

AI in Retail Industry

A bitgrit industry case study

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INTRODUCTION

Technology has become a central presence in our everyday lives, and one of the key trends that we see in both our day-to-day and in the market is E-commerce. E-commerce is fixing to overshoot the offline retail market with its full potential, but we tend to forget that humankind often prefers brick and mortar sales, i.e. Offline retail. Market figures reflect this; the revenue generated by offline retail is 22.13 trillion USD, over 4.13 trillion USD of online retail worldwide. With the application of AI in this field, we can expect even greater growth.

In this report, we focus attention on various use-cases applying AI in the realm of retail. A [study](#) was performed by McKinsey about how to incorporate AI in retail; some of the major takeaways are mentioned below:

- Using deep learning to predict e-commerce purchases led to 20% stock reduction
- AI led to 2 million fewer product returns per year
- 30% reduction of stocking time by using autonomous vehicles in warehouses
- 50% improvement in assortment efficiency
- 4-6% sales increase using geospatial modeling to improve micro-market attractiveness
- Up to 30% online sales increase from the use of dynamic pricing and personalization
- 30-50% reduction of forecasting errors
- Up to 65% reduction in lost sales due to product unavailability

GENERAL CORPORATE USE CASES

When people talk about AI or RPA, they usually visualize robotic applications or sometimes high-tech devices. But the forms of Artificial intelligence and Robotic Processing Automation are not only varied but more intuitive than one may think – not just in the gadget industry but

in sectors like accounting, healthcare, trading, and of course, the retail industry. Here, we touch upon the use cases currently seeing implementation in the industry to illustrate this variety of applications. Representative business automation use cases that have the potential to revolutionize the retail sector are listed as follows:

SPECIFIC USE CASES OF AI IN THE RETAIL INDUSTRY

1. Customer Recommendation Systems

- Product recommendations: A valuable asset in driving sales. This technology involves helping customers find what they want using personalized, relevant recommendations, which in turn provides a pleasant experience for the customers themselves. Using AI allows retailers to better understand what the customer wants. This plays a part in increasing customer satisfaction, adding value for the products, and improving the brand engagement with the customer
- Service recommendations: Based on past purchases, retailers can recommend relevant services, such as repair or alteration services.

2. AI-based Trial Rooms and Virtual Apparel

According to a [survey](#) posted on Ripen, over 30% of the customers buy in store just to have the feel of the product before purchasing. With the advent of AI, virtual dressing rooms have seen implementation in many apparel stores worldwide.

- Image-recognition: Image recognition allows an AI-based application to virtually dress you with your selected product, giving

you a real-world look of the product, without the hassle of waiting for empty dressing rooms.

3. Logistics and Delivery Optimization

Home deliveries for customers ensure they have a seamless purchase experience without having to wait in more extensive queues. AI can help optimize delivery processes – with noted examples below.

- Supply-chain planning: In retail, stakeholders often create systematic plans detailing the movement of goods until they are delivered to the customer. AI-powered retail logistics ensures everything is in place with lower margin of error, helping offer more timely deliveries and cheaper services – therefore adding value for the customers.
- AI-based logistics: AI can help optimize speed and accuracy throughout the delivery process. Responding to queries, order management, tracking, managing fulfillment facilities, planning demand and supply management, and route optimization are some of the key areas where AI can help in optimizing operational logistics.

4. Product Categorization

Retailers intake enormous amounts of products at regular intervals. One of the primary difficulties the retailers might face is classifying the product to fit the correct aisle. This is where AI can help with product categorization – product categorization is the placement and arrangement of products into their respective categories. This process is often considered very tiresome due to new product lines coming up every day and the volume of products taken in. Furthermore, there are some products in the stores that could be considered within multiple categories.

- Classifying product: With new product lines coming up every day, besides the enormous volume of products, and each product featuring in multiple categories, an AI-based

categorization system could help make tasks very efficient

- Product identification: Using techniques such as Image Detection, Segmentation, Manual Mapping and Rule-based Categorization, more than a million commodities from numerous retailers could be identified and categorized. Sellers simply need to upload an image of these goods, descriptions wouldn't be necessary.

5. Product Pricing

'If the price is right' is a popular phrase with customers. Customers always look for better prices for the products that they are looking to purchase from a store. Bargaining to every bit, just to compete with the competitors, has not been easy for the retailers. In today's competitive world, the approach towards pricing products needs to be more strategic and data-driven. Getting customers to love your brand to provide products at a very competitive price is crucial in the retail space. This is where AI can help.

- Optimizing product prices: Prices can be optimized using AI algorithms. Dynamic pricing models can help businesses improve their pricing strategies to ensure they can compete with their competitors.
- Logical product grouping: ML models establish logical product groups (assortment and product lines) to ensure recommendation of similarly priced and categorized products, depending on a customer's spending rate and budget.

6. Demand Forecasting

Retail markets worldwide are highly seasonal; they depend on a lot of unnoticed factors such as new political regulation, a healthcare alert, fashion trends, and vacation seasons. Some holiday regions see higher sales figures than other areas. Due to these uncertainties, retailers find it challenging to manage their inventory and sometimes end up stocking more or less than what is demanded.

