

**The Role of AI – driven Personalised Marketing for Customer Retention in the  
European E-commerce Industry (Ireland)**

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MSc in International Business

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## **Abstract**

Title of Thesis: The Role of AI-driven Personalised Marketing for Customer Retention in the European E-commerce Industry (Ireland)

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The evolution and increasingly competitive landscape of the e-commerce industry, particularly in Ireland, has driven the adoption of advanced strategies and technologies such as Artificial Intelligence (AI) to enhance customer retention. This research investigates the effectiveness of AI-driven personalized marketing in achieving customer loyalty in the Irish e-commerce sector. The aim is to explore the relationship between AI-driven personalized marketing and customer satisfaction, with a focus on understanding its impact on consumer behavior and retention rates. The study also investigates the specific AI tools and techniques that prove most effective in personalized marketing, as well as examining the benefits and challenges from the consumer's perspective.

A Quantitative method (Survey) was used to collect primary data for this research. The survey targeted 80 e-commerce customers in Ireland. The findings reveal a positive correlation between personalized marketing and customer retention, highlighting the significance of AI in tailoring consumer experiences. However, concerns regarding data privacy and ethical considerations were also prominent, suggesting areas for future research and development. The study concludes that AI-driven personalized marketing is a viable tool for enhancing customer loyalty, but its implementation must be balanced with ethical practices to maintain consumer trust and confidence.

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I am profoundly thankful to God Almighty for providing me with the strength and perseverance to complete this journey. I would also like to express my deepest gratitude to my supervisor, Eileen Tan, whose guidance, support, and invaluable insights have been instrumental throughout this thesis. Her unwavering commitment and willingness to assist, even during challenging times, have been greatly appreciated.

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## **List of Abbreviations**

**AI** – Artificial Intelligence

**CRM** – Customer Relationship Management

# Chapter 1 - Introduction

## 1.1 Research Background

To run a successful business, you need customers. Customers are crucial to any business, and the common challenge companies face is how to retain them (Sujata et al., 2019). We are in a digital world where consumers opt for the easiest and most cost-effective way to buy any products they want, anytime and anywhere, even before they can fully articulate what they want or need. Now, like never before, customers have a voice. This is because they have a variety of alternative companies at their disposal, that offer the same service or product that are more affordable with exciting and user-friendly e-commerce websites. Companies are constantly challenged by competition to not only attract their customers but to retain and enhance their customer experience and thereby customer satisfaction (Kumar, 2019). This is where personalized marketing comes into play.

Personalized marketing is becoming a popular trend in recent businesses. This is because of the drastic growth in technological enhancement and the large gathering of data from consumers, as well as the change in individual purchasing power. Personalized marketing is becoming more than simply a means of standing out in today's highly competitive and saturated consumer market; it is an absolute must, especially for e-commerce companies (Dangi & Malik, 2017). It has been demonstrated that personalized marketing is a very successful strategy for adding value and developing connections with certain target markets. The procedure entails sending consumers personalized communications that effectively grab their attention and may improve sales results (Dangi & Malik, 2017). AI-driven customized marketing strategies that leverage CRM techniques are a successful way to improve client loyalty and boost sales (Priyanga, 2023).

Customer retention is the ability of a company to make its customers stay loyal to their products or services over a period (Christiansen *et al*, 2014). High customer retention is a good indicator that customers will return to repurchase the products or services (Leung et al., 2021). Businesses would rather invest more in retaining their existing customers as it is more expensive to attract new customers to the business (Darzi and Bhat, 2018). Technological developments especially in

artificial intelligence (AI) have tremendously transformed customer retention, making it easier to build trust and loyalty with customers. AI is changing businesses' strategies, processes, activities, interactions, and relationships, particularly in marketing (Hermann, 2022).

What is AI, first, before we delve further into its use in personalised marketing? Different research can describe it in different ways. To put it simply, according to Copeland (2019), Artificial Intelligence is the discipline of science and technology that develops intelligent computers and machines to carry out a variety of jobs that call for human intellect. It is a system that mimics many human-capable tasks. AI achieves exceptional performance by interpreting data accurately, learning from the data, and applying the learnings to achieve a specific objective of an organization (Kaplan and Haenlein, 2019, p. 17). The numerous functions of artificial intelligence in tailored marketing can play a part in helping any business retain customers will be examined in this study.

The primary goals of customised marketing are to increase client satisfaction, anticipate specific needs and preferences, and encourage future sales growth (Ramnarayan, 2021). Personalized marketing can only occur on digital media, online media or online contacts such as social media platforms. Personalized marketing can only happen in the social world and not in the real traditional media.

With traditional businesses connecting themselves with digital platforms, AI-driven personalised marketing becomes essential for making specific decisions in the post-pandemic era (Mollie, 2022). The growth of cross-border e-commerce has been made possible by enhanced payment and logistics technologies. The idea of omnichannel retailing has altered the shopping experience by blurring the distinctions between the online and offline worlds. The primary motivators are reduced costs on the internet and the easy shipping choices provided by e-commerce, which include free returns and convenient delivery schedules. This research illustrates the adaptability, resiliency, and steady evolution of European e-commerce considering the estimate that online sales will account for 30% of total retail sales in Western European countries by 2030 (Mollie, 2022).

Amid this changing environment, AI-driven personalized marketing assumes a central role as a crucial instrument for post-pandemic strategic decision-making. The ongoing development of AI technology provides advanced tools to receive data-driven insights for tailored interactions (Teixeira *et al.*, 2023). However, moral issues take the front stage, especially when it comes to protecting customer privacy. The usage of consumer data is one of the main ethical issues (Agrawal *et al.*, 2019; Mazurek & Małagocka, 2019).

Marketers need to make sure that information is gathered with express consent and utilized openly to honor consumer choices. This entails being transparent about the procedures used to acquire data and the intended use of that data. AI programs can only be as objective as the data they are given. The AI's judgments and forecasts will be biased if the input data has biases in it. This may result in some groups being unfairly targeted or left out of marketing initiatives (Laux *et al.*, 2021). Transparency and explicability are becoming increasingly important for AI systems, particularly when those systems make decisions that affect consumers. Transparency and explicability are becoming increasingly important for AI systems, particularly when those systems make decisions that affect consumers. Marketers ought to be able to describe how artificial intelligence renders judgments or provides suggestions. Concerns regarding deceptive marketing tactics are raised by AI's capacity to forecast and affect consumer behavior (Lopez & Garza, 2023). Businesses can use AI for data collecting audience segmentation, content personalization, and campaign automation by carefully balancing customization and privacy (Teixeira *et al.*, P. 257, 2024). With the help of this strategic integration, brands can now develop marketing programs that are more individualized and resonate with consumers, strengthening customer relationships and enhancing retention rates in the ever-changing digital landscape.

Although artificial intelligence is well known and utilized by many businesses either through third party technology platforms or directly through their e-commerce websites, personalised marketing is a type of marketing that is still evolving and has not been taken full advantage of.

