Smart retail:

How technology is changing the face of customer engagement

Retail Systems

In association with

brother
at your side

Introduction

As we shift shopping habits to digital channels, retailers are under pressure to modernise systems, upgrade technology and leverage data to meet changing customer expectations.

The disruption of the COVID-19 pandemic and the drive to become more sustainable have also meant retailers are having to adapt processes so data can be personalised and resource efficient.

As a result, smart technology - such as connected devices, advanced analytics and artificial intelligence (AI) - are emerging as key differentiators in the race to digital transformation.

Retail Systems and Brother UK conducted a survey to assess the role of new technologies and the ways in which retailers are implementing automation, data analytics and cloud storage for documents.

This report highlights key drivers and pain points as retailers modernise their systems and prepare for a more digital future.

Methodology

Retail Systems and Brother UK surveyed 100 senior decision makers, including vice presidents of retail operations and group finance directors, operations and procurement directors, IT transformation directors, operations directors, and head of IT platforms engineering, at the UK's leading High Street and online retail brands.

brother
at your side

Executive summary

- UK retailers appear to be in the early stages of their journey towards digital transformation, with most at the start of a strategy to make their operations more digital. However, while digital channels of communication with staff and customers are one side of the equation, retailers should also ensure that back office functions and hardware are data-ready and robust to ensure a fully con-nected business.

- The COVID-19 pandemic has occasioned a rapid acceleration in the shift to digital, with retailers rolling out a range of new digital services. As retailers emerge from the lockdown, the key to ensuring safety and efficiency in-store will be investment in technology such as mobile and handheld devices as well as ensuring staff have the ability to change signage and labelling to reflect changing guidance and pricing.

- Retailers are exploring a range of innovative technologies and solutions to optimise their operations, most notably automation (42 per cent) and data analysis (36 per cent). Both automation and data analysis are becoming essential tools for tracking the movement of goods from factory to shop floor, while data analysis of back office functions such as stock take and resource usage can also drive significant savings for business.

- The use of connected devices (30 per cent) by employees at head office and on the shop floor not only lays the groundwork for integrated workflows, but also gives staff greater autonomy over their work and improves efficiencies overall, with customers benefitting from innovations such as mobile receipt printing which can reduce the need for queueing in store, especially in view of social distancing measures.

- With retailers under increasing pressure to find savings through efficiencies, targeted investment in end-to-end data analytics capabilities can extend from software to measure engagement and conversion on e-commerce sites to smart devices and enterprise IT in the back office that seamlessly transfer data to where it needs to be throughout the business.

- Digital transformation in retail has advanced beyond the customer-facing elements of voice assistants and tills. Connected devices and integrated systems can provide staff from head office to the shop floor with a 360-view of warehouse inventory and stock take as well as a means to send instructions to systems such as wireless printers and scanners to ensure more efficient workflows and enable instant printing of labels that reflect real-time pricing changes.

- When it comes to sustainability, many retailers have already taken action to plan for a more sustainable future, with the majority in the early stages of this process. However, there is clearly room for improvement when it comes to concrete actions, with many retailers now able to partner with suppliers offering a range of recycling initiatives including zero waste to landfill guarantees.

- When it comes to digital self-sufficiency, 40 per cent said some functions were carried out by a managed services firm. Partnering with trusted firms that are able to help companies modernise systems and harness data to drive efficiencies can be key to achieving a successful digital transformation strategy.
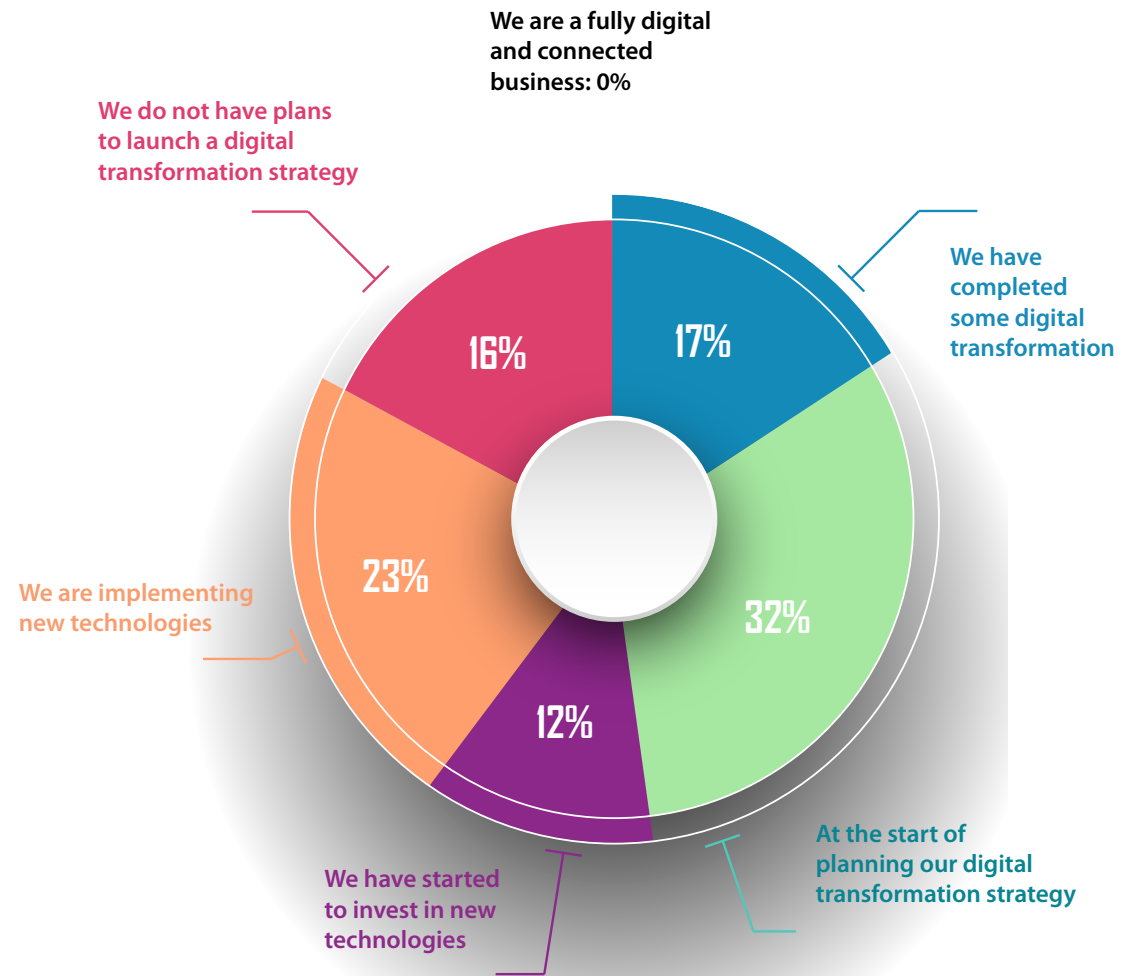
Contents

