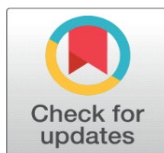
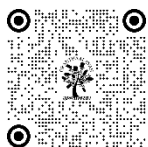


CRITICALLY ANALYSING THE IMPACT OF AI BASED MARKETING ON THE RETAIL SECTOR IN INDIA

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ABSTRACT

The introduction of “Artificial Intelligence” or “AI” has revolutionised the India retail market. Its integration in the marketing strategies has created a profound impact making it an essential topic of study. Several technologies of AI are involved in this process. It includes, “machine learning”, “predictive analysis” and “language processing” technology, which has helped the retailers optimise and automate their processes. It has also resulted in better decision making, and thereby improved the customer interactions. The current study aims to analyse the “effects of AI” in the Indian retail markets. This study, additionally tries to highlight the various opportunities created and the associated challenges that arise. The current study also focuses on the current mechanisms of adaptation to “AI based technology”. It would therefore help in a better understanding of both the benefits and challenges of “AI integration”. For this study, a “mixed methods” approach has been taken. Therefore, both “qualitative” and “quantitative” methods have been considered.

The findings provide a comprehensive view of the “AI integration” in marketing. AI has helped the retailers to effectively increase “customer interaction” with the help of “predictive analytics” and has helped automate the marketing campaigns. Additionally, this study has identified several barriers to the adoption of AI. The associated “high costs”, and the concern for “data security” have been identified as top concerns of the retailers in the Indian market. Additionally, the study has revealed that the effects of AI on the “small and medium enterprises” (SMEs) of India is significant. It has led to them having long term “socio-economic” effects on their businesses. However, AI as a tool in the Indian retail sector has significant potential. Overcoming certain barriers would help the market reach its optimal potential. In this paper, additionally, the research gaps are also highlighted.

1. INTRODUCTION

BACKGROUND AND PROBLEM STATEMENT

The current Indian “retail sector” has emerged as one of the “fastest growing” markets, internationally. The retail sector contributes significantly to the country's economy and plays a huge role in its development. Reports from 2024 suggest that it contributes to 10% of the Indian GDP. This sector is responsible for the employment of roughly 8% of the Indian workforce. Therefore, the Indian retail sector plays a pivotal role in the development of the economy (George, 2024). Traditionally, this sector was dominated by a class of small, family owned businesses. They depended on their fragmented distribution networks only. In the past decade, however, the trends of technologically driven modernisation have resulted in their rapid expansion and growth. Also, the advancements in the “digital infrastructure” and the boom in “e-commerce” platforms have contributed to the same.

The adoption of “Artificial Intelligence” in the retail sector has been of supreme importance. AI has created a revolution in the practices of retail businesses. Supported with efficient “decision making” and enhanced “strategies”, AI has improved the overall “customer interaction”. The application of “machine learning”, “language processing”, “predictive analytics” and the other “AI tools” are at the core of “AI based marketing”. AI has helped “automate” and “optimise” the

retail business, and has thereby helped the retailers. AI helps the retailer with “understanding and predicting” the preferences of the customer, and thereby, make their marketing campaigns more efficient (Rizvi, et al., 2021).

The retail market sector of India is “diverse and vast” in nature. It is responsible to cater and attend to over 1.4 billion people. Naturally, their population has a variable “socio-economic” background, and different behaviours in “purchasing” of goods. Although catering to the diverse community is challenging, there are opportunities to tap into a wider market as well. Several multinational companies like “Amazon” and “Reliance Retail” have integrated AI to help them optimise their sales and remain competitive (Nougarahiya et al., 2021). However, the “small and medium” enterprises do not seem to be prepared to adapt to these technologies in a way to help them. With the initial challenges of “Capital” costs and “privacy” concerns, “SMEs” are yet to fully commit to AI.

Despite the known impacts of AI globally, its application in the Indian retail sector is yet to have a dynamic implementation. In different regions of the country, the integration of AI tools has seen a variable pace. In contrast to the larger corporations, the SMEs face the challenge of appropriate “infrastructure” and capital funding. Additionally, the required expertise in these technological advancements is lacking. The local markets require a more “localised” approach since the global “algorithms” will not be effective. The variability and diversity of the population further complicates adoption of the existing AI algorithms (Jain, and Gandhi, 2021). Newer modes, which can effectively tackle the variety of shopping patterns and address the discrepancy in “purchasing power” is necessary. Collection and analysis of consumer data across the retail market is therefore a critical step in the creation of the new algorithms.

Considering these issues, the examination of the impacts of AI on the Indian retail sector becomes relevant. The study must include factors like its impact on “consumer behaviour”. Although the integration of AI in the retail sector has positive effects, it is critical to address the barriers to that as well. Integrating AI in an efficient manner would help deliver a “sustainable” and a long term set of benefits to this sector.

