discarded food.³⁰ Using camera vision in shelves and fridges, Shufersal, an Israel-based supermarket reduced product replenishment time from 45 hours to 30 minutes.³¹

Figure 8. Retailers have witnessed a 10% cost savings due to faster delivery of click and collect orders

Operations-related benefits retailers have experienced from automation in stores



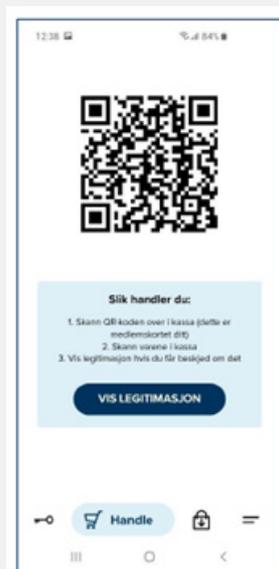
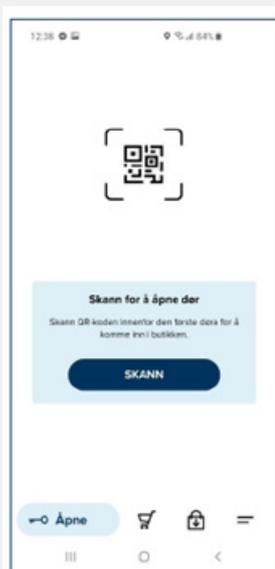
Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=150-250 organizations that have experienced benefits in these areas.

11% increase in visits by customers because of implementing automation in stores

“The Nordic way of Amazon Go” – Norway’s first unmanned grocery store

Coop Norway has launched a first for the country – a store that operates as a self-service outlet after 11 pm. Using the Coop Key app, consumers enter the store, check out products, and pay at a self-service counter. In-store cameras detect unusual activity and the store has help buttons for assistance

- Coop Key is used to open doors after closing time. The consumer identifies herself at the door using the Coop Key app, with the biometrics in the mobile phone and is granted access to the store
- The Key ensures that Coop knows who the consumer is, and that she is old enough to buy age-restricted goods



Kristian Bjørseth

Head of payments and IDs,
Coop Norway

We spoke with Kristian Bjørseth, head of payments and IDs at Coop Norway, to understand more about consumers' views on this initiative and the importance of building consumer trust and employee adoption.

How have your customers received your unmanned store?

“The customers that use Coop Key love it. What we can see is that shopping behavior has changed. People are shopping later in the evening than they used to prior to rolling this out. Stores used to close at 11 pm, but now we see that there are substantial revenues between 11 pm and 12 midnight. We also see a difference in the products sold. For example, we sell higher-margin groceries like frozen pizza at night versus during the day. People on their way home just need food which can be easily prepared. We’ve seen that customers tend to buy fewer but higher margin products during the night time. So, if they miss out on buying something during the day or if they just really want something, it’s now possible to get it late at night.”

How are you thinking about consumer privacy in your unmanned store?

“It is about the level of trust the consumer has with the merchant when they are being tracked in the store. I believe our customers place great trust in us and we are really working to maintain that. I believe our customers accept and understand that when we open up a store without any employees during the night time, we need to recognize them.”

How do you encourage employee acceptance of the technology?

“Implementing and scaling the technology across all of our stores is obviously challenging. For example, we launched CooPay to all of our employees so that they could be the first to use it. This gave us the opportunity to train employees on the solution and encourage their adoption. So, when we rolled it out to customers, we have their buy-in.”

Winning consumer trust and confidence is critical to scale in-store automation

Retailers struggle to move from pilots to scale

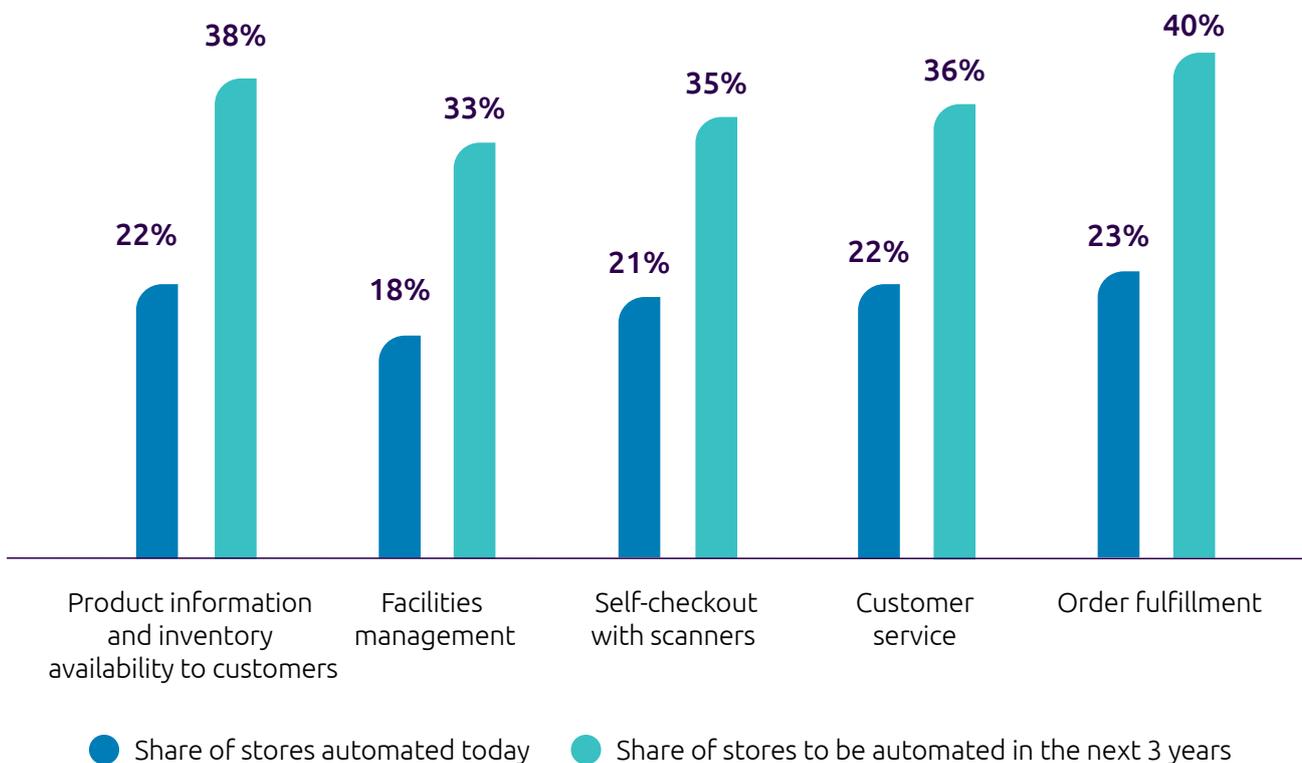
It is clear that automation offers significant benefits and that some retailers are already seeing a return. However, much of the opportunity will be missed if retailers fail to reach scale. Retailers who have implemented the leading automation use cases have only deployed these solutions across fewer than a quarter of their stores today. And retailers do not anticipate automating more than 40% of all stores in the next three years (see Figure 9).