brother
at your side

1. What progress has your business made towards digital transformation?

(pick one)

The survey found that nearly a third (32 per cent) of retail decision-makers considered their business to be in the early stages of digital transformation, with 17 per cent saying they had completed 'some' degree of digital transformation; suggesting the industry is racing to catch up when it comes to digital infrastructure. When it comes to implementing innovative technologies, 12 per cent have started to invest and nearly a quarter (23 per cent) were on their way to integrating them.

None of those asked said their business was 'fully digital and connected', while 16 per cent said they did not currently have plans to engage in a digital transformation strategy. This points to an urgent need for retailers to explore the potential of technology and digitised processes to keep up with peers which are further advanced in the transformation of their operations, both online and in physical stores.

UK retailers appear to be in the early stages of their journey towards digital transformation, with most at the start of a strategy to make their operations more digital. However, while much of the focus of digital transformation in retail focuses on digital channels of communication with customers and online operations in order to stand out from the competition, investment in back office func-tions such as stock taking, labelling, enterprise technology and hardware is of equal importance if businesses are to make the transition to a fully digital and connected business.

We are a fully digital and connected business: 0%

We do not have plans to launch a digital transformation strategy

We have completed some digital transformation

We are implementing new technologies

We have started to invest in new technologies

At the start of planning our digital transformation strategy
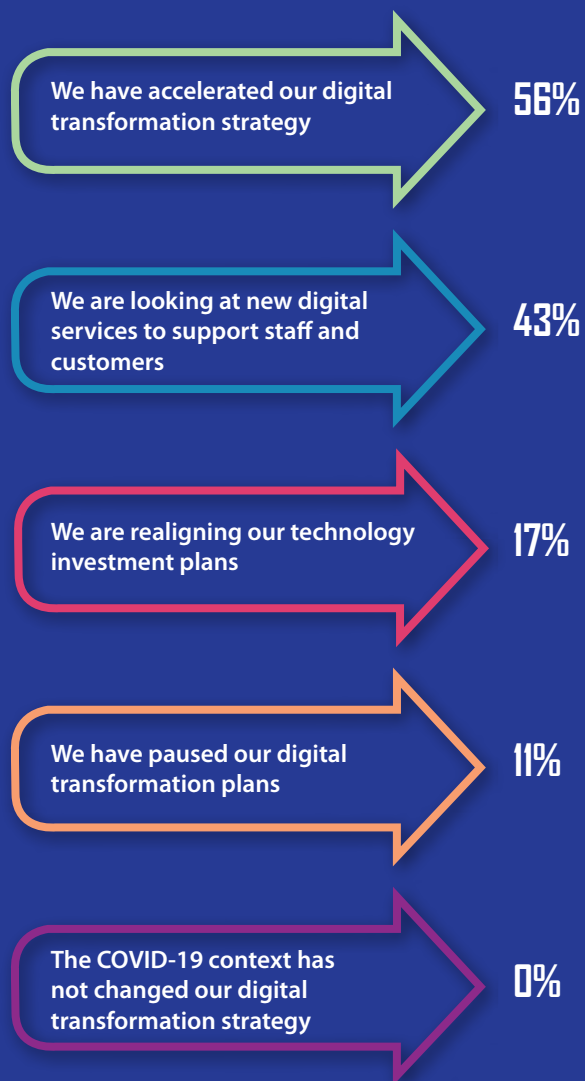
16%

17%

23%

32%

12%

2. What impact has the COVID-19 context had on your plans for digital transformation? (tick all that apply)

The government-imposed lockdown in response to the COVID-19 pandemic coincided with the dates this survey was conducted. It is clear that the shift to remote working along with more staff and customer engagement via digital channels has had a significant impact on retailers' plans for digital transformation, with a majority (56 per cent) saying the situation had prompted them to accelerate their strategy to more digitally-enabled working and none saying that it had not changed their approach to transformation.

