

Role of Artificial Intelligence in Retail Market Growth

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Abstract :

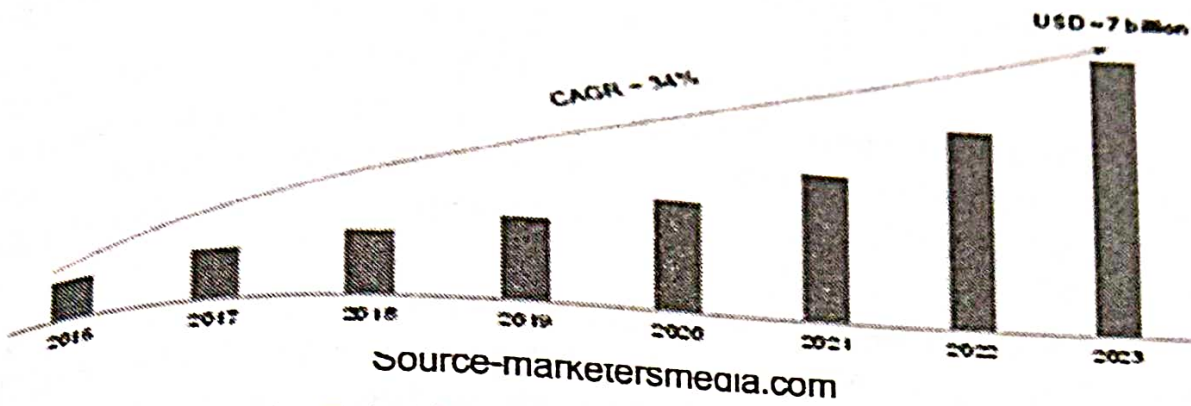
The digital transformation of the retail industry has been going on for years, with increased speed, efficiency, and accuracy across every branch of retail business, this is in large part to advanced data and predictive analytics systems that are helping companies make data-driven business decisions. None of those insights would be possible without the internet of things (IoT), and most importantly, artificial intelligence. AI in retail has empowered businesses with high-level data and information that is leveraged into improved retail operations and new business opportunities. In fact, it is estimated that \$40 billion in additional revenue was driven by AI in retail in a 3-year span. Retailers looking to stay competitive need look no further than AI in retail business. It is forecasted that 85% of enterprises will be using AI by 2020, and those who don't risk losing insurmountable market share to their competitors.

Keywords : Artificial intelligence, machine learning, internet of things, chatbots, Inventory Turnover.

Introduction :

For decades, traditional analytics have worked perfectly fine for the data-driven retail industry. However, Artificial Intelligence (AI) and Machine Learning (ML) have introduced an entirely new level of data processing which leads to deeper business insights. Data scientists could open a new world of possibilities to business owners extracting anomalies and correlations from hundreds of Artificial Intelligence/Machine Learning models.

Between 2013 and 2018, Artificial Intelligence startups raised \$1.8 billion in deals, according to CB Insights. Amazon can take credit for these impressive numbers because they made business leaders change their minds about Artificial Intelligence in the retail market - both physical stores and e-commerce strategies to stay ahead of the competition. At the moment over 28% of retailers are already deploying Artificial Intelligence/Machine Learning solutions, which is a sevenfold increase from 2016 when the number was only 4%.



Why You Need AI in the Retail Industry-

Aside from the business intelligence and sheer speed that these technologies can provide, the digital transformation in retail is simply setting successful businesses apart from unsuccessful ones. There are countless benefits that can be credited to artificial intelligence in retail business, but here are five primary ones that retailers can count on.

1. **Captivate Customers** - With a plethora of innovative competitors providing shoppers with immersive shopping experiences, traditional retailers need to engage customers in a personalized and relevant manner that is unique and inspiring across all touchpoints.
2. **Create Exciting Experience** - To drive continued interest, retailers need to differentiate their products and offer consumers compelling service and experiences. By integrating predictive analytics to gather more market insight, retailers can lead with innovation rather than react to change.
3. **Create Insights from Disparate Data** - Faced with an onslaught of information from all aspects of their business from supply chain to stores to consumers, retailers need to filter through the noise to transform these disparate data sources into consumer-first strategies.
4. **Synchronize Offline & Online Retail** - Digital and physical shopping channels typically operate under a different set of initiatives and approaches but treating these channels as distinct business units adds friction for customers seeking a seamless shopping experience and leads to operational inefficiencies.
5. **Empower Flexible Logistics Networks** - In order to service a wider range of customer demands that are moving from mainstream to niche, retailers need to rethink their traditional supply chain in favor of adaptive and flexible ecosystems that can quickly respond to consumers' shifting behaviors.

