# A STUDY ON THE ROLE OF ARTIFICIAL INTELLIGENCE TOOLS IN SHAPING CONSUMER DEMAND IN E-COMMERCE WITH SPECIAL REFERANCE TO ERNAKULAM CITY

**Dissertation**

**Submitted by**

**SANDRA SAJEEV: (SM22COM014)**

**Under the guidance of**

**Ms. REEMA DOMINIC**

**In partial fulfilment of the requirement for the Degree of**

**MASTER OF COMMERCE**


**ST. TERESA'S COLLEGE ESTD 1925**

**ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM**

**COLLEGE WITH POTENTIAL FOR EXCELLENCE**

**Nationally Re-Accredited with A++ Grade**

**Affiliated to**

**Mahatma Gandhi University**

**Kottayam-686560**

**March-2024**

**ST. TERESA'S COLLEGE, ERNAKULAM (AUTONOMOUS)**

**COLLEGE WITH POTENTIAL FOR EXCELLENCE**

**Nationally Re-Accredited with A++ Grade**

## CERTIFICATE

**This is to certify that the project titled "Study on the Role of Artificial Intelligence in Shaping Consumer Demand in E-commerce with Special Reference to Ernakulam City" submitted to Mahatma Gandhi University in partial fulfilment of the requirement for the award of Degree of Master of Commerce is a record of the original work done by Ms. Sandra Sajeev, under my supervision and guidance during the academic year 2023-24.**

**Project Guide**

**Ms. Reema Dominic**
**Assistant Professor**
**Department of Commerce (SF)**

**Smt. Jini Justin D'Costa**
**(Head of the Department)**
**Department of Commerce (SF)**

**Viva Voce Examination held on….**

**External Examiner(s)**

# DECLARATION

**I, Sandra Sajeev, final year M.Com student, Department of Commerce (SF), St. Teresa's College (Autonomous) do hereby declare that the project report entitled "Study on the Role of Artificial Intelligence in Shaping Consumer Demand in E-commerce with Special Reference to Ernakulam City" submitted to Mahatma Gandhi University is a bonafide record of the work done under the supervision and guidance of Ms. Reema Dominic, Assistant Professor of Department of Commerce (SF), St. Teresa's College (Autonomous) and this work has not previously formed the basis for the award of any academic qualification, fellowship, or other similar title of any other university or board.**

**PLACE: ERNAKULAM** **SANDRA SAJEEV**

**DATE:**

# ACKNOWLEDGEMENT

First of all, I am grateful to God Almighty for his blessings showered upon me for the successful completion of my project.

It is my privilege to place a word of gratitude to all persons who have helped me in the successful completion of the project.

I am grateful to my guide **Ms. Reema Dominic**, Department of Commerce (SF) of St. Teresa's College (Autonomous), Ernakulam for her valuable guidance and encouragement for completing this work.

I would like to acknowledge **Dr. Alphonsa Vijaya Joseph**, Principal of St. Teresa's College (Autonomous), Ernakulam for providing necessary encouragement and infrastructure facilities.

I would like to thank **Smt. Jini Justin D'Costa**, Head of the Department, for her assistance and support throughout the course of this study and for the completion of the project.

Last but not the least; I would also like to thank the respondents who have helped me to provide the necessary information for my study.

**SANDRA SAJEEV**

# ST.TERESA'S COLLEGE (AUTONOMOUS) ERNAKULAM

## Certificate of Plagiarism Check for Dissertation

| | |
|---|---|
| **Author Name** | SANDRA SAJEEV |
| **Course of Study** | M.Com |
| **Name of Guide** | Ms. REEMA DOMINIC |
| **Department** | Commerce (SF) |
| **Acceptable Maximum Limit** | 20% |
| **Submitted By** | library@teresas.ac.in |
| **Paper Title** | A STUDY ON THE ROLE OF ARTIFICIAL INTELLIGENCE TOOLS IN SHAPING CONSUMER DEMAND IN E-COMMERCE WITH SPECIAL REFERANCE TO ERNAKULAM CITY |
| **Similarity** | 0% AI 6% |
| **Paper ID** | 1630813 |
| **Submission Date** | 2024-04-12 13:18:27 |

Signature of Student

Signature of Guide

Checked By
College Librarian

ST.TERESA'S COLLEGE LIBRARY ERNAKULAM

* This report has been generated by DrillBit Anti-Plagiarism Software

# CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# CHAPTER 1

# INTRODUCTION

## 1.1 A STUDY ON THE ROLE OF ARTIFICAL INTELLIGENCE TOOLS IN SHAPING CONSUMER DEMAND IN E-COMMERCE WITH SPECIAL REFERANCE TO ERNAKULAM CITY

## 1.2 INTRODUCTION

The term "e-commerce" describes businesses and individuals who transact in goods and services via the internet. Computers, tablets, smartphones, and other smart devices can be used for e-commerce, which is available in a variety of market categories. E-commerce offers almost any goods and services that can be imagined, including financial services like online banking and stock investing, as well as books, music, and airline tickets. It is seen as a very disruptive technology as a result.

The term "artificial intelligence" is no longer unknown. In reality, we engage with artificial intelligence on a regular and ongoing basis through a variety of channels in our daily lives. Artificial intelligence technology is used, for instance, in the way we use our phones—for instance, in face recognition (Face ID) to unlock or guess words (predictive text) and in automatically correcting misspelled words based on users' typing habits. Artificial intelligence has applications both inside and outside of the house. AI-based technologies include automated robots, voice recognition, recommendation systems, and driverless autos.

An artificial intelligence system is a collection of algorithms designed to mimic human thought processes and problem-solving abilities in computers. Additionally, it facilitates communication through learning, self-adaptation, and language comprehension. While there are many methods to apply AI technology in business, most of them center on fostering growth. Businesses can benefit from it in various ways, including more productivity, better customer decision-making, and improved customer experience. Furthermore, AI may be included into practically every business plan.

This project is intended to acquire knowledge regarding the "Role of artificial intelligence tools in shaping consumer demand in e-commerce". This project is an attempt to ascertain the impact of artificial intelligence in e-commerce and to identify the benefits of using artificial intelligence in e-commerce.

## 1.3 STATEMENT OF THE PROBLEM

Understanding how artificial intelligence influences consumer demand in e-commerce, including its impact on purchasing decisions, product recommendations, personalized marketing strategies, and overall consumer behaviour, to inform businesses on how to effectively leverage AI to shape and meet evolving consumer preferences. Exploring how artificial intelligence technologies in e-commerce affect consumer decision- making processes, including concerns about privacy, data security, personalized experiences, and the balance between convenience and ethical considerations, to empower consumers in navigating AI- driven online shopping environments. With features like natural language, video, picture, and speech recognition, autonomous devices, and more, AI systems have completely changed e-commerce. However, there are a number of ethical questions surrounding the creation, application, and use of AI systems. Fairness, auditability, interpretability and explain ability, and transparency are the four important factors that are taken into consideration. Even though AI systems might be derived from observable human patterns, it's possible to compare comprehending AI systems to trying to identify other highly intelligent species. Issues of the extent of responsibility and purpose of injury also arise because little can be gleaned about the behaviour and intent of such animals (AI systems), particularly with relation to their patterns of behaviour. In the end, the key concern is how to ensure openness in e-commerce environments in a way that best restores targeted user's faith.

## 1.4 OBJECTIVES

1. To understand the role of artificial intelligence tools in e-commerce development.

2. To evaluate the customer's knowledge about artificial intelligence.

3. To study the impact of artificial intelligence in e-commerce.

4. To understand the customer's experience after AI became prevalent in e-commerce.

5. To identify the reasons why customers choose e-commerce rather than physical buying.

## 1.5 HYPOTHESES

1. H0: There is no relationship between consumer experience and AI tools.

2. HO: There is no relationship between educational qualification and AI tools.

3. HO: There is no relationship between age and AI tools.

## 1.6 SCOPE OF THE STUDY

The present study is being conducted to know the role of artificial intelligence tools in shaping consumer demand in e-commerce. This study makes an attempt to explore the knowledge of consumers about artificial intelligence and also find out the benefits of using artificial intelligence in e-commerce. Benefits of AI in e-Commerce include fraud detection, intelligent product recommendations, and dynamic pricing. The consumer experience is improved by these tools. Predictive inventory management, effortless transactions, and hyper-personalized shopping are all part of AI's future for e-Commerce.

## 1.7 SIGNIFICANCE OF THE STUDY

The study is conducted to evaluate and analyse the benefits of using artificial intelligence in e-commerce. This project aims at studying the role of artificial intelligence in shaping consumer demand in e-commerce. Artificial intelligence is a convenient and emerging trend all over the world. It is expected that the result of the study will help to understand the customer's knowledge about artificial intelligence and the benefits of using artificial intelligence in e-commerce.

## 1.8 RESEARCH METHODOLOGY

**Research design**

Descriptive study has been used in this research with the objective of finding the awareness and experience of people regarding AI tools. It also aims to find out the impact and role of artificial intelligence tools in e-commerce.

**Type and Source of Data**

Both primary and secondary data has been used for this study. Primary data is collected by conducting a sample survey via questionnaire method.

The secondary data was collected from various sources such as articles and journals, websites and other references.

**Sample and Sampling Techniques**

The study is a sample one. For determining sample size, sample of 100 respondents were selected. The study used convenient sampling techniques as a method to select samples.

**Tools for Analysis**

Analysis of data is the basic tool for data representation. All the data have been classified and sorted. The analytical tools used for the study includes chi square test, percentage analysis, preparation of diagrams, graphs and tables.

## 1.9 LIMITATIONS OF THE STUDY

1. Due to time constraints an extensive study was not possible.

2. Lack of experience in conducting such a study was the other constraint.

3. The sample size was small and so the findings may not represent the opinion of whole respondents.

## 1.10 CHAPTER SCHEMA

The report of the study is presented in 5 chapters.

**Chapter 1 – Introduction**

The first chapter is an introductory chapter. It involves introduction about the topic, statement of problem, objectives of the study, data and methodology, tools of data collection, limitations of the study and chapter schema.

**Chapter 2 – Review of literature**

It contains a brief description about the different studies conducted by various persons on the role of artificial intelligence in e-commerce.

**Chapter 3 – Theoretical Framework**

The third chapter deals with the theoretical review of the study.

**Chapter 4 – Data Analysis and Interpretation**

This chapter deals with the objective wise data analysis, tables, charts etc.

**Chapter 5 – Findings, Suggestions and conclusion**

This chapter deals with findings, suggestions and conclusion of the study.

# CHAPTER 2

# REVIEW OF LITERATURE

## 2.1 REVIEW OF LITERATURE

**Linh Nguyen (2023),** has conducted a study on Artificial intelligence in e-commerce: Progressive AI application as a solution to improve customer experience in e-commerce. The study's findings indicate that using AI technologies in e-commerce is a very successful tactic. Businesses may significantly improve customer experience, draw in new customers, and strengthen their prospects by utilizing AI. Furthermore, the report highlights how AI has the ability to revolutionize a wide range of businesses, demonstrating the substantial influence that AI is expected to have on the direction of numerous industries.

**Hari Kumar Pallathadka, Edwin Herman Ramirez - Asis, Telmo Pablo Loli- Poma, Karthikeyan Kaliyaperumal (2023),** AI has been used in the financial and e-commerce sectors to improve customer experience, streamline the supply chain, increase operational effectiveness, and decrease average order size. The primary objectives of this technology are to develop standardized, dependable methods for product quality control and to find innovative, low-cost means of connecting with and servicing customers. Deep learning and machine learning are two of the most popular AI techniques. These models are used by people, companies, and governmental organizations to anticipate and learn from data. Currently being developed are machine learning models for the complexity and diversity of data seen in the food business. Applications of artificial intelligence and machine learning in banking, business management, and e-commerce are covered in this article. Among the main benefits are: increasing sales, maximizing profits, forecasting sales, managing inventories, enhancing security, detecting fraud, and managing portfolios.

**SS Onyx Nathanael Nirmal Raj, A Kalaivani, Kismat Kaur, CGC CBSA, Punjab Author Mohali, Taranjit Singh (2023),** Artificial intelligence is becoming more and more common as information and communication technologies progress. Persuading customers to choose positive products and brands is the primary objective of firms in today's global e-commerce. It may also seem like a positive step forward to use artificial intelligence as a cutting-edge tool in the field of e-trade. The paper focuses on describing the fundamentals of artificial intelligence and e-commerce, along with their advantages. The aim is also to evaluate the significance of artificial intelligence and its use in the context of electronic commerce, based solely on the research that is currently accessible in this area.

**Chenxing Wang, Sayed Fayaz Ahmad, Ahmad YA Bani Ahmad Ayassrah, Emad Mahrous Awwad, (2023),** the results of this study demonstrate that Trust has a good effect on PEU, Subjective Norms positively impact PU and PEU, and PEU positively impacts PU and attitudes toward usage. In the same vein, attitudes regarding use and intention to use are positively impacted by PU. Additionally, the results refute the effect of Trust on PU and attitudes toward behavioural intention to use. Finally, the actual application of AI technology was positively impacted by behavioural desire to use. The TAM model adoption in the e-commerce industry is made possible by the theoretical and practical insights this study contributes. It assists business owners in putting the TAM model into practice so that AI is used more effectively and appropriately.