THE OBJECTIVES AND SCOPE OF RESEARCH

The main objective of the current study is to analyse the impact “AI” based tools of marketing have on the Indian retail sector. It looks to focus on the several “opportunities” and associated “challenges” these tools bring. Further, it seeks to understand the future of these tools in this sector of India. The study seeks answer to the following questions:

1. *“What is the role of AI in building effective marketing strategies for the Indian retail sector?”* Through this, it is aimed to understand the role of AI in enhancing the marketing efforts, to improve the customer interaction. Examining “AI technologies” such as “predictive analytics”, systems of “recommendation” and “chat-bots” is essential. Understanding their roles in improving the strategies is important.
2. *“What challenges or barriers are there for the Indian retail sector?”* Here, it is aimed to understand and address the challenges faced by the retailers, specially SMEs, to adopt “AI based tools”.
3. *“What are the benefits of integrating AI based tools for marketing?”* Several advantages are brought forward with the use of “AI tools”. It helps the retailer understand the customer better and elevate their shopping experience.
4. *“What are the expected advancements of AI-tools in the future?”* The role of AI has been established globally. Its impact on the Indian retail market is yet to be explored to its full extent. Emerging technologies like “Augmented and virtual reality”, “AR” and “VR” respectively, would transform the entire retail market. It is likely to attract more customers as well.

The current study revolves around the entire retail sector of India. It includes both the offline markets and the online “e-commerce” platforms for its analysis. To get a comparative idea, both the larger companies and the SMEs are taken into account. It examines the role of AI in the marketing of a variety of retail products and not just one particular item. The study includes in depth analysis of the differences in “AI” adoption across different regions in India. Furthermore, the “socio economic” implications have been taken into account to analyse accurately. This study, therefore, is aimed to contribute to the available literature and data available on the Indian retail market on the existing tools of AI. Its “presence and impact” on an emerging market such as that of India, as less explored which establishes the relevance of this study.

2. METHODOLOGY

RESEARCH SETUP

The following research was conducted using a “mixed-method” approach. Therefore both the “qualitative and quantitative” factors have been considered for this research. This method was chosen in order to triangulate the data and both the “qualitative and quantitative” data were analysed (Strijker, 2020). This method helps in providing a larger perspective to the set of data. It also offers a more real world idea on the application of “AI tools” in marketing.

The “quantitative” factors in this study revolve around the secondary data collected from various sources. It includes industrial reports from several companies like “Mckinsey” and “Deloitte”. It provides a “macro level” picture of the usage of “AI trends” in marketing. Case studies of retail companies based in India, were analysed to measure several factors. These factors include, “customer engagement”, “growth in sales” and overall “efficiency in operations”. The other side of this, the “qualitative components” were analysed. It involves “interviews with experts” in AI, “marketing strategists” and the managers from various retailers. The idea behind the interviews is to get an accurate picture of their processes. Also, the expert insights on the use of “AI-tools” for marketing was essential to understand the impact it has had.

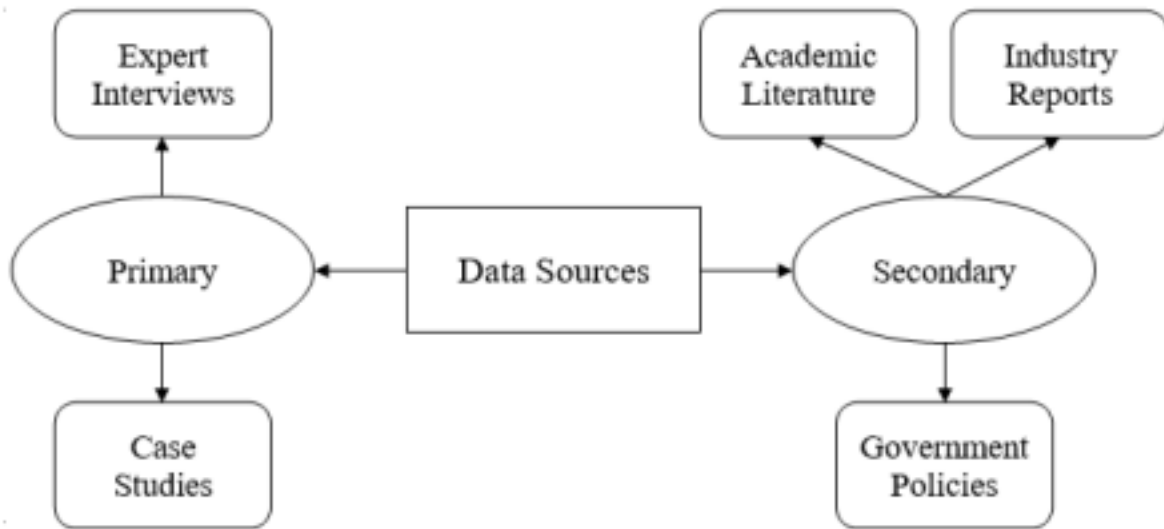


Figure 1: The data sources used during this study
(Kimmons, 2022).

