

Navigating the AI Revolution in E-retail: Consumer Perceived Benefits and Risks Unveiled

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Abstract: The retail sector grew by 2% in 2024, compared to the same year's retail growth, according to Retailers Association of India (RAI) in its 53rd Retail Business Survey. Many customers started to buy online, which reduced their exposure to the virus the best way that was possible, as social distancing remained the best way to reduce the amount of exposure an individual would get. Online shopping has been a hot topic in recent years, and researchers noted ease of use, website or app design, and trust in the use of personal data collected as the major advantages of consumers using artificial (AI), while the biggest danger is retaining data privacy and security when a mobile application uses AI. With the e-retail and wholesale industry producing huge amounts of data that can be used for the implementation of data-driven technologies, the industry is quickly going through a transformation thanks to the implementation of artificial intelligence (AI) based solutions that enhance every aspect of the process. Numerous research has looked into the useful applications of AI based solutions in retail and wholesale over the years. This is an empirical study on the topic, "Benefits and Risks on Consumer in Integration of Artificial Intelligence in the E-retailing" in Vellore District, Tamil Nadu based on questionnaire survey method.

Keywords: Artificial Intelligence, Benefits & Risk, Consumers, E-retail

1. Introduction

Artificial Intelligence (AI) will transform "in-store" retailing by applying the concept of mass personalization to in-store retailing, which is ubiquitous in online retailing (Kumar et al., 2017), as opposed to the in-store setting (Davenport et al., 2020). Numerous research has looked into the real-world applications of AI-based solutions in wholesale and retail over the years. Artificial intelligence (AI) is seen as a revolutionary and disruptive technology since it allows "the simulation of human intelligence, which replaces human beings in complex tasks" (Yang, 2020). AI can be applied in various helpful ways, such as optimizing the supply chain, engaging consumers, and providing personalized recommendations (Brynjolfsson and McAfee, 2017; Chen et al., 2012). Online retail is a data-rich environment due to the expansion of ecommerce platforms. In online retail, there is ample customer data available for businesses. Artificial intelligence recommendation engines are vital for online businesses to provide tailored recommendations to customers. These engines analyze customer history of browsing, buying and other interactions, and use that information to make product recommendations that best match a customer's preferences (Hays and Kim, 2012). This not only boosts sales conversion but also enhances the shopping experience for the customer. But AI's growing prevalence makes it more important than ever to emphasize the importance of responsible, open practices and the ethical and privacy considerations as well. An empirical investigation into the consumers perceived benefits and risks of artificial integration in e-retailing.

2. Concepts Utilized in this Study

Artificial Intelligence

Computers and other technologies are capable of simulating human thinking and intelligence.



E-retailing

A platform for online trading in which the buyers and sellers transact directly without seeing the goods physically.

Consumer

An individual, household or group that uses a product or constitutes a source of demand for a service is considered to be a consumer.

Perceived Benefits

Any positive consequences or benefits that a person expects to receive from participating in a particular behavior, using a product or taking a particular action

Perceived Risks

Detrimental consequences may result from a purchase, and are irrelevant to the consumer's involvement level, but they affect the consumer's perception of risk.

Year Developments

1940-50 The Creation of AI Can a machine think? That was the question that the British mathematician Alan Turing asked in 1950 when he devised the Turing Test for determining whether a computer can think like a person.

1956-1974: The Golden Years The term "Artificial Intelligence" was coined for the first time during a conference at Dartmouth College in 1956.

1961 So that program could "learn" to play checkers -- beating humanoid players!

1966 Voice input was used to do mathematics on the IBM Shorbox. The first mobile robot that possessed situational awareness of its environment was Shakey. ELIZA, an artificial conversational "therapist," was developed by MIT's AI Lab.

1974-1980 Programs such as R1 and XCON were built to help sales people avoid product proposal errors in 1978.

1980-1987: The Boom years in the second winter of modern times (1987–1994), two robot automobiles followed the road for long distances.

1997 1997: Garry Kasparov, the world chess champion, is beaten by IBM's chess-playing computer, Deep Blue. In 2000, Kismet, a friendly, emotive robot was introduced. 2000: Kismet – an affable, emotive robot!