- **Inventory control:** Worldwide retail markets are highly seasonal, depending on a lot of unnoticed factors such as new political regulations, healthcare alerts, fashion trends, and vacation seasons. AI can help predict these elements and give inform retailers to stock up according to demand.
- **Product demand:** Machine learning models find patterns across extensive data sources to predict market trends. This helps retailers to keep the demand-supply cycle intact. AI considers external variables and contextual data such as schedule of events, seasons, and even the weather to deliver correct forecasts that could help explain the situation better. This also involves the products that people buy in pairs. Implementing these solutions in stores also lead to greater customer satisfaction, as it allows retail stakeholders to fulfill customer demand more adequately.

7. Chatbots for Customer Support

Chatbots are extremely helpful for retailers, especially for resolving lower-level, easily-handled queries without involving human resources.

- **Reduce # of needed customer support executives:** Chatbots automatically determine the best results to solve general public queries, providing a better customer experience while lightening the task burden on customer support associates.
- **Inventory services:** Chatbots can deliver relevant updates, automate tasks, provide on-demand reports, and execute workflows for inventory management, etc. AI can build a robust system for communication, query answering, and complaint resolutions.

8. Quick Decision Making

Recommendations made by AI can help enable customers to make quicker decisions, leading to higher sales and revenue. AI algorithms provide unparalleled insight into the customer's

persona, which enables stakeholders to predict consumers' behavior. Real-time data gathering, trend analysis and forecasting can also help businesses make excellent, more sophisticated marketing decisions.

SPECIFIC USE CASES OF RPA IN THE RETAIL DOMAIN

According to a study by PwC, automating nearly half of the tasks done by humans will save more than \$2 trillion in global manpower. Getting computers to handle different tasks means more money saved for business owners – in addition, there are fewer human-centric errors, while processes are completed in a much faster and efficient way.

We have mentioned a few use-cases where RPA integration can significantly impact your retail's overall revenue. The below-listed cases are the most common tasks that can be used for retail process automation through RPA.

1. Returns Processing

Retailers often deal with customers who might want a refund or want to replace products purchased. This might seem a simple task from a consumer perspective; still, when it comes to the retailer who process numerous products daily, this can be a surprisingly daunting task.

- **Refunds and replacements:** A time-consuming task for retailers; and since refunding and replacement traditionally requires manual intervention, the task is also prone to human errors. RPA can help automate these tasks, oftentimes minimizing most, if not all, tasks for retailers.
- **Profit management:** RPA can effectively manage profit and make required alterations in inventory database and customers' billing.

2. Workflow Management

When it comes to big retail stores, managing

the workforce is often considered a mundane task. Assigning shifts, gathering clock-in-clock-out data, weekly payrolls, and the most troublesome – leave management.

- **Managing workforce:** Using RPA allows retailers to administrate the employee and other HR processes more productively. Not only does the integration of automation increase the speed, but it also aids shop owners in better assessing employees based on overall performance.
- **Task allotment:** RPA can assist in assigning tasks outside of employees' typical task loads.

3. Customer Support Management

With the integration of RPA, retailers can make the customer support process more convenient for the customer by reducing delays.

- **Customer support without executives:** If a retailer maintains digital media for offline stores, queries regarding new products, pricing of a product, availability, and much more can be solved on-the-go, without the need to spend money on hiring customer support executives. Advanced queries can be answered by employees later.

Integrating RPA thus facilitates the retailers by giving proper support to their customers and also saving much time, money, and effort. RPA solutions can be integrated into text messages, emails, or social media chat functions as well.

4. Accounting and Finance

In the modern age of digital transformation, order and invoice processing, finance, and account management have become increasingly tedious tasks to perform. Finance is often subject to human error, while manual intervention often leads to delay and requires correction or confirmation. AI can help reduce such risks.

- **Store finances:** The tedious tasks of

order and invoice processing, finance, and account management can be easily automated using RPA solutions, providing required outputs in a much faster, efficient manner.

- **Involve less humans:** By reducing manual intervention, RPA solutions can help to reduce finance errors which could incur companies with losses. Applications of AI in this area range from account receivable management, account reconciliation, record-to-report cycles, consolidation of account information, and numerous other tasks.

5. Demand and Supply Planning

In the past, demand and supply planning was often a daunting task. Devising these plans includes tasks like seeking and gathering chunks of data, processing them, running simulations and algorithms, discovering exceptions and patterns, and finally confirming and communicating such plans to the retailer. When the above must be performed manually, the tasks similarly become sources of stress.

But as it turns out, RPA is an excellent solution for completing these tasks by streamlining them. Adopting RPA technologies helps retailers increase capacity and asset management while improving customer, supplier, and employee satisfaction.

6. Logistics and Supply Chain Management

Logistics processes for retail stores are very time-critical – here is where AI can help

- **Efficient Logistic Management:** RPA solves doubts regarding which mode of transport to choose, how much product should the store order, or at what price could the store purchase goods. RPA allows retailers to manage these tasks with greater speed and efficiency, while saving time and reducing the probability of human error. Software bots additionally don't need breaks, which

makes this solution scalable and efficient for logistics management.