**Muhammad Arif Nawaz, Dolat Khan, Qaisar Maqbool Khan (2023),** the effect of artificial intelligence on consumer demand in the e-commerce sector is investigated in this study. Demand prediction, Demand plan, and Demand management are the terms used to diagnose the demand from a fundamental standpoint in this study. Users of e-commerce from all around Pakistan provided data. A convenience sample of the 460 respondents was used to collect data. Using SmartPLS, the collected data was examined. According to this study, artificial intelligence is essential to Pakistan's e-commerce sector's demand management. It improves various aspects of demand, such as demand management, planning, and forecasting. This report also recommends that artificial intelligence technologies be used by the e-commerce sector in Pakistan and around the world to better manage e-commerce demand.

**Karan Pardeshi, Pankaj Pathak, Zeid Alsadoon (2023),** Artificial Intelligence and Machine Learning are emerging technologies that are now used by different businesses to enhance the customer experience. The use of these technologies has provided many opportunities to organizations to boost their market performance. The research paper aims to understand the impacts and applications of Artificial Intelligence and Machine Learning in the E-commerce sector and how one can leverage e-commerce business performance using these technologies. Various organizations are currently utilizing developing technologies like artificial intelligence and machine learning to improve the consumer experience. Utilizing these technologies has given businesses several chances to improve their performance in the marketplace. The purpose of the research paper is to comprehend

the effects and uses of AI and ML in the e-commerce industry, as well as how these technologies may be used to improve e-commerce business performance.

**Sabina-Cristiana Necula, Vasile-Daniel Pavaloaia (2023),** the objective of this research was to examine the degree of artificial intelligence use in recommender systems for electronic commerce, together with the existing and potential future developments in this domain. This was accomplished by doing a thorough literature review of scientific publications published in the last ten years, gathering data with WosViewer and analysing the results with the Bibliometrix R package. The results show how artificial intelligence enhances the e-commerce experience for customers by collaborating with other technologies like block chain, virtual reality, and augmented reality.

**Richard Fedorko, Stefan Kral, Igor Fedorko (2022),** with the ongoing advancement of information and communication technology, artificial intelligence is currently gaining popularity. Businesses engaged in e-commerce seek to sway consumer behaviour and encourage the purchase of particular goods. Using cutting-edge artificial intelligence capabilities in the e-commerce industry could be the best course of action. The purpose of the paper is to give a summary of the problems with artificial intelligence, machine learning, and e-commerce, as well as their advantages. In addition, based on existing research on the subject, the goal is to evaluate the significance of AI and machine learning and their function in the context of e-commerce.

**Ransome Epie Bawack, Samuel Fosso Wanba, Kevin Danial Andre Carillo, Shahriar Akter (2022),** the research on artificial intelligence (AI) in e-commerce is compiled in this paper, which also suggests principles for how information systems (IS) research might support this area of study. .It offers a well-organized source of data about how AI might help their e-commerce initiatives.

**Prateek Kalia (2021,** According to researchers, robots, digitization, artificial intelligence (AI), machine learning, and information and communication technology will drive the fourth industrial revolution. Decisions will be made by machines, which will have a significant

impact on society and corporate marketing strategies. The AI revolution will have an even bigger influence in the next 20 years than the combined effects of the industrial and digital revolutions. Research has verified that the rise of intelligent goods and services is real, since they have the power to change the world. Scientists believe that artificial intelligence (AI) has already transcended.

**Adrian Micu, Angela - Eliza Micu, Marius Geru, Alexandru Capatina, Mihaela - Carmen Muntean (2021),** the purpose of this study is to find e-commerce solutions that are effective at optimizing marketing efforts. A questionnaire has been created as part of a quantitative study after it was determined that managerial and marketing procedures can be optimized through artificial intelligence. The research sample included 201 individuals in managerial roles who are actively engaged in e-commerce and whose companies employed one or more people in 2020. The administrative tools for online product promotion and the business processes that artificial intelligence is intended to optimize are highlighted in the article.

**Dan Zhang, LG Pee, Lillicui (2021),** the purpose of this study is to comprehend how AI technology, people, and processes should be managed in order to appropriately create value. Building on the resource orchestration strategy, this article investigates the efficient AI applications used in Alibaba's e-commerce fulfillment center. The findings indicate that the three most important AI resources are robots, data, and AI algorithms. These resources need to be orchestrated—that is, coordinated, utilized, and deployed—in order to work with other pertinent resources, such warehouse spaces and pre-existing information systems, in order to provide potent AI capabilities. Learning, planning, and forecasting are the three primary AI-generated competencies. More importantly, AI capabilities work with human capabilities to coevolve and provide business value in terms of efficiency (e.g., labor productivity, space optimization) and performance (e.g., error reduction).

**Lucas Micol Policarpo, Diórgenes Eugênio da Silveira, (2021),** people find, compare, and ultimately buy things mostly from e-commerce sites. They use artificial intelligence (AI), mathematical formalism, business intelligence (BI), and machine learning (ML) to produce useful information about consumer behavior, which helps both buyers and sellers. The

current state-of-the-art in this field lacks a thorough and current survey that examines the most typical objectives of studies pertaining to e-commerce as well as the appropriate machine learning techniques and frameworks.

**A Srivastava (2021),** over the past ten years, there has been a significant increase in the use of AI in the e-commerce sector. Artificial intelligence (AI) is being used by the e-commerce sector to handle a sizable database of progressive customers, engage with them via chatbots, and assist in the search, sorting, and discovery of a pertinent product. Large-scale data collection, processing, and inference are made feasible by AI, and the results are more accurate and efficient. AI is being used by e-commerce rivals to develop customer-centric search, retarget prospective buyers, improve consumer recommendations, streamline sales, address bogus reviews, and other features.

**Laura Abrardi, Carlo Cambini, Laura Rondi (2021),** This research represents an initial effort to examine the expanding body of work on the complex economic implications of the most recent machine learning-related advancements in artificial intelligence. They begin by reviewing studies on the effects of AI on businesses, with a particular emphasis on how these effects affect the labor market, productivity, skill mix, and innovation. Next, they look at how AI affects market rivalry and customer behavior. They wrap up by talking about how public policy might address the profound changes that artificial intelligence is currently bringing about and will continue to bring about for businesses and consumers.

**Eliza Nichifor, Adrian Trifan, Elena Mihaela Nechifor (2021),** The purpose of this study is to conduct an empirical analysis of the effects of chatbots and artificial intelligence on online retail with regard to the content used in the communication process. Through its analysis of perceived utility and demonstration of the facility—two essential ideas of the Technology Acceptance Model—the research provided here adds to the body of specialist literature. In this regard, ten Romanian e-commerce sites were chosen based on user volume, and content analysis—a non-reactive method—was used to conduct the research. In order to prevent a change in the behavior of the entities under study, the "mysterious client" method of data collecting was used.

**Ahlam Alnefaie, Sonika Singh, A Baki Kocaballi, Mukesh Prasad (2021),** Conversational agents powered by artificial intelligence are becoming a key business tool for both online commerce and customer service, acting as a conduit for interactive communication between customers and businesses. It is necessary to investigate the elements influencing consumers' views and acceptance of conversational agents in order to guarantee the efficient use and successful deployment of these tools. The goal of this study is to provide the state-of-the-art in this field of research and to identify the characteristics that influence the usage of conversational agents in the context of e-commerce through a systematic review of the literature. After reviewing twenty-four pertinent studies, numerous important aspects that have a beneficial impact on consumers' acceptance, contentment, and trust of conversational agents' technology are found.

**Denis Kolodin, Oksana Telychko, Viktor Rekun, Maxym Tkalych, Vladyslav Yamkovyi (2020),** the article's major goal is to figure out how to legally regulate these kinds of civil relationships. The study's findings allow for the formulation of the following conclusions. First, artificial intelligence is being widely applied in the e-commerce industry. Second, the question of creating national and international legal regulations pertaining to the use of artificial intelligence is discussed by state and supranational organizations as well as the business sector. Lastly, there is no appropriate legal framework (to govern these connections) in Ukraine, and the subject of legal regulation of relations related to the use of artificial intelligence in e-commerce is hardly treated in domestic legal theory.

**Anli Suresh, N Jannifer Rani (2020),** finding out consumer preferences for AI applications in various e-commerce domains is the primary goal of the research. Regression analysis and factor analysis were the sampling techniques employed in the study, which included 100 respondents. Simple random sampling was the sampling strategy employed for the investigation. The findings indicate that although there is a strong correlation between the techniques components, there is no association between the usage and reimbursement elements. The three most important applications of AI in e-commerce are voice-activated search, virtual personal shoppers, and real-time product targeting.

**Laith T. Khrasis (2020),** the emergence and integration of technology in enterprises have transformed operations throughout several sectors. Notably, significant technological advancements in e-commerce are intended to affect consumer behavior in favor of particular

businesses and products. Artificial Intelligence (AI) is a valuable and innovative tool that may be utilized to personalize and customize items to fulfill specific needs. This study discovers that although AI systems have helped e-commerce, there is disagreement about whether they are morally sound, particularly when it comes to the idea of explainability. The study used concordance analysis, voyance analysis, and word cloud analysis to obtain a thorough grasp of the concept of explainability as it has been applied by scholars in the domain of artificial intelligence.Driven by a corpus analysis, this work establishes a consistent front, making a significant scientific contribution to the development of Explainable Artificial Intelligence (XAI) models. XAI is a branch of machine learning that examines and attempts to comprehend the models and processes involved in the black box judgments made by AI systems. It offers insights into the factors, decision points, and data that are used in the recommendation process. This study recommended improving ML models to make them more understandable and interpretable in order to develop explainable XAI systems.

**Ballestar, Grau - Carles and Sainz (2019),** by developing efficient algorithms for synthesizing, categorizing, and sorting vast amounts of data, machine learning is a collection of techniques for handling data intelligently. The speed at which the Google search engine performs its operations is unmatched by any human user. This is the application of machine learning, a crucial aspect of artificial intelligence.

**S Nazim Sha, M Rajeswari (2019),** this essay argues that the development of artificial intelligence will determine the fate of every brand in web-based commerce. In other words, people should contact brands at the exact moment they have an idea for a product or service rather than relying solely on search engine results. The analysis is done to show that, in the future, a brand's value will be determined by its ability to acquire customer loyalty through technological advancements like artificial intelligence (AI). The investigation is conducted to show that, in order to identify and explore consumers' five senses during the procurement season in the e-commerce industry, every brand must develop a machine that supports artificial intelligence.

**Xia Song, Shiqi Yang, Zinping Huang,Tao Huang (2019),** this study outlines the current state of artificial intelligence (AI) applications in the field of e-commerce, analyzes its application in the field, and focuses on studying and discussing AI assistants, intelligent

logistics, recommendation engines, and optimal pricing applications through an analysis of an e-commerce intelligent operation example, Baidu Take-Away. It also explores the significant impact that AI has had and will continue to have on e-commerce development.

**Megharani Patil, Madhuri Rao (2019),** the use of machine learning and artificial intelligence approaches for recommender systems, navigation optimization, and product review summarization is the main focus of this work. Hybrid similarity measures are used in the creation of the collaborative recommendation system framework for demographic content. The optimized prefix span algorithm is used to optimize navigation. Product reviews are categorized into positive, negative, and neutral categories using a latent Dirichlet allocation classifier framework based on Gibbs sampling. The results are displayed in a bar chart format. By these contributions, the effort required by users to shop on e-commerce sites will be reduced, and there will be a higher degree of relative efficiency and satisfaction and a better overall user experience.

**Leonardo Vanneschi, David Micha Horn, Mauro Castelli, Ales Popovic (2018),** the main goal of this effort is to create a CS model that will take the position of the pre-risk check in the Risk Solution Services (RSS) e-commerce risk management system. RSS is currently one of the most popular systems for estimating the possibility that a client would default. The pre-risk check incorporates a general CS model, exclusion rules, and data from the order process. The new model must function both independently and in conjunction with the RSS main risk check since it is intended to replace the entire pre-risk check process. This paper presents an application of genetic programming, or GP, to computer science. The model was created using real-world data that a reputable German provider of financial solutions gave. The collection includes order requests that RSS has processed.

# CHAPTER 3

# THEORETICAL FRAMEWORK

# THEORETICAL FRAMEWORK

## 3.1 ARTIFICIAL INTELLIGENCE IN E-COMMERCE

The goal of the large discipline of computer science known as artificial intelligence (AI) is to build intelligent machines that have human-like thought and behavior. Sophisticated algorithms, machine learning, and historical data analytics are utilized to address difficult issues in domains like inventory control, consumer behavior, and customer experience.

The e-commerce industry has seen a shift because of artificial intelligence technology, which has given companies new ways to enhance consumer experience and maximize customer data. Personalized marketing campaigns and product suggestions are just two of the numerous e-commerce operations that AI algorithms are automating.