2004 Honda's robot, ASIMO, has been developed for personal use.

Artificial Intelligence AI in E-retail Market 2025-2035

Year	Market Value (USD Billion)
2020	2.6
2021	3.4
2022	4.4
2023	5.8
2024	7.5
2025	9.8
2026	12.8
2027	16.6
2028	21.7

2029	28.2
2030	36.8
2031	48.0
2032	62.5
2033	81.4
2034	106.1
2035	138.3

Source: Market Research Survey, Aug 2025

The figure illustrates the retail Artificial Intelligence (AI) market size in USD billion from 2020 to 2035. The bar chart shows the market size in terms of value. Based on the figures, the AI retail market is on a never-ending growth-boom over the forecast period. The market value rises from around USD 2.6 billion in 2020 to USD 12.8 billion in 2025, with a rapid acceleration to USD 138.3 billion in 2035. Supported by an anticipated compound annual growth rate (CAGR) of 30.3% during 2025–2035, AI in retail. This trend epitomizes how AI is revolutionizing operational efficiency, customer experience and data-driven decisions in the retail sector.

3. Revolutionizing Artificial Intelligence in Retail Operations in India 2024

AI is revolutionizing the retail landscape in India by making it more productive and personalized for consumers.

AI is used by retailers to estimate demand, analyses massive volumes of data, and optimize inventories.

Predictive analytics can be useful to retailers for predicting trends and forecasting product availability. AI-driven recommendations for products that customers are likely to be interested in based on their previous purchases not only enhance customer satisfaction but also drive revenue growth.

Artificial intelligence (AI) based picture recognition technology and virtual try-ons – an AI tool that lets customers virtually see the product they're considering purchasing.

The Indian retail market is projected to grow by a factor of 2 by 2024 and be worth \$1.4 trillion.

AI is particularly valuable in the fashion and beauty sector, where the visual aspects of a product can significantly influence purchasing decisions.

As many as 85% of Indian retail was unorganized in 2019.

Perceived Benefits on Consumers on AI in E-retailing

Enhanced Customer Shopping Experience: AI can also enhance customers' shopping experience by making personalized product recommendations based on their previous purchases and preferences.

Improved Consumer Experience: Chatbots with AI capabilities can help customers instantly by responding to their questions and problems quickly, improving customer service.

Enhanced Product Discovery: Consumers' options are increased and they are exposed to products they might not have otherwise discovered thanks to AI algorithms that find new products based on their preferences. AI enhances shopping by offering quick and intuitive search options, optimizing the customer journey through the product catalogue, and reducing the search time for products of interest.

AI-Powered 24/7 Availability: Retailers can provide 24/7 shopping experiences with AI-powered tools, allowing customers to shop at their own convenience. **Dynamic Pricing and Offers:** AI is able to dynamically modify prices by analysing consumer demand and market trends. This means that customers may benefit from special offers and discounts based on their buying preferences, potentially saving money.

Perceived Risks

Privacy Concerns: As AI plays a crucial role in the retail industry, customers might have data privacy worries regarding the collection and utilization of their personal data for customized experiences.

Algorithmic Bias: When the suggestions of AI are not properly developed and educated, there's a likelihood that they might be biased and this can lead to an unequal treatment of clients.

Uncertainty regarding AI Algorithms' Transparency: If recommendations or judgements are generated by AI algorithms, customers might not trust them due to the lack of transparency on how these algorithms work.

AI Overreliance: Retailers who over-rely on AI in decision-making may end up with some customers who are more inclined to use human touchpoints for a more personalized experience.

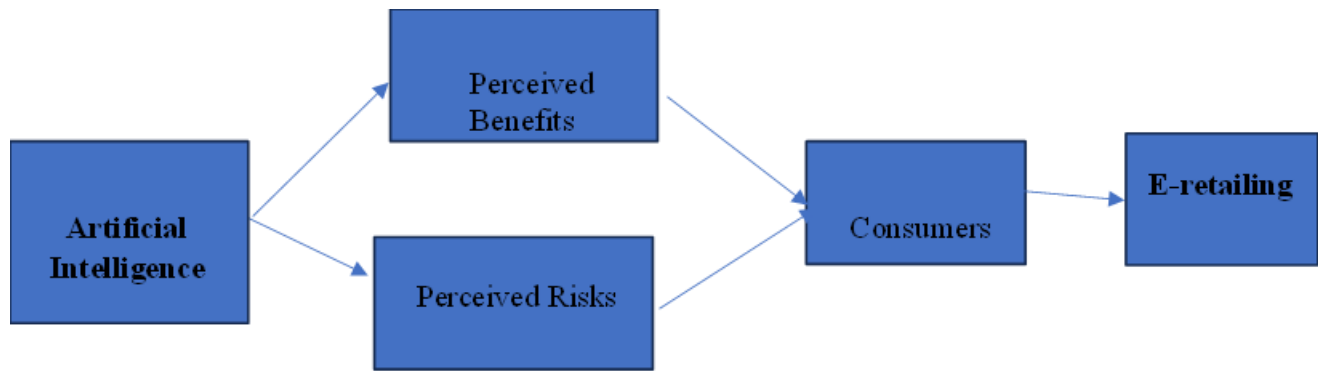
Security Concerns: Customers may be concerned about the security of their financial and personal data, particularly when making purchases online, as a result of the growing integration of AI in retail.