The key challenges retailers face to scale in-store automation are:

- Ensuring automation solutions address not just cost savings initiatives but also augment the customer experience
- Reassuring consumers on privacy through stringent security practices
- Educating consumers that automation is available with a “human touch.”

Figure 9. Very few retailers are yet to implement leading use cases at scale

Shares of stores automated for the leading use cases



Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=400 retail executives from grocery, apparels, electronics, and home improvement.

Consumers are skeptical of retailers' motivation for implementing automation

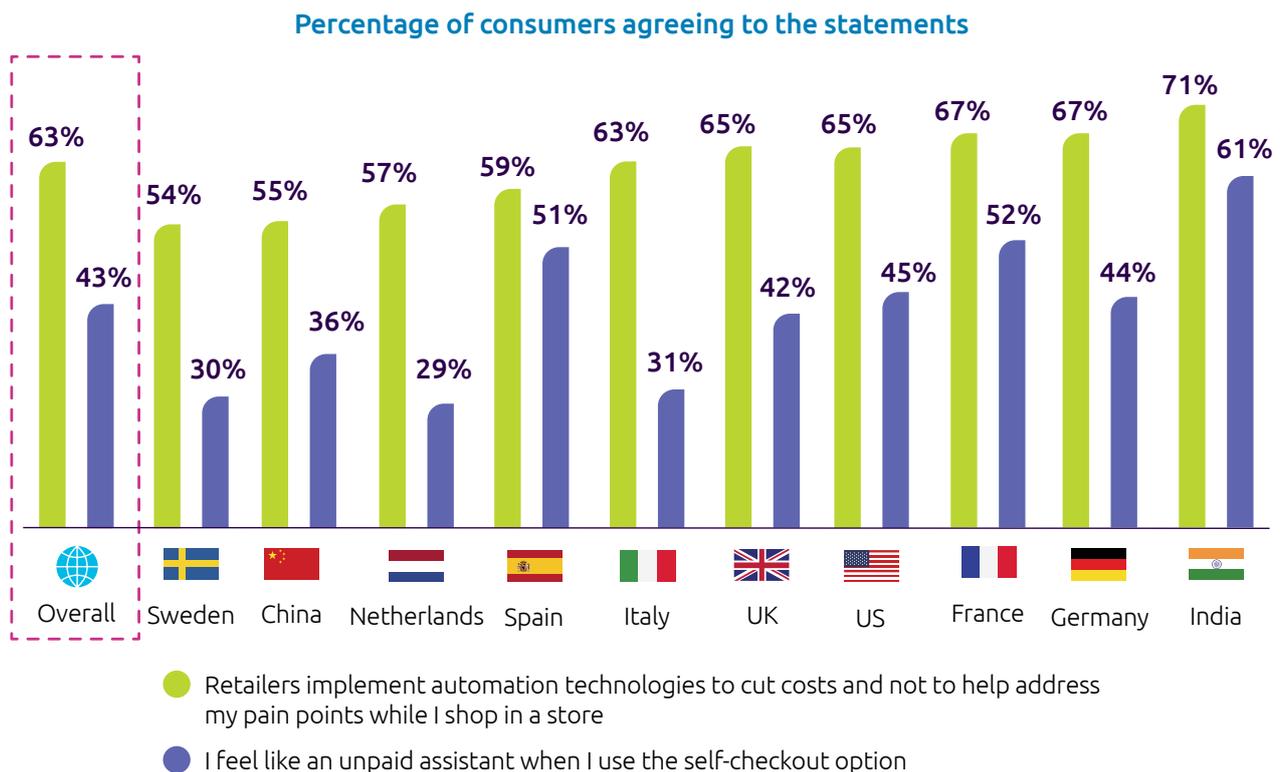
The majority of consumers believe that automation has the potential to address their in-store challenges. However, many consumers do not think retailers implement automation to directly benefit them:

- 63% feel retailers implement automation technologies to cut costs rather than help address their in-store shopping challenges (see Figure 10). In India, this jumps to 71%.

- 43% of consumers overall – and over one-in-two in India, France, and Spain – actually said they feel like an “unpaid sales assistant” when they use the self-checkout option.

A supply chain and logistics director at a US-based general merchandise retailer agrees that retailers must use automation to actually solve a customer problem. He says: *“Using automation to solve a specific business problem is very important. Retailers should avoid situations where they are enamored with the technology and then forced by the technology to build a certain solution which doesn't exist. It is more important to identify the problem and ensure it provides faster service or differentiated or personalized service.”*

Figure 10. Consumers believe retailers implement automation to reduce costs and not address their challenges in the store



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

63% Share of consumers that feel retailers implement automation technologies to cut costs rather than address their in-store shopping challenges

Consumers want to be able to choose to retain their privacy

Overall, over two-thirds of consumers (69%) say that privacy in a retail store is more important to them than an improved experience in an automated store. Consumers also do not want to be identified by facial recognition:

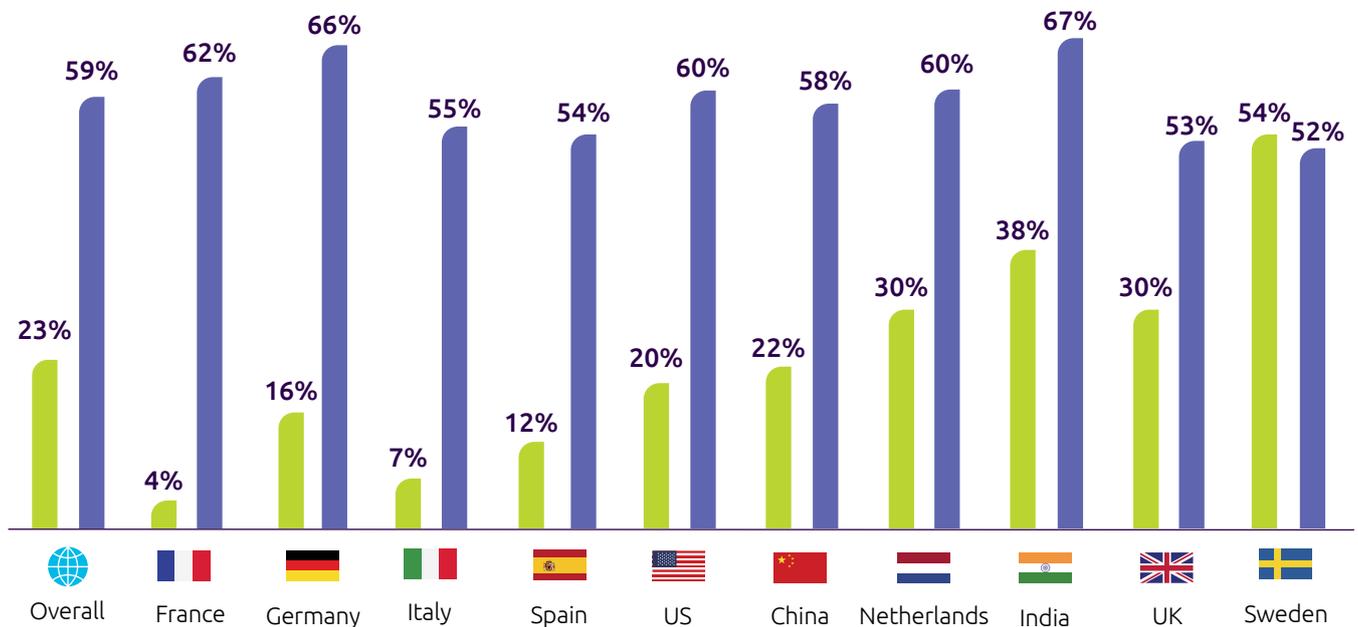
- 53% of consumers do not want store cameras to record their movements when in-store
- 59% would avoid a store if it used facial recognition to identify them.

The majority of consumers by age group are weary of facial recognition. For example, 52% of Gen Z and 56% of baby boomers would avoid a store. Retailers, however are seemingly unaware of this sentiment, with only 23% saying that consumers would avoid a store it was using facial recognition to identify them (see Figure 11).

The majority (71%) of consumers want retailers to provide an “opt-out” option to allow them to not use automation technologies. For example, a store could ask the consumer whether they can use facial recognition technology to identify them or not. Brazil-based Zaitt offers an example of how to deal with these sensitivities. In Zaitt’s fully automated stores, while product selection from shelves is detected through sensors, consumers can choose to either use their mobile phones to scan products and pay or allow facial recognition to deduct payment.³²

Figure 11. Retailers underestimate consumers’ desire to avoid facial recognition

Perception mismatch between consumers and retailers on the use of facial recognition by country



- Percentage of retailers who believe consumers would avoid a store if it used facial recognition to identify them
- Percentage of consumers who would avoid a store if it was using facial recognition to identify them

Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=500 retail executives; Consumer Survey, October 2019, N=5,110 consumers.

Consumers do not want to fully eliminate human interaction for the sake of automation in retail stores

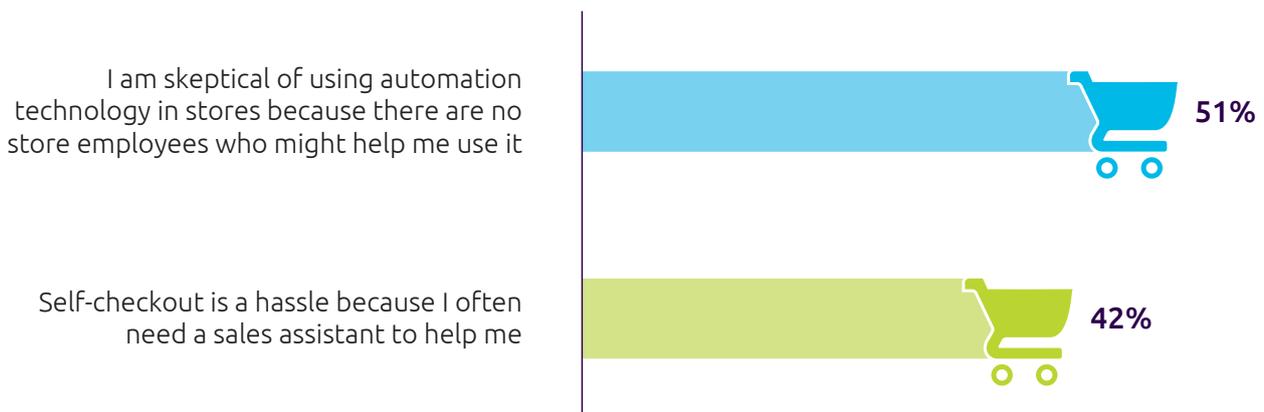
Just over half of consumers (51%) are skeptical of using automation technology within stores if there are no store employees (see Figure 12). Also, this sentiment increases with age. Among 18–21-year olds, 44% are skeptical. However,

for 72 or older, this increases to 62%. A director at a British multinational groceries and general merchandise retailer points out the importance of human interaction for certain groups. *“There will always be people whose only interaction with the outside world is when they do their grocery shopping,”* he explains. *“They interact with someone who helps them shop and takes five minutes to talk to them – this human touch is massively important for those customers.”*

In addition, 42% of consumers feel self-checkout is a hassle because they often need a sales assistant to help them. This is echoed by millennials (46%), however only 34% Gen Z agree with this.