THE FRAMEWORK FOR ANALYSIS

To form a structured analysis, the current study has considered three major factors to evaluate the “impact of AI” on retail marketing. The three factors are “efficiency of operations”, “active engagement of customers” and the “competitive edge in the market”.

1. “Efficiency of Operations”: This factor is examined in order to understand the functions of AI in streamlining the “back end operations”. It includes the management of “supply chains”, “the inventory”, and even the “pricing” strategies of the products. Integration of “AI powered” systems would ensure an “automated” optimisation of all of these factors (Javaid, 2024). It has been known to have positive results in several companies. On studying companies like “Reliance Retail” would help demonstrate the importance of AI in the management of complex operations.
2. “Engagement of Customers”: Marketing strategies using “AI” can offer a lot of personalisations. It, therefore, creates an effective customer interaction based on their preferences (Sung et al., 2021). Here the analysis of tools like “chat-bots” and “predictive analytics” is done. The idea is to create a loyal customer base and provide customer “satisfaction”. “Machine learning” helps create a very personalised experience, specially on digital platforms.
3. “Competitive edge in the Retail Market”: “AI” has been effectively influencing the dynamics of “competitiveness” in the market, globally (Heins, 2023). Naturally, larger companies, with greater resources have a huge advantage over the smaller ones. However, “AI tools” could also provide the necessary push to the SMEs, which could give them a solution to upscale their business.

JUSTIFICATION FOR SELECTION OF THIS METHODOLOGY

The “mixed methods” approach was considered because it considers both the “quantitative” data alongside the “qualitative” experiences (Strijker, 2020). It, therefore, provides a broad perspective on the usage of “AI tools” in marketing strategy making. The industrial reports and the various case studies considered fall under the “quantitative” data. The data is essential for the identification of the global trends and patterns. It also gives a perspective for the use of “AI tools” in marketing. However, considering only this dataset would give an incomplete picture. Thus, the “qualitative” data is necessary to be considered. This data would provide a better insight into the “human factors” responsible. The gap in skills and “organisational” incompetence in marketing are key human factors to consider. The “case study” approach here adds another dimension to the analysis. It helps highlight the key differences in the “adopting and implementation of AI” in large companies and SMEs. It is critical to understand these differences in order to bring forward the challenges faced by the retail markets in India. Therefore, the “mixed method” analysis successfully incorporates both the “macro” and “micro” level trends of the retail markets in India

3. LITERATURE REVIEW

THE “EVOLUTION OF AI” IN MARKETING

“Artificial Intelligence”, for the past decade, has revolutionised the marketing sector. It has set new standards on how “interactions with customers” is done. It has successfully segregated the buyers with their choice of products, and therefore, helped make decisions “strategic”. The involvement of “AI” started in the early 21st century. During that time, only “machine learning” was available. It was applied to analyse data of the customers. It has, since then, come a long way. It has included, “hyper-personalisation”, “predictive analysis”, “automation” techniques and even helped in effective “decision making” (Chintalapati and Pandey, 2022). In several developed markets, “AI” is already a strong tool in their hands. It has made the customer experience better using “real time” data analysis. The use of several tools like “voice search” and “chatbots” has been clearly appreciated a lot.

From a global perspective, it has been responsible for the evolution of the market landscape. It has added a new dimension, which has helped companies to improve customer “engagement” and increase “brand loyalty”. It has additionally increased the efficiency in “operations”, and has built better relations with the consumers. “Automated recommendation” system, for instance, has been really helpful. Companies like “Amazon” have this system which helps them personalise the customer experience based on their preferences. It has driven their engagement higher and increased their sales too. Another such revolutionary tool is the “chatbot” and “virtual assistant”. Through these tools, it has helped consumers get faster query redressals using “AI”. It has significantly reduced the human burden. Consumers can always get in touch with “customer care” for bigger queries. Several “AI” tools have been integrated in mobiles as well. “Google assistant” and “Siri” are two such examples. Further, “predictive analysis” has helped in predicting the customer’s behaviour towards products. It provides them with an advantage and helps them optimise their sales. Also it helps fine tune the “strategies” in marketing. Additionally, “AI powered” customer management systems (“CRM”) have managed to create a healthy relationship with the customers. It provides real time data on the consumers. It helps understand their “interactions” with the brand (Potla, 2023).