E-commerce companies are now able to provide better services and increase revenues because of these developments in AI technology. Artificial Intelligence is revolutionizing online commerce through enhanced efficiency, accuracy, and customisation.

## 3.2 TYPES OF AI TECHNOLOGY USED IN E-COMMERCE

*** Natural language processing (NLP):** The goal of natural language processing is to make it possible for computers to understand and produce natural human language.

*** Machine learning (ML):** Algorithms and other statistical approaches are used in machine learning to help computers learn from data and make judgments or predictions without explicit programming. To better interpret data, deep learning models—including transformers and large language models (LLMs) like ChatGPT from OpenAi—layer algorithms**.**

*** Computer vision (CV):** Computers can now understand data from photos and videos thanks to the artificial intelligence discipline of computer vision.

*** Data mining:** Finding data to support AI systems and algorithms is known as data mining.

## 3.3 APPLICATIONS OF AI IN E-COMMERCE

**1. Personalized product recommendations**

Specific product suggestions utilize historical customer behavior, browsing and purchase history data to provide product recommendations.

For instance, NLP-based AI can comprehend the words and visuals used by online buyers and match them with the things they want. Complementary products can be suggested via AI-powered features like "People also purchased" or "Customers also viewed" based on factors like size, color, shape, fabric, and brand.

**2. Chatbots and virtual assistants**

Chatbots and virtual assistants can serve as your e-commerce company's customer care agents, answering questions from clients and making online purchasing easier by offering advice. To comprehend and react to consumer requests, they make use of AI, NLP, and, most recently, generative AI.

Chatbots and virtual assistants can be used for:

*** Make efficient customer interactions:** With their ability to manage straightforward transactions, process orders, and present tailored offers to clients, chatbots and virtual assistants make it simpler to manage a high volume of requests from a variety of point-of-sale (POS) channels, including online, mobile apps, and physical stores.

*** Collect customer data:** Chatbots and virtual assistants have the ability to gather client data, including dimensions and the purpose of the query, which can be used to improve customer support and product development.

*** Enhance checkout:** In order to facilitate client inquiries regarding product specifics, quantities of highly desired items, and shipping details without requiring them to abandon their carts, online firms can also incorporate chatbots into their checkout pages.

*** Provide 24/7 customer service:** Your live support representatives may handle more complicated customer support issues by addressing complex chatbot and virtual assistant responses, which are available around-the-clock. AI can lower your customer support expenses by handling refunds and dispute resolution automatically.

**3. Fraud detection and prevention**

Through data analysis, anomaly detection, and real-time transaction monitoring, artificial intelligence (AI) can help in fraud detection and prevention. The system can identify and highlight anomalous transactions for additional inquiry, such as high-value transfers, multiple transactions in a short period of time, or transactions from unknown places.

Additionally, you may create user profiles using machine learning models based on information about past transactions, device histories, and surfing patterns. Then, you can use this information to compare the behavior of your current customers with that of previous customers to spot fraudulent activity. For instance, if a consumer makes an unexpectedly large purchase from a strange place and it doesn't fit their data profile, the machine learning model may flag it as fraudulent.

**4. Inventory management**

AI can assist you with inventory management by forecasting future demand and evaluating previous sales data. For instance, you may get a sense of what things are selling, where they're going, and if they're coming from a physical store or distribution center by using real-time data from sensors and RFID tags—wireless identification technology utilizing radiofrequency.

By interacting with suppliers, AI-enabled inventory management may automate the procedures involved in inventory replenishment and guarantee timely replenishing. AI may also be used to predict cargo delays and transit periods, and you can notify customers and other stakeholders of these developments.

**5. Dynamic pricing**

With dynamic pricing, you may modify your rates and products in response to rival pricing, worldwide supply and demand, and user behavior in real time. You can predict the best times to provide discounts and use AI to dynamically calculate the minimal discount needed to close a deal.

AI increases the price structuring options available to multichannel retailers. Retailers can adjust prices across various point-of-sale channels based on observed demand by utilizing artificial intelligence. For example, if you sell goods both on your website and on Amazon, you can strategically mark down your products on Amazon during periods of high volume sales through that specific channel.

Additionally, AI helps with assortment intelligence, which is the data-driven improvement of product choice and diversity. Assortment intelligence facilitates easier selection and pricing adjustments by offering insights about your competitors' products and your own. In order to guarantee that your clients always receive the greatest bargain, you may also utilize AI to price match your rivals.

**6. Customer churn prediction**

AI helps e-commerce companies recognize emerging trends and gain a deeper understanding of their customers. As more consumer data becomes available, it can provide insights for improvement by analyzing customer engagements across POS channels.

Through its ability to forecast when users are likely to leave your platform, machine learning can assist your organization in identifying and reducing customer churn. Initially, AI can extract information on consumer churn indicators such website bounce rate, abandoned carts, and browse abandonment. Subsequently, you may automate emails that prompt clients to finish the purchase process, loyalty discounts, and follow-up questions about abandoned carts.

**7. Generative AI**

An artificial intelligence system known as "generative AI" creates text, graphics, or other material in response to commands. Two well-known generating tools are DALL-E and ChatGPT.

Generative AI is being used by e-commerce companies to produce marketing materials at scale and customize them for various target audiences. For instance, a copywriter can use generative AI to tailor a marketing email they create for different customer segments. In order to make sure that their brand language and positioning match the personas of their target audience, marketers should also ask generative AI to provide input.

## 3.4 BENEFITS OF AI IN E-COMMERCE

*** Increased sales:** AI can assist you in developing a more effective sales process by collecting and evaluating client information to customize your sales funnel. You can interact with the appropriate prospects at the right time with the correct message if you have more data. During the 2022 Christmas season, the French delivery service Chronopost used AI-driven advertising, which resulted in an 85% increase in sales income.

*** Better and more personalized customer service:** AI is able to quantify consumer interactions by analyzing huge data from many touchpoints and customer feedback. These data can be used by e-commerce companies to provide a smooth omnichannel customer experience. Gathering consumer information enables you to determine the interests of your customers and develop offers that are specifically tailored to entice them to buy. Virtual sales associates have been used by brands like Ruti, which has increased average order value and conversion rate.

*** Reallocation of time and resources:** Tasks and procedures like emailing, order fulfillment, customer support, and payment processing can all be automated with the use of AI. By lowering personnel expenses and increasing operational effectiveness, automations free up your time for innovation and maintenance. Supply chain management errors can be cut by up to 50% using AI-powered forecasting, while lost revenues and product unavailability can be decreased by up to 65%

*** Increased Loyalty and Retention:** It is more profitable to have repeat consumers than new ones. They frequently make larger purchases and serve as your best brand ambassadors by recommending your goods to their friends, family, and followers.

AI is able to predict consumer trends and gather more information about each customer in addition to providing personalized product recommendations that become more accurate the more a customer purchases with you. Because of this, you can give every single consumer a personalized experience that is tailored to their chosen channels and interactions with your business.

Chatbots are useful for keeping customers around as well. AI-enabled sales representatives may provide fast order details to current clients and automate responses to frequently asked inquiries. This removes any hesitation they might have to make another purchase and produces enjoyable encounters that entice them to return for more.

*** Automated Customer Journeys:** Since every consumer is different and demands a customized experience based on their own preferences and requirements, e-commerce firms find it challenging to meet these demands. AI utilizes all the information you have about your target market or customers to forecast their next actions, such as adding something to their basket, getting in touch with customer service, or posting a review.

Artificial intelligence (AI) technology gets better at anticipating what customers want and when they want it the more it learns about each individual client. Then, it may automate each

step or interaction to match the needs of the consumer. For instance, it could send a customer who has viewed the same product use cases an educational email about the product.

## 3.5 CHALLENGES OF AI IN ECOMMERCE

*** Data privacy:** Artificial intelligence (AI) algorithms use customer data to generate tailored suggestions and forecasts. Data security and privacy are raised by the collection of this information. AI also puts businesses at risk for inadvertent security breaches and disclosures involving private intellectual property.

*** High initial investment:** AI implementation can be expensive. It requires financial outlays for maintenance, expertise, and infrastructure. Furthermore, there's a chance that AI solutions won't always provide a profitable return on investment.

*** Potential for poor-quality customer service:** You might not be able to provide the same level of assistance and empathy as a human customer service agent because AI customer service relies on chatbots. When AI customer service is done incorrectly, it can lead to conflict, unhappy customers, and a bad reputation.

## 3.6 HISTORY OF ARTIFICIAL INTELLIGENCE

Early in the 21st century, preprogrammed scripts and basic automation were the extent of AI's use in e-commerce. During this time, features that facilitated workflows and enhanced user experiences began to appear, including as spellcheck, error detection,and autosave. However, genuine AI capabilities like machine learning and neutral networks were not used in these applications.

Today, machine learning and neutral networks are integrated, which has greatly advanced AI in e-commerce. AI-powered systems that can handle and analyze enormous volumes of data, including text, photos, and video, are now available to businesses. Product suggestions, customized marketing, demand forecasting, fraud detection, and sentiment analysis are just a few of the functions these systems are capable of.

AI in e-commerce has enormous potential to drive innovation and change in the future. In the upcoming years, a number of cutting-edge technologies will influence how e-commerce is conducted.

## 3.7 E-COMMERCE

Using a web browser, customers can directly purchase goods or services from a seller via the internet through online shopping, a type of electronic commerce. It is the procedure for doing online research and making purchases of goods or services. Consumers' preferences for online buying over traditional retail have arisen from their changing lifestyles. Customers can shop while lounging in their homes or while seated in front of a computer by visiting the online retailers. Customers can purchase a wide range of goods from internet retailers.

Online shopping is a significant development in the field of electronic commerce and is expected to become the global craze for buying in the future. The internet, which was earlier discussed as a tool for improving information, is now a crucial component of modern business. Therefore, a company's ability to successfully incorporate this media into their operations determines whether it will survive.

## 3.8 TYPES OF ONLINE SHOPPING SITES

- **Amazon - A**mazon is a multinational technology firm established in Seattle, Washington, with an emphasis on artificial intelligence, cloud computing, and e-commerce. Based on sales and market capitalization, Amazon is the biggest cloud computing platform and e-commerce site globally. On July 5, 1994, Jeff Bezos launched Amazon.com as an online bookstore. Over time, the company expanded to include video games, electronics, furniture, food, toys, and jewellery. The business also owns a television studio, publishing division, etc. Above Apple and Alphabet, Amazon is the world's most valuable publicly traded firm. Amazon ranks second in terms of employment in the US and is the biggest internet corporation globally in terms of revenue.

- **Flipkart -** Based in Bengaluru, India, Flipkart is an electronic commerce company in India. When Sachin and Binny Bansal founded the firm in 2007, its primary focus was on book sales. However, as time went on, the company expanded into other product categories, including consumer electronics, fashion, and lifestyle items. The service's main rivals are Snapdeal, a domestic competitor, and Amazon's Indian

subsidiary. Flipkart controlled 39.5% of the Indian e-commerce market as of March 2017. At first, the company concentrated on selling books online and offering nationwide shipping. Flipkart gained popularity gradually; by 2008, it was getting 100 orders a day.

- **Snapdeal -** An Indian business called Snapdeal is situated in New Delhi. In February 2010, Kunal Bahl and Rohit Bansal founded the business. Snapdeal had 300,000 sellers as of 2014, over 3 crore products in 800+ categories from over 125,000 local, national, and international brands and retailers, with a presence in 6000 towns and cities nationwide. One of the biggest online marketplaces in India is now Snapdeal.

- **Myntra -** Bengaluru, Karnataka, India is home to the headquarters of the Indian fashion e-commerce firm Myntra. The business was established in 2007 with the goal of selling bespoke presents. In the early years, it mostly used a B2B form of operation. The website let users customize items including mouse pads, mugs, T-shirts, and more between 2007 and 2010. Myntra shifted its focus from personalization to fashion and lifestyle products in 2011. By 2012, 350 Indian international brands were available on Myntra. The websites introduced the brands Being Human and Fastrack watches.

- **eBay -** With its headquarters in San Jose, California, eBay Inc. is a multinational American e-commerce company that uses its websites to let businesses and consumers conduct business with one another. Pierre Omidyar launched eBay in the fall of 1995, and it quickly rose to prominence as one of the dot-com bubble's most renowned success stories. As of 2011, eBay was a multibillion dollar company operating in around thirty different nations. The firm is in charge of running the eBay website, which is a global marketplace for businesses and individuals to buy and sell a vast range of products and services. While customers can access the website without charge, sellers must pay fees to list products whenever they reach a certain number of free listings and once more when they sell.

## 3.9 FACTORS INFLUENCING ONLINE SHOPPING BEHAVIOUR OF CUSTOMERS

- **Financial risk -** When people shop online, their biggest concern is always financial danger. The idea that a specific sum of money could be lost throughout the process of completing an online purchase or ensuring a product functions as intended is known as financial risk. Certain age groups are more worried about the security and privacy of the data associated with their bank accounts. Moreover, there is a very real chance that an online transaction could reveal your private financial information. Customers feel as though there is a chance they could lose money when they shop online.