4. Literature Review

Fully capitalizing on the economic and social benefits of AI technologies, companies need to understand and measure the value of their AI offerings to consumers (Ahmad et al., 2023) and know their consumers better to better market their AI products (Haleem et al., 2022). Perceived benefits are beliefs about the positive outcomes associated with a cognitive, affective or behaviour response of consumers to a real or perceived threat (Chandon et al., 2000; Liu et al., 2012). The benefits of AI for consumers that Grewal et al. (2021) suggest are realized and anticipated benefits of AI, which occur when customised offers raised using data-informed personalisation, optimisation and innovation. A few benefits of AI for consumers, according to most researchers, are: improve decision making and problem solving (Sivarajah et al., 2017; Topol, 2019; Bastani et al., 2021; Chen et al., 2019), improve efficiency and productivity, and customization (Grewal et al., 2021); improve consumers' experience, which relates to the interaction between consumer and company during the consumer journey, and consists of multiple dimensions: emotional, cognitive, behavioural, sensorial, and social (Puntoni et al., 2021; Lemon and Verhoef, 2016; Brakus et al., 2009). From the marketing point of view, last mentioned benefit of AI, i.e. enhanced consumer experience, significantly reshapes exchanging processes by enhancing customer engagement through interaction and increasing efficiency (Xu et al., 2021). AI can use customer information to build a detailed profile of each customer and make tailored product suggestions and offers based on this data (Kadambi et al., 2018). Data capture experience benefits consumers, as it can make them feel served by the AI, provision of personal data can give them access to customized services, information and entertainment, frequently free of charge (Puntoni et al., 2021). People in the buying process frequently interact with intelligent customer service robots (i.e. chatbots and virtual assistants), that can make a huge difference in their customer experience of AI. Chatbots are computer programmes that can act as a conversation between a human and a machine. They can be utilized to offer client service, reply to recurring questions and make recommendations. Virtual assistants are a variation of chatbots, but they are designed to provide more personal support to the user, offering quick and efficient support, and cutting down wait times (Jenkins, 2021). They can also be able to be found 24 hours a day to give consumers access to support outside of business hours. This increased satisfaction and loyalty can, therefore, benefit businesses by helping them to generate more revenue and retain customers. Additionally, the use of chatbots and virtual assistants can save companies the cost of having to hire human support staff. One of the most valuable applications of predictive analytics is measuring consumer behavior trends and patterns and using this information to create personalized marketing strategies and find new opportunities for expanding the business (Mariani et al., 2023). While various studies have been conducted on certain aspects of consumers' benefits of AI, and media channels that explain consumers' cognitive, affective, behavioural responses to the implementation of AI technology, there remains a research gap. To fill this gap, our research tries to contribute to more comprehensive insight into different viewpoints of consumers' benefits of specific manifestation of AI (i.e. intelligent consumer service robots), and a potential impact of these benefits on consumers' attitudes towards AI. Based on the suggestions of Gao et al. (2022), the possible stimuli that consumers feel from AI can be divided into five categories: perceived interactive, perceived personalization, consumers' engagement, consumers' value co-creation, and consumers' ability readiness. In our opinion, first four groups of stimuli, suggested by Gao et al. (2022), have the characteristics of consumers' benefits of AI as well. Two of the most important stimuli are perceived interactivity and personalisation, respectively, which refer to the subjective feeling of the consumer when interacting with AI technology as a whole (Scardamalia and Bereiter, 2014) and to the potential for the AI technology to provide personalised and customised services to the consumer (Neuhofer et al., 2015; Gao et al., 2022). AI based devices with high levels of interactivity not only enable consumers to engage, but also provide them with opportunities to share information and emotional support with others (Roy et al., 2019; Gao et al., 2022). Beyond these, high levels of personalisation offer consumers algorithmic analysis-based personalised recommendations or solutions to meet their preferences and needs (Heer, 2019; Gao et al. 2022). Consumers engagement is mental state of consumers who are creating experiences with a company in a specific service relationship (Brodie et al., 2011). However, if consumers do not "read" the suggestions