Figure 12. Half of consumers are skeptical of automation if there are no employees to help them

Percentage of consumers agreeing to the statements



Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

A roadmap to accelerate automation adoption in retail stores

While many retailers are experimenting with automation, far fewer have delivered at scale across multiple stores. In order to effectively compete for consumers' attention and dollars, driving scaled automation will be increasingly critical.

Currently, retailers have implemented automation use cases in nearly 21% of retail stores and expect this to increase to 36% of stores by 2022. However, adoption of automation by customers and employees will only happen if there is a critical mass of use case deployments. The impact of automation will only be sustained when customers believe they will experience the benefits of automation in any store they enter. We found that those retailers with higher levels of implementation (i.e., they have scaled use cases to multiple stores) see greater benefits:

- Retailers that have implemented customer-facing automation use cases in at least one in three stores see greater benefits compared to those who have implemented in less than one in three.
- For example, retailers implementing a customer experience use case in at least one in three stores say customer visits have increased by 16%. For those who have delivered in fewer, this drops to 10%.

In our research, we found a subset of retailers that have deployed use cases at more stores than the average and aim to have use cases in place at close to half their stores by 2022. In this section, we draw on the best practices emerging from their approach – as well as our expertise in the field – to provide recommendations on how others can accelerate and achieve scale.

Prioritize automation as a strategic imperative

Overall, only 40% of retailers said that automation is a strategic imperative for their leadership team (see Figure 13). In the electronics subsector, this actually drops to 21%. But, making automation a leadership priority contributes to efforts to scale. Retailers that say automation is a strategic imperative (N=192) have been able to scale automation initiatives to 27% of their stores on average. But for those without that leadership backing, this drops to 18%.

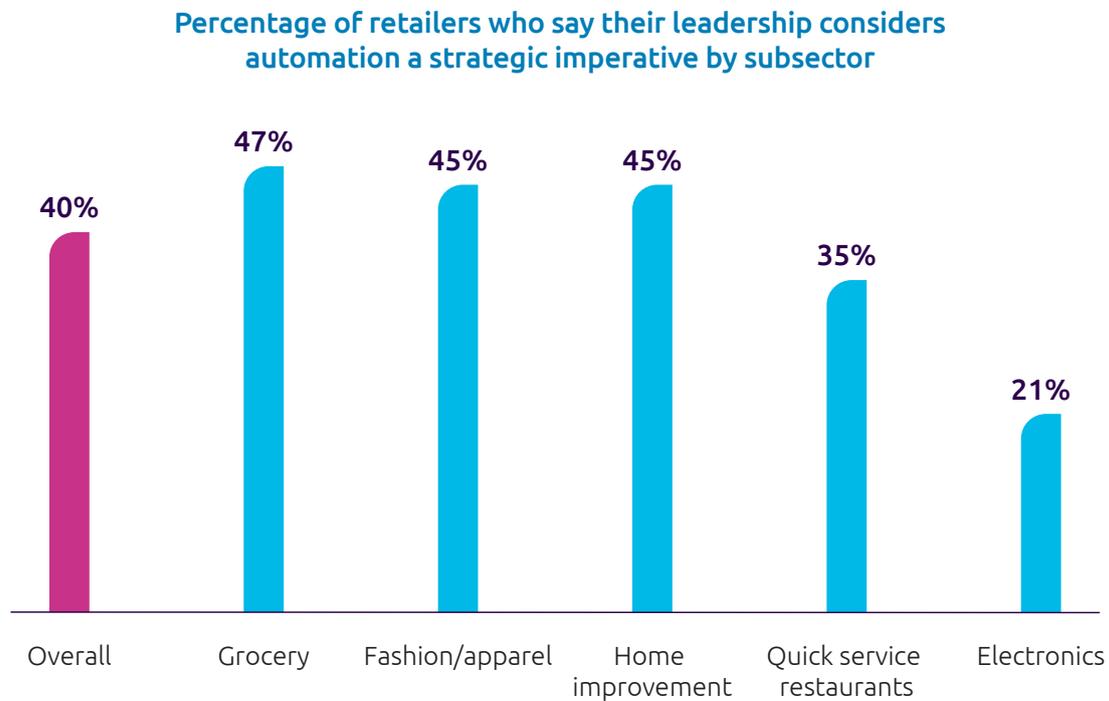


Gerrit-Jan Steenbergen

Group retail technology director, (CIO) at A. S. Watson

“Our consumers do not want face recognition, so the technology we are using requires a customer to use our app,”

Figure 13. Only 40% of retailers say automation is a strategic imperative



Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=475 retail executives.

What does it mean to say that automation is a strategic imperative? Retailers must think through a strategy that is right for their unique strengths and capabilities. For example, retailers should:

- Consider the pace at which they are going to implement automation – will they be a leader or a laggard?
- Decide on their focus. Will they focus on automation that is customer-facing or more operational in nature, or automation across one function or multiple functions? For example, Sam’s Club is focused on customer-facing automating across multiple store functions, from showing product information to scanning to payments.³³
- Decide whether they want to focus on offering an entirely new experience to in-store customers, such as a fully-automated store. Carrefour and its partner Zaitt opened its first fully automated store in Brazil, a 24-hour convenience store that does not require cashiers or store associates. Customers are required to register their credit card details in the store’s mobile app and can decide between scan and go technology or facial recognition for payment.³⁴

View automation initiatives through consumers’ eyes

There are three critical success factors in creating customer-driven automation initiatives:

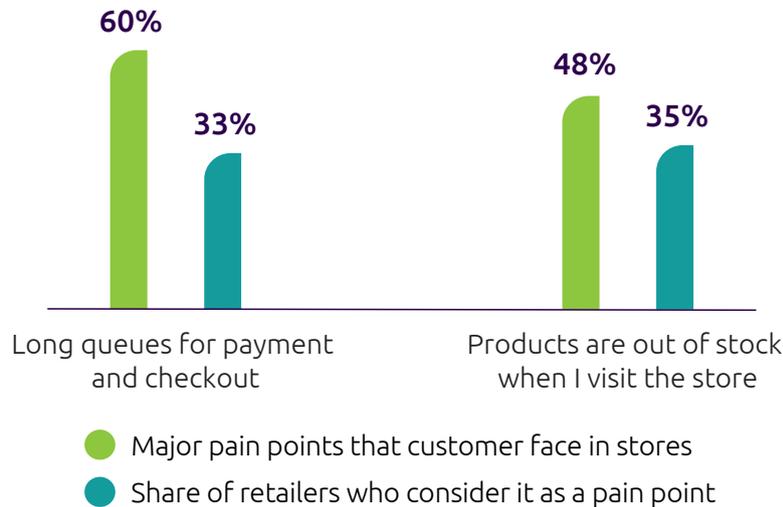
1. Understand what consumers’ key in-store challenges are so that you identify the right use cases to test.

