AI in the Brick-and-Mortar Store

First look at the coming development of the AI automated and augmented brick-and-mortar store BY JOE SKORUPA

More has changed in retail in the last 10 years than in the previous 100. Nowhere is this more evident than in brick-and-mortar stores, which are currently undergoing reinvention. They are morphing from their current sluggish, caterpillar state into a richly automated and augmented butterfly that soars on the wings of exciting in-store experiences and omnichannel opportunities.

The future of the "new" retail store is actually taking shape today in some market segments as fast-moving leaders respond with a sense of urgency caused by the multi-year decline in foot traffic and challenge of keeping up with the rapid fire introduction of new competitors and technologies.

While the effects of the headwinds have been small in a growing economy, the effect has been large for many retailers who are seeking additional budget support to upgrade ominchannel capabilities and explore innovative new advancements.

Retailers who have outperformed the downward pressures have done so by disrupting the traditional retail model. With few exceptions, the disruptors have relied on a broad use of emerging and innovative store technologies including one of the most important – artificial intelligence (AI) or machine learning.

In this Targeted Research report, we explore the growing role of AI, machine learning and innovative technologies in today's brick-and-mortar stores.

Store as Technology Hub

It is hard to find reliable industry data on the average cost of technology required per store, so we asked respondents to tell us how much IT costs for a large regional or national retailer to launch each new store.

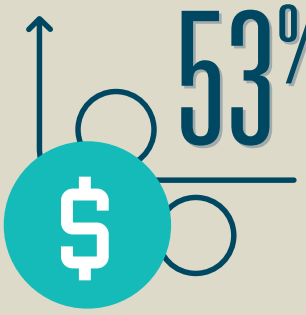
To determine average cost we asked respondents to consider all hardware, software and network costs for phone lines, LAN, WAN and WiFi, all POS terminals, POS software, POS peripherals, mobile devices, laptops, desktops, third-party services, kiosks, handheld scanners, and so forth.

FIGURE 1

$53,000

Average technology budget required to launch each new store.

FIGURE 2



53%

Amount of change in the technology cost required to launch each new store over the last five years.

FIGURE 3

Top 6 primary consumer and competitive factors driving change in technology cost per store:

1. Shoppers becoming more tech savvy	51%
2. Shoppers using mobile phones	35%
3. Provide shoppers greater value from store experience	25%
6. Provide seamless omnichannel shopping	23%
4. Associates using mobile devices	22%
5. Store becoming more experiential	22%

FIGURE 4

7.3

Importance of supporting consumers' mobile use, shopping ability and omnichannel services in stores.

(On a scale of 1-10 where one stands for completely unimportant and 10 stands for extremely important.)

We also wanted to get a reliable figure that was the average cost for retailers across the full spectrum of revenue and retail niches, such as apparel, grocery, specialty and mass merchant. What we found is the average cost of IT for each new store is $53,000. (See Figure 1.)

Is $53,000 a lot of money to outfit each new store with hardware and software? It is if you plan to open 100 stores in the next couple of years, a bill that will come to $5.3 million. Also, it is high if you plan to open a pop up store that has a limited lifespan.

However, $53,000 is a low estimate if your retail segment is supermarkets, mass merchants, or big box. For these large-format, high-volume stores the cost of IT per store could double the overall average.

To go deeper into cost analysis, we also asked retailers if the average cost has gone up or down over the past five years and the answer is up 53%. (See Figure 2.)

This sharp increase demonstrates that over the last few years stores have become growing hubs of technology filled with a long list of hardware, software and network connections.

FIGURE 5

Importance of supporting store staff use of mobile devices for customer service, customer support, and sales/ transactions in stores.

(On a scale of 1-10 where one stands for completely unimportant and 10 stands for extremely important.)

FIGURE 6

Importance of the role played by mobile devices (both consumers' and store staff) in your stores' efforts to maximize personalized marketing to consumers, including identifying and tracking customer behaviors while in a store.

(Using a 1-10 scale where one stands for completely unimportant and 10 stands for extremely important.)

The reasons for the rapid growth of technology in stores are many, but chief among them is the challenge of meeting expectations of the tech-savvy shopper, which was chosen by 51% of retailers as the primary driver for increasing the cost of technology installed per store. (See Figure 3.)

Shoppers using mobile phones, which is something tech-savvy shoppers are likely to do, came in second on the tech-driver list (35%). Other tech drivers on the list include: associates using mobile devices, stores becoming more experiential, and providing seamless, omnichannel experiences.

Mobility Is the Tip of the Spear

The importance of mobility in retail from both the shopper and retailer perspectives is indisputable. Or is it?

When we asked several questions that examine the importance of mobile and omnichannel services in stores we found relatively strong support for them, but it was not wholehearted.

For example, when we asked about the importance of supporting consumers' use of mobile devices in stores to provide more omnichannel services (using a 1-10 scale) we received a 7.3 rating. On a scale like this, where one stands for completely unimportant and 10 stands for extremely important, any number above seven indicates strong support. (See Figure 4.)

However, when we asked about the importance of supporting associate's use of in-store mobility we received a lower rating of 6.7. Ratings in the six-point range indicate lukewarm support. This lower rating signals that retailers are still struggling to discover best practices that deliver improved customer service, customer support, and faster sales transactions via mobile devices. (See Figure 5.)