## **1.2 Research Aim and Objective**

This research aims to assess how effective AI-driven personalized marketing is in enhancing customer retention in the e-commerce industry of Ireland (A western European country). It is important to understand how AI in personalized marketing can help businesses retain customers, but this research area is under-studied (Sujata *et al.*, 2019). Previous studies have concentrated on specific topics, such as using AI chatbots on customer loyalty (Jenneboer *et al.*, 2022) or AI in customer retention (Thawakar and Srivastava, 2021). No study comprehensively explores the role and applications of AI in personalized marketing to boost customer retention in the European market. This gap in the current knowledge as well as the constantly evolving technology landscape is the inspiration to review the field holistically.

The objectives of this research are as follows:

- To uncover the effect of AI in personalized marketing for the e-commerce industry and how it can impact consumer satisfaction and suggest future research directions.
- To understand the relationship AI-driven personalized marketing has on customer retention in the e-commerce industry in Ireland.
- To understand and examine the impact of AI in personalized marketing.

## **1.3 Research Rationale and Significance**

The discussion on the interaction between AI and consumers is gaining prominence in the marketing and service literature. AI is changing how value is exchanged in our digital world, shifting from a tool used by people to an active participant in daily transactions (Shankar, 2018). More importantly, AI is now used without human involvement (Novak and Hoffman, 2019). This research is significant as it aims to examine the customer priorities and aspirations, and their purchasing behavior based on their demographic profiles. According to European Ecommerce Report in 2023, up to 96% of Ireland's population are internet users. AI-driven personalised marketing is essential as Irish consumers spend more time on mobile devices.

Ireland has one of the largest percentages of cross-border consumers in Western Europe, making cross-border spending a substantial part of the country's e-commerce experience (JP Morgan,

2019). E-commerce is growing due to factors including cheaper pricing and a wider assortment of products. Large e-commerce firms such as Amazon, Tesco, and Currys used artificial intelligence (AI) to effectively manage their operations and serve customers in Dublin, Ireland, during the Covid-19 pandemic (Lone and Weltevreden, 2023).

Although Irish businesses are demonstrating an interest in how AI might be applicable to their business, they are still looking into the best approach to implement these technologies as most are still in their growth phase. Since Ireland does not have a Web3 strategy, it is quite difficult for them to embrace the metaverse and other AI tools within the SME community (Lone and Weltevreden, 2023).

Implementing AI in personalized marketing can further enhance customer engagement, optimize product offerings, and drive sales (Teixeira *et al.*, P. 256, 2024). This research aims to explore how AI-driven personalized marketing can significantly boost customer retention and satisfaction, making it an essential area for academic investigation. By understanding the impact of AI on personalized marketing, this research hopes to provide valuable insights that can help e-commerce businesses in Ireland thrive in a post-pandemic world.

#### **1.4 Research Questions**

We can assert from the problem raised above that there are certain unanswered questions about the impact AI in personalised marketing can have on both large firms and SMEs in the Irish e-commerce industry. This study seeks to answer the following research questions:

1. Does AI-driven personalized marketing influence customer retention rates positively or negatively?
2. What specific AI tools and techniques are most effective in personalized marketing?
3. What are the benefits and challenges of AI-driven personalized marketing from the perspective of customers?

#### **1.5 Scope of the Study**

This research is vital as it sheds more light on the role AI plays in personalised marketing and how it can impact customer retention rate in an e-commerce business. A quantitative research

method approach will be used. The author will develop structured questionnaires targeted at consumers that have experienced AI in personalised marketing through their online shopping experiences. This method will help to collect customer satisfaction, the perceived effectiveness of AI tools, and the benefit and challenges of AI driven personalised marketing in the ecommerce industry. The survey will be detailed with both closed-ended and open-ended questions. Each question will be clear, concise, and relevant to the research objectives. For this to be done, the author will select a sample of customers who reside in Ireland, are quite familiar with online shopping and who have interacted with personalized marketing from any known e-commerce businesses using AI-driven personalized marketing strategies in Ireland. Data collected will be done using online platforms such as Microsoft form and the quantitative data will be analyzed using survey data.

## **1.6 Structure of the Study**

This paper is organised into five main chapters. The Introduction is the first chapter in which the Introduction, background of the study, rationale, and the aim and objective of the study are presented. Following that, a study of the literature is presented in chapter 2, taking into account previously published reports, journals, research papers, books, and other reliable secondary sources. The article's structure is as follows: **Section 1** discusses the introduction and the research questions. **Section 2** discusses the literature review and common themes observed from previous work. **Section 3** discusses the methodology of the study, which is the theoretical and practical areas of the study. **Section 4** reveals the findings and analysis of the primary research and data carried out during this study. **Section 5** presents the research and practical implications, and **Section 6** concludes the research and offers various recommendations for further study.

## Chapter 2: Literature Review

The digital shopping landscape has undergone significant transformation, allowing customers to make purchases from anywhere, a critical capability in today's world. The integration of predictive marketing and Artificial Intelligence (AI) has rapidly evolved, altering how marketers operate. This literature review explores the role of AI in personalized engagement marketing in the e-commerce industry in Ireland, drawing from recent thematic research and identifying key gaps and themes for further exploration. It will begin with an understanding of what AI is, the origin of AI in personalised marketing, the role AI plays in personalised marketing, and how it impacts consumer choice and decision-making in the e-commerce industry. It will also further explore how personalised marketing works, benefits of AI to firms, and a case study of SHEIN and their Customer Retention Strategy.

### 2.1 An Understanding of Artificial Intelligence

Artificial Intelligence (AI) is broadly described as the creation of machines that can perform tasks that typically require human intelligence. John McCarthy (1995), one of the founding figures in AI, simply defined it as making machines perform tasks that would be considered intelligent if performed by humans. AI in marketing, particularly, has evolved to understand and predict consumer behavior through data collection, analysis, and trend observation (Kumar *et al.*, 2019).

AI has been adopted in marketing as many companies and organizations are consistently searching for the most effective tool to increase the sales of their product. Avinash (2021) writes that since the 1990s, marketers have always found the means to gain deeper understanding of consumer's ever-changing behavior through the collection, storing and interpretation of consumer data which has been in existence for years. Previous traditional marketing campaigns are analyzed by organisations and assessed to determine how consumers react to marketing campaigns through offline marketing such as billboards and TV adverts. Artificial Intelligence (AI) has become a transformative force, enabling businesses to operate and grow at scale with more efficiency and precision. The integration of AI technologies into various aspects of business operations has driven significant advancements in automation, data analysis, customer engagement, and decision-making, leading to enhanced scalability and competitiveness.

According to Guo *et al.* (2021) and Vargas & Budz, (2019), E-commerce is simply any commercial activities and transactions conducted electronically over the Internet. E-commerce combines traditional economic behavior and the rapidly expanding cyberinfrastructure and provides a linkage between the real world and cyberspace through flows of capital, ideas, and goods.

## **2.2 The Origin of AI in Personalized Marketing**

AI's adoption in personalized marketing stems from marketers' longstanding need to understand and predict consumer behavior. Avinash (2021) highlights how the 1990s marked a pivotal era where marketers began systematically collecting and analyzing consumer data. With AI, these processes have become more sophisticated, allowing for real-time analysis and automated decision-making based on intricate data patterns. AI-driven personalized marketing cannot be effective without adequate and useful customer data. E-commerce platforms generate vast amounts of data, which are critical for receiving accurate customer insights and developing personalized marketing strategies. The effectiveness of AI in e-commerce is highly dependent on the quality and accuracy of the data collected. For instance, robust data infrastructure enables the seamless integration of AI tools that analyze consumer behavior and predict future trends, enhancing the precision of personalized marketing efforts (Avinash, 2021; Kumar et al., 2019).