“AI IN THE INDIAN RETAIL MARKET”

The adoption of “AI” in the Indian market has been slow, but gradual. The factors responsible for this could be the “fragmented” nature of the retail market. Also, the “traditional models” dominating the segment, has been contributing to this as well. However, the main reason remains the “high costs” associated with AI. In the Indian retail sector, the “small and family operated” businesses have been dominant. Their traditional approach to market their goods have been successful, but “scalability” would always be an issue. The inclusion of digital platforms like “flipkart” has contributed to this change (Sharma et al., 2022). The COVID-19 pandemic saw a surge in the businesses of e-commerce. It had also forced many such businesses in the market to “reconsider” their strategy. Many of the retailers have opted to go online in order to survive. However, their marketing strategies are still lacking. With time, these businesses are getting aware of the “AI powered” solutions in strategy making. They are recognising the need to understand the importance of “customer experience” and create a “streamlined” strategy to engage with them. Big players like “Reliance Retail” have already invested in those solutions in order to optimise and “streamline” the whole process. Them investing in Ai to make “automated customer support” and “product recommendations” has worked well for them. Also, it has optimised their “supply chain” management.

“AI powered” personalisation tools are preferred in the Indian markets. Retailers are increasingly adopting this tool to analyse “customer data” and provide them with a better experience. “Flipkart”, for example, uses this data as means to convert into higher sales. Another tool, which is used by many retailers are the “chatbots” and “virtual assistants”. These have helped them create a platform which is friendly to the users. Without humans being involved, the common queries get resolved. Additionally, the use of “predictive analytics” for managing the huge inventories has been helpful. It has helped them to anticipate “demand” and reduce the shortages. Several companies, like “BigBasket”, use these tools to keep a track of their inventories. It ensures that items are always in stock. However, the access to these tools to the “SMEs” are limited. The good news is that India is expanding its “digital Ecosystem” and thus, the availability of “AI” tools would accelerate this change (Singh, 2021).

Although AI is a topic of research in most “developed” countries, there is very limited exposure to “AI” in India. A great number of studies are being done where the focus is on the “western economies”. They have better access to “AI resources” and therefore do not tell the story of the Indian retail market. India has several challenges at hand until it integrates AI successfully. Understanding the “consumer base” is important. Since it is diverse, with even variable “languages” spoken, it is a very important factor. Also, the buying capacity is not equal for all. Thus, “personalisation strategy” is key. Secondly, the “SMEs” have constraints in resources. Thus a “cost” efficiency analysis is also needed for the small businesses.. Additionally, there is very little research on the “long term” roles of AI in marketing. This also needs attention. All of the research gaps’ must be addressed keeping the “ethical” considerations intact. The concern for “data privacy” must be taken into account. It is key to safeguard the “data rights” of the consumers of the Indian market.

MARKETING TECHNOLOGIES IN THE RETAIL SECTOR OF INDIA

With time many “AI tools” have been made more cheaper and accessible to the market. As a result, the Indian retailers are adopting these, whichever they can afford. It helps them enhance their marketing approach. It, therefore, transforms their overall functioning. “AI powered” personalisation has been one of the most used tools. It has offered customised “recommendations” which attracts more buyers. It also helps create “targeted” advertisements, which also has a positive effect. This is achieved by analysis of “customer data” available to the AI (Molenaar, 2021). Big companies in India, like “Flipkart” and “Myntra”, have used these tools to their advantage. They use the “browsing patterns and histories” to curate the customer experience. They, therefore, provide “relevant” suggestions to its users.

“Chatbots” and “virtual assistants” are other powerful tools which many companies have been using in their functions (Dodda, et al., 2021). Well known brands like “Tata Cliq” and “pepperfry” have been using this for a while. It has helped them automate their customer “interactions”. These bots are designed in a way that they can handle a lot of customers at once. The questions can range from “products” to even “post sale” requirements. This also enables them to be active throughout the day. Reduced query redressal times, helps them in creating a trust with customers and thereby maintains their base of customers. It additionally improves their operational efficiency. Integrating these tools additionally reduces the “cost” of labour. It also improves the experience of customers. Since they evolve with more interactions, in the future they will improve their services significantly.

Having the ability to “predict and analyse”, is a game changer. It enables the retailers to create a more “data” driven strategy for their operations. “Reliance Fresh”, for example, uses this tool to “optimise” their inventory, and manage their “pricing” strategies. The analysis of relevant metrics, these tools help them identify the “trends” and “patterns” of shopping preferences. They could, therefore, estimate the surges in demands of certain products. Thereby, they could align their inventory accordingly (Nimmagadda, 2020). AI could, therefore, predict which products are in “demand” and need to be restocked. It also helps in management of “dynamic pricing”, based on “demand” and “pricing by competitors”. “AI tools” have significantly improved a lot of determinants in the retail sector. It includes, “personalisation, customer service, and predictive analysis”. However, there are very limited studies on how these tools would affect the retail sector, in the long term. India, being highly diverse and sensitive to “pricing”, customers are often attracted to “discounts”. Prospective topics of research, therefore, would be to analyse how AI is creating a “loyal base of customers” in the sensitive environment. It is critical that customers of different “economic and social” backgrounds interact with the businesses, in order to succeed.

