



# Artificial Intelligence (AI) in Retail

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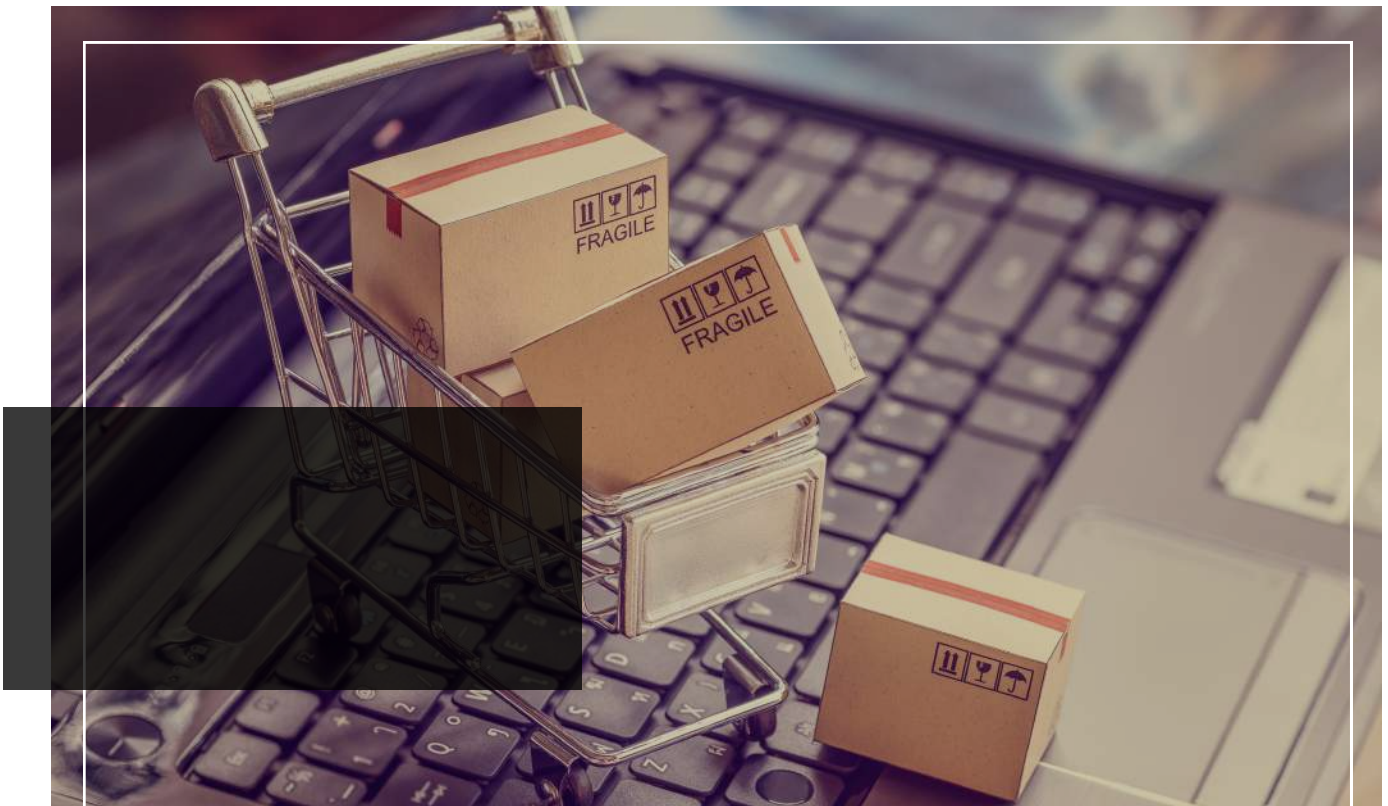
Artificial Intelligence (AI) today is more than digital assistants and chatbots. Research and advancements in technology have resulted in major improvements in Artificial Intelligence as well as Machine Learning over the years in performance as well as deployability. So many tasks can be done with the help of machines today that were impossible a few years ago. AI helps computers perform human tasks that require speech recognition, visual perception, and even decision making. As the software gets trained over time, it improves accuracy and adds to the detail in predictions. This is why Artificial Intelligence software systems appreciate rather than depreciate with time and are a solid investment today, especially in the retail industry.