of AI before accepting it, then the AI system will be of no use (Gao et al., 2022). Consumers are one of the important actors in the value co-creation process that is needed to be exploited by the company (Tran and Vu, 2021). The companies that are more interested to co-create with consumers can help them to gain new competences, and from that have a more competitive advantage for them, according to Zhang and Chen (2008). Consumer's cooperation with companies, as well as their empowerment in the process of creating a new product (AI technology) affects not only their level of perceived benefits from companies, but also their level of satisfaction. Consumers as general public (outside the buying process) show, despite of perceived benefits of AI, some considerable restraint when it comes to the broad societal diffusion of AI applications that might even border on actual fear of such technology (Kieslich et al., 2021; Hinks, 2020; McClure, 2018; Liang, 2017). Knowing both, benefits and threats, helps companies to adopt a more holistic approach to threats assessment (Tepilo et al., 2023; Ahmad et al., 2023). Knowing what users think of AI products can enable companies to market them better (Ahmad et al., 2023; Haleem et al., 2022). There are numerous articles discussing the threats of AI tools for general public. Economic inequality (Brynjolfsson and McAfee, 2014), ethical and legal issues (Huang et al., 2023; Wach et al., 2023; Kieslich et al., 2021), lack of transparency (Jones, 2018), potential for various kinds of bias (Buolamwini and Gebru, 2018), and the risk for potential misuse and abuse (Tufekci, 2018). Though AI can automate numerous tasks otherwise carried out by humans, this could result in job loss and unemployment. Recent research has suggested that up to 47% of US jobs are at risk of automation in the next few decades (Frey and Osborne, 2017). While some new jobs may be created by the development of AI, the displacement of jobs is likely to have a significant impact on the labour market and may disproportionately affect low-skilled workers and those in industries that are most susceptible to automation, such as manufacturing and transportation (Mirbabaie et al., 2022; Autor, 2015). Job displacement may also result in economic disparities. Joblessness could have a long-lasting effect on those who are most affected, if they don't have the skills or resources necessary to take up new jobs or industries, resulting in lower incomes and long-term unemployment. This can further deepen inequalities in the economy, and contribute to the growing disparity between rich and poor (Brynjolfsson and McAfee, 2014). Furthermore, the emergence of AI could also lead to a new wave of "winner-takes-all" industries, where a select few firms and individuals will be the ones to take advantage of the advancements in AI technology, while others will fall behind (Brynjolfsson and McAfee, 2014). With the continued development of AI technology, there are increasing concerns about the ethical and legal implications of these technologies. A significant ethical issue with AI is the fear of it being misapplied to breach privacy and human rights. Facial recognition technology has been criticized for its potential to be used for mass surveillance and tracking of people without their consent (Wach et al. 2023; Kieslich et al. 2021; Crawford and Calo, 2016; Huang et al. 2023). The possibility for AI to be prejudiced or racist is yet another ethical worry. AI systems can learn and amplify existing biases and inequities from the data they're trained on. This could lead to injustice in the recruiting process, funding and criminal justice. Furthermore, the lack of diversity in the tech sector could be a source of bias in AI systems since the individuals designing and building them may not be representative of the people they are designed to help (O'Neil, 2016). Additionally, there are legal issues related to AI, especially regarding liability. With the increasing independence of AI systems and decisions affecting human lives, the question of accountability arises in case of failure (Mirbabaie et al., 2022; Calo, 2015). One of the major challenges with AI systems is their lack of transparency and potential for bias. AI systems may be complicated, and it can be tough to comprehend the reasoning behind their decisions. This opacity can be problematic in terms of being able to detect errors or biases within the system, with potentially serious repercussions (Jones, 2018). Bias can be introduced into AI systems in a number of ways, one of which is biased data. An AI system "learns" from the data it is fed, and if the data is biased, the system can be biased. In particular when a facial recognition system is trained on a dataset that consists mostly male and white people, it could not be as accurate from images of women or darker skinned people. This can have profound ramifications in other spheres, including law enforcement or hiring processes (Buolamwini and Gebru, 2018). AI systems can also reinforce and exacerbate social biases, in addition to biased data. An AI system that is trained on data that has gender or racial bias may develop the same biases in its decision making. This may result in discrimination and worsen existing inequalities (O'Neil, 2016). There are some potential benefits for consumers from using AI, but also potential misuse and abuse. This can happen in several ways, for instance, when AI is used in ways that are harmful, like cyberattacks or sharing misinformation (Ye et al., 2016), or when the use of AI has unintended consequences, such as reinforcing harmful behaviours or biases (O'Neil, 2016). This may result in discriminatory results, including the hiring of non-representative employees, or the lack of access to services for specific groups. AI systems can be used to reinforce harmful behaviours, including the proliferation of hate speech or the dissemination of extremist content, because they seek to engage users over accuracy or truth (Tufekci, 2018).