THE CURRENT TRENDS IN “AI MARKETING” IN INDIA

The current “AI marketing” trends of the Indian market, mimics the global trend. It has similar usage of technology and “consumer behaviour”. The past decade has seen the emergence of many key trends. All of them have been influenced by

the emergence of “AI tools”. It includes, “operational frequency”, how customers “engage” and mainly the strategies used for “marketing” (Kopalle et al., 2022). The trends include “hyper personalisation, digital ads, sentiment analysis and AI search tools”. They are summarised in table 1.

Trend	Description
Hyper-Personalisation	Delivers “optimised” product recommendations based on “user history”
Advertising digitally	Using digital platforms like “Google Ads” to target their customers
Sentiment ANALysis	Analysing the views of customers, digitally, to understand their needs. Also it helps understand “brand loyalty”
AI search-tools	Using “handsfree” means to help consumers get their required products.

Table 1: Current trends of AI-Marketing tools in India
(Kopalle et al., 2022)

One of the top most trends going on in the retail market of India is that of “hyper personalisation”. Here, AI is used to deliver highly “relevant” and “customised” content to the potential consumers. It also helps create offers which are based on “real time” data. It incorporates several components, such as, “customer interaction” and “purchase history”. It helps create a personalised and “unique” experience for every consumer. Online businesses like “BigBasket” have integrated this, and have increased their engagement. It has created a sense of “satisfaction” among the customers. Therefore, it has created higher “conversion rates”. The tools have helped these retailers create a “dynamic” experience for the customers. This strategy has resulted in “retaining” customers. This, therefore, creates a long-term “loyalty” among consumers in the competitive retail sector in India.

Another tool of Ai is the integration into “digital advertising”. Retailers have been using digital platforms like “google ads” to promote their businesses. These use “machine learning” algorithms to carefully optimise the advertisements. This makes sure that these ads reach the “target audience”. In the current time, many companies are using this idea to effectively attract customers from various “digital platforms”. These campaigns help them have a higher “return on investment” (ROI). “Myntra”, as an example, uses this strategy to attract the users, who are “most likely” to interact with those advertisements. This maximises their efforts and “justifies” their spendings on digital advertising (Farseev, 2023). Many potential customers have a tendency to voice their opinions on online platforms. Certain “AI tools”, collect and analyses their comments and posts to understand them better. These “social listening tools” on social media help the algorithm understand the customers better. Their role in understanding the “sentiment” towards a brand or a product is groundbreaking. It helps the companies effectively interact with them (Patel et al., 2020). Companies like “haldiram” and “FabIndia” use this strategy. It helps them improve customer relations. It helps them target the customers on the basis of their “moods” in real-time. It additionally helps them adjust and improve their marketing strategies. By being aware of the reviews and feedback, companies can adjust their products and improve their “reputation” in the market. Another trending tool businesses are adopting is the “voice and visual” search. It has gained popularity in the Indian market recently. It is particularly attractive to the younger generation and the “tech-savvy” class of people. It helps elevate their experience of shopping (Klaus and Zaichkowsky, 2022). Businesses like “Amazon India” and “Lenskart” have been using this for a while. “Voice search” allows the consumers to search for products, with the help of “voice commands”. Similarly, in “visual search”, a customer can upload a picture on their website and search for a particular product. It also displays all the related products as well. This helps elevate the shopping experience and helps in creating an “interactive” platform. With the introduction of devices like “Google Home” and “echo”, users are getting more involved in this tech. Many of the companies are actively investing in this in order to attract more customers.

ASSOCIATED CHALLENGES TO AI ADOPTION IN THE INDIAN MARKET

Challenge	Description
High Costs	High costs of setting up of “AI tools” restricts a lot of retailers
Data Privacy	Many retailers are “concerned” with data loss or breach in privacy
Gaps in Skills	Very few people are actually able to use or “analyse” the data given by the tools.

Unwilling to Change

Many retailers believe in the “traditional” mode of business and are “resisting” the new tools.

**Table 2: Challenges in “adoption” of AI in India
(Chatterjee, 2020)**

The first and the biggest challenge the Indian retail market is facing, is that of the “high costs” associated with integrating AI. The initial costs required are often “too” high for retailers to sustain. Thus it is a huge barrier. The costs associated with having an “AI infrastructure” such as, storage of data, processing power and the software itself is very high. The larger companies like “Reliance” can afford these services. However, the smaller retailers can not seem to justify the huge costs. Several data suggest that the businesses could be scaled much more if AI tools were involved, but the lack of finance creates a huge barrier (Rafique and Mujawinkindi, 2023). This difference in finance creates a gap between business owners. Only a small group of businesses are getting the benefits of AI. This makes the SMEs vulnerable towards fading into the market and losing their place.

AI systems rely on collection of data for its functioning. It, therefore, becomes a significant barrier to most individuals. The consumers are aware, and are worried as to how their personal information is being used by the companies. It creates a heavy demand for transparency. Several data protection bills have been introduced in order to protect the data collected and stored. However, a significant population still believes that it is not enough. Retailers, on the other hand have to now renavigate, in order to keep these rights of individuals, impact. Therefore, there's a significant role in building a trusting relationship with the consumers. Otherwise, this technology would work against them (Whang et al., 2023).