Another significant theme observed is aligning AI initiatives with the firm's overarching goals. For AI-driven personalized marketing to be successful, it must be integrated across all levels of the e-commerce operation, ensuring consistency with the company's strategic objectives. This alignment ensures that AI tools not only enhance marketing efforts but also contribute to broader business goals, such as increasing customer loyalty and driving long-term growth (Kumar *et al.*, 2019).

A new data-driven marketing strategy that puts the customer first is made possible by predictive marketing. Companies now focus on customer delight, where marketers go above and beyond to entice customers to choose their brands by providing exceptional advantages and experiences. This is a shift from simply satisfying customers' demands (Avinash, 2021). Businesses can now anticipate and serve their consumers more effectively while increasing revenues thanks to the

capacity to gather data from each client and their interactions. As seen in **Figure 1**, predictive marketing fundamentally assists businesses in transitioning from a channel- or product-centric to a customer-centric approach (Avinash, 2021).

Businesses benefit from increased customer reach, facilitated international exchanges, and reduced transaction costs. However, challenges such as higher return rates and the need for efficient logistics are areas where AI-driven solutions can provide significant improvements (Gogonea *et al.*, 2024).

Now, with the assistance of AI, these companies can gain better understanding of their consumer behaviors. Artificial Intelligence technology is used in marketing to make automated decisions based on data collection, analysis and additional observations of audience or trends are usually used in marketing efforts where speed is crucial (Kumar *et al.*, 2019). In essence, Artificial Intelligence has become a force to be reckoned with in the electronic commerce industry.

AI is redefining customer experiences by delivering highly personalized marketing and streamlining transaction processes. Through advanced analytics and predictive tools, AI enables businesses to gain deep insights into consumer behavior, effectively manage inventory, and optimize marketing strategies. By analyzing vast datasets, AI not only generates valuable insights but also continuously learns and adapts, employing techniques like collaborative filtering and deep learning to refine its processes over time (Gogonea *et al.*, 2024). This capability allows AI to enhance user experiences by offering tailored recommendations, implementing dynamic pricing, and delivering targeted advertisements. These personalized interactions not only increase conversion rates but also foster greater customer loyalty (Gogonea *et al.*, 2024).

**Table 1: Difference between Traditional Marketing and Predictive Marketing (Source: Omer and Dominique, 2015)**

<b>Traditional Marketing</b> Industrial era ~ Mass Production & Distribution Product- or Channel-centric Orientation	<b>Predictive Marketing</b> Technology era/ Digital era ~ Informative & Customization Customer-centric Orientation
Develop and sell products	Develop and manage customer relationships
Find customers who will want your products	Find products that your customers will want
Maximize sales/market share of products	Maximize customer lifetime value (CLV)/Share-of wallet
Products are your assets	Customers are your assets
Structure and manage organization around products/brands	Structure and manage organization around customer segments
Use mass distribution and media	Use technologies and processes to customize interactions; Use targeted distribution and media

**Table 1:** Explains how marketing was done in the industrial era where companies deployed marketers to find customers who are interested in their product offerings. Companies had a product-centric orientation and relied on mass distribution and media. Now, in the new era of technology and digitalisation, organisations are more focused on finding and creating products that customers will want. They utilise technologies and processes to personalise interactions, with targeted distribution and media. (Avinash, 2021)

### 2.3 Impact of COVID-19 on E-commerce in Ireland

According to European e-commerce report for 2023, there are up to 91% of E shoppers in Ireland, a whopping 10% increase from 2021 due the COVID-19 pandemic, which means that more than half of the population of Ireland has purchased at least an item through online shopping. Since Ireland is a developed and thriving Country, there is also a significant percentage of internet users in Ireland; 96% of Irish Population are Internet users (Lone and Weltevreden, 2023).

The COVID-19 pandemic drastically accelerated the adoption of e-commerce, driving more activities online and highlighting the importance of digital transformation across all countries, including Ireland. This dynamic shift has made a significant impact in the growing reliance on AI to manage the increasing volume and complexity of online transactions and customer interactions (Avinash, 2021). E-commerce offers numerous benefits but also presents challenges that AI can help address such as consumers enjoying 24/7 market accessibility, product

transparency through reviews, and time savings. However, the inability to physically try products before purchase remains a disadvantage, which AI can help mitigate by improving the accuracy of personalized recommendations (Gogonea *et al.*, 2024).

The Irish economy saw years of growth in e-commerce, with an unheard-of surge in the sector. This made retailers realize the need for a 360-degree strategy as a result of COVID-19, which accelerated the importance of omnichannel in Ireland and allowed internet customers to make in-store purchases as well. The typically in-person, physical shoppers were forced to purchase online due to their lack of alternative options, which led to an increase in the number of new online shoppers. Although there was a steady increase in online sales, they were unable to counteract the loss in physical store sales (Lone *et al.*, 2021).

Economic development, internet access, and education significantly influence e-commerce adoption and success in Ireland. AI can provide tailored solutions that cater to different economic and social contexts, helping to bridge gaps in e-commerce adoption across various regions (Gogonea *et al.*, 2024).

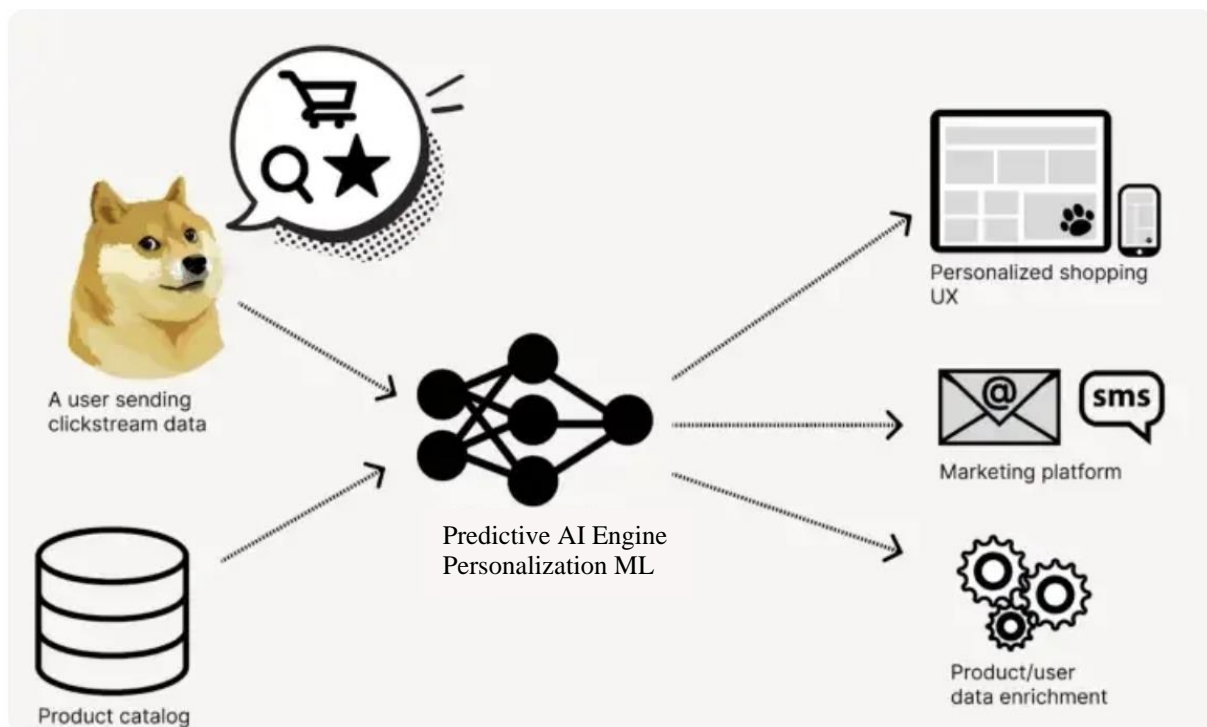
## **2.4 The Role of AI in Personalized Marketing**