- **Product risk -** The ability to see the product in front of the buyer is a benefit of shopping at a traditional brick and mortar business. This presents the chance to control the expectations a customer has when making a product purchase. To provide customers a realistic expectation of the product, an online retailer provides precise product descriptions and the option to enlarge product images. Customers lose the ability to assess the quality of the products because of the incomplete information that is occasionally provided to them.

- **Convenience -** The best thing about shopping online is convenience. This is the main explanation for why people believe that saving time by purchasing online is a huge benefit to their lives. People can save time and spend it on what they truly want to be doing instead of having to go out and spend more time shopping for a product. Almost any kind of goods may be found online because to the wide range of store types that exist.

- **Non – delivery -** Even though that doesn't usually happen while shopping online One prevalent anxiety among customers is not receiving their things after making an online purchase. Potential loss of a delivery occurs when products are misplaced or damaged, giving buyers cause to fear that they won't receive their purchases within the time limit that the company promised. The consumers' ability to get their delivery depends on a variety of circumstances, such as inefficient shipment and handling throughout transit. Because there are so many things that might go wrong,

a consumer might decide not to finish a transaction based on delivery guarantees. Providing customers with updates and an estimated time of arrival for their bought items helps ease their concerns over shipping and non-delivery.

- **Return policy -** The possibility for customers to return an unwanted item or purchase that doesn't meet their expectations or demands is primarily provided by the return policy. Customers' purchasing habits are greatly hampered in the absence of a good return policy since they are compelled to place an excessive amount of trust in e-commerce, which is difficult to accomplish because of dishonesty and inaccurate product descriptions. Nothing is worse for a customer than to receive a product and feel as though their money was squandered because it falls short of their expectations.

- **Cultural Differences -** Due to the prevalence of online retailers in numerous nations worldwide, cultural disparities and prejudices against internet purchasing are common. Although the values of every culture vary, it is the duty of the online retailer to create an environment that inspires trust in the customer. There are numerous cultural variations that must be taken into consideration. Consumer behavior can be influenced by an understanding of the customer's relationship with online shopping and the Internet in general.

## 3.10 BENEFITS OF ONLINE SHOPPING

- **Convenience** - Comfort is the greatest benefit. You may finish your shopping in a matter of minutes without having to wait in line or find the cashier to assist you with your items. Online retailers reward us with a "no pollution" shopping experience in addition to providing us with the ability to browse around the clock. When purchasing educational materials such as e-books, which become instantaneously downloadable upon successful payment, there isn't a better place to get them. Online-purchased downloadable products also reduce the need for any physical materials at all, which is good for the environment.

- **Better prices -** Online shopping allows you to get better and cheaper bargains since there are no intermediaries involved and you can purchase things straight from the

manufacturer or vendor. It's also simpler to evaluate costs and locate a better offer. In addition, a lot of websites provide rebates and discount coupons. Because online retailers are only compelled to collect sales tax if they have a physical facility in your state, you can save taxes in addition to the better rates.

- **More variety -** The options available on the internet are incredible. Almost any brand or item you're looking for is available. You don't have to pay for travel to follow the newest global trends. Rather of being restricted to your local area, you can purchase from stores in different regions of the state, nation, or even the globe. You have access to a significantly wider variety of colors and sizes than what's available nearby. Additionally, there is a lot more stock, so you can always get the color and size you want. Even for things that are out of stock, some online retailers take orders and ship as soon as they arrive.

- **More control -** When we choose to shop the traditional way, we frequently wind up spending a lot more money than we had anticipated and purchasing unsatisfactory things (since we couldn't find anything better in the store). When you shop online, you can get precisely what you need and want without having to rely on the store's inventory.

- **Easy comparison -** Online shopping makes it incredibly simpler to compare and research products and their prices. For instance, while shopping for appliances, you can get links to the best pricing along with product comparisons and user reviews for every alternative available on the market. For the majority of goods and merchants, we can look up first-hand accounts, ratings, and reviews.

- **No crowds -** If you're anything like me, you detest large crowds when shopping. They can be a major pain, particularly on weekends, during vacations, and during festivals. Additionally, we may feel hurried or rushed when we are pressed together in the throng of consumers. There is no competition for a parking spot. When you shop online, you can steer clear of all of these issues.

- **No pressure -** When we go shopping, we frequently wind up purchasing items that we don't actually need because store employees put pressure on us or utilize their sales techniques to persuade us to buy these things.

## 3.11 LIMITATIONS OF ONLINE SHOPPING

- **Shipping problems and delay -** Unless you pick up your item in person, there's no guarantee that you'll receive it in time—even the biggest and best delivery firms and online shops have bad days. Surprisingly often, things are misplaced, delayed, harmed, or delivered to the incorrect place.

- **Risk of fraud -** Online shopping increases your risk of fraud because fraudulent websites, credit card scams, phishing, hacking, identity theft, and counterfeit goods are all too widespread.

- **Spending too much time online -** You could burn out from all much screen time, especially if your job requires you to look at a computer all day. You may find yourself spending most of the day online when shopping when it becomes a marathon of scrolling and clicking down rabbit holes. Though it's a pleasant place to visit, you probably don't want to live on the internet.

- **Less contact with community -** You won't ever need to leave your house if you conduct all of your business online. This may work well for a while, but there are times when you may want to walk outside, take in some fresh air, switch things up, interact with actual people, engage with your community, and just blend in with the throng. A genuine human connection can sometimes outperform a computer monitor.

- **Returns can be complicated -** While some vendors make the process simple, many make it very difficult for you to return their goods or receive a refund. You frequently won't be compensated for any shipping expenses. Buying in person will save you the trouble of labelling, packing, shipping, tracking, and completing out all the necessary paperwork.

- **No sales assistance -** You're on your own when shopping online, but there's generally someone to assist you in a store. It's just too terrible for you if you have questions or are puzzled. Because you had no one to confide in, you could have to make snap decisions and mistakes you'll later come to regret.

- **No support for local retailers -** While you're on your own when shopping online, assistance is typically available in stores. It's simply too bad for you if you're unclear or have inquiries. Because there was no one to chat to, you could have to make snap decisions and purchases you'll later regret.

## 3.12 TYPES OF ONLINE SHOPPERS

- **Price sensitive shoppers -** Customers that are price conscious seek for good deals, however they may not always seek out the best deals. The most value for the money is what they're searching for. It is truly exceedingly uncommon to find customers that are solely concerned with price. Price-conscious consumers seek out the greatest deal available; they don't necessarily need to pay the lowest price. Consider combining many goods into a value pack as an alternative to trying to cut pricing. Consider pairing complementary products together and offering a discount for purchasing them all at once.

- **Best product shoppers -** While they will also shop around on various websites and retail locations, this kind of online consumer is not looking for the best deal. This customer wants to make sure they receive the highest-quality product that is appropriate for their particular needs. The fear of purchasing the incorrect or inadequately equipped goods is real. These buyers will conduct a thorough investigation to ensure they locate the greatest merchandise available. They are going to contrast specs, go over feature lists, and consult experts.

- **The early adopters -** This kind of internet buyer is completely preoccupied with owning the newest products. For no other reason than that it is more fashionable or

trendy, they will swap out a perfectly acceptable product for another. This kind of internet buyer is typical in the fashion, cosmetics, technology, or any other sector that is undergoing fast change. These consumers seek to remain knowledgeable. They detest being left in the dark, so they must be aware of when the next must-have product is expected to release. They search for methods to be current and knowledgeable about their preferred sector or item.

- **Buy now shoppers -** This kind of internet buyer is well-informed and eager to make a purchase. After finding your store through a Google search, they are making a purchase without comparing it to others. Although they seem like a great kind of customer to have, they can be easily lost. Convenience is crucial to these customers, therefore if your checkout process is difficult or takes too long, they will go elsewhere to make their purchase. This includes forms that don't automatically check for errors, lengthy checkout processes, and sluggish load speeds.

- **Experimental shoppers -** For this kind of internet buyer, the experience is everything. They want to purchase goods from websites that offer a distinctive shopping experience rather than ones that focus only on specs or pricing. Instead of just feeling like another consumer, they want to feel like they are a part of something. These consumers are prevalent in sectors like fashion, cosmetics, and luxury goods where there is a strong emphasis on feeling special and one-of-a-kind. Similar shoppers aspire to work for a company and advance in their career.

## 3.13 PAYMENT GATEWAYS FOR ONLINE SHOPPING

- **Credit cards -** When a user (cardholder) promises to the card issuer that they will pay the amounts plus any additional agreed-upon charges, the card issuer will allow the user to pay a merchant for goods and services. This is known as a credit card. The card issuer, typically a bank, opens a revolving account and extends a credit limit to the cardholder, allowing them to borrow funds for cash advances or merchant payments. Credit cards are the most widely used online payment method since they are a universal payment option. By incorporating a payment gateway into their operations, merchants can use credit cards to reach a global consumer base.

- **Debit cards -** Debit cards are plastic payment cards that can be used in place of cash when making transactions. They are sometimes referred to as bank cards, plastic cards, or check cards. It functions similarly to a credit card, but when a transaction is made, money is transferred right away from the cardholder's bank account. Debit cards are accepted as payment on a variety of websites related to travel, entertainment, dining, takeout, hotel reservations, clothes shopping, grocery shopping, and other activities. Using a debit card, you may conveniently pay for ordinary items or utility bills from the convenience of your home, eliminating the need to visit physical stores.

- **Cash on delivery -** The selling of products by mail order where payment is made upon delivery rather than in advance is known as cash on delivery (COD) or collect on delivery. The products are returned to the retailer if payment is not received. This payment method involves the delivery of ordered products to the buyer's location in exchange for just receiving complete payment. Another term for COD is collect on delivery.

- **Internet banking -** You can easily do banking from the convenience of your home or place of business with internet banking. For the best online banking experience, skip the line and try our easy-to-use, secure Internet Banking option. You can conduct business with simplicity and convenience in a setting that most suits you thanks to internet banking. In addition to many other options, you can pay bills, open fixed and recurring deposits, check balances and transactions, and transfer money.
- **EMI -** As the name implies, an equal monthly instalment, or EMI, is one portion of the payments that must be made in order to pay off an outstanding loan within a certain amount of time. EMI thus helps to keep the products within the reach of the buyer. EMI options are offered to customers by online retailers like Amazon, Flipkart, and others.

## 3.14 TYPES OF AI BASED ON ITS CAPABILITIES

- **Weak AI -** Focuses on a single goal and is limited in what they can do (common in our daily life).

- **Strong AI -** can learn and comprehend any intellectual job that a human can (strong AI is a goal that researchers are working toward)

- **Super AI -** exceeds human intellect and is capable of performing any task more effectively than a person (still a concept).

# CHAPTER 4

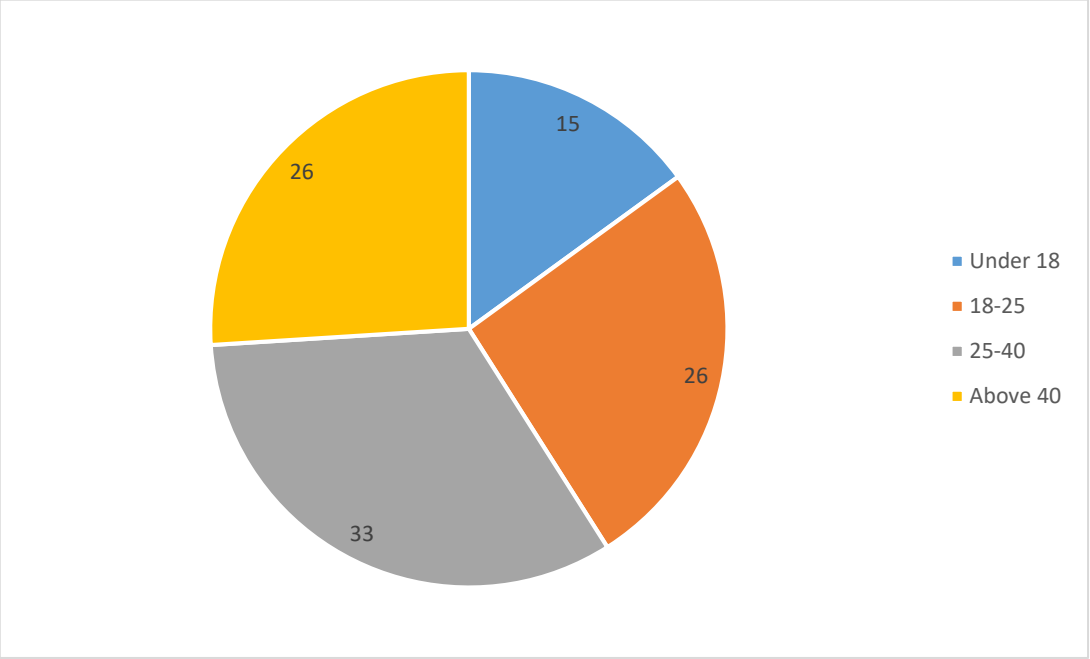
# DATA ANALYSIS AND INTERPRETATION

# DATA ANALYSIS AND INTERPRETATION

**Table 4.1 showing age wise classification of respondents**

| Sl.no | Age group | No. of Respondents | Percentage |
|---|---|---|---|
| 1 | Under 18 | 15 | 15% |
| 2 | 18-25 | 26 | 26% |
| 3 | 25-40 | 33 | 33% |
| 4 | Above 40 | 26 | 26% |