A total of 43 per cent of respondents said that one of the business challenges of the pandemic was sourcing and implementing new digital services to support their customer base and keep staff connected during lockdown. Changes to technology investment plans were reported by 17 per cent, while 11 per cent said the pandemic had necessitated a pause in digital transformation plans, reflecting the financial and economic pressure of the pandemic on the retail sector.

The COVID-19 pandemic has occasioned a rapid acceleration in the shift to digital, with retailers rolling out a range of new digital services to maintain their relationship with staff and customers in the remote working and non-contact environment. As retailers emerge from the lockdown to the 'new normal', technology that enables staff to perform key functions safely, such as mobile and handheld devices and safe queueing measures as well as ensuring staff have the ability to change signage and labelling to reflect up to date changes to guidance and pricing will be a valuable tool in helping customers to adapt.

brother
at your side

We have accelerated our digital transformation strategy — **56%**

We are looking at new digital services to support staff and customers — **43%**

We are realigning our technology investment plans — **17%**

We have paused our digital transformation plans — **11%**

The COVID-19 context has not changed our digital transformation strategy — **0%**

3. On a scale of 1-5, which of the following digital technologies would help to optimise your retail business? (rate 1-5)

Automation

Automated processes, such as robotic process automation, are defined as efficiency-focused technology which perform routine or repetitive tasks with minimal human assistance. In retail, automation can be found in stock analysis and order software, or devices such as warehouse robots and automated in-store technology.

1:	2:	3:	4:	5:
1%	14%	39%	42%	4%
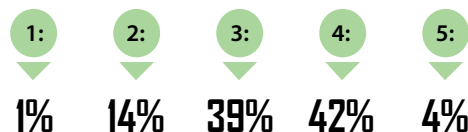
The survey found that automation of retail processes - from factory through the supply chain to the shop floor - is a key driver of efficiencies for retailers, with 42 per cent rating it as a '4' out of five and 39 per cent a '3'. Just one per cent of respondents said it would hardly feature in the optimisation of their plans, rating it as a one, while at the other end of the scale, five per cent rated it as a '5' out of five, meaning it is considered essential for their retail business.

Artificial intelligence

AI is the use of algorithmic processes to perform tasks which would normally require human intelligence - such as speech recognition, vision, pattern analysis and decision making. Examples of AI in retail include chatbots, voice ordering and visual search.

1:	2:	3:	4:	5:
13%	66%	20%	1%	0%
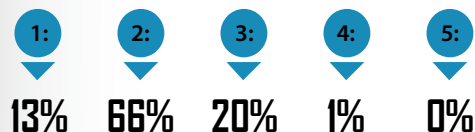
The vast majority (66 per cent) of respondents rated artificial intelligence as a '2' out of five on the scale, suggesting that there is significant work for the industry in understanding how AI can be implemented into retail technology and help optimise processes. A further 20 per cent rated it as a '3', suggesting that some industry players have begun to explore its potential, while 13 per cent were at a very early stage in this process, rating it a '1' out of five.

Machine learning

Machine learning applies AI to complex scenarios and is able to learn or programme itself on the basis of outcomes, without being programmed by humans. Machine learning in retail might include a computer program that automatically uses data about a customer's preferences to serve them more personalised content.

| 1:	2:	3:	4:	5:
1%	56%	38%	5%	0%
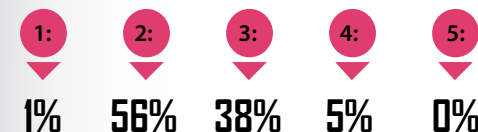
More than half (56 per cent) of retailers believed that machine learning could be moderately helpful in making their systems more efficient, rising to 38 per cent who rated it a '3' out of five. The relatively low percentages at either end of the scale suggest that the retail industry has yet to fully grasp how machine learning could optimise their supply chain, logistics, online and store operations through AI-driven technologies.

brother
at your side

3. On a scale of 1-5, which of the following digital technologies would help to optimise your retail business? (rate 1-5)

Data analytics

Data analytics involves processing and modelling data in order to establish trends, identify useful information and support decision making. Data analytics can be deployed in retail for anything from inventory, stock take and tracking resource usage across the business to finance and website or app optimisation for digital channels.