Proposed Research Model



Source: Author's own Source

Statement of Problem

AI's impact on e-retailing has changed the game for consumers, influencing how they shop online. The integration of Artificial Intelligence (AI) in e-retailing has transformed the way consumers engage with online platforms. AI technologies offer the potential for improved convenience, efficiency, and satisfaction, from personalized recommendations to chatbots, dynamic pricing to automated logistics. This shift, however, also brings up important issues concerning data privacy, algorithmic bias, transparency, and consumer autonomy. While AI is increasingly being used in online retail, there is a significant lack of understanding about its impact on consumer trust, consumer behaviour and consumer rights. This study aims to delve into the double-sided nature of AI in e-retailing, looking into the positive and negative implications it has for consumers. This study aims to shed light on the dual aspects of AI in the e-retailing sector, focusing on its benefits and drawbacks to consumers in vellore district.

Research Gap

While the artificial intelligence (AI) has emerged as an enabler of e-retailing to provide better personalization, operational efficiency and customer involvement, the understanding on its refined effect on customers is still a significant research hole. Prior research tends to emphasize technology innovation or business implications, ignoring important consumer-related factors, including trust, data privacy, and ethical transparency. There is also little research on how AI-based systems may affect consumer behavior and autonomy of decision-making as well as the fairness perceptions about these systems, particularly in situations when the systems provide recommendation or on-line pricing. In addition, the psychological and behavioural implications of such AI-driven interactions in digital retailing environments over a prolonged period of time is also an area that requires further investigation. This void is compounded by the absence of longitudinal and intersectional analyses that encompass a range of other consumer populations, such as those digitally disadvantaged. Bridging these gaps is critical to ensuring that the development of AI applications in e-retailing is not only innovative but also ethically sound and consumer centric.

Research Questionnaire

What are the consumers perceived benefits and risks of Artificial intelligence in e- retailing?

Research Objective

To study the demographic profile of the respondents

To analyze the consumers perceived benefits and risks of artificial intelligence in e-retailing.

Hypothesis

H0: There is no significant relationship between consumers perceived benefits and risks of AI in e-retailing.

Methodology

Nature of the Study: Descriptive Study

Data Sources: A primary data was obtained by means of a structured questionnaire.

The secondary data was gathered from various such as journals, websites and newspapers.

Sampling Technique: Convenience sampling.

Number of Samples: One hundred samples were gathered.

Sample Location: Vellore District – India

Population: Data were obtained from different college students and public who are buy goods through AI in e-retailing.

Questionnaire: A structured questionnaire consisting of five-point Likert scale was administered through google form.

Statistical instruments: Frequency Distribution, Percentage Analysis and Linear regression.

Test of Reliability: The SPSS results for 0.782 suggested that all of study variables had a good internal consistency. There are 100 subjects from a single study, study only concerned the Vellore district. In addition, the study deals only with the benefits and risks for consumers of adopting artificial intelligence in e-retail, and the conclusion reached is at variance with that found in some other regional findings within the subject area.

5. Results

Table 2: Demographic profile of the respondents

Variables	Category	Frequency	Analysis%
Gender	Female	56	56.0
	Male	44	44.0
	Total	100	100
Age	18-25	46	46.0
	26-33	42	42.0
	34-41	9	9.0
	41 above	3	3.0
	Total	100	100
Education Qualification	Ph.D.	8	8.0
	Master's Degree	18	18.0
	Bachelor's Degree	63	63.0
	Other	11	11.0
	Total	100	100
Marital Status	Unmarried	69	69.0
	Married	31	31.0

	Total	100	100
Occupation	Student	37	37.0
	Employed	35	35.0
	Self-employed	16	16.0
	Retired	10	10.0
	Unemployed	2	2.0
	Total	100	100
Income	Less than 10,000	29	29.0
	10,000-20,000	20	20
	20,001-30,000	21	21.0
	30,001-40,000	13	13.0
	40,000 above	7	7.0
	Total	100	100
Choose	Flipkart	17	17.0
	Amazon	74	74.0
	Snapdeal	2	2.0
	Ajio	5	5.0
	Shop Clues	2	2.0
	Total	100	100
Do you Believe AI in E-retailing	Yes	80	80.0
	No	17	17.0
	Not Sure	3	3.0
	Total	100	100
AI Powered Feautres	Chatbots	39	39.0