**Figure 4.1 showing age wise classification of respondents**



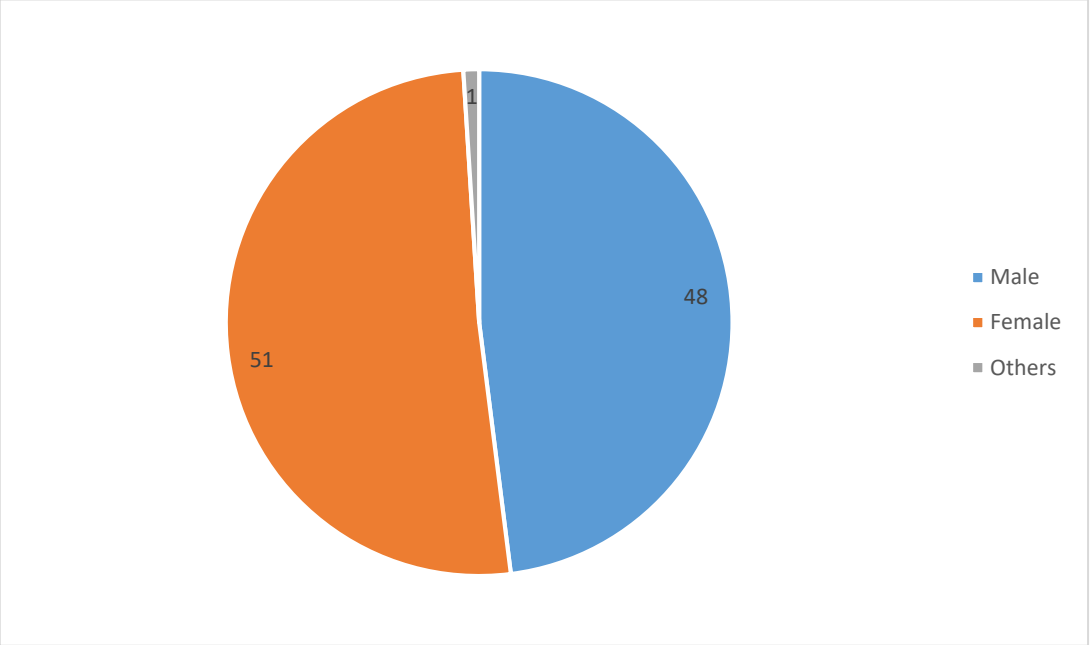

**Interpretation:**

Out of 100 respondents, 33% of samples are in the age group of 25-40 and 26% of samples belongs to the group of 18-25 and above 40. Respondents who are under 18 years old comprised only 15%.

**Table 4.2 showing gender wise classification of respondents**

| Sl.no | Gender | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Male | 48 | 48 |
| 2 | Female | 51 | 51 |
| 3 | Others | 1 | 1 |

**Figure 4.2 showing gender wise classification of respondents**



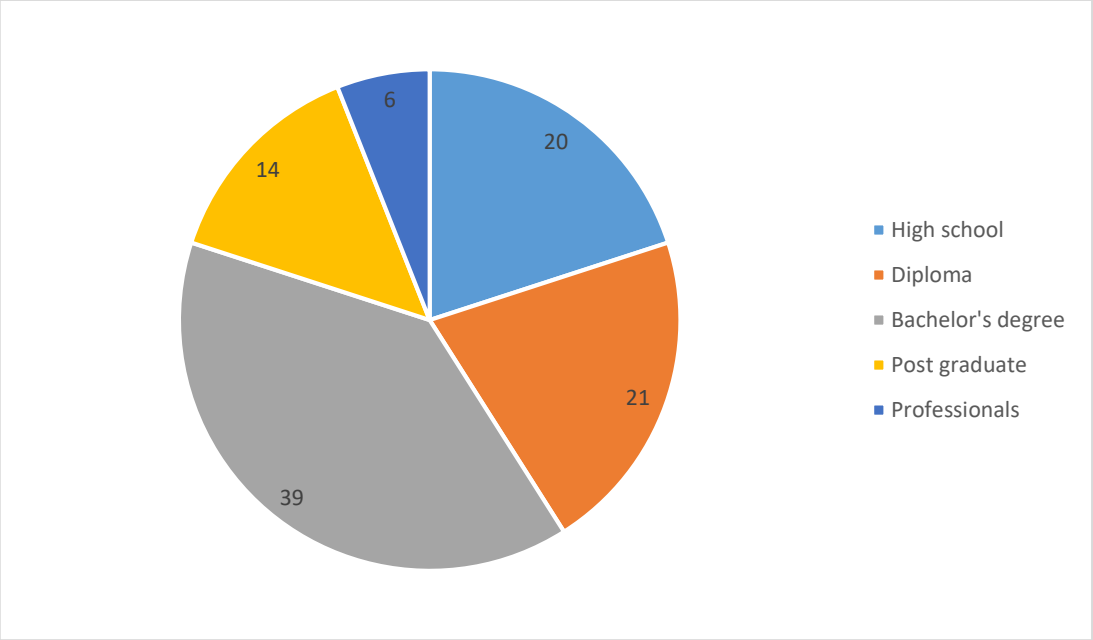

**Interpretation:**

Table 4.2 shows the demographic profile of the respondents. Out of 100 respondents 51% are female, 48% are male and 1% are others. It shows majority of the respondents are female.

**Table 4.3 showing educational level of respondents**

| Sl. No | Particulars | No. of Respondents | Percentage |
|---|---|---|---|
| 1 | High school | 20 | 20% |
| 2 | Diploma | 21 | 21% |
| 3 | Bachelor's degree | 39 | 39% |
| 4 | Post graduate | 14 | 14% |
| 5 | Professionals | 6 | 6% |

**Figure 4.3 showing educational level of respondents**



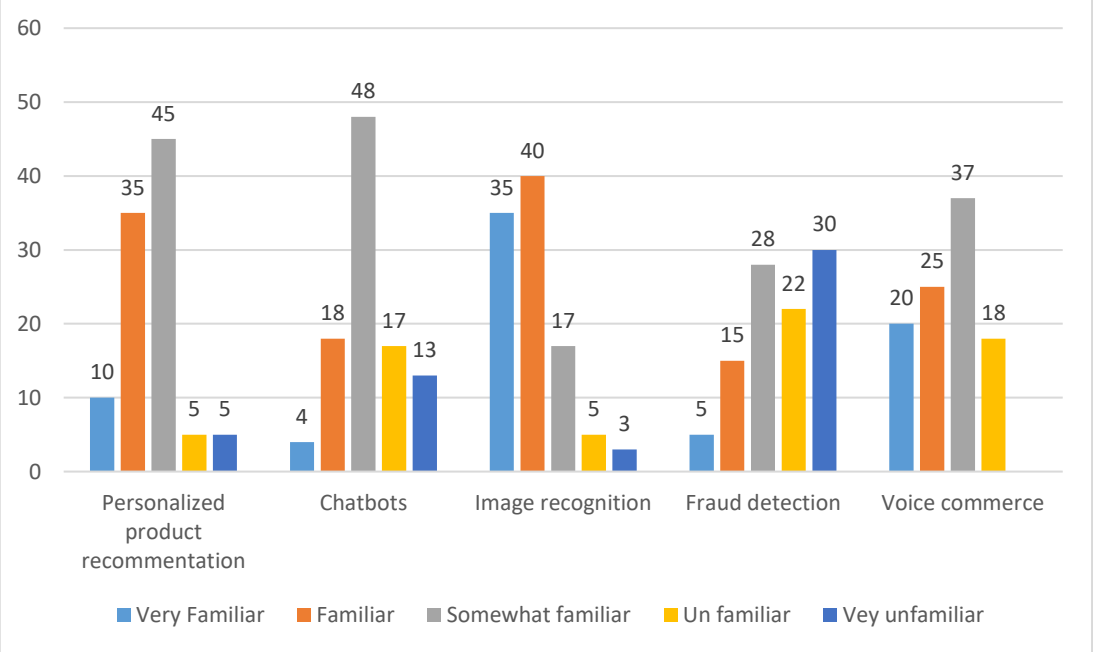

**Interpretation:**

From this analysis, 39% of the respondents belongs to Bachelor's Degree.21% have Diploma, 20% of the sample studied up to high school. 14% belongs to Post graduation and 6% are professionals.

**Table 4.4 showing the customers awareness about AI tools**

| | Very familiar | Familiar | Somewhat familiar | Unfamiliar | Very unfamiliar |
|---|---|---|---|---|---|
| Personalized Product recommendation | 10 | 35 | 45 | 5 | 5 |
| Chatbots | 4 | 18 | 48 | 17 | 13 |
| Image recognition | 35 | 40 | 17 | 5 | 3 |
| Fraud detection | 5 | 15 | 28 | 22 | 30 |
| Voice commerce | 20 | 25 | 37 | 18 | 0 |

**Figure 4.4 showing the customers awareness about AI tools**




**Interpretation:**

The table 4.4 gives the awareness level of respondents about AI tools. From the analysis we could see that most of the respondents are somewhat familiar with the AI tools.

Personalized product recommendation – Most of the respondents are familiar with the AI tool personalized product recommendation. Personalized product recommendations are specific product suggestions utilize historical customer behaivour, browsing and purchase

history data to provide product recommendations. 45% of the respondents are somewhat familiar and only 10% are not familiar with the term.

Chatbots – Chatbots and virtual assistance can serve as e-commerce company's customer care agents, answering questions from clients and making online purchasing easier by offering advice. Majority 48% of the respondents are somewhat familiar with chatbots. Only few of the respondents are unfamiliar with the AI tool chatbots.

Image recognition – It is the ability of software to identify objects, places, people, writing and actions in digital images. Most of the respondents are aware about the term image recognition. Only 8% of the respondents are unfamiliar with the term image recognition.

Fraud detection – It is the process of monitoring transactions and customer behavior to pinpoint and fight fraudulent activity. Majority of the respondents are unfamiliar with the term fraud detection. Only 5% are very familiar with fraud detection.

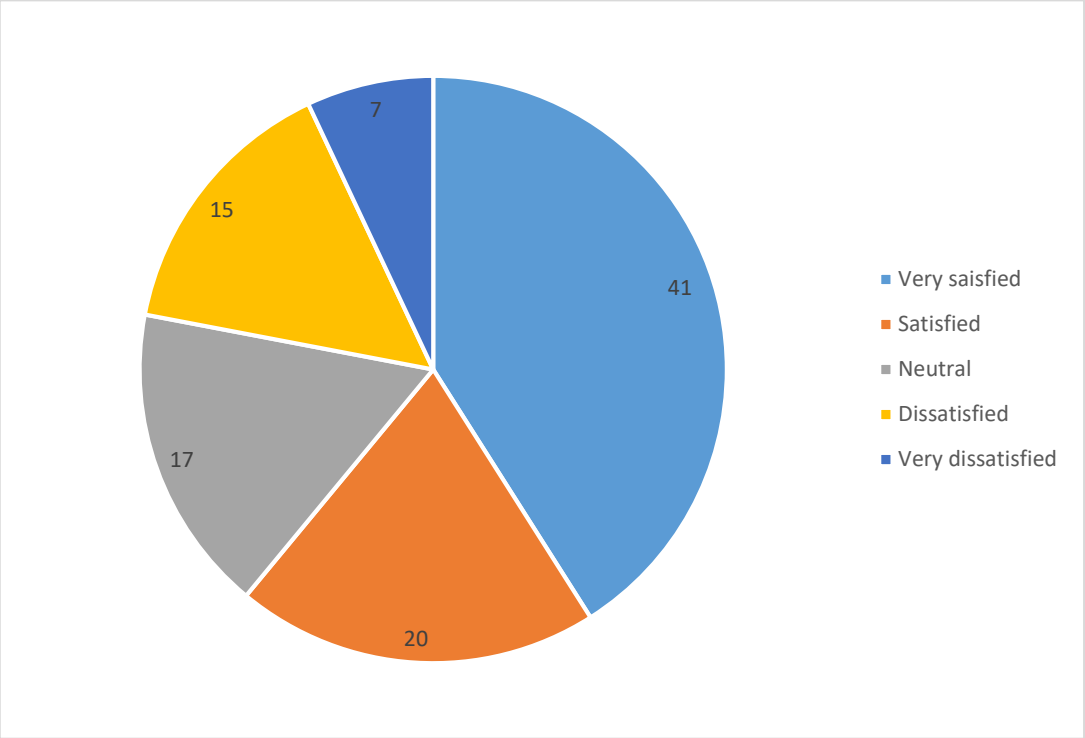
Voice commerce – It is the process or action where customers use voice commands to search and purchase products online. Majority of the respondents are familiar with voice commerce. Only 18% of the respondents are unfamiliar with voice commerce.