1:	2:	3:	4:	5:
1%	6%	57%	36%	0%
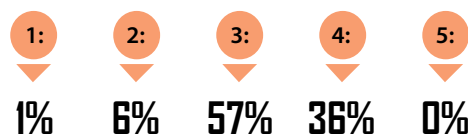
A majority of respondents said that data analytics would be moderately to very useful in optimising their systems, with 57 per cent ranking it as a '3' and more than a third (36 per cent) a '4' out of five, suggesting that a number of retail businesses have already tapped into data analytics to monitor and improve their operations and customer interactions.

Connected devices

Often grouped within the Internet of Things (IoT), connected devices or hardware, such as printers, hand-held devices and voice assistants enable staff and other systems to share data and communicate seamlessly with one another.

1:	2:	3:	4:	5:
23%	35%	12%	30%	0%
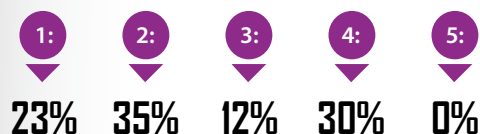
The survey found that the potential of connected devices as a driver of digital transformation are beginning to be understood by retailers. While just under a quarter (23 per cent) rated them a '1' out of five on the scale of technologies they would be considering for optimising their business, just under a third (30 per cent) estimated it as a '4' out of five, suggesting a growing awareness of connected devices and the ways in which they can help staff stay connected and join up systems to drive efficiencies. This integration of systems and data in a network of devices can help retailers to roll out a uniform back office environment for staff across disparate locations and store estates, allowing retail staff to benefit from continuity in the technology available to them and saving time and cost for the business.
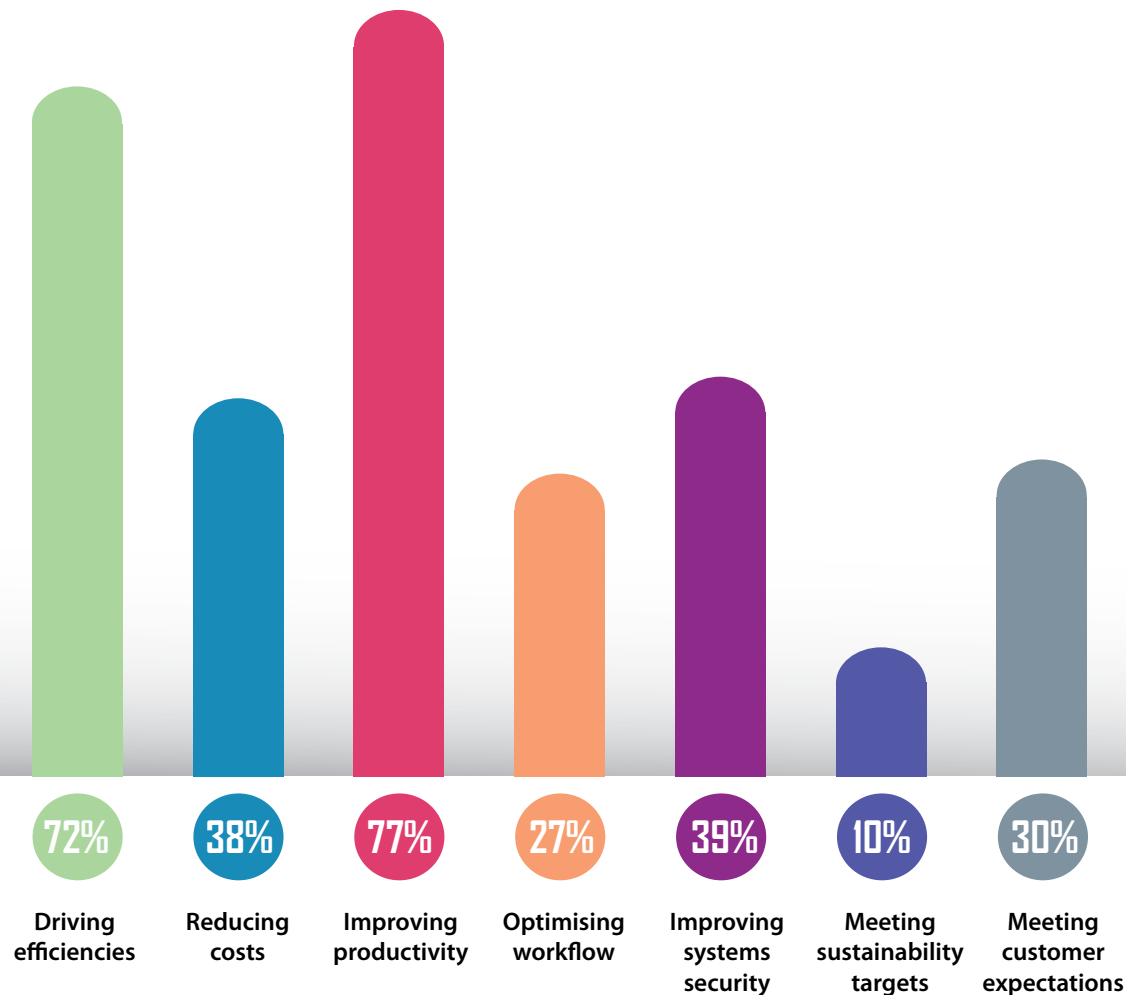
Digital twins

A digital twin is a virtual replica of a physical asset, such as a device, machine or system. Data is gathered on the physical assets and sent to the digital twin for the purposes of monitoring, maintenance and remote work when an operative or employee cannot be physically present. In retail shelf sensors are a good example of a physical asset feeding back data to a centralised system.