The response was somewhat more optimistic when we asked about the role mobile devices play in maximizing personalized marketing. Here the rating was 6.9, which is just shy of the strong support level. (See Figure 6.)

Clearly, retailers recognize the importance of mobility in stores for both shoppers and associates, but their support is lukewarm. If they were more confident the hurdles associated with effective use could be overcome, their ratings would surely have been higher.

Lack of bandwidth and network resiliency, no doubt, play big roles in the retailer's lack of confidence in mobility implementations. More than half (52%) say their in-store networks are seriously unready today to handle current needs. Just 7% say their networks are completely ready. (See Figure 8.)

How will this change by 2020, which is just 18 months away? By then, 38% of retailers say their in-store networks will be completely ready to handle bandwidth and resiliency needs. The pace of change in retail as a whole,

FIGURE 7

Advanced technologies of 'future store' that have realistic potential for becoming part of mainstream stores within 3 years:

1. In-store recommendations engines based on shopper actions/choices
2. Voice command apps for store managers and associates
3. Geolocation/geo-fencing to send messages to shoppers
4. Virtual mirrors for clothing, cosmetics, etc.
5. Shopper tracking in store (MAC address, WiFi log in, etc.)
6. Voice command apps for shoppers

FIGURE 8

How ready is your in-store network bandwidth and resiliency to handle current and future demands with speed and reliability?

	TODAY	2020
Seriously unready	52%	12%
Somewhat ready	41%	50%
Completely ready	7%	38%

FIGURE 9

6.2

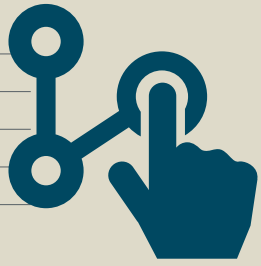
Importance for automated systems using artificial intelligence to monitor, manage and maintain in-store networks and application performance in real-time.

(Using a 1-10 scale where one stands for completely unimportant and 10 extremely important.)

FIGURE 10

Top 6 areas where AI monitoring and managing can help support retail systems in stores:

1. Shopper personalization in real-time
2. Security
3. WiFi for customers
4. WiFi for manager and associates
5. WAN bandwidth
6. Customer identification in real-time



as opposed to market leaders, can be maddeningly slow.

AI in the Store

As more technology is introduced into the store environment it is clear that autonomous management, instead of manual management by store staff, will be required. In many cases this will involve artificial intelligence (AI) and machine-to-machine capabilities.

Stores that are automated and augmented in this way are thought of as "future stores," but this future is not far off on a distant horizon. When we asked retailers to predict what technologies they would like to see become mainstream within the next three years we found that providing in-store recommendations to shoppers through AI engines topped the list. In-store recommendations will not be based solely on previous purchases, but also on recent actions and choices made by shoppers in the store. (See Figure 7.)

Determining what actions and choices shoppers are taking in the store will be done through geolocation or geo-fencing capability, which appears second on the list. Once the shopper is located and identified, messages and recommendations will be sent directly to shoppers in the store.

Other advanced technologies that will be enhanced by AI at the store level include voice command apps for store managers, associates and shoppers, the ability to track shoppers in real-time, and managing virtual mirrors for clothing and cosmetics.

When we asked retailers to tell us what technologies they would like to see managed by AI today, as opposed to the future, they chose shopper personalization in real-time. (See Figure 10.) Other top areas where AI monitoring and managing can help support retail systems in stores today include security, WiFi, and WAN.

Methodology

This study was conducted during the month of July and only senior executives from national or large regional retailers were invited to participate. The results do not include any store-level, field-level or regional employees. Only headquarters-level staff responses were included.

Conclusions

At $53,000 per store, the cost of technology for chain retailers adds up to big dollars. And the cost is going up – rising 53% over the last three years.

It is clear the high cost and upward trend validates that the modern store has become a bristling hub of technology filled with a growing list of hardware, software and network connections.

Tech-savvy shoppers are driving this trend and ubiquitous mobility is the tip of the transformational spear. In the current phase, retailers are in a reactionary mode, making upgrades as fast as they can, but in the near future AI and machine learning will enable stores to operate faster and more productively than ever before.

As stores continue to augment the shopping experience by adding a host of new IT capabilities, AI will become a pivotal tool that enables the hardware and software to perform in a way that is reliable, self-healing, self-reporting and virtually invisible to the shopper. RIS

FIGURE 11

Annual revenue

< $100 million	38%
$100 million to $500 million	16%
$500 million to $1 billion	22%
$1 billion to $5 billion	13%
> $5 billion	13%

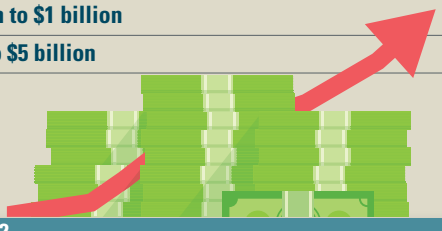


FIGURE 12

Revenue last 12 months

Decreased	19%
Increased up to 5%	60%
Increased more than 5%	22%

FIGURE 13

Retail segment