So, we can conclude from this analysis that most of the respondents are somewhat familiar with the AI tools like personalized product recommendation, chatbots, image recognition and voice commerce. But majority of the respondents are not familiar with fraud detection.

**Table 4.5 showing the satisfaction of customers with the user friendliness of AI – powered tools**

| Sl.no | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Very satisfied | 41 | 41% |
| 2 | Satisfied | 20 | 20% |
| 3 | Neutral | 17 | 17% |
| 4 | Dissatisfied | 15 | 15% |
| 5 | Very dissatisfied | 7 | 7% |

**Figure 4.5 showing the satisfaction of customers with the user friendliness of AI – powered tools**




**Interpretation:**

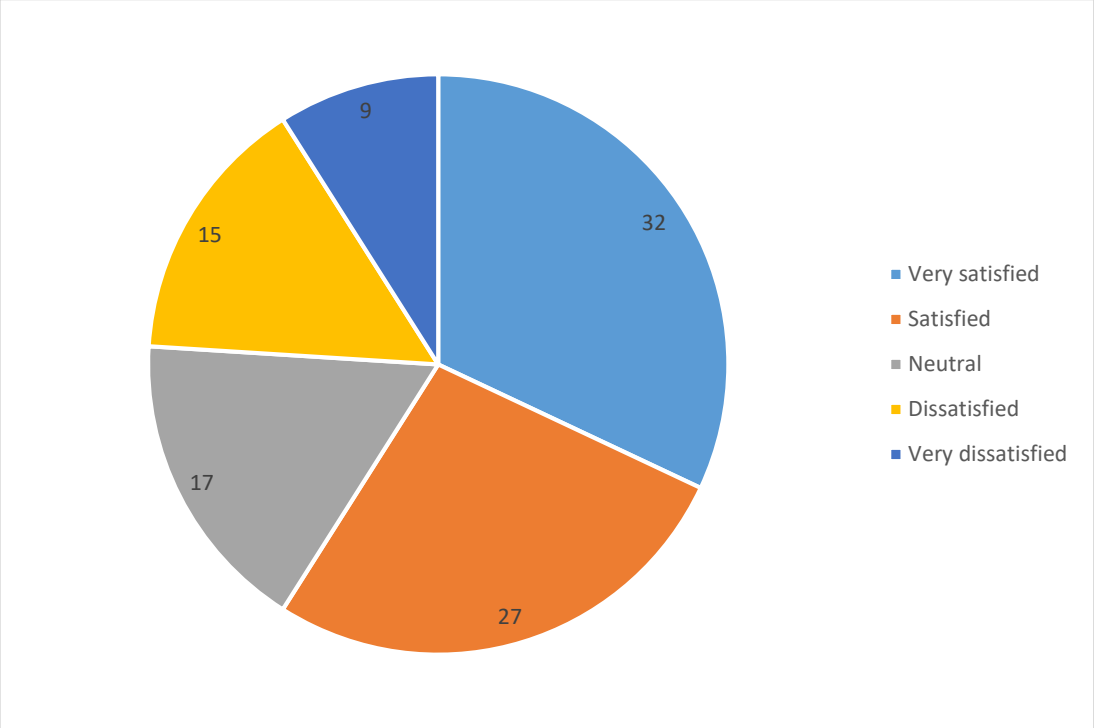
Table 4.5 shows the satisfaction level of customers with the user friendliness of AI tools. From the analysis we could see that 41% of respondents are very satisfied about the user friendliness of AI tools. 20% are satisfied, 17% are neutral opinion and 15% are dissatisfied. Remaining 7% are very dissatisfied.

Thus the analysis leads to a conclusion that most of the respondent were somewhat familiar with the AI tools but they were satisfied about the user friendliness of AI tools. So, AI tools in e-commerce are simple to utilize if you have somefamiliarity with them.

**Table 4.6 showing the integration of AI technologies impacted the overall experience on e-commerce platforms**

| Sl. no | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Very satisfied | 32 | 32% |
| 2 | Satisfied | 27 | 27% |
| 3 | Neutral | 17 | 17% |
| 4 | Dissatisfied | 15 | 15% |
| 5 | Very dissatisfied | 9 | 9% |

**Figure 4.6 showing the integration of AI technologies impacted the overall experience on e-commerce platforms**




**Interpretation:**

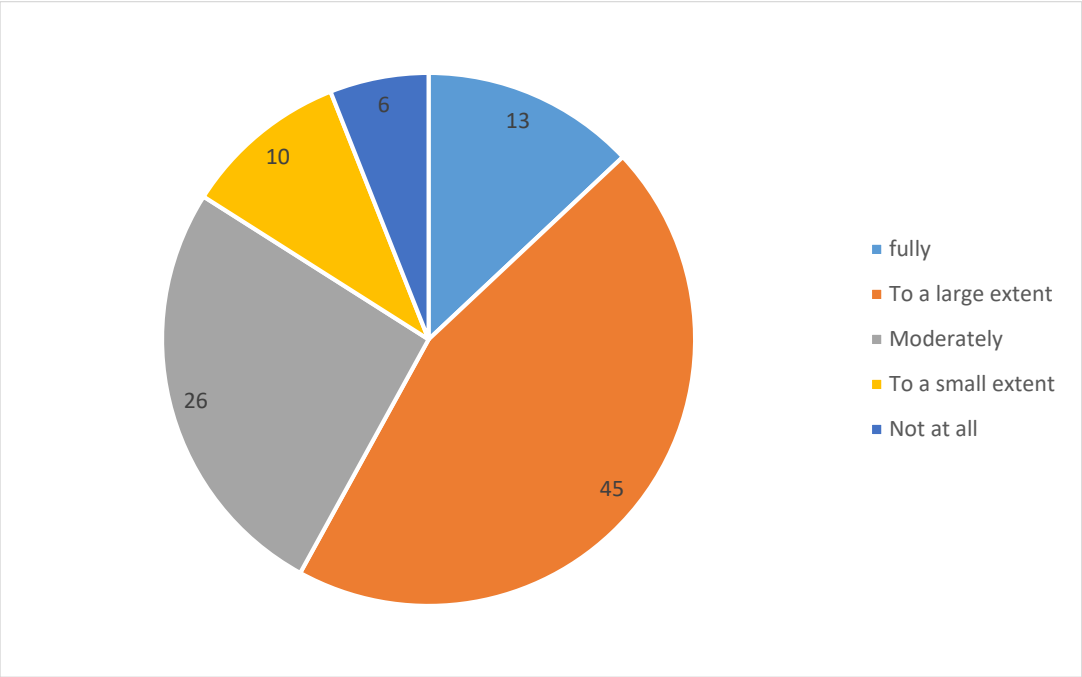
Table 4.6 gives respondent's opinion regarding the integration of AI technologies impacted the overall experience on e-commerce. Out of 100 respondents 32% have very satisfied, 27% have satisfied, 17% are neutral opinion, 15% are dissatisfied and remaining 9% have very dissatisfied.

Thus it could be interpreted that most of the people responded that they feel the integration of AI technologies impacted the overall experience on e-commerce platform. By using AI tools in e-commerce, it will helps to improve customer loyalty and increases the possibility of making more sales.

**Table 4.7 showing AI tools help in the e-commerce development processes**

| Sl.no | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Fully | 13 | 13% |
| 2 | To a large extent | 45 | 45% |
| 3 | Moderately | 26 | 26% |
| 4 | To a small extent | 10 | 10% |
| 5 | Not at all | 6 | 6% |

**Figure 4.7 showing AI tools help in the e-commerce development processes**




**Interpretation:**

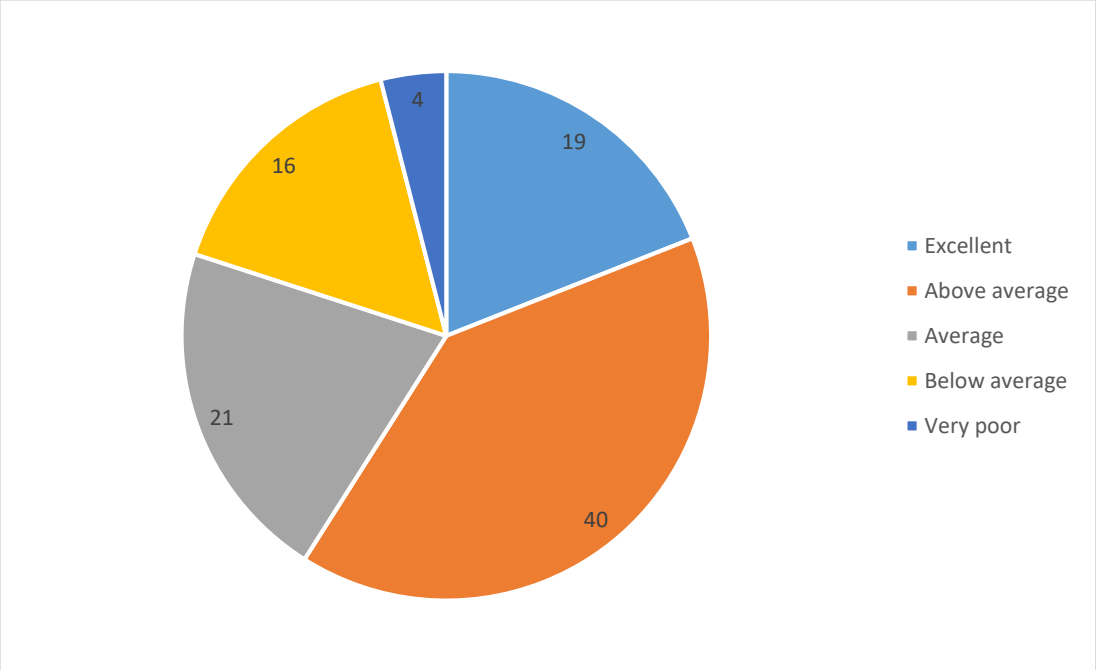
The analysis shows, 45% of the sample believes that AI tools helps in the e-commerce development processes to a large extent. 26% are moderately support that.13% are fully support and 10% are says it helps to a small extent. 6% says it not at all helps in the e-commerce development processes.

It shows most of the opinion that AI tools helps in the e-commerce development processes.AI can improve decision- making by helping to identify new business opportunities, determine effective ways to personalize offerings and outreach based on customer data and prepare for potential challenges.

**Table 4.8 showing the introduction of AI impacted the overall trustworthiness of online transactions**

| Sl.no | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Excellent | 19 | 19% |
| 2 | Above average | 40 | 40% |
| 3 | Average | 21 | 21% |
| 4 | Below average | 16 | 16% |
| 5 | Very poor | 4 | 4% |

**Figure 4.8 showing the introduction of AI impacted the overall trustworthiness of online transactions**




**Interpretation**

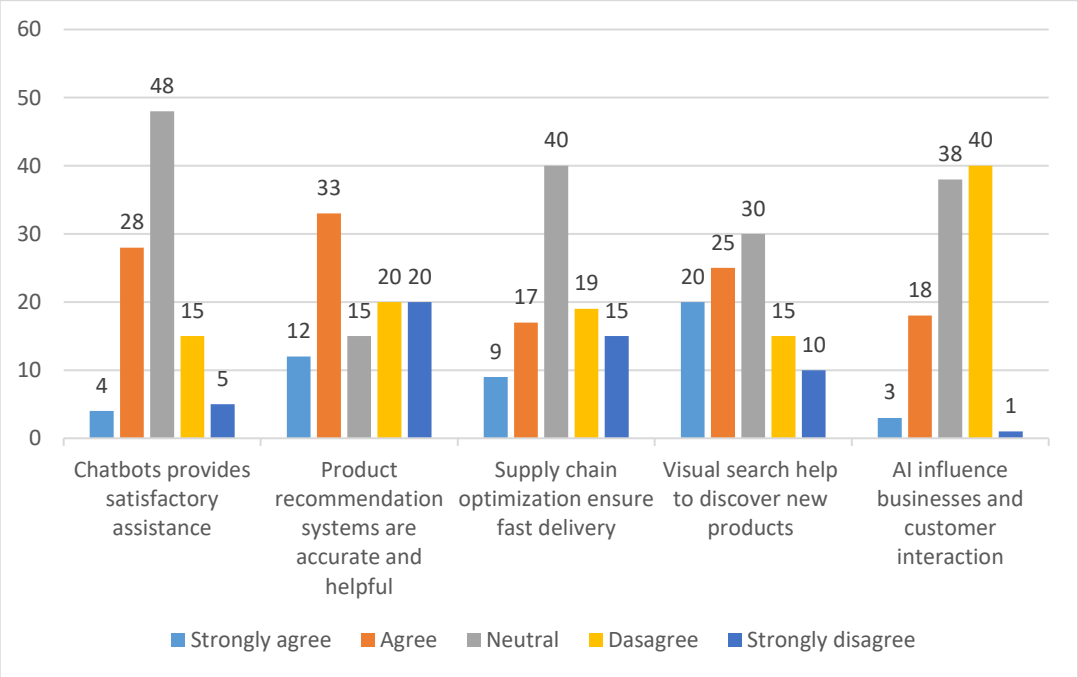
From this analysis, we can analyze that 40% of respondents says that the trustworthiness of online transactions are above average with the introduction of AI. 21% have average, 19% have excellent, 16% have below average and 4% says that very poor.