AI plays a crucial role in personalized marketing by analyzing vast amounts of data to generate consumer insights. It begins with data analysis. AI systems analyze vast datasets to generate insights, recognizing patterns in consumer behavior through browsing patterns, searches, and views. These AI tools continuously learn and adapt to changing consumer preferences, improving the accuracy of predictions and recommendations (Avinash, 2021). Collaborative filtering, content-based filtering, hybrid models, and deep learning techniques are very crucial in delivering personalized content (Avinash, 2021).

AI-driven personalised marketing is heavily dependent on learning paradigms, such as supervised learning, unsupervised learning and reinforcement learning (Ma and Sun, 2020). According to Tong *et al.* (2020), marketers can easily analyse customer hypercontextual aspects by using algorithms. AI-driven personalised marketing is frequently used in conjunction with virtual reality to create unique and satisfying interactions (Ma and Sun, 2020) and the Internet of Things (IoT) for data capturing (Ameen *et al.*, 2021). This enables e-commerce platforms to tailor

their marketing strategies to individual consumer preferences. AI-driven personalized marketing leverages techniques like collaborative filtering, content-based filtering, and hybrid models to deliver highly personalized content (Raji et al., 2024). AI systems continuously learn and adapt to new data, improving the accuracy of their predictions and recommendations over time (Avinash, 2021; Raji et al., 2024).

**Figure 1: Personalisation using Machine Learning (Kagadawala, 2022)**



Finally, predictive analytics based on AI is used to automate business processes, predict consumer preferences, and enhance decision-making and customer engagement (Avinash, 2021).

## 2.5 Control Parameters and Ethical Considerations

A common theme identified on all the past studies examined is the establishment of clear guidelines and ethical considerations for AI implementation. E-commerce companies must define how AI will be used to ensure ethical handling of customer data, avoid biases, and maintain transparency with consumers. Ethical frameworks help in building consumer trust, which is

essential for the sustained success of AI-driven marketing initiatives (Kumar *et al.*, 2019). Ensuring data privacy and security is crucial, as consumers are wary of how their data is used. AI systems must be designed to avoid bias and ensure fair treatment of all consumers. Compliance with regulatory frameworks and industry standards is essential to maintain consumer trust and avoid legal issues (Avinash, 2021). Personalized marketing messages and recommendations influence consumer decision-making. Transparent AI practices build consumer trust, essential for long-term engagement. AI systems that adapt based on consumer feedback foster loyalty and satisfaction. (Kumar *et al.*, 2019; Avinash, 2021; Raji *et al.*, 2024).

## **2.6 AI impact on Organisations**

AI's impact on job roles and organizational structures is another critical theme. As AI automates more tasks, e-commerce firms need to adapt their workforce and management structures to support these changes. This includes reskilling employees and fostering a culture that embraces technological advancements. The transformation of the workplace through AI can lead to increased efficiency and innovation (Kumar *et al.*, 2019). In the short term, AI provides tactical solutions that enhance customer engagement and optimize operations. AI technologies can quickly deliver personalized recommendations, dynamic pricing, and targeted advertisements, which improve short-term sales and customer satisfaction. These immediate benefits demonstrate the tangible impact of AI on e-commerce. On the other hand, in the long run, AI offers comprehensive solutions that impact the entire customer lifecycle. AI-driven insights help in acquiring, retaining, and growing customer value over time. By developing direct relationships with consumers through personalized engagement, e-commerce firms can enhance customer loyalty and lifetime value, positioning themselves for sustained success (Kumar *et al.*, 2019).

Kumar *et al.* (2019) also identifies the different impacts of AI in developed versus developing economies that highlights the need for region-specific AI strategies. Global e-commerce companies must tailor their AI approaches to fit regional characteristics, such as cultural preferences and economic conditions, to maximize effectiveness and consumer acceptance.

## **2.7 Consumer Behavior and Trust**

The pandemic has led to increased trust and familiarity with online shopping, which AI can leverage to further personalize marketing efforts. AI can build consumer trust by being transparent about data usage and encouraging feedback, fostering long-term customer loyalty. Personalized marketing strategies shape consumer decision-making processes by providing relevant and timely recommendations, driving higher engagement and sales (Gogonea *et al.*, 2024).

AI tools provide personalized product recommendations, and an example of such recommendation is the “You may also like” feature on many e-commerce websites such as Amazon which helps to improve a consumer's overall shopping experience. Tailored marketing messages and recommendations influence consumer purchasing decisions, increasing conversion rates. Personalized engagement fosters customer loyalty, as consumers feel valued and understood.

Personalized marketing strategies also shape consumer decision-making processes by providing relevant and timely recommendations. This influence can drive higher engagement and sales. Transparency in AI practices and clear communication about data usage can build consumer trust. Encouraging feedback and continuously adapting AI models based on user input fosters long-term loyalty (Raji *et al.*, 2024).

## **2.8 Future Directions and Innovations**

According to Avinash, (2021) and Raji et al. (2024), the future of AI-driven personalized marketing in e-commerce holds exciting possibilities such as Natural Language Processing (NLP) advancements which will enable more sophisticated interactions between consumers and AI systems, improving the quality of personalized recommendations and customer service.

AI drives several market trends in the e-commerce industry. It optimizes inventory management by predicting consumer demand and preferences. Emerging Technologies such as the Integration of chatbots, virtual assistants, Artificial reality, Virtual reality, and Internet of things into e-commerce platforms enhance user experiences and operational efficiency. These technologies

improve user experiences by providing real-time support and personalized responses (Avinash, 2021; Raji *et al.*, 2024).

## **2.9 Limitations**

Despite the advancements, there are several gaps in the research that need to be addressed:

Practical challenges businesses face when implementing AI technologies, such as integration with existing systems, cost, and scalability, need further exploration. Understanding these barriers in more detail will help businesses better prepare for AI adoption and leverage its full potential in personalized marketing.

There is not enough research done on how AI-driven personalized marketing influences customer retention rates. Identifying specific AI tools and techniques that are most effective in personalized marketing will help e-commerce firms optimize their customer retention strategies.

The need for longer studies tracking the long-term impacts of AI-driven personalization on consumer behavior and business outcomes is emphasized. Such studies will provide a deeper understanding of the sustained effects of AI in marketing, helping businesses adapt and evolve their strategies over time (Avinash, 2021).