Only 35% of retailers consider “solving customer pain points” as important when deciding which automation use cases to implement. Retailers also fail to grasp the significance of customer pain points. For example, as Figure 14 shows, consumers see long queues as a significant pain point (60%), but only 33% of retailers identified this as a concern.

Retailers should research and understand customers’ needs and incorporate those insights into their automation strategy – setting out how solutions will meet those needs. It is important to identify the customer problem that the automation technology is expected to solve before rolling out the initiative.

Figure 14. Retailers are not aligned with consumers' perceptions of in-store challenges

Perception mismatch between consumers and retailers on pain points in stores



Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=500 retail executives; Consumer Survey, October 2019, N=5,000 consumers.

- 2. Recognize consumers want some level of human interaction within stores.** To combat any consumer skepticism or resistance around automation, retailers should make it clear that employees will be available to assist them if the need arises. However, not all retailers seem to put enough emphasis on this need for human intervention. As Figure 15 shows, only 34% are worried about losing customer trust when they replace humans with machines, and only 39% offer strong messaging that a human being will always be on hand. As John Furner, president and CEO of Sam's Club says: *"Eliminating friction doesn't mean replacing exceptional member service with a digital experience. We know our members expect both."*³⁵As digital interactions increase, it is important for store associates to quickly grasp consumers' requirements. Qualities like emotional intelligence will become increasingly important in a machine-driven age. Previous research that we conducted found that automation and AI will lead to a six-fold increase in demand for emotional intelligence skill sets.³⁶
- 3. Consider the fact that consumers want the freedom to maintain their privacy inside stores.** We saw earlier that 59% of consumers would avoid a store if they use facial recognition for identification and only 23% of retailers are aware of this preference. It is important that retailers build awareness of privacy into their recognition

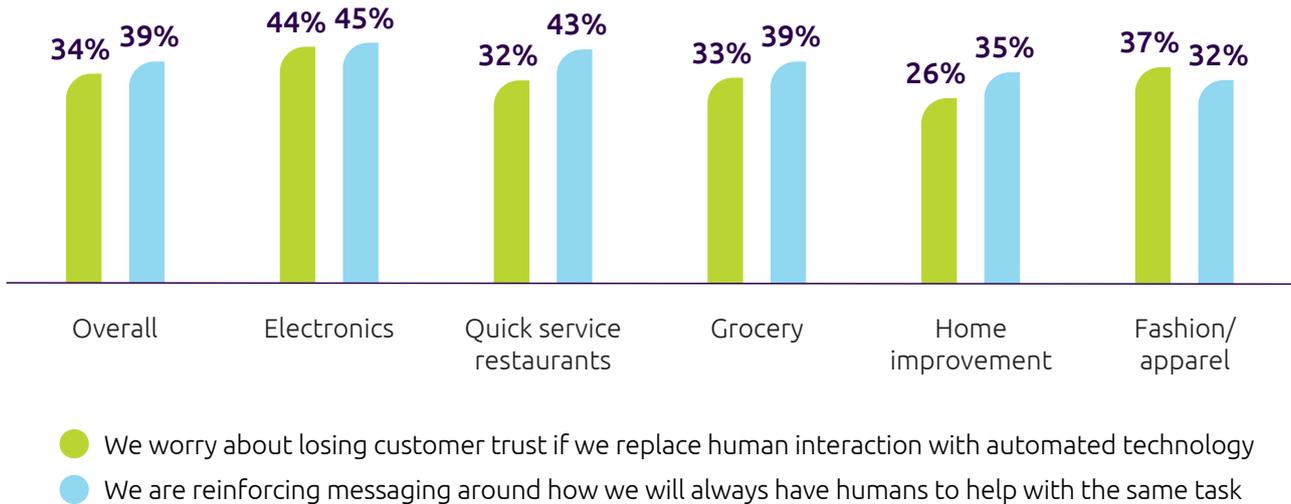
strategies and overall automation approach. A.S Watson, a Hong Kong-based health and beauty retailer – which is piloting a fully unmanned store in Shenzhen, China – offers an example of how to deal with these sensitivities. Gerrit-Jan Steenbergen, the company's group retail technology director, outlines how their consumers are given flexibility. *"Our consumers do not want face recognition, so the technology we are using requires a customer to use our app,"* he explains. *"A QR code within the app opens the door to the store and then cameras within the store follow you, as a body. They do not follow your face, but they do know where your hands are. There is weight sensor in the shelf so whenever you pick up a product, you see the change in weight of the shelf. You connect then that product to your hands. It's a clever, less intrusive way of doing it."*

If retailers do indeed use facial recognition, they should be transparent with their customers on how they safeguard captured data. This will help overcome consumers' apprehensions. When consumers are assured of their privacy and security, we found that they are more willing to use facial recognition:

- 45% of consumers would accept being identified by in-store facial recognition if the retailer is transparent about how the data will be captured and used
- 46% would accept identification if assurances are given on data privacy and security practices.

Figure 15. Most retailers are not sending a consistent consumer message that humans will always be able to help with tasks

Percentage of retailers agreeing to the statements by sub-sector



Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=500 retail executives.

Ensure a data-driven approach to scale automation use cases

Automation initiatives must be monitored continuously to understand consumer and employee views. Identifying what worked well and what did not when consumers interact with automation technology is critical to iterating and improving on the experience. However, 40% of retailers lack a data-driven approach to implement insights learned from in-store automation initiatives.

Given that consumer behavior in stores can be understood better by analyzing the data generated by consumers using automation tools, a data-driven approach is important. Retailers that have a data-driven approach (N=204) have been able to scale automation initiatives to 26% of stores today. But this drops to 18% for those who are not data-driven. Trevor Sumner, CEO of Perch, an in-store product engagement marketing firm says: *“Retailers are aware of store traffic and sales per store, so they get a clear view of the top and bottom of the sales funnel. They also have qualitative tools for understanding the middle of the funnel or consumer behavior in-store. However, they previously did not have the quantitative tools to understand what actually influences*

consumer behavior in-store and show this granularity at a product, interaction, or messaging level.” Retailers able to use data to understand customer behavior are better able to tailor prices, products, and experiences, which leads to improved engagement.