1:	2:	3:	4:	5:
68%	24%	8%	0%	0%
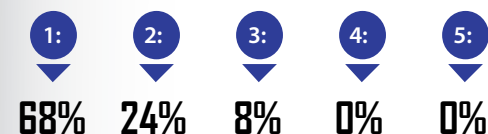
The survey showed that digital twin technology is currently viewed as less relevant to retail operations than other sectors, for example manufacturing and utilities, with 68 per cent rating digital twins as a '1' out of five and 24 per cent a '2'. While retailers might be less focused on digital twins than data in order to optimise their business models, it is likely that the digital twins concept is more applicable to the production and supply chain side of the business rather than IT and technology operations.

brother
at your side

4. What are your key reasons for implementing digital technologies (tick all that apply)

Driving efficiencies	Reducing costs	Improving productivity	Optimising workflow	Improving systems security	Meeting sustainability targets	Meeting customer expectations
72%	38%	77%	27%	39%	10%	30%

brother
at your side

The survey showed that efficiencies and productivity are currently high on the agenda for retailers, with 77 per cent saying that they are implementing digital technologies in pursuit of better productivity across the system, and 72 per cent citing efficiencies as a key driver of digital transformation.
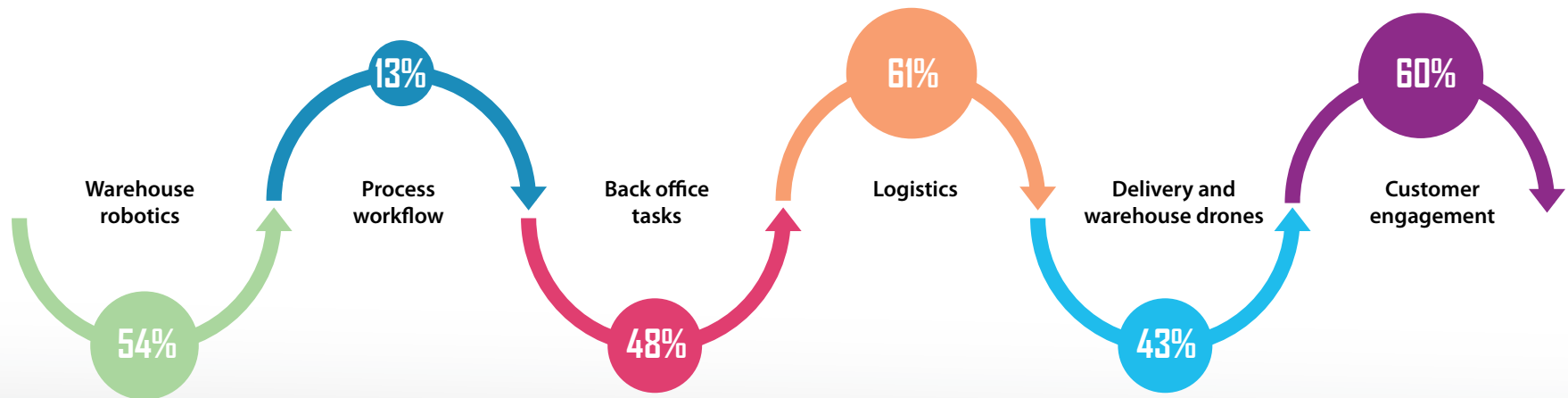
Related drivers are reducing operational costs (38 per cent), pointing to the importance of using data and technology to make retail processes more seamless and efficient. Meanwhile systems security was highlighted as a priority for 39 per cent of retailers, suggesting that high profile data breaches and rising public awareness of data privacy issues has pushed modernisation of systems and technology up the corporate agenda.

A further 30 per cent said that meeting customer expectations, either through online or digital channels or through in-store technology, would be a key reason for implementing digital technologies such as those listed in question three.

With retailers under pressure to find savings through efficiencies, it is clear that improved productivity and workflows are the focus of investment in digital technology, with data analytics tools and tracking of how and where resources are being used central to the goal of making a business more efficient.

For retailers, ensuring that they have end-to-end data analytics capabilities extends from software to measure engagement and conversion on an e-commerce site to smart devices and enterprise IT in head office that seamlessly transfer data to where it needs to be.

5. Which stages of your supply chain could benefit from automated processes? (tick all that apply)

Warehouse robotics — 54%

Process workflow — 13%

Back office tasks — 48%

Logistics — 61%

Delivery and warehouse drones — 43%

Customer engagement — 60%

With the rise of chatbots, voice-activated assistants and increasing digital engagement through apps and e-commerce, 60 per cent of respondents said that customer engagement could benefit from more automated processes, along with a more seamless and efficient process workflow (13 per cent).

Back office tasks, such as administration, order and invoice processing and printing, could also benefit from automation, according to 48 per cent.