	Voice Assistants	32	32.0
	Personalized Recommendations	15	15.0
	Machine Learning Algorithms	4	4.0
	None of the Above	10	10.0
	Total	100	100
AI Influence	Significantly	17	17.0
	Moderately	14	14.0
	No Impact	3	3.0
	Slows Down Unsure	6	6.0
	Total	100	100

Perceived Benefits on Consumers AI through E-retailing

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.805 ^a	.647	.594	.603	.647	12.143	13	86	.000

a. Predictors: (Constant), PB13, PB6, PB5, PB2, PB7, PB12, PB8, PB11, PB4, PB3, PB1, PB9, PB10

b. Dependent Variable: PB14

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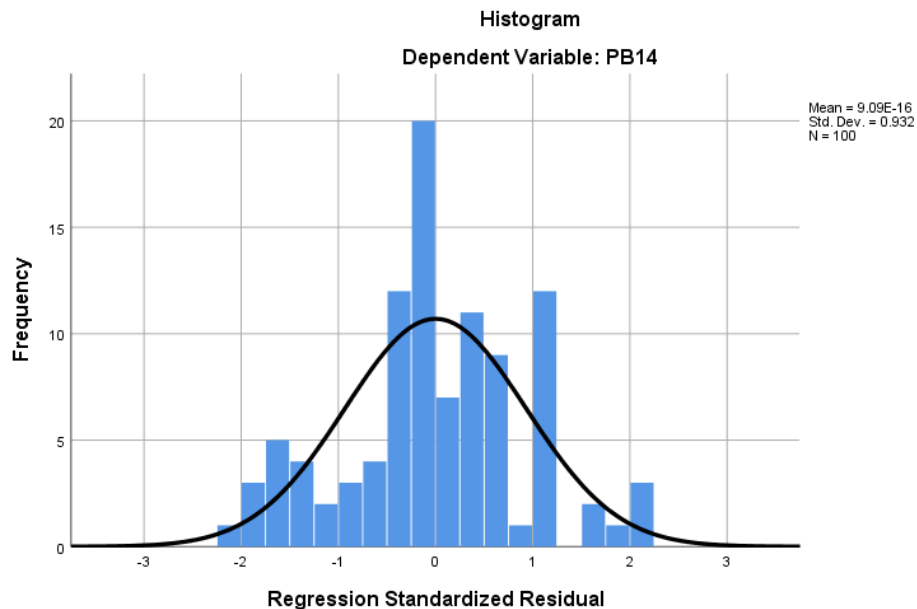
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	1.182	.514	2.300	.024

PB1	-.301	.131	-.259	-2.309	.023
PB2	.489	.131	.419	3.729	.000
PB3	.087	.103	.093	.840	.403
PB4	-.430	.116	-.367	-3.725	.000
PB5	-.060	.094	-.052	-.632	.529
PB6	.445	.109	.436	4.092	.000
PB7	-.191	.090	-.200	-2.131	.036
PB8	.013	.109	.012	.119	.905
PB9	-.063	.100	-.071	-.635	.527
PB10	.121	.094	.148	1.288	.201
PB11	-.297	.102	-.284	-2.908	.005
PB12	.252	.080	.327	3.168	.002
PB13	.659	.106	.658	6.243	.000

a. Dependent Variable: PB14

The ANOVA results show that the regression model for perceived benefits (PB14) is significant. The regression sum of the square (57.458) is quite larger than the residual sum of the square (31.302), indicating that the independent variables as a whole account for a good amount of the variance in the dependent variable. The model produces $F = 12.143$, $df = 13, 86$, $p < 0.001$. This suggests that the perceived benefit factors combined are able to robustly predict consumers' perceived benefits of AI-enabled e-retailing. Therefore, we reject the null hypothesis that the model is not useful for prediction.



Perceived Risks Faced by Consumers on AI in E-retailing

Model Summary^b

Model	R	R Square	Change Statistics
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			Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.764 ^a	.584	.521	.584	.584	9.292	13	86	.000

a. Predictors: (Constant), PR13, PR7, PR9, PR3, PR2, PR10, PR4, PR1, PR8, PR5, PR12, PR6, PR11

b. Dependent Variable: PR14

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.188	13	3.168	9.292	.000 ^b
	Residual	29.322	86	.341		
	Total	70.510	99			