What Does AI in Retail Look Like?

Today's dynamic retail industry is built on a new covenant of data-driven retail experiences and heightened consumer expectations. But delivering a personalized shopping experience at scale - that is relevant and valuable - is no easy feat for retailers. As digital

and physical purchasing channels blend together, the retailers that are able to integrate their retail channels will set themselves apart as market leaders.

Here are some examples of how AI in retail is reshaping the entire industry.

Adaptive Homepage - Mobile and digital portals are recognizing customers and customizing the e-retail experience to reflect their current context, previous purchases and shopping behavior. AI systems constantly evolve a user's digital experience to create hyper-relevant displays for every interaction.

Dynamic Outreach - Advanced CRM and marketing systems learn a consumer's behaviors and preferences through repeated interactions to develop a detailed shopper profile and utilize this information to deliver proactive and personalized outbound marketing - tailored recommendations, rewards, or content

Interactive Chat - Building interactive chat programs is a great way to utilize AI technologies while improving customer service and engagement in the retail industry. These bots use AI and machine learning to converse with customers, answer common questions, and direct them to helpful answers and outcomes. In turn, these bots collect valuable customer data that can be used to inform future business decisions.

Visual Curation - Algorithmic engines translate real-world browsing behavior into digital retail opportunities by allowing customers to discover new or related products using image-based search and analysis - curating recommendations based on aesthetic and similarity.

Guided Discovery - As customers look to build confidence in a purchase decision, automated assistants can help narrow down the selection by recommending products based on shoppers' needs, preferences, and fit.

Conversational Support - AI-supported conversational assistants use natural language processing to help shoppers effortlessly navigate questions, FAQs or troubleshooting and redirect to a human expert when necessary - improving the customer experience by offering on-demand, always-available support while streamlining staffing.

Personalization & Customer Insights - Intelligent retail spaces recognize shoppers and adapt in-store product displays, pricing, and service through biometric recognition to reflect customer profiles, loyalty accounts or unlocked rewards and promotions - creating a custom shopping experience for each visitor, at scale. Stores are also using AI and advanced algorithms to understand what a customer might be interested in based on things like demographic data, social media behavior, and purchase patterns. Using this data, they can further improve the shopping experience and personalized service both online and in stores.

Emotional Response - By recognizing and interpreting facial, biometric, and audio cues, AI interfaces can identify shoppers' in-the-moment emotions, reactions or mindset and deliver appropriate products, recommendations or support - ensuring that a retail engagement doesn't miss its mark.

Customer Engagement - Using IoT-enabled technologies to interact with

customers, retailers can gain valuable insights on consumer behavior preferences without ever directly interacting with them. Take the Kodisoft interactive tablet for example - Kodisoft developed a tablet to be used in the restaurant setting for customers to use to browse menus, order, and play games. Supported by the IoT Hub and machine learning, this tablet has leveraged consumer data and behavior trends, allowing companies to increase engagement and success with customers.

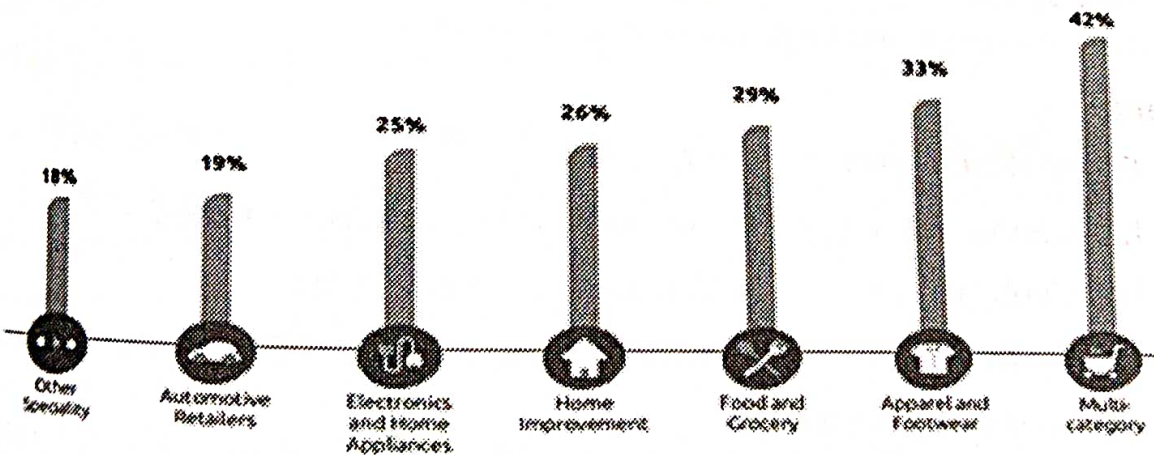
Operational Optimization - AI-supported logistics management systems adjust a retailer's inventory, staffing, distribution, and delivery schemes in real-time to create the most efficient supply and fulfillment chains, while meeting customers' expectations for high-quality, immediate access and support.