There is a shortage of real-world case studies specific to e-commerce that illustrate successful AI implementations and their outcomes. Case studies provide valuable lessons and best practices that can guide other businesses in their AI adoption journey.

Detailed insights into consumer attitudes towards AI-driven personalization, their concerns, and how they perceive the value of personalization are lacking. Comprehensive studies on consumer trust, privacy concerns, and acceptance of AI technologies are crucial for designing effective and ethical AI marketing strategies.

By addressing these themes and identifying the gaps, this literature review provides a detailed view of the current state and future directions of AI-driven personalized marketing in e-commerce. In this research, the author will focus on filling these gaps, such as the perceived benefits and challenges of AI-driven personalized marketing from the perspective of customers.

Understanding the practical, technical, and consumer-related aspects of AI in e-commerce will enable businesses to leverage AI more effectively, creating personalized, engaging, and ethical marketing strategies that drive long-term success.

### **2.10 SHEIN as a case study**

SHEIN is a great example of a company that has subtly incorporated AI to enhance its client experience. Hugging Face's language models have been included in SHEIN's online chatbots, which is a major advancement in improving the calibre of client interactions. This calculated action has completely changed the way SHEIN interacts with its clientele, leading to dialogues that feel more logical, intuitive, and contextually in line with the requirements and questions of the client. The effectiveness of the Hugging Face models to examine consumer preferences from their SHEIN's digital marketing techniques is highly based on customer interactions and feedback (Kherbachi *et al.*, 2024).

This innovative strategy grasps and interprets the nuances of client preferences, allowing the company to provide extremely customised special offers and product recommendations. By acquiring a profound understanding of every client's distinct requirement and preference, SHEIN is able to carefully craft experiences that build a sense of connection and steadfastness among its clientele. Moreover, by using this information, SHEIN can foster real consumer engagements rather than just transactional partnerships. SHEIN can anticipate customer needs, make tailored recommendations, and provide solutions that suit their tastes and preferences by having a thorough awareness of their preferences. Because they feel appreciated and understood by the company, customers are more satisfied and brand loyalty is strengthened as a result of this personalised approach (Kherbachi *et al.*, 2024).

Furthermore, by using Hugging Face models, SHEIN can keep up with changing trends and consumer preferences in the ever-changing world of online shopping. SHEIN's digital marketing tactics and offers can be promptly adjusted by analyzing feedback and interactions (Kherbachi *et al.*, 2024).

## Chapter 3: Research Methodology

This chapter sheds light on the different areas of the methodology used in this research, with consideration to both the theoretical and the practical research that was carried out. Everything from the research philosophy, research design and approach, data collection method, sampling method, size and ethical considerations of the research has been discussed in this chapter. Saunders's framework of research onion has been used to explain the methodological approach utilized in this research (Saunders *et al.*, 2023).

Saunders' research onion is comprised of 6 layers, and each of them will be used to discuss the set of assumptions utilized in this paper. They include the following: Research Philosophy, Research Approach, Research Design and Strategy, Methodological Choices, Time Horizon, Techniques and procedures. Before we dive into the research methodology used in this research, It will be great to be reminded of the research questions, aim, and objectives of this paper.

### 3.1 Research Aim and Objective

This research aims to assess how effective AI-driven personalized marketing is in enhancing customer retention in the e-commerce industry of Ireland (A western European country).

The objectives of this research are as follows:

- To uncover the effect of AI in personalized marketing for the e-commerce industry and how it can impact consumer satisfaction and suggest future research directions.
- To understand the relationship AI-driven personalized marketing has on customer retention in the e-commerce industry in Ireland.
- To understand and examine the impact of AI in personalized marketing.

#### Research Questions:

- 1) Does AI-driven personalized marketing influence customer retention rates positively or negatively?
- 2) What specific AI tools and techniques are most effective in personalized marketing?

- 3) What are the benefits and challenges of AI-driven personalized marketing from the perspective of customers?

### **3.2 Research Philosophy**

The first layer of the research onion is the research philosophy. This refers to the system of beliefs and assumptions around the development of knowledge. It is basically what is done when a researcher is about to embark on an academic quest to reveal deeper insights in a specific field. No matter how little research one adds to the existing body of work, addressing a particular problem in an organization or country is still regarded as gaining new knowledge. Whether the researcher is consciously aware of them or not, you will need to make a couple of assumptions in various areas of the research (Burrell and Morgan 2016). The selection of research philosophy depends on the three types of research assumptions that distinguish research philosophies. They include ontology, epistemology, and axiology. For the ontology area, this research takes a relativist ontology approach as the researcher believes that personalized marketing should be more focused on how consumers feel about their personalized shopping experience and in return, has a ripple effect on customer retention within an organization. The ontology is subjective. This research also takes an axiology assumption as one of the researcher's hypotheses raises ethical concerns on the use of AI to drive personalized marketing and the researcher has structured the research design to reflect the concerns for those ethical issues.

The chosen philosophy used for this paper is a positivist epistemology assumption which simply means that whatever data is captured or researched upon can only be done objectively, without opinions or personal viewpoints (Saunders *et al.*, 2023). The researcher does not interpret or give opinions but only observe to either validate or invalidate the proposed hypotheses. All data was collected to focus on objective and quantifiable data which helps us to understand the impact of AI-driven personalized marketing on customer retention in the e-commerce industry. This approach aligns with the use of a survey as the primary research instrument. This research aims to assess how effective AI-driven personalized marketing is in enhancing customer retention in the e-commerce industry of Ireland (A western European country). It is important to understand how AI in personalized marketing can help businesses retain customers, but this research area is under-studied (Sujata *et al.*, 2019). Previous studies have concentrated on specific topics, such

as using AI chatbots on customer loyalty (Jenneboer *et al.*, 2022) or AI in customer retention (Thawakar and Srivastava, 2021). No study comprehensively explores the role and applications of AI in personalized marketing to boost customer retention in the European market. This gap in the current knowledge has inspired the researcher to review the field structurally. This research proposes to uncover the most recent study of AI in personalized marketing and how it can impact consumer satisfaction and suggest future research directions.

### **3.3 Research Hypotheses**

1. AI-driven personalized marketing can increase the customer retention rate of an e-commerce company.
2. The most beneficial aspect of personalized marketing in e-commerce at present is personalized product recommendations.
3. The major challenge of AI in personalized marketing is how data is mined from consumers, thereby raising ethical concerns.

### **3.4 Research Approach**

Research can be done either by using a deductive approach in which a theory is already developed from the literature review before the data is collected or through an inductive approach in which the research starts by collecting data before developing a theory (Saunders *et al.*, 2023). A final approach that involves collecting data to identify similar themes and patterns from past bodies of research in a specific field is called the abductive approach (Saunders *et al.*, 2023). The inductive approach was chosen for this research because it allows for the exploration of data without the constraints of preconceived theories or hypotheses. Since this research is more focused on how AI-driven personalized marketing affects customer retention, it's very crucial to gather real-world data before forming any definitive conclusions. The inductive approach allows the researcher to collect data first and then observe patterns or themes that emerge from this data. The inductive approach is ideal for exploring new or relatively under-researched areas where existing theories may not fully apply (Saunders *et al.*, 2023).