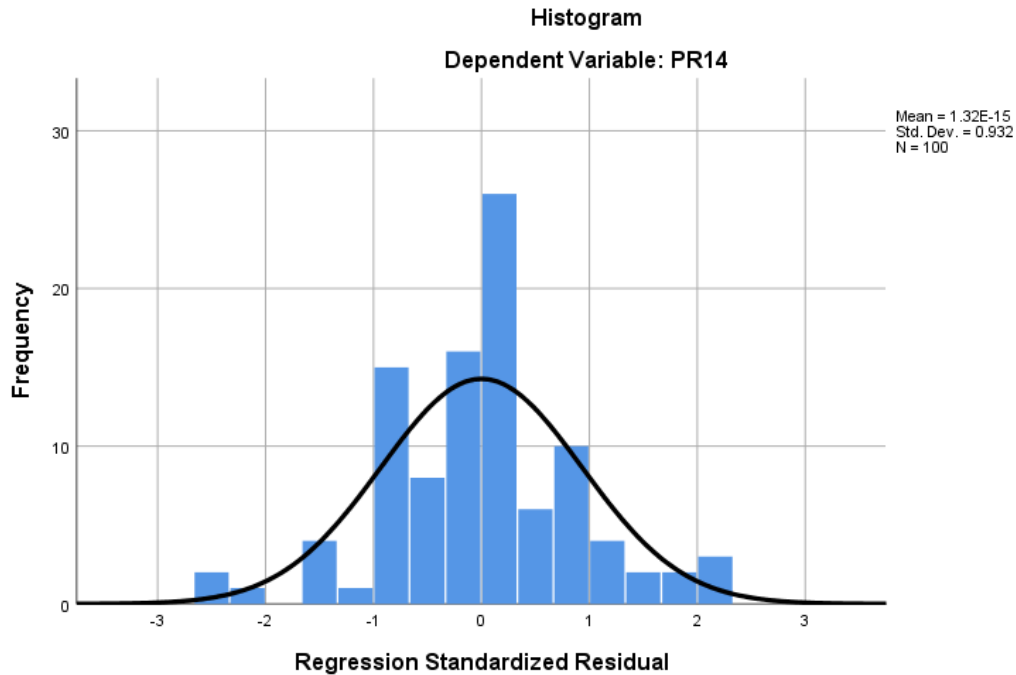
a. Dependent Variable: PR14

b. Predictors: (Constant), PR13, PR7, PR9, PR3, PR2, PR10, PR4, PR1, PR8, PR5, PR12, PR6, PR11

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1.191	.400		.004
	PR1	-.235	.085	-.277	.007
	PR2	-.124	.086	-.129	.154
	PR3	.271	.072	.331	.000
	PR4	.322	.097	.348	.001
	PR5	-.058	.094	-.069	.537
	PR6	-.494	.097	-.595	.000
	PR7	.383	.110	.461	.001
	PR8	-.028	.078	-.036	.725
	PR9	.048	.088	.058	.586
	PR10	.393	.087	.501	.000
	PR11	-.353	.109	-.411	.002
	PR12	.270	.085	.330	.002
	PR13	.267	.084	.326	.002

a. Dependent Variable: PR14

Perceived risks (PR14) model The ANOVA results also indicate that the regression model for perceived risks (PR 14) is significant. Regression sum of squares (41.188) is greater than residual sum of squares (29.322), indicating that predictors explain substantial variances in the perceived risks. The F-value obtained was 9.292 with df = 13, 86 ($p < 0.001$ which indicates that the set of variables of perceived risk, taken as a whole, is significantly related to consumers' perceived risks in adopting AI in e-retailing. Hence, the model is good fit for the data and statistically significant.



Findings

Perceived Benefits of AI in E-retailing

- The perceived benefits regression model is significant ($R^2 = 0.647$; $F = 12.143$; $p < 0.001$), which means that AI-related benefit factors can well explain consumers' perceived benefits.
- PB2, PB6, PB12 and PB13 positively and significantly affect perceived benefits, which supports that AI-based efficiency, personalization, convenience, and decision support improve consumer value.
- In addition, PB13 is found to be the strongest determinant, emphasizing the importance of advanced AI features for enhancing consumer experience.
- A few factors (PB1, PB4, PB7, PB11) are negatively but significantly related, revealing that some capabilities of AI could decrease perceived benefits when they curtail flexibility, transparency, or control of consumers.
- Five factors (PB3, PB5, PB8, PB9, PB10) are not statistically significant, which suggests that not all AI attributes contribute equally to perceived benefits.