- RPA tasks: RPA handles such tasks by transferring information during load matching, making it easier for brokers to match goods with a carrier to ship them. RPA in the supply chain can enhance other aspects of logistics operations as well, such as route optimization, freight accounting, and freight claim management.

CONCLUSION

With the surge in AI & RPA applications for this sector, the future for the retail market is bright. But ever present is the threat of competition posed by e-commerce and neighboring retail franchises. Retailers can start adopting these technological solutions to get a leg up on the competition and to report better overall sales. But while these high-tech devices are now often offered along with software solutions, hardware solutions remain costly – thus barring implementation for the majority of retailers.

This is where we can help. To get a taste of just how AI integration can help your brand grow, we encourage you to visit our website and contact us at (info@bitgrit.net). Our team will be happy to assist you.



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bitgrit: AI for All

The AI industry is projected to grow to **\$116 billion** by 2025.

bitgrit is a company providing a platform that levels the playing field for AI by bringing together a community of data scientists and connecting them to companies needing AI solutions.



AI COMPETITION

Affordable and novel AI solutions to complex business challenges



JOB BOARD

Access to top data scientists and AI engineers around the world



DATA VISUALIZATION

Big Data and Analytics utilization that identifies market trends and increases the productivity



AI CONSULTING

AI technology adoption with conducting research and analysis, development and implementation

COMPETITION STEPS

STEP 1

Determine what problem you want solved and provide the relevant datasets

STEP 2

bitgrit uploads the problem statement and datasets to the competition platform

STEP 3

Data Scientists in the community submit quality solutions from which top results are selected

STEP 4

Utilize the best model to fulfill your business needs

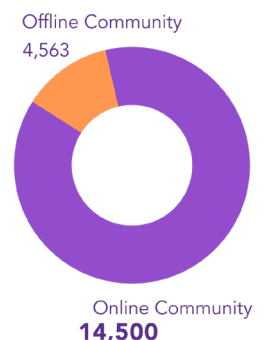
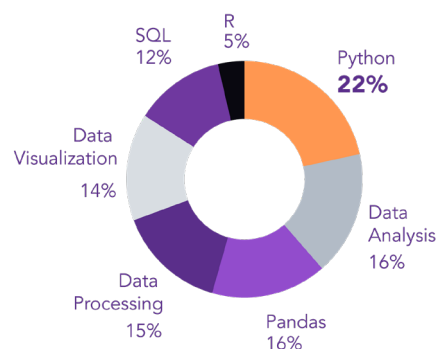
STEP 5

Top ranking competition member or team wins prize money

UNREALISED POWER OF AI

- 1 Determining possible use cases and value that can be extracted from existing data.
- 2 Difficulties in translating business challenges into data science problems.
- 3 Inability to develop, experiment and rank a variety of models rapidly.
- 4 Risks of providing people the access to confidential data.
- 5 Hassles of identifying the right talent to produce customized, extraordinary models.
- 6 Structuring of data and identification of relevant parameters.

20,000+ DATA SCIENTISTS - BITGRIT COMMUNITY OVERVIEW



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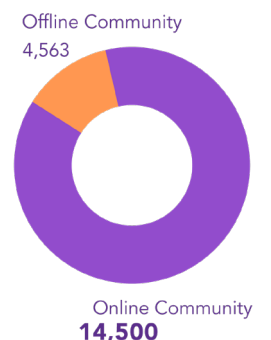
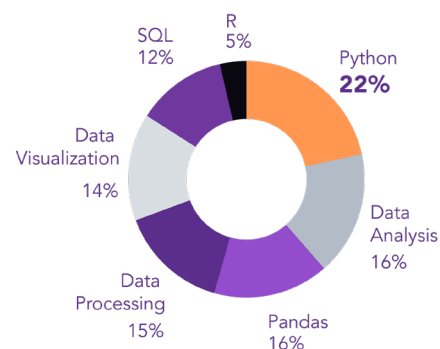
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HOW WE HELP YOU TAP INTO AI

- 1 Determine possible use cases and value that can be extracted from existing data.
- 2 Pinpoint difficulties in translating business challenges into data science problems.
- 3 Overcome obstacles to develop, experiment and rank a variety of models rapidly.
- 4 Identify risks of providing people the access to confidential data.
- 5 Find the right talent to produce customized, extraordinary models.
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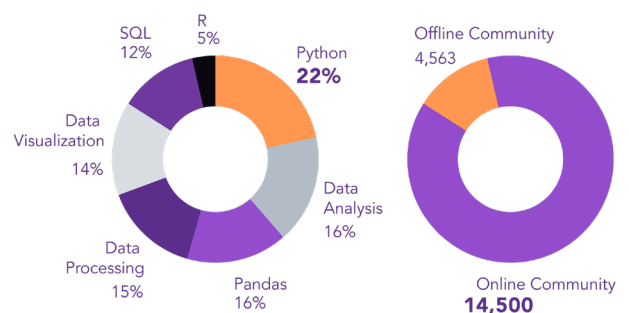
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