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In the Midst of the Apocalypse, Artificial Intelligence can Save Brick and Mortar Retailers

By Vrushank Nayak

When Daniel Dogette, an aircraft technician for Jet Blue entered Macy's during the 2018 Black Friday sale, he found himself in a frenzy of shoppers trying to fight each other for the items on sale.

He was on the lookout to find the "walking dead boots", high ankle leather boots for his wife. He could not find it in all the chaos but luckily he had his Macy's mobile application. He opened the application to see if there were any deals on those boots and the personalized feed of the app gave him exactly what he needed. The boots were on sale.

"I was ecstatic," said Dogette.

He quickly checked with his wife if those were the boots she wanted, got the product number of the boots from the app, gave it to sales person to find it for him and was on his way home to gift the boots to wife, cutting through all the black friday sale mayhem.

"It is convenient, I love it," said Dogette. "A lot of people are driven by the sales or the discounts you can get."

Amidst the retail turbulence, the shift to online shopping has provided surviving retailers the opportunity to use artificial intelligence to personalize the shopping experience, streamline supply chains, and predict consumer behavior to offer better prices.

Artificial intelligence is a branch of computer science that ranges from robotics to using data for making processes quicker. But retailers are using artificial intelligence to gather the vast amount of consumer data they possess and use it to sustain themselves.

Since 2015, retailers have closed shop every year with 2019 seeing around 7,282 stores shut across the country, according to a study done by BDO, a consultancy and accounting firm.

Coresight Research predicts that about 12,000 stores would close by the end of the year, compared to 2018.

And the closures have affected retailers of every size.

Forever 21, a fast fashion retail company on Sunday declared bankruptcy announcing that it will close around 178 stores in the United States. Sears is trimming down an additional 100 stores and Payless ShoeSource is also shuttering more than 2,300 stores this year.

Relatively stable retailers have also been hit hard with Gap closing 230 stores, Walgreens (195) and H&M (160), according to Retail Dive, a retail industry research publication.

But during these troubled times big department store companies like Target, Macy's and other mid-tier retailers like Big 5 sporting goods are implementing AI systems to make their supply chains more efficient.

Streamlining the supply inventories

As consumers have moved to the online world, the need to have physical inventory has subsided with companies looking to continuously restock shelves to boost sales. Companies like the California based retail solutions company, Adroit Worldwide Media, provide the solution.

In April 2019, Levittown, New York opened its first ever Intelligent Retail Lab, an experiment Walmart store. The store is full of cameras tracking which products are being picked, which are missing and which aisles need restocking. Whenever an aisle or a shelf needs restocking, the system will send out an alert to the floor associates and to the back inventory, helping them keep the store fully stocked at all times.

AWM has partnered with Walmart to provide such retail solutions which it calls the automated inventory intelligence or Aii.

The video data that is collected is then used to make decisions as to which products have a higher demand thereby trimming inventory levels by keeping only the products that are required. The solutions not only help save on inventory cost but also on the in store personnel costs.

Using machine learning to keep a track of the inventory, the company also helps localize inventories, according to their customers, for retailers which helps them. It also helps predict which products are going to sell the most using predictive analytics, a part of the artificial intelligence universe that uses data to predict buying patterns.

"If your store is not fully digital then you will not be relevant," said Kevin Howard, CEO of AWM Smart Shelf.

Streamlining inventory processes helps retailers make a more informed decision in terms of their consumer's buying preferences. And knowing consumer's buying preferences also helps provide a personalized shopping experience.

A more personalized experience

While machine learning is streamlining the supply side, retailers are also integrating automation to provide a better customer service experience. The Massachusetts based Takeoff

Technologies, an e-grocery solutions company, is trying to automate the supermarket experience.

In December 2019, Albertsons, the American supermarket giant partnered with Takeoff technologies to open micro-fulfillment centers or MFCs to expand into the online grocery market.

Safeway, which is owned by Albertsons, opened a micro-fulfillment center in southern San Francisco in October and plans to open one soon in San Diego, California by the end of 2019.

A micro-fulfillment center is a miniature automated warehouse which can be placed anywhere in the store. The automated picking with the help of robots completes online grocery orders quickly and more efficiently.

“The micro-fulfillment center model is a key element in the store of the future,” Albertsons President and CEO Vivek Sankaran said in a statement. “It combines the efficiency of automation with the ease of meeting customers when and how they want to shop.”

In another iteration of the MFCs, customers can order their grocery list online while they browse the store for other items with the robot and human pickers working to complete their orders. And once the consumers are ready to leave the store, their orders would be waiting for them at the cashier's.