The Indian retail sector is currently facing a shortage of “capable professionals”. The workforce needs to be capable of “developing”, “implementing” and duly “managing” the AI systems. They are required to have experience in the fields of “machine learning” and “data science”. These are skills often difficult to find in the available workforce (Sidhu et al., 2024). Thus, retailers are not able to find appropriate professionals to actively guide them in these processes. This gap in skills creates a barrier for the companies. Thereby, they are not able to use these tools to their advantage. It leaves them no option but to rely on “third party” companies who help these businesses. It, therefore, increases their costs. Thus, retailers must look to actively invest on “updating” their workforce to shorten this gap. Although a long road, in time this would help the retailers a lot.

The retailers who have been operating for long periods, have a very traditional outlook towards their business. They have often argued how the traditional ways are much better than the technology enriched advancements. Therefore, they resist this change. This is very common in the older generations of businessmen. They often lack the “technological literacy”, which is required to appreciate the potential of AI. They would rather stick to the “tried and tested” methods which has resulted in the slowing down of the progress of AI. It is, thus, essential to educate them, and help them understand the potential of “AI operated processes”. Changing the management policies would also help them scale up their business (Purohit and Jain, 2020).

Although AI has proved to be beneficial for the retailers, the “empirical” research is still lacking. It is needed in order to highlight a clear analysis of the “cost benefits”. This is particularly important for SMEs to understand. More studies should be done in order to clarify how Ai processes could be made more “affordable”. Research is essential to identify the additional barriers and find suitable solutions for the same.

REGULATION AND POLICY STRUCTURES

It is well established that the integration of AI is beneficial to the retailers. It has presented “economic growth” opportunities and improved the consumer experience. However, the “data privacy” concerns remain a barrier to effectively adopting “AI tools” (Whang et al., 2023). The role of the Indian government is key to maintaining trust among the customers. They have introduced the “Personal Data Protection” (PDP) bill for this. Through this bill, they aim to make a framework and create a transparent data collection means. It has given a strict guideline for data collection and processing.

However, this bill still has presented challenges for adoption. This bill, for instance, lacks the direct inclusion of “AI technology”. “AI” uses data it collects, to analyse and for “machine learning” processes. This makes the “personal” data of the consumers vulnerable for misuse. Thus, a regulatory framework which addresses all of these issues must be made. “AI” must be accountable for the data it collects and uses. Indian policy makers could refer to the model proposed by the “European Union's General Data Protection Regulation” (GDPR) to produce an effective framework. It is based on “transparency” and “consent”. It, therefore, minimises the data used for the algorithmic upgrades (Franke et al., 2024).

Additionally, the policies should look to frame the policies which support the “adoption of AI” by the SMEs. For the development of the entire sector, it is critical that these retailers get the benefits of “AI tools” as well. The government could allow “tax benefits” and “lower interest rates” on the loans taken in favour of integrating AI tools in their businesses. This would reduce their burden of finance effectively. Furthermore, the government should lay guidelines in consideration of the SMEs. since they are smaller businesses, they would not require larger “data servers”. The initiatives such as creating a “national data sharing network” could help them reduce their costs on having individual servers. Also, through this, data could be shared anonymously, and thereby chances of compromised “privacy” would be less. They could help SMEs collaborate with tech companies, and therefore, make a collaborative effort towards sustainability.

Additional efforts like forming an “ethical board” is also advisable. They could oversee the functioning of these powerful tools within every sector. They would be responsible for solving all “ethical” questions that may arise. They would ensure that the privacy norms are followed as per the frameworks provided by the government of India. Also, they can launch campaigns to educate the “traditional” retailers. They should look to cover topics like “data privacy”, and create trust amongst them. This would definitely help in promoting these tools, and therefore, create a more accepting environment. The Indian government should also look to create programs in order to “upskill” the workforce. Retailers spend a lot on using “third parties” for their use of AI processes. This cost could, therefore, be reduced. Firms of the technology sector should come forward and form “collaborative approaches”. This could help them by generating revenue and, additionally help the SMEs, scale up their businesses. “public-Private” partnerships have proved to be beneficial. Also, it has helped in creating “innovative” solutions.

TECHNIQUES OF ADAPTATION OF AI TOOLS IN INDIA MARKET

As studied, there are several challenges in adopting “AI tools” in the INdian retail sector. However, they are open to adapting to these new innovations. Adapting these, is critical to their success in this sector. There are several adaptation techniques that they are pursuing. These are summarised in table 3.

Techniques	Description
Legacy Systems	Creating new systems which can integrate “AI technology” with the existing IT models.
Collaborative Efforts	Effective partnerships with “AI firms” to help ease the transition process.
Locality Adaptations	Using “AI” to analyse the local preferences, for higher customer engagement. It would also help increase “customer satisfaction”.