From leveraging computer vision to help tailor promotions to the customer in real-time to automated inventory management, AI has helped the retail industry uncover an entirely transformative solution to streamline operations and connect with customers on a more personal level without any actual contact.

## Retail Industry 2.0

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Over the span of the past decade, we have seen and experienced significant change. Whether the change was in the form of the quick adoption of technology and shift to smartphones, or the rise of eCommerce, the changes shaped and transformed the retail industry into what it is today and what it is going to be in a few years. Technological strategy and the use of technology stopped being limited to CTOs and CIOs, and decision-making roles were given to business leadership teams.



Just when the world thought it had enough exposure to change, 2020 came with the COVID-19 pandemic and created waves that permanently changed and shaped many industries across the world. With shifts in the seasonality of sales and a boost in omnichannel commerce, we saw the new normal in retail.

Even though the shifts and changes in consumer behavior majorly affected the retail industry and specifically some specialty retail categories such as luxury goods and jewelry, as government regulations and businesses stabilize, these categories are expected to follow suit.

## The Value at Stake

Across the retail value chain, the activities performed can easily be divided into eight broad categories such as customer acquisition, the product lifecycle, omnichannel commerce, in-store operations, store estate, merchandising, logistics and delivery, and corporate functions. These categories have more than 75 use cases that Artificial Intelligence can transform and streamline, helping retailers maximize efficiency and enhance the customer experience at the same time. All these use cases together have the potential to be able to drive between \$230B and \$515B by the year 2023. This clearly shows that in an industry with low-profit margins, Artificial Intelligence can transform the market and unlock significant value.



## The Top Ten Use Cases of the Highest Value

Among all the use cases, ten of them hold more than 80% of the potential value at stake, which comes up to range from as low as \$190B to as high as \$425B. Here are the top ten use cases:

1. Inventory Optimization
2. Design to Value (DTV)
3. Omnichannel Fulfillment and Optimization
4. Markdown Optimization
5. Demand Planning and Forecasting
6. Merchandising Assortment Optimization
7. Assortment Allocation/Localization
8. Returns Optimization
9. Sourcing/Manufacturing/Quality Optimization
10. Personalized Online Promotions

These top ten use cases where AI can be used fall within only three of the eight categories comprising the value chain: product lifecycle management, merchandising, and logistics. However, this certainly does not mean that the other categories aren't important contributors to the potential value added.

Out of the top ten use cases, five of them are from the merchandising category, which shows the importance of using Artificial Intelligence in merchandising. In fact, the top-most use case by value is inventory management, which is also a part of merchandising.

Nearly one-third of specialty retailers today are putting at least one of these ten use cases to test with proof-of-concept implementations. Full implementations, however, vary since there are so many new approaches to tackle these challenges. Moreover, these retailers realized that the use cases that they implemented realized 25-50% more value than they had been expecting. Interestingly, the implementation of more than 75% of these use cases has been motivated by commercial and operational business teams rather than technical teams.