Gathering customer and employee feedback about their automation experiences should be a key step when measuring the impact of automation pilots. However, nearly half of retailers (49%) admit that they are not measuring the success of their in-store automation pilots effectively. Paul Monnington, head of payments at Woolworths Group says: *“This trial is not only about testing new technology, it’s also about seeing how our customers and teams respond to a completely new style of shopping.”*³⁷

Data security and privacy are also key, with GDPR in place in Europe and countries like the US and Brazil close to implementing privacy laws. Retailers must ensure that the consumer data collected and processed through in-store automation is in accordance with local privacy laws.

Determine your automation operating model

There are three key elements to designing an effective automation operating model.

- 1. Identify a centralized automation owner.** Automation initiatives in retail stores can cross multiple functions, from supply chain to customer experience, and it is critical to view the initiatives from a global perspective with a single owner. Marci Weisler, chief commercial officer at Vengo Labs, provider of interactive digital kiosks, which enable data-driven in-store sampling programs and unattended retail, says: *“Retailers often have multiple ad hoc and siloed automation initiatives being developed across functions. However, what is really needed is cross-team collaboration across the different groups.”* Retailers that have a single owner for automation in the store (N=178) have been able to scale automation initiatives at 25% of their stores on average. But this drops to 19% when there is no single owner. In addition to driving adoption, a single owner can help build the case internally as to why automation is critical for success. The director of strategy of a large multinational European retailer says: *“If you are implementing an in-store initiative it will definitely touch the store operations function. The operations director in the country will be involved and the CFO will be involved because it is an investment. A centralized owner is an absolute must because you have many different actors involved in the process.”*
- 2. Develop your automation ecosystem.** Depending on what internal expertise they have to develop automation solutions in-house, retailers need to evaluate whether to make or buy solutions. Collaboration with an ecosystem to ideate, innovate, and identify the right set of automation initiatives can be important in what is a complex industry value chain. Automation initiatives cannot only be relevant to the parent organization – they also need to be compatible with the retailer’s suppliers,

payment, and delivery partners. The director of strategy of a large multinational European retailer says: *“As a rule of thumb, I would say that outsourcing development or implementation of these solutions makes a lot of sense because the vendors compete with each other to make it as smooth as possible. If you do it internally there is much more tension within the organization to make it work.”*

For those organizations that aim for a partnership strategy rather than a pure in-house approach, a number of questions need answering about the nature of the collaboration. Will they innovate automation solutions with startups ahead of the curve or will they wait until solutions are more mainstream and proven? Will they focus on off-the-shelf solutions or customized solutions? Gerrit-Jan Steenbergen, group retail technology director (CIO) at A. S. Watson says: *“We partner with a lot of startups, especially on AI and automation (RPA). We integrate these cutting-edge firms into our organization and roadmaps. It feels like a startup ourselves.”*

- 3. Instill agile working methods and prepare the technology base.** Once pilots have been identified and launched, the big challenge is to drive implementation at scale. Enterprise-level agility is important to achieve this as scaled deployment requires an environment that fosters flexibility and collaboration across functions. Strong leadership, a clear governance, and a robust infrastructure – all components of enterprise agility – are also critical. Previous research we conducted into enterprise agility identified a number of success factors: modernizing IT with DevOps and microservices while also achieving a significant culture shift by changing behaviors.³⁸

It is also important for retailers to develop an operating model that supports the integration of automation technology within the existing technology landscape. Liu Yang, Head of Media Partnership at AiFi, an autonomous store solutions provider, says: *“There is a lot of communication between our autonomous store platform*

49% Share of retailers that do not measure the success of their in-store automation pilots effectively

and our retail clients' systems to exchange product information and to build the shopping cart to enable the checkout-free experience." We found in our research that 41% of retailers agree that they find it challenging to align store automation technologies with their legacy IT systems. Retailers must ensure their existing data center or centralized cloud platforms and edge computing devices in the stores work well together and have the appropriate security systems in place. Similarly, retailers must review their technology portfolio to build a digital core to offer in-store automation. *"All the systems which support making an app useful are really the backbone of any front-end system, and which handle massive volumes of real-time data at any point. So, those systems need to be very robust,"* says the director of product development at a multinational quick-service restaurant about the importance of robust backend systems to scale automation technologies.

Secure employee buy-in through training and reskilling

As we saw earlier, customers want to know that employees can support them if the need arises, which means that employee buy-in is critical. Edith Väli, marketing manager at Cleveron, a click-and-collect pickup automation provider says, *"Since automation is a new technology, both customers and the store staff who need to interact with it tend to be afraid of it. It becomes very important to train staff and have them interact with it at the onset, so they are not afraid to help customers later on."*

However, we found that retailers are struggling to effectively train their customer-facing employees in in-store automation and gain their crucial buy-in. Less than half (45%) say they are able to train store employees to work effectively in an increasingly automated environment. For example, retailers

might be training employees on the uses of automation technologies, but not what to do when the technology breaks down. Or retailers may not be training employees on how to engage with customers in the new ways that automation can bring, such as through an experience or relationship-based interaction. Without that familiarity, disengagement or resistance might be the result. Fahissal Helal, store director at Celio, a French men's clothing retailer says: *"The main challenge that we face is how we empower the in-store team and make sure they participate in the change and the implementation process."* Change management to encourage employee acceptance might be required in addition to basic user training. Retailers that feel they can train employees to work effectively in an automated environment (N=216) have been able to scale automation initiatives to 27% of stores, on average. But this drops to 18% among companies that say they are struggling with staff training.