Robots make human pickers pick 750-850 items per man hour as compared to picking 60 items per man hour by walking around the store.

“We think it is revolutionary, you can actually help reinvent the shopper experience for your client,” said Max Pedro, Co-Founder of Takeoff Technologies. “And you can also reinvent yourself as a retailer by providing the product you did not provide.”

The share of U.S. consumers that bought their groceries online increased by 3 percent since last year from 7 to 10 percent, according to a recent study by The NPD Group, a global information company.

The data collected by the in store and online purchases creates a feedback loop for the store to better target their products and improve the in-store experience, all the while cutting cost on the in store personnel.

“Customers crave personalized and convenient solutions, and AI makes it possible for brands to offer those experiences,” said Blake Morgan, an adjunct professor of consumer experience at Rutgers School of Business.

The personalized approach to the in store shopping experience can lead to the resurgence of brick and mortar stores all the while helping them set better competitive prices to benefit consumers.

Helping set competitive prices

Over or under pricing has led to retailers losing ground as consumers have more buying options in the online era. To stay competitive, companies like the The Mumbai, India based Intelligence Node, a retail solutions that specializes in price optimization helps retailers stay ahead of the curve.

Intelligence Node has created the world's largest product pricing database by By gathering and analyzing billions of data points across eCommerce sites, marketplaces, brick and mortar stores, direct marketing and consumer social media.

Brick and Mortar retailers like Macy's are using the pricing models to push more discounted goods in their stores and online applications to their consumers. The availability of discounted goods based on the consumer's buying history is generating a loyalty amongst consumers.

The algorithms, a set of consumer data points in the form of purchase histories, also help Macy's push for bundling their discounted products. By being able to make those suggestions, Macy's is able to sell more to its consumers because it is convenient for them to see the discounted prices at one place.

Retail algorithms use historical consumer spending data as well as purchase data to detect patterns which not only assist in stocking a specific inventory but also vary the stock to reflect the seasonal changes in the American economy.

"It's important for brands to track product pricing and consumer spending to understand if and how events like holiday season pricing, trade tariffs, and competition are impacting consumption," said Leela Gill, vice president of Marketing at Intelligence Node.

Retailers like Jockey, Unilever, Macy's and Landmark are using pricing algorithms to serve up a better pricing model to keep them competitive in the retail market.

"AI based on adaptive, thoughtful algorithms enable business leaders to make real-time merchandising and pricing decisions that could mean the difference between a product being one of their greatest hits vs. another item on the sale rack," said Gill.

The collective use of Artificial intelligence in the retail industry is making a small but important impact in the brick mortar retail space as the industry transitions into newer realms to compete with the online retail space.

While mid-tier retailers are slow to adopt these technologies, the implementation of AI assisted systems by bigger players is not only increasing sales but it also is helping cut costs across the board. By automating much of the supply chain, logistics and customer service, AI has the potential of saving retailers as much as \$340 billion a year, according to a survey by Capgemini, Paris based consultancy firm.

The shaved cost is boosting the bottom lines of companies.

According to a study by [IBM](#), a New York based multinational IT company, found that using AI to track inventory raised sales by as much as 10 percent. Takeoff Technologies's vendors are seeing a growth of about 70 percent in terms of reaching a larger pool consumers.

Personalization is also creating creating loyal customers as brands start to cater to consumer preferences making them shop more. Targeted marketing and personalization efforts increase sales for companies by almost 15 percent, according to a study by Mckinsey and Company, a consulting firm.

"I think it is helping retailers in the sense that it is educating them on how best to display their products and how to get consumers to buy their products by optimizing their pages," said Anthony Ferry, CEO of PiceSpider, a California based retail data technology company.

As automation streamlines operating processes, it is also helping companies trim departments like customer service. Retailers have seen AI reduce customer service centre costs per call by up to 90% and increase productivity by 6.5 times, according to Filament, a London based AI solutions company.

Self-service technologies like chatbots and online forums have also led to the replacement of a fully staffed contact center saving personnel costs. Research from Harvard Business Review found that as much as 40% of time spent on sales activities could be done with in a faster, cheaper and more accurate way using artificial intelligence applications.

"AI is the future of retail. The brick-and-mortar experience is evolving," said Morgan. "Instead of searching racks for the perfect item, customers now want more experiences while they shop."

Brick and mortar retailers face a transient time as they stand at the intersection of technological breakthroughs made available by the same generation that frequents less in their physical spaces.

"Having online capabilities is no longer a luxury," said Pedro. "It is a necessity. All the big boys have it."