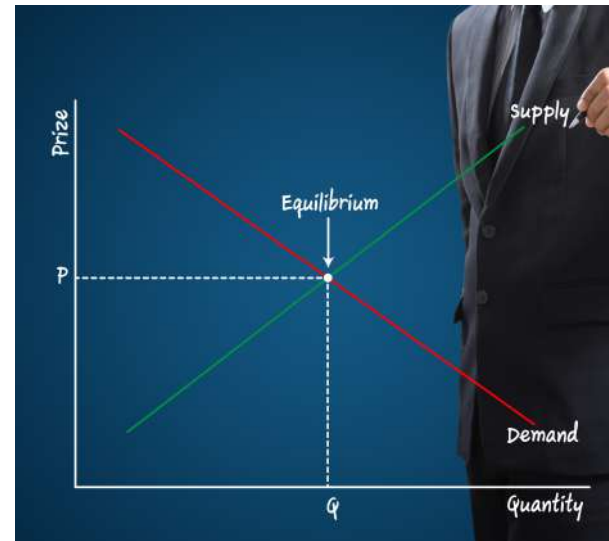
## The Power of AI/ML

The pandemic amplified the differences between adopters of technology and those who didn't believe in any sort of digital transformation. It clearly showed and separated those retailers that emerged successfully from those that succumbed to the pressure and those that barely survived. Interestingly, those that tried and implemented the Artificial Intelligence use cases benefited in less than a year's time. Statistics show that leveraging and implementing AI and ML can help you with five times faster decision making as well as three times quicker execution of those decisions. In less than ten years by the year 2030, the retailers that fully implement AI are predicted to double their existing cash flow.

Here are some of the use cases where Artificial Intelligence had made a difference and maximized returns for the retailer:

- **Demand Forecasting**

Retail sector sales are highly dependent on shopping demand as well as supply chain capability. Adaptive strategies are required to respond to these changes in demand or supply. Real-time demand prediction can provide retailers with a new way to counter such unpredictable fluctuations by making it easier to predict hyper-regional shifts and demand trends with the help of a continuous flow of real-time data.



The data has to be available in real-time for you to be able to leverage Artificial Intelligence and Machine Learning at their maximum potential and to be able to get rapid recommendations that let you adjust your resources in the best possible manner to optimize sales. Today, this use case is on the high priority list for implementation within the next two years.



- **Chatbots**

As a top-of-mind use case, it is interesting that chatbots didn't make it to the top ten list. It is definitely one of the most talked about use cases for early adopters and new entrants into technology. Advancements in technology have given rise to advanced custom chatbots that can be trained for personal assistance, customer service and support, and even product recommendations for customers. The primary goal is to maximize operational efficiency as well as customer satisfaction. Although nearly 40% of retailers don't have a chatbot solution as yet, half of them are definitely expecting to implement them within 2 years.

Chatbots are implemented as pre-trained models. The more they are trained and used thereafter, the more accurate their responses become. Hence, deployment requires the input of call center records as well as customer service conversation histories that help feed the NLP models to maximize accuracy. The total time to impact may be as short as 3 to 6 months with a 5-10 member team, but the long-term benefit may take longer. This is because it takes time for the AI system to train and learn from histories and actual agents to be able to solve difficult customer problems in real time. Once this is achieved, it significantly reduces costs and enhances customer service availability.

- **Customer Analytics and Marketing**

An example of leveraging Artificial Intelligence using customer analytics and marketing is the use of a loyalty program. Automating loyalty program management lets you capitalize on factors that help drive and maximize recurring customer engagement and increase the customers' lifetime value. The automated program uses data about the customer's needs and preferences to bring them back for more of the same. Nearly 40% of retailers today are experimenting with various AI-powered loyalty programs. More than one-third of the retailers who haven't yet implemented it intend to do so within the next two years.



To be able to maximize the potential of these AI-powered loyalty programs, retailers require a wide range of real-time data such as CRM data, transaction data, consumer profile data, look-alike modeling data, channel preferences, etc. This means that the existing processes need to be changed and the current customer analytics need to be modified and revamped to cater to the loyalty application architecture. But the eventual payoff comes quickly and even continues because of loyal customers



## • Personalized Product Recommendations

Artificial Intelligence improves and enhances omnichannel experiences for the customer with the help of personalized product suggestions and recommendations as well as other communications at specific moments in time in the shopping journey. Relevant recommendations not only help increase the order value but also help enhance the customer's shopping experience. As the recommendations improve and trust builds, it is reflected in customer loyalty.