Responsive R&D - Deep learning algorithms collect and interpret customer feedback and sentiment, as well as purchasing data, to support next-generation product and service designs that better satisfy customer preferences or fulfill unmet needs in the marketplace.

Demand Forecasting - Mining insights from marketplace, consumer, and competitor data, AI business intelligence tools forecast industry shifts and make proactive changes to a company's marketing, merchandising, and business strategies.

Customized Selections - Taking customer service to the next level, many retailers are using AI to help them provide unique, personalized experiences for customers. And, there's big money in providing such services. "Brands that create personalized experiences by integrating advanced digital technologies and proprietary data for customers are seeing revenue increase by 6% to 10% - two to three times faster than those who don't," according to a study by the Boston Consulting Group.

AI Penetration-By Subsector



Note: AI penetration represents the share of retailers that are working on AI at any stage of maturity - pilot, multi-site deployment, and full-scale deployment, in the respective subsector.
 Source: Capgemini Research Institute analysis, Analysis of Top 250 retailers based on 2017 revenue from Bloomberg, October 2018.

The retail industry has already felt the impact of AI through software solutions and robotics. In 2018, 28% of retailers had implemented AI or ML in some way. This is an astonishing 600% boost compared to 2016. Things are looking up and by the end of 2019; we expect to see even more impressive statistics.

Food, grocery, department, footwear, and apparel stores are generally big supporters

of AI innovations, with a variety of real-world use cases. Only 26% of AI/ML technologies in retail directly interact with customers; the remaining 74% work behind the scenes. Currently, the majority of AI is used for operational tasks and taking over routine tasks, but it is safe to say that these numbers will change as the technology evolves.

According to a recent survey, 73% of customers are encouraging brands to use their personal information to improve their shopping experiences. Customer service robots powered by AI are already capable of achieving that. Robots could recognize a regular shop visitor and provide personalized recommendations on the spot, while chatbots can do the same online.

According to a retail executives survey by Capgemini at the AI in Retail Conference, the application of AI technology in retail could save up to \$340 billion each year for the industry by 2020. The estimates are that 80% of savings will come from AI's improvements in supply chain management and returns. As far as customer-facing functions, respondents believe that chatbots and self-checkout services will be the most beneficial for retailers. The global market for AI in retail is expected to grow to over \$5 billion by 2022.

Conclusion-

AI can extract really valuable insights which are to be treated like gold. It can be used to improve your inventory turnover, optimize your stock, and predict future revenue and a lot more.

There is one catch. Namely, with the things as they are, Artificial Intelligence systems are mainly proprietary and available only to big retail chains having big technology budgets. It will be interesting to watch this space over the next few years to see solutions coming out, which will be crafted more for small retailers than the big ones. Some companies have already started this development so it won't be long for the independent retailer to have access to the same tools as the national brands.

References -

1. Global Hitachi solutions survey report.
2. <https://emerj.com/ai-sector-overviews/artificial-intelligence-retail>.
3. <https://rubygarage.org/blog/11-use-cases-of-ai-in-retail>.
4. <https://www.forbes.com/sites/forbestechcouncil/2018/11/21/pragmatic-ai-for-retail/>
5. <https://www.capgemini.com>.
6. www.researchgate.net.
7. www.mordorintelligence.com.
8. www.quora.com.