### **3.5 Research Design and strategy**

According to Saunders *et al.* (2023), evaluative research is used to determine the efficiency of something. These research questions mostly begin with 'How', or include 'What', in the form of 'To what extent'. Evaluative research in business and management is more concerned with assessing the effectiveness of an organizational or business strategy, policy, programme, initiative or process.

This study employs a survey-based research design, that is focused on the impact of AI-driven personalized marketing on customer retention within the e-commerce industry. A quantitative and evaluative research method was chosen to strategically gather and analyze numerical data from a broad sample of e-commerce consumers. The primary data collection method utilized was a structured online questionnaire, collected through Microsoft Forms, which facilitated efficient data collection from a diverse group of participants. This survey-based approach enabled the collection of relevant data from participants regarding their experiences and perceptions of AI-driven personalized marketing.

The research design supports a descriptive and correlational strategy, aimed at understanding the relationship between personalized marketing strategies and customer retention rates. By focusing on direct consumer feedback, this study seeks to quantify the effectiveness of AI tools in enhancing customer loyalty. The use of a quantitative method allowed for the examination of the relationships objectively, providing significant insights into the variables under study. The choice of this design also reflects the emphasis on empirical data, enabling the identification of patterns and trends across the selected sample, which is essential for validating the proposed hypotheses.

### **3.6 Time Horizon**

For this research, a cross-sectional time horizon was chosen primarily due to its suitability for studies that need to capture and analyze data within a specific, limited timeframe. One of the reasons for this decision was due to the typical constraints faced in academic research, where time is often a significant limiting factor.

The cross-sectional approach allows for a quick view of the phenomenon under study (Saunders *et al.*, 2023). This method is particularly effective for understanding and evaluating how personalized marketing strategies are influencing customer behavior at a particular moment. Since this research's objective is to gather insights into the current state of personalized marketing and its immediate effects on customer retention within the e-commerce industry, a cross-sectional study is perfect. The data collection commenced on July 9, 2024 and was concluded on August 1, 2024. The process lasted for a duration of 31/2 weeks.

Additionally, cross-sectional studies are well-suited for the survey methodological choice in this research. By collecting data from participants at a single point in time, the research can efficiently describe the relationship between AI-driven marketing practices and customer retention rates without needing to track changes over an extended period. This has helped the researcher to answer the research questions effectively within the available timeframe, making it the most practical choice given the scope and objectives of the research.

### **3.7 Population and Sampling**

The population for this research was carefully selected to ensure that the data collected would provide valid and reliable answers to the research questions concerning the impact of AI-driven personalized marketing on customer retention in the e-commerce industry. The research targeted **e-commerce customers in Ireland with different age range**, to reach a diverse and representative sample. The chosen population for this study consisted of online shoppers aged between 18 and 54 years, who actively engage with e-commerce platforms. A non-probability sampling method was utilized for this research and a purposive sampling approach was used. This approach allowed for the selection of participants who met specific criteria relevant to the study's objectives. The criteria for selection included: 1) participants must be within the age range of 18 to 54 years, 2) they must have prior experience with online shopping, and 3) Must reside in Ireland.

A total of 80 respondents out of 100 individuals participated in this study, providing an average spectrum of insights across different age groups within the specified range. The use of purposive sampling ensured that the respondents selected were likely to offer more accurate and insightful

responses, as they represent the demographic most likely to be influenced by AI-driven personalized marketing in the e-commerce industry. This sampling strategy allowed the researcher to gather data that is both representative and highly relevant to the study's focus, ensuring a comprehensive understanding of the research questions.

### **3.8 Data Collection Process**

The primary tool for data collection in this research was a structured survey, specifically created to evaluate various aspects of personalized marketing and its influence on customer retention. This survey was developed using Microsoft Forms for easier interpretation of the data collected. The data collection commenced on July 9, 2024, and was concluded on August 1, 2024. Distribution of the survey was carried out through multiple online channels, including emails and social media platforms such as WhatsApp (Groups and Direct Messages), Instagram, and Facebook. They were sent out to friends and family, co-colleagues, and fellow students. The only means of distribution of the questionnaire was strictly done online and sent out to 100 prospective participants. After the first week of distribution, follow-up messages were sent through mail. To ensure ethical compliance, the consent form and disclaimer were included in the accompanying data with the survey link posted on these platforms. After the data was collected, It was then viewed on the auto-populated Excel sheet by Microsoft, and further analysis of the data was done through the aid of SPSS.

### **3.9 Structure of the Questionnaire**

The survey was divided into the following sections to capture detailed primary data to answer the research questions. Both exploratory and evaluative research were used.

- A. **Demographic Information** – This is to capture the respondents' age and gender and to ensure that the respondents fall within the age group of 18 – 54 years.
- B. **Online Shopping Behavior** – These questions were asked to highlight the frequency of online shopping, devices used, preferred e-commerce websites, and factors influencing their shopping decisions.

- C. **Awareness, Perception and Experience with AI-driven Personalized Marketing** – This set of questions reviews the respondents' awareness, experience, and attitudes toward personalized marketing content.
- D. **Impact of Personalized Marketing** – This set of questions evaluates the benefits of personalized marketing, its effect on the shopping experience, the frequency of purchases based on recommendations, and overall satisfaction with personalized marketing efforts.
- E. **Customer Retention and Loyalty** – This set of questions evaluates the impact of personalized marketing on customer loyalty, concerns related to AI-driven marketing, and respondents' views on data collection and usage.
- F. **Open-ended Questions** – These questions created room for suggestions for improvement and additional comments from respondents about the research questions.

The average completion rate for the survey was 9 minutes. Participants were advised that the questionnaire would not take longer than 10 minutes. The complete information sheet and questionnaire have been attached in the Appendix section at the end of the research.

### **3.10 Type of Quantitative Data Analysis Used**

A combined statistical analysis approach was used. This included descriptive and inferential statistics which was used to analyze the survey data. Version 28 of the IBM Statistical Package for the Social Sciences (SPSS) was used to perform the statistical analyses for the inferential statistics and Microsoft excel was used for the differential analysis. As mentioned earlier, Microsoft Forms was used to create the study's questionnaire. After the data collection process was completed, an Excel format file was then obtained from the Microsoft Forms website. According to Pallant (2013), it is crucial to prepare a codebook before entering the data gotten from a questionnaire. As it serves as a summary of the information that will be used in a numerical format that SPSS will understand. The data from the questionnaire was converted into a format that IBM SPSS could understand. Before importing the file into IBM SPSS, each response was assigned to a numerical code. Following data import into IBM SPSS, an error check was performed, and any missing values were indicated with a code "0" and imputed using the discrete missing data option.

### **3.11 Biases**

The study utilized a non-probability purposive sampling method, which, while targeted, introduces a significant risk of sampling bias. Since participants were selected based on specific criteria relevant to the study's objectives (such as age, experience with online shopping, and residence in Ireland), this approach may not accurately represent the broader population of e-commerce consumers.

This could lead to skewed results, particularly if the sample does not reflect the diversity of behaviors and attitudes present in the general population (Saunders et al., 2023; Bryman, 2016). The use of online surveys, especially when distributed through personal networks such as friends, family, and colleagues, may lead to response bias. Participants might provide socially desirable answers or may be influenced by their relationship with the researcher. This could distort the data, particularly if respondents feel compelled to answer in a way that aligns with what they perceive to be the researcher's expectations (Creswell & Creswell, 2018).