At the other end, more than half (54 per cent) of respondents said that warehouse robotics were one stage of the supply chain which could see increasing automation, along with logistics (61 per cent) and delivery and warehouse drones (43 per cent).

Automation can offer retailers a host of advantages when it comes to more efficient workflow, back office and supply chain functions, with many modern devices equipped with automated programmes to

save employees performing repetitive manual tasks and to track where resource is needed most. As customers adapt to more automated methods of engagement such as a chatbots and apps, processes such as orders, invoicing, stock taking and labelling can also benefit from advanced AI which can accurately process and action data, such as pricing information which frees up shop floor staff who would previously have had to manually input information.

6. Which connected devices and systems are used to send and retrieve data in your business? (tick all that apply)

65%
Tablets and hand-held devices

52%
Smartphones

53%
Wireless printers and scanners

6%
Voice-enabled assistants

The survey highlighted the relatively high adoption of data sharing devices across the retail sector, with 65 per cent sending and receiving information on stock levels, customer engagement, orders and back office processes via tablets and hand-held devices, and 61 per cent using intranet-connected tills. More than half (53 per cent) are using wireless printers and scanners to connect data within the business and support staff to work more efficiently. Reflecting the growing use of voice-enabled devices in the retail supply chain, six per cent said these were helping to share data across the business.

Some of the more recent developments in smart store technology, such as shelf sensors and digital labelling, are not yet commonplace, with zero per cent of retailers deploying these, despite expectations that they will play a key role in coming years. An exception to this rule is the fact that none of the retailers said that self-checkout tills were regarded as a 'connected device', suggesting that they are considered as a stand-alone self-service technology, rather than a machine that can be linked up with hand-held devices and digital assistants used by staff in store.

However, digital transformation in retail has advanced beyond the customer-facing elements of voice assistants and tills. The same integrated systems can provide staff from head office to the shop floor with a 360-view of warehouse inventory and stock take and rotation in each store, with hand-held devices and smart phones offering ways of managing these as well as facilitating communications between staff in different locations. Staff are also able to use these connected devices to send instructions to systems such as wireless printers and scanners, to ensure more efficient workflows and enable instant printing of labels that reflect real-time pricing changes.

61%
Intranet-connected tills

0%
Digitally updated labels

0%
Shelf sensors

0%
Self-checkout tills

brother
at your side

7. How digital is document management in your retail business? (pick one)

We are transitioning to cloud-based storage

26%

We use mainly email to share documents

27%

3%

Electronic documents are automatically uploaded to the cloud

We have a mix of paper and electronic file storage

42%

We offer customers digital receipts: 0%

brother
at your side

As environmental, efficiency and data access concerns nudge retailers towards increasingly digital means of storing documents, 42 per cent said their business was currently using a mix of paper and electronic file storage, suggesting that a large proportion of retailers still rely on paper-based processes for storing information, even if the landscape is changing rapidly.

For retailers looking to balance their resource use with digital documentation, agile solutions involving 'print light' methods, which use data analytics to minimise the amount of paper and card used throughout the business, can offer a route to greater efficiencies and more sustainable document production over the long-term.

Just over a quarter (27 per cent) said that email was used to share documents across the business, suggesting that many retailers are reluctant to upload documentation to other storage solutions such as migrating data to the cloud (26 per cent). Just three per cent of retailers said that they have the digital infrastructure to upload documents automatically into the cloud.

8. Which of the following processes are you able to access data analytics for?
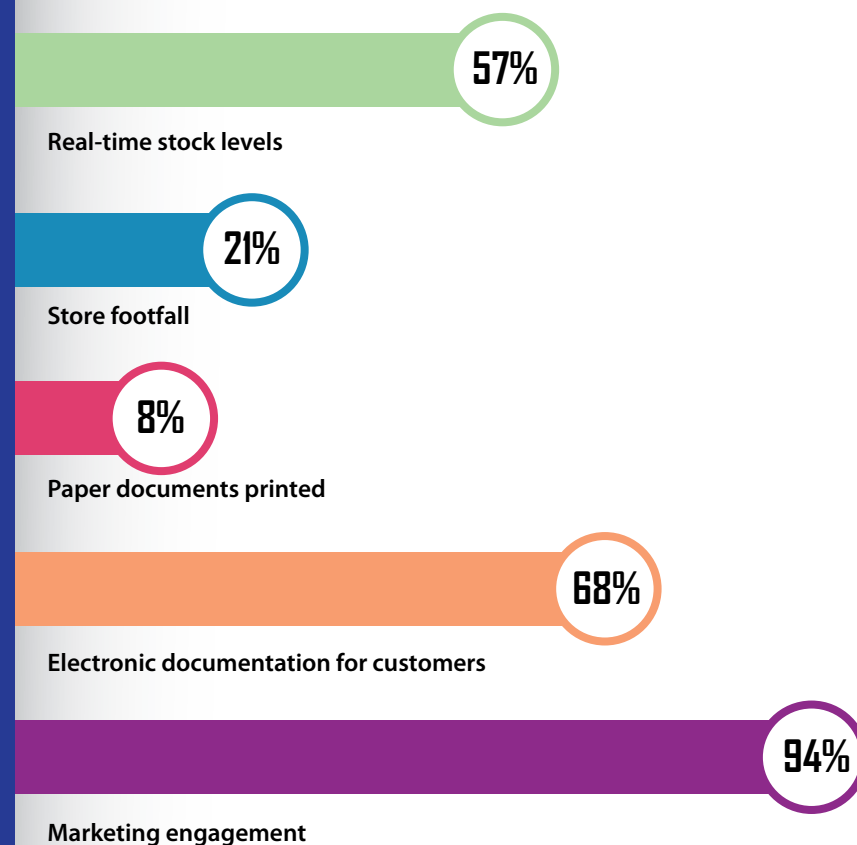
(tick all that apply)