To be able to predict the intent of purchase accurately, real-time data is required. AI helps translate that data into insights and then uses those insights to make personalized recommendations for the customers. This particular use case does not need a large team and retailers have realized the expected value in less than 6 months. A quicker time to value has led the use case to have a stronger adoption momentum.

## • Returns Optimization

One of the top ten use cases, Artificial Intelligence is able to optimize the process of returns based on several factors. These factors include demand for the item, its sale value, the time taken to process a single return, and the overall margins depending on the return channel utilized as well as the demand potential and resale of that particular item at various different prices.



Returns optimization helps determine the return item's most ideal disposition, keeping in mind its location, state, style, size, category trends, and how it can be resold. AI is better suited for this task because it involves taking so many factors into account to be able to arrive at a solution. AI, in this case, is able to take everything into account at once and come up with a quicker and better solution, which helps maximize efficiency.

However, since it's such a complex process, very few retailers have actually implemented it as of yet. However, 17% of them are expected to implement the use case within the following two years. The retailers who have already implemented the use case report making it to the expected value in less than a year's time.



- **Computer Vision-Based Offerings in Retail**

Computer vision is quickly gaining popularity, especially in brick-and-mortar retail stores. Artificial Intelligence technology is being used to personalize and enhance the customer experience, paving the way for so many retail use cases such as inventory management and demand forecasting in addition to customer experience. The technology helps you achieve total visibility wherever you need “vision” and further helps you interpret that visual data into meaningful and actionable insights.

Computer vision enables retailers to help customers find whatever they are looking for as soon as possible and basically find help as soon as they need it. It helps hasten the check-out process and streamline basic operations so that the customer ends up with a more satisfying shopping experience. For example, Amazon Go stores are brick-and-mortar stores where customers can go, pick up items in their carts and walk out of the stores without having to checkout or stand in any line. All they need is a simple QR code scan when they arrive in the store in the first place.

The technology behind computer vision also helps you optimize the customer's shopping experience according to his or her intent in the store. This can be achieved with a simple heat mapping where Artificial Intelligence helps you identify when and where the products are being picked up and being kept back, and also where the customer is going after keeping the product back on the shelf. This can be used to further enhance the shopping experience and even help with cross-selling and up-selling.

## Summary

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To stay on top of the competition, it is critical for retailers today to connect with their customers and respond to them on time. To be able to do this automatically, you not only need data but also powerful intelligence tools that can help you make sense of all that data. However, Artificial Intelligence isn't limited to connecting things either. It is more about converting huge volumes of data into actionable insights that help maximize business outcomes. This can mean opportunities to maximize your revenue, enhance customer experience, boost innovation, and finally, automate operations and workflows.

When it comes to automating promotions or even using predictive analytics, many retailers are using AI already in part if not all of their operations. But even in-store retail AI offers many advantages. There can be sensors tracking customer footfall and automatic application of cross-selling as well as upselling opportunities. There can also be smart shelves that get restocked as soon as they reach a certain threshold.



We have identified ten use cases that AI can help streamline for maximum efficiency, an enhanced customer experience, and maximum Return on Investment. These ten cases out of 75 such use cases can help unlock the maximum value of Artificial Intelligence and help transform the retail market as well as customer experience.

## How Folio3 Can Help With AI Solutions for Retail



With more than 15 years of experience and expertise in design and development, Folio3 is a leading machine learning organization with a team of dedicated, certified data scientists as well as consultants. These development experts and professionals have successfully delivered numerous end-to-end solutions related to Artificial Intelligence, machine learning, computer vision, predictive analysis, and machine learning.

Folio3 can help your business leverage the full potential of Artificial Intelligence and implement it into your retail business and operations. We can help you automate your processes as well as routine decision-making tasks with the help of advanced and intelligent algorithms. Having years of experience in the retail industry, our solutions help you transform your operations and maximize efficiency as well as the shopping experience for your customers. Let us help you gain a competitive edge by helping you transform your raw data into personalized, actionable insights.

### Get A Free Demo!

Share your sample dataset with us today!

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