We can conclude that from the analysis most of the respondents says that the introduction of AI positively impacted the trustworthiness of online transactions. AI tools ensures transparency and explainability, privacy enhanced and fair with harmful bias managed.

**Table 4.9 showing the customers experience with AI tools**

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Chatbots provides satisfactory assistance in answering your questions | 4 | 28 | 48 | 15 | 5 |
| AI-powered product recommendation systems are accurate and helpful to your purchase | 12 | 33 | 15 | 20 | 20 |
| AI helps in supply chain optimization ensure fast standard reliable delivery | 9 | 17 | 40 | 19 | 15 |
| AI powered visual search helped you to discover new products that you was interested in | 20 | 25 | 30 | 15 | 10 |
| AI will influence on online businesses and their customers interaction | 3 | 18 | 38 | 40 | 1 |

**Figure 4.9 showing the customers experience with AI tools**




**Interpretation:**

Table 4.9 shows the customers experience with the AI tools.

Chatbots provide satisfactory assistance in answering your question – Most of them agrees with the statement. Chatbots make efficient customer interactions and provide 24/7 customer service. 20% are disagree with the statement. Because it provides automatic responses without resolution and non – customized solutions without considering the needs of each particular user.

AI –powered product recommendation systems are accurate and helpful to your purchase – 60% agrees with the statement. It provides accurate and helpful product recommendations to your purchases. 40% disagree with the statement. Because it has limited resources, data validity period, cold start, long tail problems and scalability.

AI helps in supply chain optimization ensure fast standard reliable delivery – Majority of the samples are in neutral opinion. Only 9% of the respondents are strongly agree with the statement. 15% are strongly disagree with the statement.

AI powered visual search helped you to discover new products that you was interested in – Majority of the respondents agree with the statement. When you are unsure of the objects name visual search engines can analyze the image to identify the object and provide you with information. Only 25% disagree with the statement. Because sometimes it doesn't exclusively find the exact product pictured in the input image.

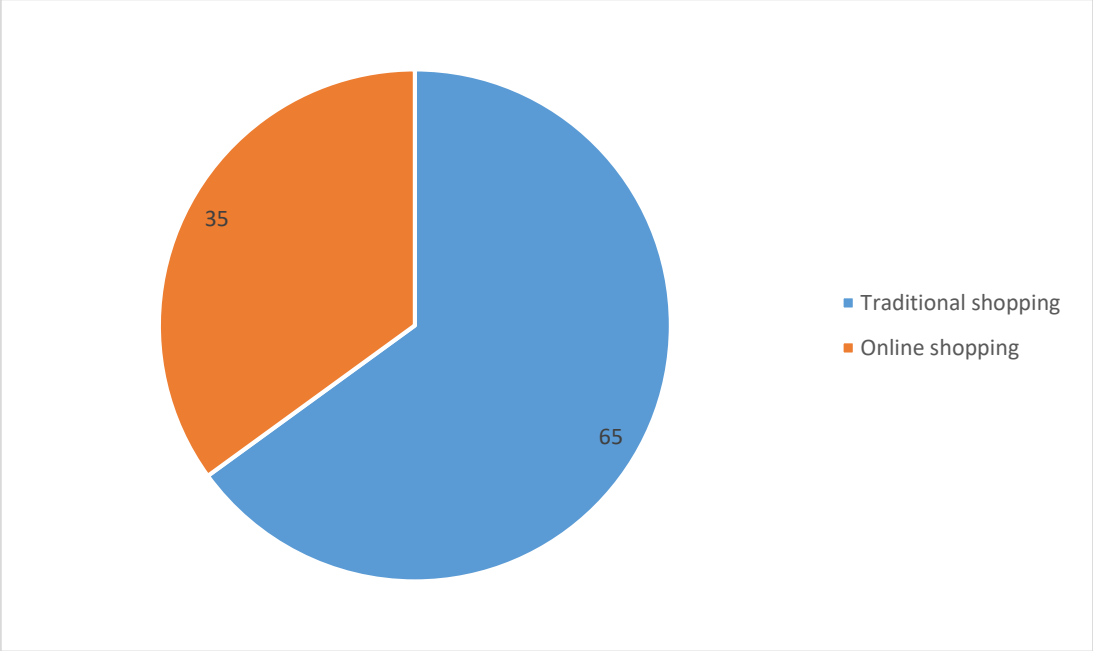
AI will influence on online businesses and their customers interaction – Majority of the respondents agree with the statement. Modern customer relationship strategies are centered around Artificial Intelligence. Al allows companies to gather customer data, increase the number of touchpoints between the business and its customers. Only 1% of the sample strongly disagree with the statement.

We can conclude that most of the respondents have positive experience with AI tools. AI tools improves the customers shopping experience in e-commerce by using chatbots, personalized product recommendations, supply chain optimization and visual search.

**Table 4.10 showing the customer's choice of shopping**

| Sl.no | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| 1 | Traditional shopping | 65 | 65% |
| 2 | Online shopping | 35 | 35% |

**Figure 4.10 showing the customer's choice of shopping**




**Interpretation:**

From the analysis we can say that 65% of the respondents say they enjoy traditional shopping the most and remaining 35% like online shopping.

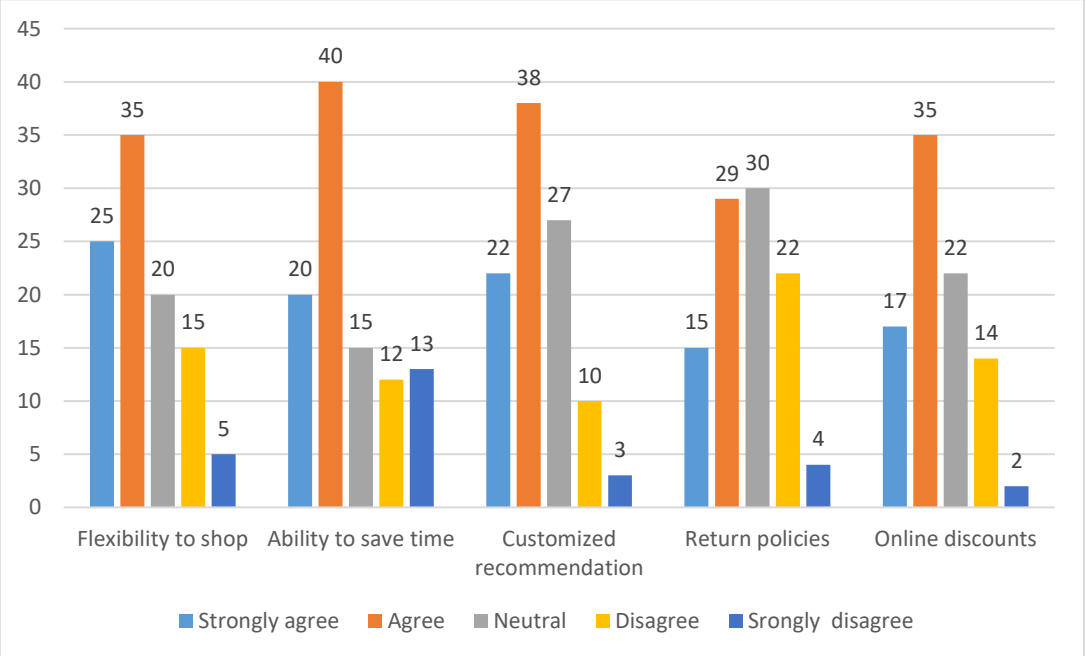
Traditional shopping allows the customers to physically see, touch, and try on products before making a purcahes.it also provides immediate gratification a customers can take their purchases home immediately.

In online shopping you cannot touch and feel the item before buying it, the website may not be trustworthy, you could be delay in shipping and shipping charges may make the products more expensive.

**Table 4.11 showing the reasons to choose online shopping**

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| The flexibility to shop whenever and anywhere | 25 | 35 | 20 | 15 | 5 |
| The ability to save time | 20 | 40 | 15 | 12 | 13 |
| Customized recommendation and personalized shopping experience | 22 | 38 | 27 | 10 | 3 |
| Return policies, simplicity and adaptability | 15 | 29 | 30 | 22 | 4 |
| Influenced by online discounts, promotions and unique offers | 27 | 35 | 22 | 14 | 2 |

**Figure 4.11 showing the reasons to choose online shopping**




**Interpretation:**

From this figure we can analyze that the reasons customers choose online shopping rather than traditional buying.

The flexibility to shop whenever and anywhere – Online sales offer convenience, allowing customers to shop anytime and anywhere. This led to increased sales and customer satisfaction. 80% of the respondents agree with the statement. Only 20% are disagree with the statement.

The ability to save time –One of the primary advantage of online shopping is the ability to save time. Most of the samples agree with the statement. Only 25% disagree with the statement.

Customized recommendations and personalized shopping experience – It is the processes of customizing a user's experience by delivering content tailored to their individual needs, interests and preferences. Most of the respondents agree with the statement. Only 13% disagree with the statement.

Return policies, simplicity and adaptability – It is designed to protect both the business and the customer. They give customers peace of mind when making a purchase by assuring them that they can return the product if it's not possible. Most of the respondents agree with the statement. Only 26% disagree with the statement.

Influenced by online discounts, promotions and unique offers – It can stimulate sales, particularly during periods when demands might low. Most of the samples agree with the statement. Only 16% disagree with the statement.

We can conclude from the analysis that most of the respondents agree that the above factors are the reasons that customers think e-commerce is better than traditional buying.

## Chi square test

1. H0: There is no relationship between consumer experience and AI tools.

In your opinion, the integration of AI technologies impacted your overall experience on e-commerce platforms. * In your opinion, does it help in the E-commerce development processes.

**Crosstab**

Count

| | | In your opinion, does it help in the E-commerce development processes. | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | Fully | Moderately | Not at all | To a large extent | To a small extent | |
| In your opinion, the integration of AI technologies impacted your overall experience on e-commerce platforms. | Dissatisfied | 0 | 3 | 2 | 6 | 4 | 15 |
| | Neutral | 4 | 4 | 0 | 7 | 2 | 17 |
| | Satisfied | 3 | 12 | 0 | 10 | 2 | 27 |
| | Very dissatisfied | 2 | 1 | 3 | 2 | 1 | 9 |
| | Very satisfied | 4 | 6 | 1 | 20 | 1 | 32 |
| Total | | 13 | 26 | 6 | 45 | 10 | 100 |

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 34.555[a] | 16 | .005 |
| Likelihood Ratio | 31.632 | 16 | .011 |
| N of Valid Cases | 100 | | |

a. 19 cells (76.0%) have expected count less than 5. The minimum expected count is .54.

**Interpretation:**

The null hypothesis is accepted because the value is less than 0.05. There is no relationship between customer's experience and AI tools.

2. HO: There is no relationship between educational qualification and AI tools.

**Educational qualification * How satisfied are you with the user-friendliness of AI-powered tools.**

**Crosstabulation**

Count

| | | How satisfied are you with the user-friendliness of AI-powered tools. | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | Dissatisfied | Neutral | Satisfied | Very dissatisfied | Very satisfied | |
| Educational qualification | Bachelor's degree | 8 | 5 | 6 | 2 | 18 | 39 |
| | Diploma | 1 | 3 | 5 | 2 | 10 | 21 |
| | High school | 3 | 3 | 4 | 0 | 10 | 20 |
| | Post graduate | 2 | 4 | 5 | 1 | 2 | 14 |
| | Professionals | 1 | 2 | 0 | 2 | 1 | 6 |
| Total | | 15 | 17 | 20 | 7 | 41 | 100 |

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 20.259[a] | 16 | .209 |
| Likelihood Ratio | 20.830 | 16 | .185 |
| N of Valid Cases | 100 | | |

a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .42.

**Interpretation:**

The null hypothesis is rejected because the value is greater than 0.05. There is relationship between educational qualification and AI tools.

3. HO: There is no relationship between age and AI tools.

**Age * How satisfied are you with the user-friendliness of AI-powered tools. Crosstabulation**

Count

| | | How satisfied are you with the user-friendliness of AI-powered tools. | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | Dissatisfied | Neutral | Satisfied | Very dissatisfied | Very satisfied | |
| Age | 18-25 | 1 | 4 | 9 | 3 | 9 | 26 |
| | 25-40 | 6 | 7 | 6 | 1 | 13 | 33 |
| | Above 40 | 7 | 4 | 3 | 3 | 9 | 26 |
| | under 18 | 1 | 2 | 2 | 0 | 10 | 15 |
| Total | | 15 | 17 | 20 | 7 | 41 | 100 |

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 16.447[a] | 12 | .172 |
| Likelihood Ratio | 17.404 | 12 | .135 |
| N of Valid Cases | 100 | | |

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is 1.05.