The survey highlighted the crucial role of data and analytics for marketing channels and campaigns across the retail industry, with 94 per cent saying that tools such as trend analysis and click rates are accessible in their business.

Digital transformation has reached other parts of the supply chain, including stock levels as part of integrated store and warehouse strategies, and other processes such as printing (8 per cent) and in-store footfall (21 per cent).

A further 68 per cent said that they are able to access data analytics for customer documentation, such as order details and customer service correspondence, while 57 per cent are able to use analysis to predict and monitor stock levels based on real-time data.

While the case for analytics in the online sales cycle is evident, with nearly all retailers able to measure engagement and conversion on marketing channels, it is equally important for the business to understand how resource is being used and how customers are engaging, especially in the omnichannel retail model. Increasingly, apps can be used to help shoppers in-store, with QR code technology enabling real-time stock check of chosen items in a particular store or nearby stores via the scan of a label with a smart phone.

57%

Real-time stock levels

21%

Store footfall

8%

Paper documents printed

68%

Electronic documentation for customers

94%

Marketing engagement

9. What stage is your business at in its sustainability planning? (tick all that apply)

The research shows that many retailers have already taken action to plan for a more sustainable future, with the majority in the early stages of this process. While half said that they were at the start of developing a strategy for becoming less resource-intensive, 45 per cent said they were exploiting commitments to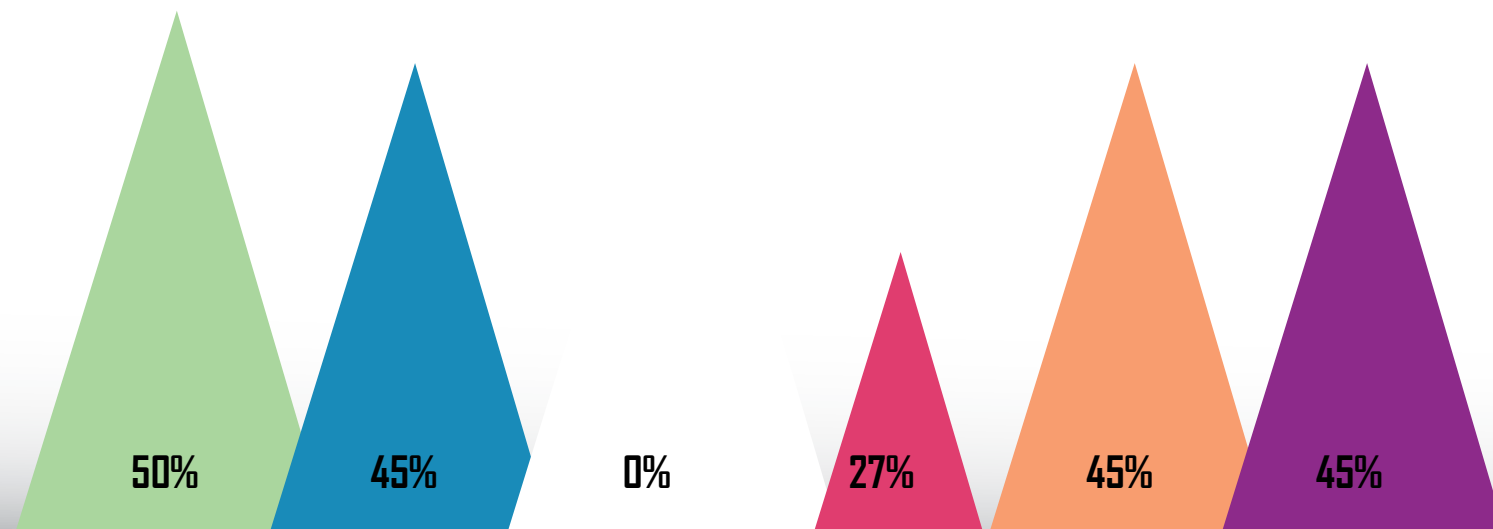 invest in a more sustainable approach, while the same amount said they had already rolled out staff training to instil a culture of awareness around sustainability.

A further 45 per cent said they have put in place a community sustainability action plan and 27 per cent said that a longer-term commitment was in place.

When it came to more advanced sustainability and green initiatives, none of the respondents said they had yet implemented fully paperless processes as part of an established sustainability programme.