It is also important for retailers to put a plan in place for impacted employees, such as reskilling initiatives. In fact, 40% of retailers said they were not investing enough in the reskilling of their employees who are affected by automation. When Waitrose implemented self-service checkouts, they shifted the impacted associates to customer service and support. Matt Clifton, head of retail change and development for Waitrose says: *"[Labor costs] have been reinvested in customer service and support in all aisles of the store. The bottom line is that the system has enabled us to shift resources and provide even greater customer service."*³⁹

As automation may make some employees anxious and view it as a threat to their jobs, retailers can practice positive reinforcement in bringing better experiences to their employees and making them knowledgeable. For example, Sam's Club is developing automation tools where employees can submit queries and receive immediate responses to make them feel more connected and engaged in the retail store.⁴⁰



Gerrit-Jan Steenbergen

Group retail technology director, (CIO) at A. S. Watson

"We partner with a lot of startups, especially on AI and automation (RPA). We integrate these cutting-edge firms into our organization and roadmaps. It feels like a startup ourselves."

Conclusion

Automation offers exciting promise in retail – to reduce costs, to make employees more productive, and to improve the customer experience. Consumers see automation as a way to improve the in-store experience – helping to solve the challenges they encounter when they shop. And, they are willing to reward retailers when they have a positive automation experience.

Given these advantages, automation can help bricks-and-mortar retailers protect market share and create a strategic advantage over their digital-native competitors. But, investing in in-store automation cannot be a siloed effort. Given its potential to both reduce costs and enhance the customer experience, organizations need to deploy multiple initiatives across different functions. There are very few other investments that have the potential to achieve both operational and market-facing improvement in this way.

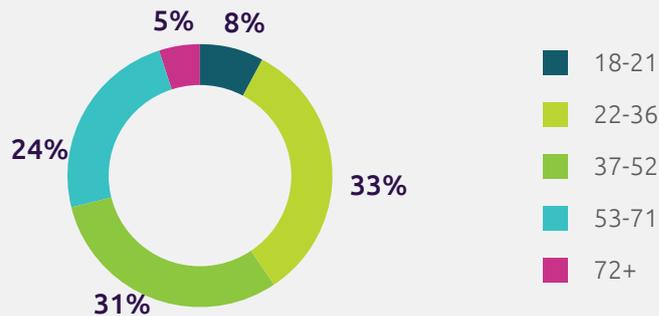
To accelerate progress, and scale in-store automation, five steps are critical. Retailers need to prioritize automation as a strategic imperative, view automation through consumers' eyes, harvest and learn from data, build an automation operating model, and secure employee's buy-in through training and reskilling. Without these steps, automation will be a marginal play, rather than the game-changer it can be.

Research Methodology

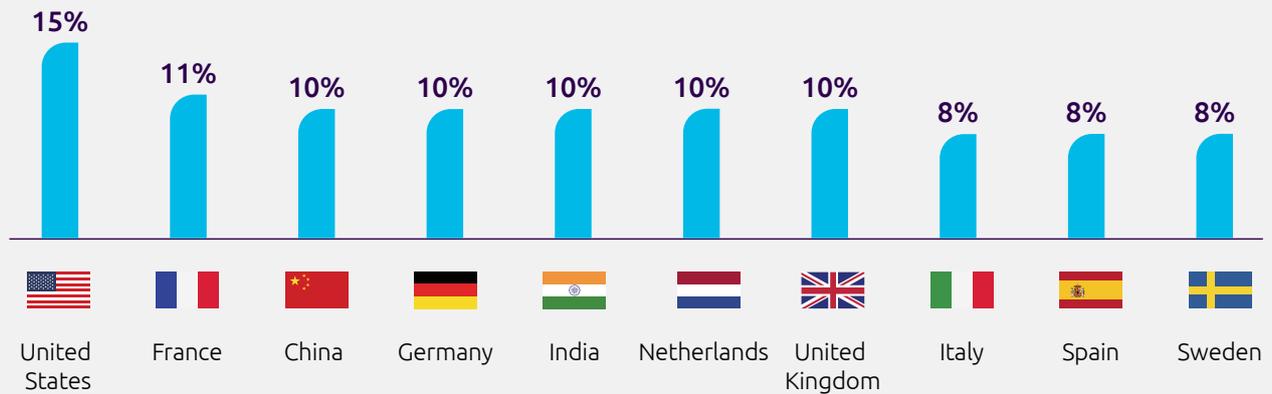
Consumer survey

We surveyed 5,110 consumers across North America, Europe, and Asia. The global survey took place in October 2019. More detail is below.

Consumers by age



Consumers by country of residence



Consumers by pre-tax household income

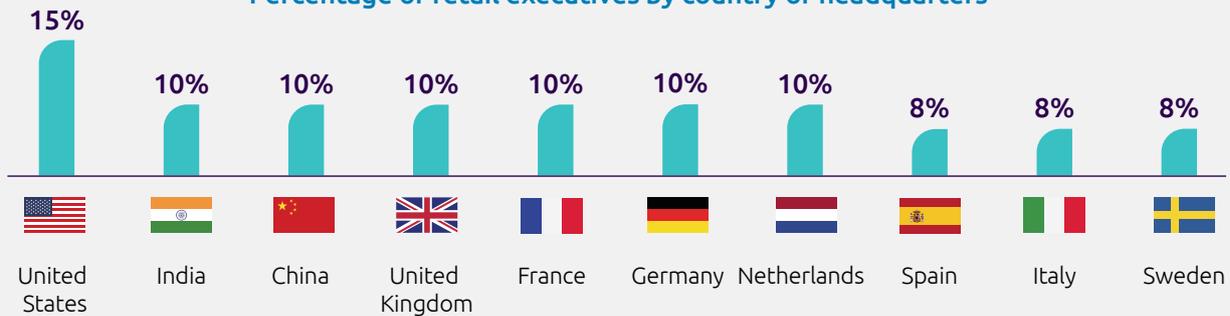


Source: Capgemini Research Institute, Automation in Retail Stores Research, Consumer Survey, October 2019, N=5,110 consumers.

Executive survey

We surveyed 500 senior executives at the director level and above, spread across the world. Retail sub-sectors included in the survey were: electronics, grocery, home improvement, fashion/apparel, and quick-service restaurants. Ninety-three percent of organizations had reported revenue of more than \$1 billion in FY 2018. The global survey took place from October to November 2019. More detail is below.