Table 3: Techniques of Adapting to AI-tools
(Ingalagi et al., 2021)

Current studies suggest that multiple retailers are open to “upgrading” their existing “IT infrastructure”, instead of replacing them entirely. It not only reduces the cost hugely but also ensures “minimal” disruption of services. The “hybrid” approach helps them utilise AI without complete shutdowns. Further, active collaborations with AI tech providers are becoming frequent. This partnership helps the retailers “streamline” their transition and operations. Additionally it gives them the guidance required during this process. Given the diversity of India, “localisation” plays a key role. Retailers need to use these tools in order to understand their specific needs. Understanding the “consumer behaviour” would help their cause even more (Ingalagi et al., 2021).

Despite the increased adoption rates, the research on the “variation of strategies” required, is less. The infrastructure difference in urban and rural settings are different. Thus, more studies to understand the micro details is necessary to speed up the adoption process.

4. CONCLUSION

The current study illustrates the fact, how AI is used as a tool for marketing in the retail sector of India. It has made significant improvements in personalising the customer preferences. It has also helped make operations smoother. Although not all of them, but many are actively using these tools. They are relying on tools like “predictive analysis”, “chatbots” and hyper personalisation to reshape their businesses. Predictive analysis, for instance, has emerged as one of most useful tools. It has helped them optimise their services and increase customer satisfaction. Streamlining their operations has helped them reduce costs by a lot. It has, therefore, improved their overall efficiency. Chatbots also have made a good impact. It has helped reduce human labour costs and their 24x7 availability has helped retain customers. Also, it has contributed to higher efficiency in operations. “Personalisation” plays a key role as well. Using insights

generated by “AI” tools, retailers can now provide a more personalised experience to their customers. “Hyper personalisation”, for example, has been strategically relevant to the online retailers. They use the browsing patterns, in order to understand the preference of their buyers. This, therefore, increases the level of “customisations” a consumer gets in their platform.

In spite of these benefits, there are several challenges to this that were found during the study. Small and medium sized retailers, or SMEs, face significant barriers to this transition. The foremost challenge is the “heavy costs” associated with “AI tools”. Furthermore, it also requires a significant investment on other determinants, such as, infrastructure and software. It further complicates their situation. Since majority of the Indian market consists of SMEs, it is therefore required to address these problems. The gap in finance between larger companies and SMEs, thus, must be reduced for successful implementation of these tools in marketing.

The “privacy of data” is another big subject of concern. AI’s relying on vast data analysis for their algorithm is a growing concern. AI collects and analyses all kinds of data available to build the algorithms. Consumers are worried that their privacy might be breached. The Indian government has stepped in and created several bills and policies. Their “personal data protection” bill is one such policy. According to the bill, businesses must be transparent about which data they are collecting for their use. All businesses must comply with these rules in order to operate in the market. On the other side, it is the role of the retailers to ensure that they balance out both the sides. Not doing that would make them liable to pay hefty fines and can even get their licence cancelled. Thus, addressing the privacy concerns of consumers is also a key determinant.

Two more factors have been identified as important. The lack of “skilled” personnel is a major challenge in this sector. The shortage creates a difficulty in operations, specially for the SMEs. To overcome this, they have to depend on “third” parties for their smooth functioning. This increases their overall costs of using the “AI” tools. The role of the government becomes critical in providing training to the workforce. This found help resolve the skilled labour shortage in the Indian retail sector. The second factor comes from the retailers who practise the “traditional” ways. The lack of education and awareness, makes them hesitant. They would rather stick to their old ways, than adopt a new innovative way. To overcome this, they must be made aware of the benefits that these tools offer. They must be made aware that utilising these tools would help them create a larger customer base. Thereby, it would help them grow in the competitive market.

CONFLICT OF INTERESTS

None.

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REFERENCES

- Rizvi, A. T., Haleem, A., Bahl, S., & Javaid, M. (2021). Artificial intelligence (AI) and its applications in Indian manufacturing: a review. *Current Advances in Mechanical Engineering: Select Proceedings of ICRAMERD 2020*, 825-835.
- George, A. S. (2024). India's Employment Crisis: Causes, Consequences, and Potential Solutions. *Partners Universal International Research Journal*, 3(3), 38-60.
- Nougarahiya, S., Shetty, G., & Mandloi, D. (2021). A review of e-commerce in india: The past, present, and the future. *Research Review International Journal of Multidisciplinary*, 6(03), 12-22.
- Jain, S., & Gandhi, A. V. (2021). Impact of artificial intelligence on impulse buying behaviour of Indian shoppers in fashion retail outlets. *International Journal of Innovation Science*, 13(2), 193-204.
- Strijker, D., Bosworth, G., & Bouter, G. (2020). Research methods in rural studies: Qualitative, quantitative and mixed methods. *Journal of Rural Studies*, 78, 262-270.
- Kimmons, R. (2022). Mixed methods. *Education Research*, 63(5), 631-641.
- Javaid, H. A. (2024). The Future of Financial Services: Integrating AI for Smarter, More Efficient Operations. *MZ Journal of Artificial Intelligence*, 1(2).
- Sung, E. C., Bae, S., Han, D. I. D., & Kwon, O. (2021). Consumer engagement via interactive artificial intelligence and mixed reality. *International journal of information management*, 60, 102382.
- Heins, C. (2023). Artificial intelligence in retail—a systematic literature review. *foresight*, 25(2), 264-286.