With a survey completion rate of 80% out of 100 prospective participants, there is a potential for non-response bias. The views of those who did not participate might differ from those who did, which could impact the study's findings. Non-response bias occurs when the characteristics of non-respondents differ from those of respondents, potentially leading to an inaccurate representation of the overall population (Fowler, 2014).

### **3.12 Ethical Considerations**

The ethical considerations of this study focused on three primary aspects: ensuring the confidentiality and anonymity of participants, obtaining informed consent, and addressing potential ethical issues.

To safeguard participants' privacy, the study implemented strict measures to ensure that all personal data remains confidential and anonymous. Participants' identities were protected, and no identifiable information was disclosed in any reporting or analysis. There were no questions that requested their names and email address for full anonymity.

Informed consent is a cornerstone of this research. Before participation, each individual was provided with a detailed consent form outlining the study's purpose, participation procedures, confidentiality measures, and their rights.

The study also addresses potential ethical issues by maintaining a focus on the well-being of participants, ensuring that their involvement does not pose any health risks or emotional distress. All ethical guidelines are adhered to throughout the research process to uphold the integrity and welfare of those involved. All data collected followed the guidelines by NCI as well as the general data collection regulation for the EU.

### **3.13 Conclusion**

Based on the discussions outlined in the methodology of this research, the researcher chose a positivist epistemology to determine the impact of AI-driven personalized marketing on customer retention in the e-commerce industry. This research followed an inductive approach, enabling data collection to take place before theory formation, and was able to explore the patterns and themes from the data. A quantitative, evaluative research design was employed, and a structured online survey was used to gather data from a carefully selected sample of e-commerce consumers in Ireland.

The survey, developed using Microsoft Forms, was distributed via multiple online channels, including social media platforms, and was designed to capture detailed information across various sections such as demographic data, online shopping behavior, awareness and experience with AI-driven personalized marketing, the impact of personalized marketing, customer retention and loyalty, and open-ended feedback.

Purposive sampling was used to select 80 respondents aged 18 to 54, ensuring relevance and representation. Data was analyzed using SPSS to objectively evaluate the relationships between each variable and identify the correlation between personalized marketing strategies and customer retention. Ethical considerations were a priority in the research and were carefully maintained, including the confidentiality and anonymity of participants, informed consent, and adherence to ethical guidelines throughout the research process.

## Chapter 4 – Results and Findings

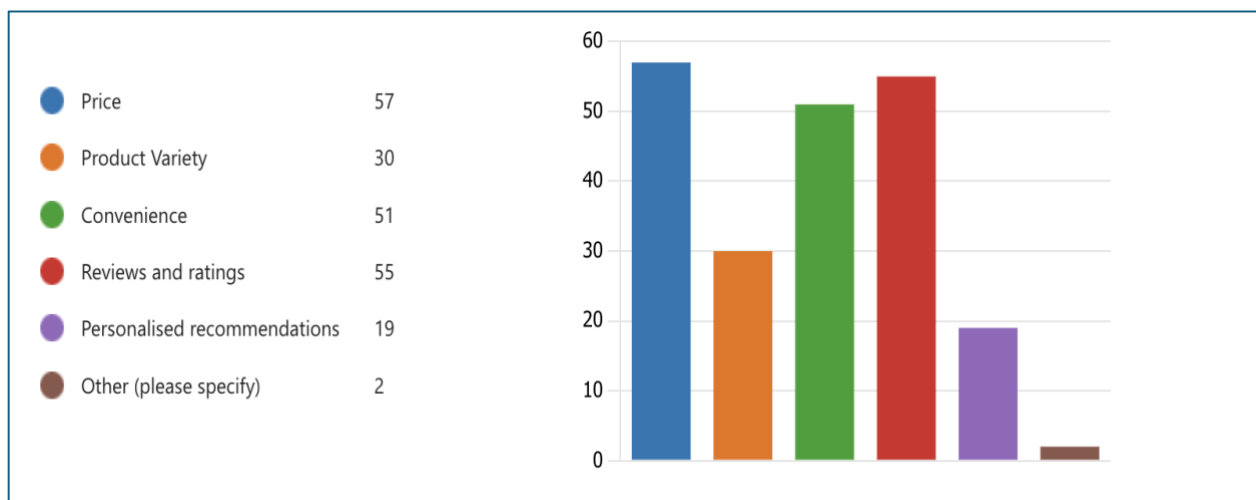
The purpose of this chapter is to provide the results of the descriptive and inferential analysis of the participants after entering the data in the IBM SPSS for inferential analysis. Excel was used to provide results for the descriptive analysis. The objective of this study, is to uncover the effect of AI in personalized marketing in the e-commerce industry and how it can impact consumer satisfaction as well as suggest future research directions, to identify the relationship AI-driven personalized marketing has on customer retention in the e-commerce industry in Ireland. Three key variables were researched further in this study. The awareness and experience with AI-driven personalized marketing, the effect of AI-driven personalized marketing, the comfort of online shoppers with data collection, satisfaction with AI-driven personalized marketing, and whether customer retention and loyalty are driven by personalized marketing in the e-commerce industry.

### **4.1 Characteristics of the population under study**

To determine the characteristics of the population sampled, descriptive statistics were done. A total of 80 samples were collected and they comprised 50 women (63%), 29 men (36%) and 1 (1%) preferred not to say. 37 respondents stated that they were within the age group of 25 - 34years (46%), then 23 respondents within the age group of 18 – 24years (29%), leading right closely is age group 35-44years (23%) with 18 participants and finally the age group with the least number of participants is age group 45 -54years (3%) with just 2 participants. 30 respondents indicated that they only shop a few times in a year. While 25 respondents shopped monthly and 19 shopped weekly. There were 2 respondents each who indicated that they shopped daily and yearly. 74 respondents also mentioned that they use their smartphones for their online shopping while 4 others mentioned that they use their Laptops/PC for online shopping and, 25 respondents alternate between their using their laptop and smartphones for online shopping. Amazon was also the most popular e-commerce website that the respondents use for their online shopping which accounts for 47% (34) of the total response. SHEIN came next as 18 respondents mostly shop on this e-commerce website. Then Temu was also selected by 7 participants, AliExpress and Currys were mentioned by 3 participants and 31 other participants selected several other SME e-commerce websites such as Harvey Norman, Mr Price and several others. When asked what

influences their decision to shop online, 57 participants selected price as a major factor, then 55 participants selected reviews and ratings, which also shows that people are moved to make a purchase when other shoppers have purchased and endorsed it. Then 50 participants selected convenience as a major reason for purchasing online, Product variety was also a major factor that contributed to their decision-making. Personalized recommendation was also a factor that influenced 19 participants to make an online purchase and two other participants said they shop online for other reasons.