While many strategies are in place, there is clearly room for improvement when it comes to concrete actions, with many retailers able to partner with their suppliers on 'paper light' and recycling initiatives. Retailers can also explore partnerships with firms with shared values and objectives such as zero waste to landfill, as well as ensuring that in-store and in-office recycling policies are extended throughout the company.

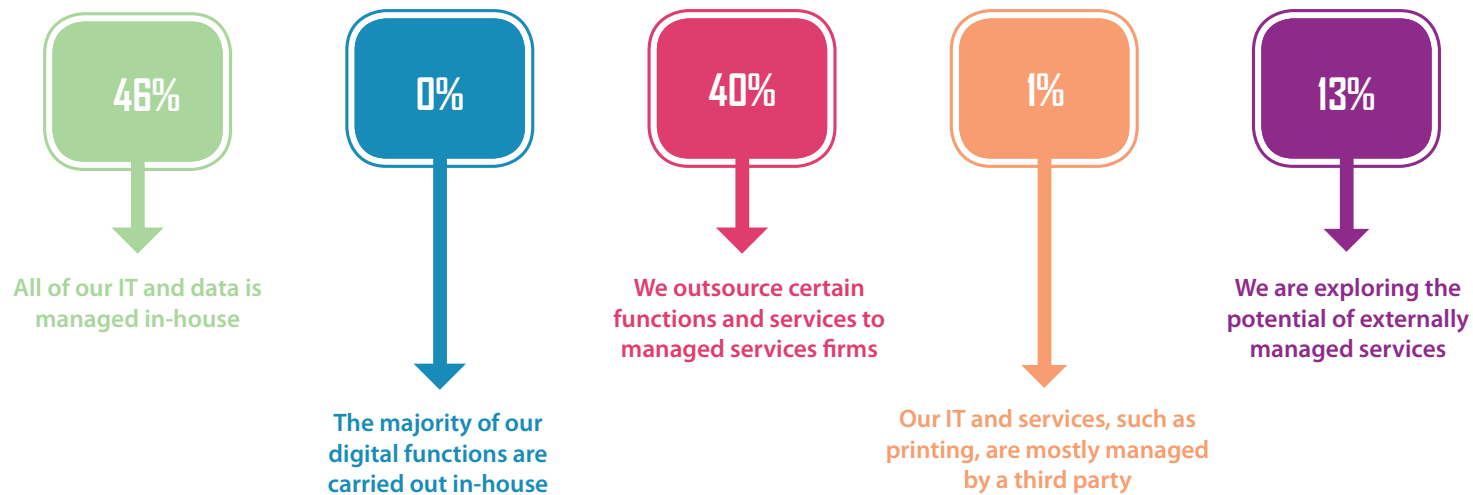| 50%	45%	0%	27%	45%	45%
We are at the start of developing a strategy to become more sustainable	We are exploring investment in a more sustainable approach	We have already rolled out sustainability initiatives, including paperless processes	We are committed to a long-term plan to help the businesses become more green	We have launched staff learning and development to support sustainability	We have a community sustainability action plan

10. To what extent would you say your business is digitally self-sufficient?

(pick one)

46%	0%	40%	1%	13%

All of our IT and data is managed in-house

The majority of our digital functions are carried out in-house

We outsource certain functions and services to managed services firms

Our IT and services, such as printing, are mostly managed by a third party

We are exploring the potential of externally managed services

When it came to the management of IT operations and innovative technology, just under half (46 per cent) said that all data and IT processes are managed in-house, with 40 per cent of retailers saying certain functions and services provided by a managed services firm. None of the retailers said that the majority of their digital functions are carried out in-house, suggesting that many are open to the idea of data and digital functions being provided by external parties.

Partnering with trusted firms that are able to help companies modernise their systems and harness data to drive efficiencies can be key to achieving a successful digital transformation strategy. By making use of a range of software, hardware and devices from external partners, retailers can ac-celerate the process of upgrading their in-store and back office processes and free up time for staff to focus on core business priorities.

While one per cent of those surveyed said that IT and services such as printing were managed by a third party, 13 per cent said they were exploring how externally managed services could facilitate their digital transformation strategy going forward.

brother
at your side

Conclusion

The survey highlighted many areas in which the retail industry is successfully navigating digital transformation through the use of 'smart technology'. While none of our respondents believed their organisation could yet be described as 'fully digital and connected', the majority had made steps towards it, with nearly a third at the start of their digital transformation journey and a further third already investing in or implementing new technologies.

While for many retailers the challenge of COVID-19 has temporarily paused or prompted a revision of technology investment plans, for the majority (56 per cent), the shift to home working and the need to protect staff with contact-free and digital ways of working had led to an acceleration of digi-tal transformation strategies; mirroring a trend seen throughout the UK economy.

As for the digital solutions retailers are exploring to help optimise their systems, data analytics and automation were the two most highly rated, pointing to the potential of these to drive improvements across the supply chain. Connected devices are also gaining traction as a key tool for retailers as they seek to leverage their data and make it accessible to systems and staff across the business.

The key reasons for implementing these digital technologies are driving efficiencies, boosting productivity and meeting new sustainability goals, as retailers look to manage costs, track resource use and streamline operations in an increasingly competitive marketplace.