Perceived Risks by the Customers

- The risk perception model is statistically significant as well ($R^2 = 0.584$; $F = 9.292$; $p < 0.001$), indicating that factors related to risk in the AI context can significantly impact consumers' risk perceptions.
- PR3, PR4, PR7, PR10, PR12 and PR13 have powerful and significant positive effects on perceived risk, demonstrating that privacy, misuse of data, algorithmic bias, and opacity of systems are among the worries.
 - PR6 is also the strongest negative predictor, showing that growing technological reliance or system intricacy greatly increases consumer risk perception.
- Some factors (PR2, PR5, PR8, PR9) are not significant, which indicates that particular perceived risks may be less salient in modifying overall consumer worry.

6. Discussion

The results indicate that AI has a two-fold effect on e-retailing – which exacerbates both perceived benefits and risks. As for the benefits, AI based personalization, speed and smart recommendations have brought remarkable improvements to consumers' shopping experiences. This is consistent with previous researches that found AI enhances convenience, efficiency, and satisfaction in online retailing platforms.

However, the existence of negatively significant benefit variables implies that too much automation or insufficient human intervention could undermine consumer trust as well as perceived value. This indicates that

although consumers appreciate the enhanced functionality brought by AI, they still want human judgment, transparency and control when shopping online.

Perceived risks are shaped by relevant data privacy, security, and algorithmic environment risk concerns, which also have a significant impact on consumer perception. The significantly strong effect of some risk variables on the indicates that consumers worry about excessive reliance on AI and the misuse of personal data. These results reinforce prior work which underscores trust, ethical AI use, and data protection as key enablers to AI adoption in e-retailing.

In summary, it can be concluded that a consumer's willingness to accept AI in e-retailing is related to a positive perception of benefits and a negative perception of risk. The managerial Implications are

- AI-driven personalization, recommendation accuracy, and services efficiency are to be focused by e-retailers because they contribute a lot to increasing the perceived benefits.

- Adding human-AI collaboration, such as live support with AI chatbots, may improve negative sentiments towards full automation.

- Aspects such as transparency of AI decision and a proper communication on the use of AI in the services might reduce your negative perceptions of the benefits.

Technological Implications

- It is recommended that the developers make explainable and easy-to-use AI so as to lower the perceived risks.
- Enhancing data security, privacy protection and ethical use of AI are key to establishing consumer trust.
- User controls and customization should be incorporated into AI systems to reduce perceptions of technology over-reliance.

Policy and social implications

- Policy makers should also ensure strong data protection and ethical AI standards in the e-retail space.
- Awareness drives among consumers could help them in understanding how to use AI safely and what their digital rights are.
- Promoting responsible adoption of AI will sustain the growth of AI-enabled e-retailing in India.

7. Conclusion

This was known through the investigation of consumers' evaluations towards Artificial Intelligence (AI) application in e-retail in the form of both benefits and risk which are essential determinants to consumers' overall evaluation. Results show that the convenience, personalization, and decisional efficiency of the online shopping experience are all influenced by AI. The results of the regression analysis show that some of the AI-related benefits factors have a statistically significant positive impact on the perceived benefits of consumers, and it can be inferred that the AI-based technology brings more value to e-retail platforms.

Together, the study reveals that consumers perceive AI as being associated with significant risk, especially regarding data privacy, security issues, transparency and reliance on machines. Based on the perceived risk constructs, these concerns have a considerable influence on a customer's overall sense of risk which, if left unresolved, could negatively impact their trust in and willingness to adopt. This binary characteristic of AI reinforces the need to include ethical use and consumer protection as equal pillars to technology development, solution deployment, and service delivery.

On the whole, the findings indicate that consumers' adoption of AI in e-retailing is based on a positive risk-benefit evaluation. E-retailers that deliver on at least some of those attributes, even if incompletely, will have the best chance of engendering trust, satisfaction, and repeat patronage.

S. Menaka- Developed the research idea and design of the study. She oversaw the data collection procedure, making sure the bibliometric information from the Scopus database was accurate and comprehensive. Furthermore, carried out the preliminary data processing and cleaning, and made a substantial contribution to the creation of the bibliometric analysis framework. She contributed to the manuscript's drafting and made significant edits to improve its content. **Dr. V. Selvam:** Participated in the study's methodology, which included choosing and using bibliometric methods including network visualization and co-citation analysis. He performed statistical analysis and offered

insights into the data by interpreting the findings. Additionally, he was a major contributor to the manuscript's composition and actively participated in the paper's final review and approval. The final text was reviewed and approved by all authors.

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Data Availability Statement

The corresponding author's easily accessible Scopus and Web of Science websites are the source of the dataset for her research, so if the reviewer requests data and materials to support this work, they can be made available.

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