**Interpretation:**

The null hypothesis is rejected because the value is greater than 0.05. There is relationship between age AI tools.

# CHAPTER 5

# FINDINGS, SUGGESTIONS AND CONCLUSION

# FINDINGS, SUGGESTIONS AND CONCLUTION

## 5.1 Findings of the study

The majority of the findings of the analysis are as follows:

- Majority of the respondents are somewhat familiar with the AI tools.
- Majority of the respondents were aware about AI tools like personalized product recommendation, chatbots, image recognition and voice commerce.
- Majority of the respondents (41%) were very satisfied about the user friendliness of AI-powered tools.
- Majority of the respondents (32%) are very satisfied with the integration of AI technologies impacted the overall experience on e-commerce platform.
- Majority of the respondents (45%) are agree that AI tool helps in the e-commerce development processes to a large extent.
- Majority of the sample responds (40%) that the trustworthiness of online transactions are above average with the introduction of AI.
- Majority of respondents are neutral opinion about their experience with AI tools.
- Most of the sample responds that neutral opinion about chatbots provide satisfactory assistance in answering their questions.
- Majority of the respondents agree that AI- powered product recommendation systems are accurate and helpful to their purchase.
- Most of the people says neutral opinion that AI helps in supply chain optimization fast standard delivery.
- Majority of the respondents are of neutral opinion that AI powered visual search helps them to discover new products that they are interested in.
- Majority of the respondents agree that AI will influence on online businesses and their customer interaction.
- Majority of the respondents (65%) enjoy traditional shopping the most.
- This analysis shows that the reasons customers choose online shopping rather than traditional buying are flexibility to shop, ability to save time, customized product recommendation and personalized shopping experience, return policies, simplicity and adaptability, online discounts, promotions and unique offers.
- The study reveals that educational qualification and age has direct relationship between AI tools.

- The study also reveals that customers experience has no relationship between AI tools.
- From this study we can say that with the introduction of AI tools in e-commerce will increase the customer's demand.
- Majority of the respondents are in the age group between 25 – 40.
- Majority of the respondents are female.
- Majority of the respondents have Bachelor's Degree

## 5.2 SUGGESTIONS OF THE STUDY

- Majority of the respondents have somewhat familiar with AI tools. So, it is necessary to have a clear and specific knowledge about AI tools in order to reduce risk in e-commerce.
- It is necessary to offer more programmes for increasing the awareness level of people towards AI tools.
- Most of the respondents choose traditional shopping. Therefore, it is necessary to take possible measures to attract customers towards online shopping.
- To provide educational programmes like demonstration on how to use AI tools in e-commerce. It will help customers make purchases online easily.
- Subjects connected with artificial intelligence must be included in the curriculum.

## 5.3 SUGGESTIONS FOR FUTURE RESEARCH

This study is about the role of AI tools in shaping consumer demand in e-commerce. So, it covers the area about the customer's knowledge, experience and demand about AI tools in e-commerce. Future research can focus on artificial intelligence in product pricing, productivity and sales forecasting.

Due to time constraints and specific conditions under which the study has been conducted the data collected was from limited area and from limited numbers. Only 100 questionnaires were used to collect data. For proper generalization and accurate results, the sample size should be increased and the data should be collected from different places in future studies.

## 5.4 CONCLUSION

AI tools is a new experience and has greatly impacted the lives of consumers in its short time of existence. AI tools has made consumers more efficient and effective in e-commerce. AI tools also helps to create consumer demand in e-commerce.

AI tools is a wide concept. In recent years, it has gained importance and been used in numerous spheres of life, including business, biology, healthcare, and information technology. Businesses can benefit from it in various ways, including more productivity, better customer decision-making, and improved customer experience.

The findings clearly indicate that AI tools helps in the e-commerce development processes to a large extent. AI can improve decision- making by helping to identify new business opportunities, determine effective ways to personalize offerings and outreach based on customer data and prepare for potential challenges. From the analysis we could see that most of the respondents are somewhat familiar with the AI tools but they were satisfied about the user friendliness of AI tools. So, AI tools in e-commerce are simple to utilize if you have some familiarity with them. The integration of AI technologies impacted the overall experience on e-commerce platform. By using AI tools in e-commerce, it will helps to improve customer loyalty and increases the possibility of making more sales. The trustworthiness of online transactions are above average with the introduction of AI. AI tools ensures transparency and explainability, privacy enhanced and fair with harmful bias managed. AI tools improves the customers shopping experience in e-commerce by using chatbots, personalized product recommendations, supply chain optimization and visual search. From the study we say that there is a significance relationship between age, educational qualifications and AI tools.

The study also gives what are the reasons consumers think online shopping is better than traditional shopping like flexibility to shop, saves time, discounts etc. Therefore conduct more programmes for improving customer’s demands towards e-commerce.

# BIBLIOGRAGHY

## BIBLIOGRAPHY

## BOOKS


- Strene, J. (2019). Artificial Intelligence for Marketing: Practical Applications. Wiley.
- Davenport, T.H.(2018). The AI Advantage: How to Put the Artificial Intelligence Revolution to Work. MIT press.
- Philips, J. (2016). E-commerce Analytics: Analysis and Improve the Impact of your Digital Strategy. FT Press.


## JOURNALS


- Patil, Megharani, and Madhuri Rao. "Studying the contribution of machine learning and artificial intelligence in the interface design of e-commerce site." *Smart Intelligent Computing and Applications: Proceedings of the Second International Conference on SCI 2018, Volume 2*. Springer Singapore, 2019.
- Kalia, Prateek. "Artificial intelligence in e-commerce: a business process analysis." *Artificial Intelligence* (2021): 9-19.
- Srivastava, A. "The Application & Impact of Artificial Intelligence (AI) on E-Commerce." *Contemporary Issues in Commerce & Management* 1.1 (2021): 165-175.
- Micu, Adrian, et al. "The impact of artificial intelligence use on the e-commerce in Romania." *Amfiteatru Economic* 23.56 (2021): 137-154.
- Fedorko, Richard, Štefan Kráľ, and Igor Fedorko. "Artificial Intelligence and Machine Learning in the Context of E-commerce: A Literature Review." *Communication and Intelligent Systems: Proceedings of ICCIS 2021* (2022): 1067-1082.
- Song, Xia, et al. "The application of artificial intelligence in electronic commerce." *Journal of Physics: Conference Series*. Vol. 1302. No. 3. IOP Publishing, 2019.
- Wang, Chenxing, et al. "An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce." *Heliyon* 9.8 (2023).
- Bawack, Ransome Epie, et al. "Artificial intelligence in E-Commerce: a bibliometric study and literature review." *Electronic markets* 32.1 (2022): 297-338.
- Khrais, Laith T. "Role of artificial intelligence in shaping consumer demand in E-commerce." *Future Internet* 12.12 (2020): 226.

- Nguyen, Linh. "Artificial intelligence in e-commerce: progressive AI application as a solution to improve customer experience in the E-commerce industry." (2023).
- Pallathadka, Harikumar, et al. "Applications of artificial intelligence in business management, e-commerce and finance." *Materials Today: Proceedings* 80 (2023): 2610-2613.
- Raj, SS Onyx Nathanael Nirmal, et al. "ARTIFICIAL INTELLIGENCE IN E-COMMERCE: A LITERATURE REVIEW." *ARTIFICIAL INTELLIGENCE* 21.01 (2023).
- Păvăloaia, Vasile-Daniel, and Sabina-Cristiana Necula. "Artificial intelligence as a disruptive technology—a systematic literature review." *Electronics* 12.5 (2023): 1102.
- Policarpo, Lucas Micol, et al. "Machine learning through the lens of e-commerce initiatives: An up-to-date systematic literature review." *Computer Science Review* 41 (2021): 100414.
- Alnefaie, Ahlam, et al. "An overview of conversational agent: applications, challenges and future directions." *17th International Conference on Web Information Systems and Technologies*. SCITEPRESS-Science and Technology Publications, 2021.
- Kolodin, Denis, et al. "Artificial intelligence in E-commerce: Legal aspects." *III International Scientific Congress Society of Ambient Intelligence 2020 (ISC-SAI 2020)*. Atlantis Press, 2020.
- Suresh, Anli, and N. Jannifer Rani. "Consumer perception towards artificial intelligence in E-commerce with reference to Chennai city, India." *Journal of Information Technology and Economic Development* 11.1 (2020): 1-14.
- Ballestar, María Teresa, Pilar Grau-Carles, and Jorge Sainz. "Predicting customer quality in e-commerce social networks: a machine learning approach." *Review of Managerial Science* 13 (2019): 589-603.
- Vanneschi, Leonardo, et al. "An artificial intelligence system for predicting customer default in e-commerce." *Expert Systems with Applications* 104 (2018): 1-21.
- Zhang, Dan, L. G. Pee, and Lili Cui. "Artificial intelligence in E-commerce fulfillment: A case study of resource orchestration at Alibaba's Smart Warehouse." *International Journal of Information Management* 57 (2021): 102304.
- Abrardi, Laura, Carlo Cambini, and Laura Rondi. "Artificial intelligence, firms and consumer behavior: A survey." *Journal of Economic Surveys* 36.4 (2022): 969-991.

- Nichifor, Eliza, Adrian Trifan, and Elena Mihaela Nechifor. "Artificial intelligence in electronic commerce: Basic chatbots and the consumer journey." *Amfiteatru Economic* 23.56 (2021): 87-101.
- Pardeshi, Karan, Pankaj Pathak, and Zeid Alsadoon. "Applications of artificial intelligence and machine learning in E-commerce." *AIP Conference Proceedings*. Vol. 2736. No. 1. AIP Publishing, 2023.
- Nawaz, Muhammad Arif, Dolat Khan, and Qaisar Maqbool Khan. "Role of Artificial Intelligences in Shaping Customer Demand in E-commerce: A Case Study of Pakistan." *Annals of Human and Social Sciences* 4.4 (2023): 626-635.
- Nazim Sha, S., and M. Rajeswari. "Creating a brand value and consumer satisfaction in E-commerce business using artificial intelligence with the help of vosag technology." *International Journal of Innovative Technology and Exploring Engineering* 8.8 (2019): 1510-1515.


**WEBSITES**


- www.google.com
- https://scholar.google.com
- www.researchgate.net
- https://www.grovecommerce.com
- https://www.tableau.com
- https://www.aivo.co

# ANNEXURE

# QUESTIONNARIE

1. Age:

   ☐ Under 18

   ☐ 18-25

   ☐ 25-40

   ☐ Above 40

2. Gender:

   ☐ Male

   ☐ Female

   ☐ Others

3. Educational qualification:

   ☐ High school

   ☐ Diploma

   ☐ Bachelor's degree

   ☐ Professional

4. Rate to indicate how familiar you are with each item.

| | Very familiar | Familiar | Somewhat familiar | Unfamiliar | Very unfamiliar |
|---|---|---|---|---|---|
| Personalized product recommendation | | | | | |
| Chatbots | | | | | |
| Image recognition | | | | | |
| Fraud detection | | | | | |
| Voice commerce | | | | | |

5. How satisfied are you with the user-friendliness of AI-powered tools.

   ☐ Very Satisfied

   ☐ Satisfied

   ☐ Neutral

   ☐ Dissatisfied

   ☐ Very dissatisfied

6. In your opinion, the integration of AI technologies impacted your overall experience on e-commerce platforms.

☐ Very satisfied

☐ Satisfied

☐ Neutral

☐ Dissatisfied

☐ Very dissatisfied

7. In your opinion, does it help in the e-commerce development processes

   ☐ Fully

   ☐ To a large extent

   ☐ Moderately

   ☐ To a small extent

   ☐ Not at all

8. How has the introduction of AI in e-commerce impacted the overall trustworthiness of online transactions

   ☐ Excellent

   ☐ Above average

   ☐ Average

   ☐ Below average

   ☐ Very poor

9. When you shop online what are your experiences with the following

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Chatbots provides satisfactory assistance in answering your question | | | | | |
| AI-powered product recommendation systems are accurate and helpful to your purchase | | | | | |
| AI helps in supply chain optimization to ensure fast standard reliable delivery | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| AI powered visual search (voice and image searching) helped you to discover new products that you was interested in | | | | | |
| AI will influence on online businesses and their customers interaction | | | | | |

10. Which kind of shopping would you consider you enjoy the most

    ☐ Traditional shopping

    ☐ Online shopping

11. In your opinion, why most of the customers think e-commerce is better than traditional buying

| | Strongly agree | Agree | Neutral | Disagree | Strongly dis agree |
|---|---|---|---|---|---|
| When deciding to use e-commerce the flexibility to shop whenever and anywhere is important | | | | | |
| The ability to save time when purchasing online affects your preference for e-commerce | | | | | |
| The value customized recommendations and a personalized shopping experience when selecting e-commerce | | | | | |
| The significations of return policies, simplicity and adaptability is | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| influencing your decision to shop online | | | | | |
| Your taste for e-commerce might be influenced by online discounts, promotions and unique offers | | | | | |