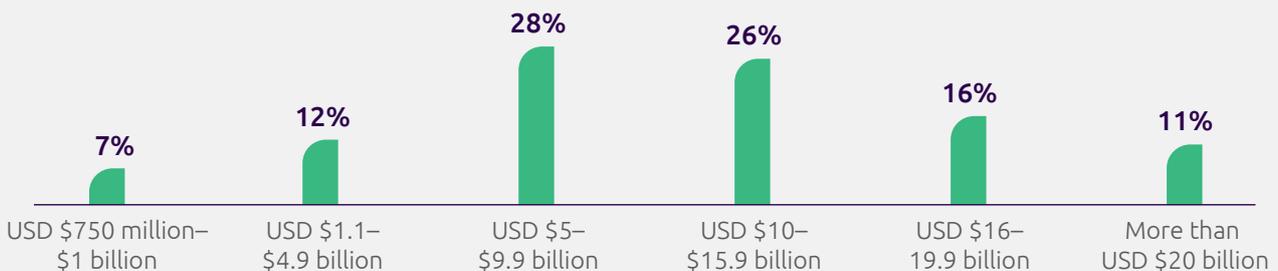
Percentage of retail executives by country of headquarters



Percentage of retail executives by retail sub-sector



Percentage of retail executives by their organization's annual revenue



Percentage of retail executives by title



Source: Source: Capgemini Research Institute, Automation in Retail Stores Research, Executive Survey, October 2019, N=500 retail executives.

Focus interviews: The quantitative research was complemented with in-depth interviews with senior executives from retail firms and start-ups serving the retail industry

The Smart Digital Store framework from Capgemini enables the next generation of “phygital” retail

The retail landscape is changing. The increasing influence of digital, demanding tech-savvy customers, and the explosion of both novel technologies and alternative channels are urging retailers to rethink the role of brick-and-mortar stores in their interactions with customers. The Smart Digital Store bridges the gap between physical and digital, creating stores that combine the benefits of both worlds.

Our capabilities include:

- **Store vision, strategy, and roadmap definition**
- **Store experience design**
- **Cybersecurity-certified, open-source, and scalable IoT platform, that connects any edge device to any cloud and analytics solution**
- **Collaborative approach to evaluate ROI and adoption before deployment**
- **Network of Applied Innovation Exchanges helps unlock existing asset value and future proofs novel concepts**
- **Ecosystem integration for partners and start-ups.**

Capgemini’s priority is to create measurable business value for retail clients. Using our integrated Smart Digital Store framework, we tailor solutions to specific retail needs. Our strategic partnership with Intel and our broader ecosystem allows Capgemini to help retailers build and sustain competitive advantage through cutting-edge and scalable technologies that culminate in an immersive, frictionless, and responsive store environment. **For more information, visit: www.capgemini.com/service/the-smart-digital-store/**

One happy customer – using customer centricity and experience design to drive revenue through loyalty and satisfaction

The retail industry is in the midst of a paradigm shift. There are new ways for people to shop, new ways for brands to engage shoppers, and new ways for retailers to build loyalty. While these are three separate and distinct issues that retailers must consider, they are also interconnected and interdependent. As a result, organizations must create and implement a strategy that addresses each issue individually, while also understanding how doing so will affect each of the other areas.

This is not a standalone effort by one business unit, but a strategic mandate for the entire business – uniting both customer-facing functions with back-end capabilities. It necessitates a cultural and technical transformation, delivered not through the lens of operational efficiency, but the eyes of the customer. And it is not a one-time consideration, but an ongoing process – one that places a relentless focus on the customer.

At Capgemini, we help retailers address new ways of shopping, new methods of engagement, and new loyalty models through the following non-linear steps:

- **Agile, experimentation-based strategy and proposition development**
- **Setting the “north star” for customer transformation**
- **Human-centered design, rapid prototyping, and customer testing**
- **Creating the experiences and offers to deliver these propositions**
- **Deep understanding of emerging and enterprise technologies, agile retail operating models, and leading class operations**
- **Defining the strategic capabilities that will underpin the retailer of tomorrow and the journey to get there**
- **Outcome focused and delivery agility**
- **Transforming to a customer-centric retailer**
- **Delivering and consistently evolving new retail models**

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The Capgemini Research Institute is Capgemini’s in-house research center. The Institute publishes research on the impact of digital technologies on large traditional businesses. The team draws on the worldwide network of Capgemini experts and works closely with academic and technology partners. The Institute has dedicated research centers in India, the United Kingdom, and the United States. It was recently ranked Top 1 in the world for the quality of its research by independent analysts.

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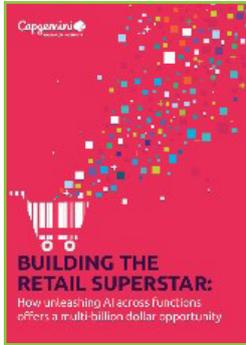
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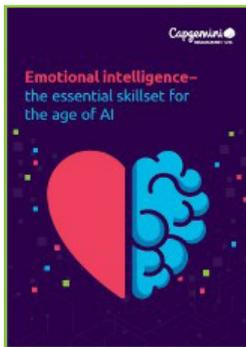
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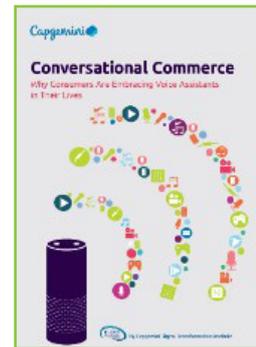
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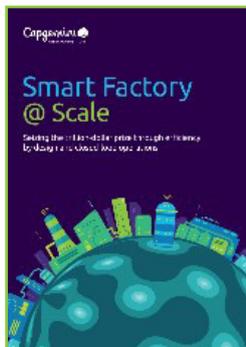
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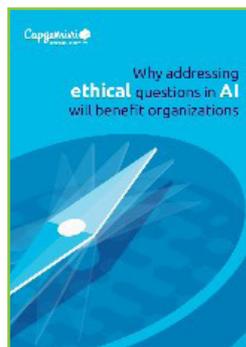
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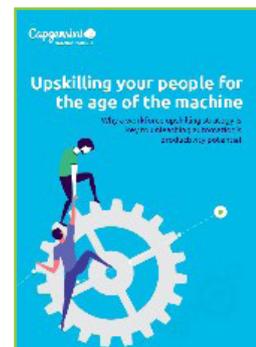
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