- Chintalapati, S., & Pandey, S. K. (2022). Artificial intelligence in marketing: A systematic literature review. *International Journal of Market Research*, 64(1), 38-68.
- Potla, R. T. (2023). Enhancing Customer Relationship Management (CRM) through AI-Powered Chatbots and Machine Learning. *Distributed Learning and Broad Applications in Scientific Research*, 9, 364-383.
- Sharma, M., Luthra, S., Joshi, S., & Kumar, A. (2022). Implementing challenges of artificial intelligence: Evidence from public manufacturing sector of an emerging economy. *Government Information Quarterly*, 39(4), 101624.
- Singh, R. (2021). A study of artificial intelligence and E-commerce ecosystem—a customer's perspective. *International Journal of Research in Engineering, Science and Management*, 4(2), 78-87.
- Molenaar, I. (2021). Personalisation of learning: Towards hybrid human-AI learning technologies. *Blockchain, and Robots*, 57-77.
- Dodda, S. B., Maruthi, S., Yellu, R. R., Thuniki, P., & Reddy, S. R. B. (2021). Conversational AI-Chatbot Architectures and Evaluation: Analyzing architectures and evaluation methods for conversational AI systems, including chatbots, virtual assistants, and dialogue systems. *Australian Journal of Machine Learning Research & Applications*, 1(1), 13-20.
- Nimmagadda, V. S. P. (2020). AI-Powered Predictive Analytics for Retail Supply Chain Risk Management: Advanced Techniques, Applications, and Real-World Case Studies. *Distributed Learning and Broad Applications in Scientific Research*, 6, 152-194.
- Kopalle, P. K., Gangwar, M., Kaplan, A., Ramachandran, D., Reinartz, W., & Rindfleisch, A. (2022). Examining artificial intelligence (AI) technologies in marketing via a global lens: Current trends and future research opportunities. *International Journal of Research in Marketing*, 39(2), 522-540.
- Farseev, A. (2023, February). Under the hood of social media advertising: how do we use AI responsibly for advertising targeting and creative evaluation. In *Proceedings of the Sixteenth ACM International Conference on Web Search and Data Mining* (pp. 1281-1282).
- Patel, K., Mehta, D., Mistry, C., Gupta, R., Tanwar, S., Kumar, N., & Alazab, M. (2020). Facial sentiment analysis using AI techniques: state-of-the-art, taxonomies, and challenges. *IEEE access*, 8, 90495-90519.
- Klaus, P., & Zaichkowsky, J. L. (2022). The convenience of shopping via voice AI: Introducing AIDM. *Journal of Retailing and Consumer Services*, 65, 102490.
- Chatterjee, S. (2020). AI strategy of India: policy framework, adoption challenges and actions for government. *Transforming Government: People, Process and Policy*, 14(5), 757-775.
- Rafique, S., & Mujawinkindi, F. (2023). How can Artificial Intelligence (AI) help SMEs development in emerging economies.
- Whang, S. E., Roh, Y., Song, H., & Lee, J. G. (2023). Data collection and quality challenges in deep learning: A data-centric ai perspective. *The VLDB Journal*, 32(4), 791-813.
- Sidhu, G. S., Sayem, M. A., Taslima, N., Anwar, A. S., Chowdhury, F., & Rowshon, M. (2024). AI and workforce development: A comparative analysis of skill gaps and training needs in emerging economies. *International journal of business and management sciences*, 4(08), 12-28.
- Purohit, S., & Jain, A. K. (2020). Evolution of fuel retail in India vis-a-vis Indian customer: shift in consumer behavior. *International Journal of Management*, 11(8).
- Franke, L., Liang, H., Farzanehpour, S., Brantly, A., Davis, J. C., & Brown, C. (2024). An Exploratory Mixed-Methods Study on General Data Protection Regulation (GDPR) Compliance in Open-Source Software. *arXiv preprint arXiv:2406.14724*.
- Ingalagi, S. S., Mutkekar, R. R., & Kulkarni, P. M. (2021). Artificial Intelligence (AI) adaptation: Analysis of determinants among Small to Medium-sized Enterprises (SME's). In *IOP Conference Series: Materials Science and Engineering* (Vol. 1049, No. 1, p. 012017). IOP Publishing.