**Figure 2: Bar chart to represent the factors that influence respondents' decision to shop online**



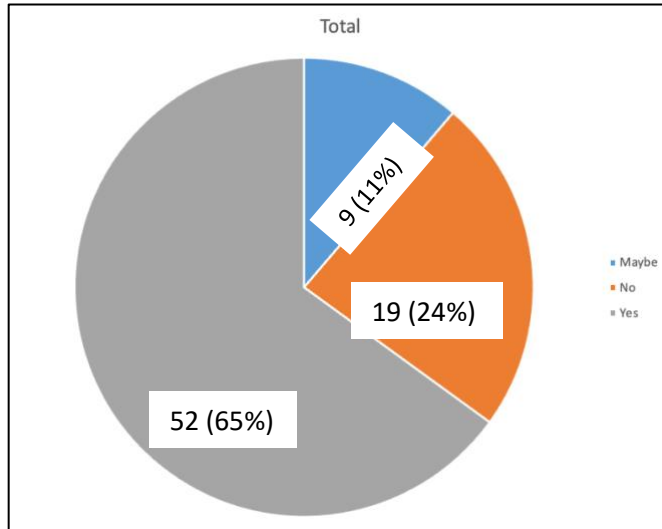
## 4.2 The Awareness, and Experience of AI-Driven Personalized Marketing on Online Shoppers

To determine the awareness and experience of AI-driven personalized marketing among consumers in the e-commerce industry, participants were asked the following questions:

- Are you aware of AI-driven personalized marketing?
- Have you experienced AI-driven personalized marketing while shopping online?
- How do you feel about receiving personalized marketing content while shopping online?

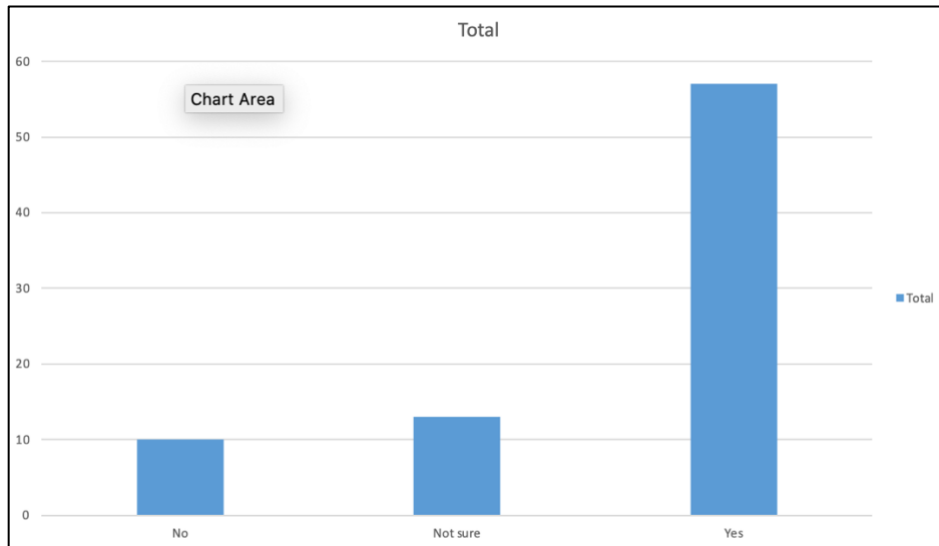
These questions were asked to further investigate the influence of personalized marketing. Their responses were as follows:

**Figure 3: Pie chart of the awareness of AI-driven personalized marketing among the sample population**



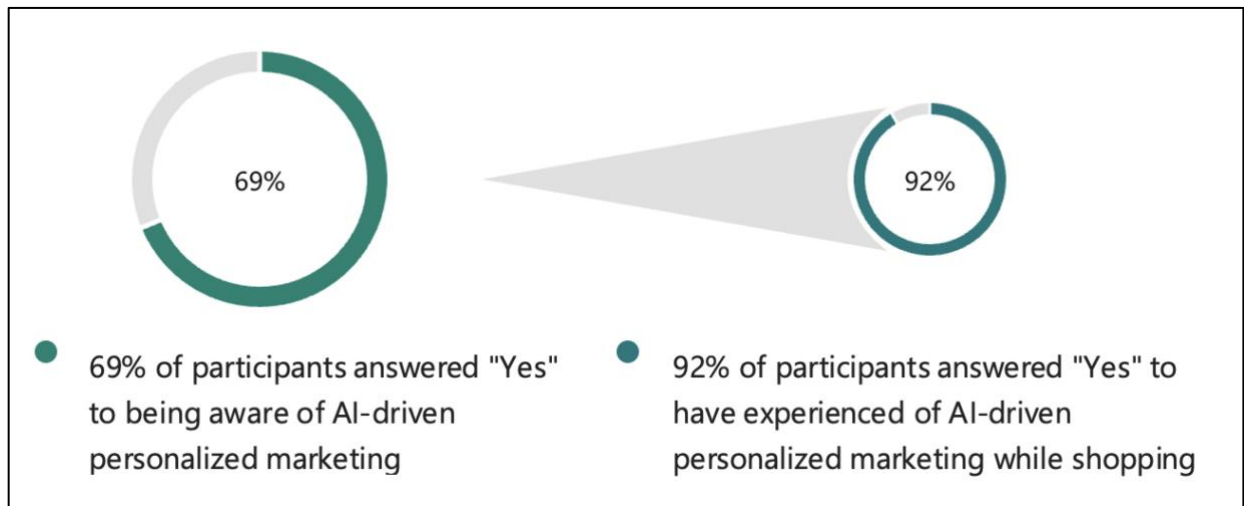
The study reveals that a significant majority, 65%, of the participants were aware of AI-driven personalized marketing. This finding underscores the increasing familiarity consumers have with AI technologies in marketing. Conversely, 24% of respondents indicated that they were unaware of AI-driven personalized marketing, suggesting a gap in awareness that could be addressed by further educational efforts. Additionally, 9 respondents expressed uncertainty about their knowledge of AI-driven personalized marketing, reflecting a potential area for improving clarity and communication about these marketing practices. This distribution of awareness highlights both the penetration of AI-driven marketing in consumer experiences and the need for ongoing efforts to enhance understanding among all consumers.

**Figure 4: Bar chart showing if respondents have experienced AI-driven personalized marketing while shopping online**



The results indicate that a substantial majority of respondents, comprising 71% or 57 participants, have encountered personalized marketing while shopping online. This suggests that personalized marketing strategies are widely implemented and experienced by consumers. On the other hand, 10% of participants, equivalent to 10 individuals, reported not having experienced personalized marketing during their online shopping activities, pointing to a segment of consumers who may not yet be exposed to these techniques. Additionally, 16% of respondents, or 13 participants, were uncertain about whether they had encountered personalized marketing, highlighting a potential lack of clarity or recognition regarding these marketing practices. This variability in experience underlines the widespread presence of personalized marketing while also identifying areas where consumer awareness and recognition can be enhanced.

**Figure 5: Correlation between awareness and experience of AI-driven Personalised marketing between e-shoppers**



A significant proportion of respondents indicated high levels of both awareness and experience with AI-driven personalized marketing. This trend suggests that consumers are growing increasingly acquainted with how AI impacts their shopping experiences. The familiarity with AI-driven personalized marketing may play a key role in shaping their overall satisfaction with these marketing efforts. As consumers become more knowledgeable about the ways AI tailors their shopping experiences, it is likely that their expectations and perceptions of personalized marketing will continue to evolve, potentially leading to greater satisfaction and acceptance of these strategies.

#### **4.3 The Perception of AI-Driven Personalized Marketing amongst E-shoppers**

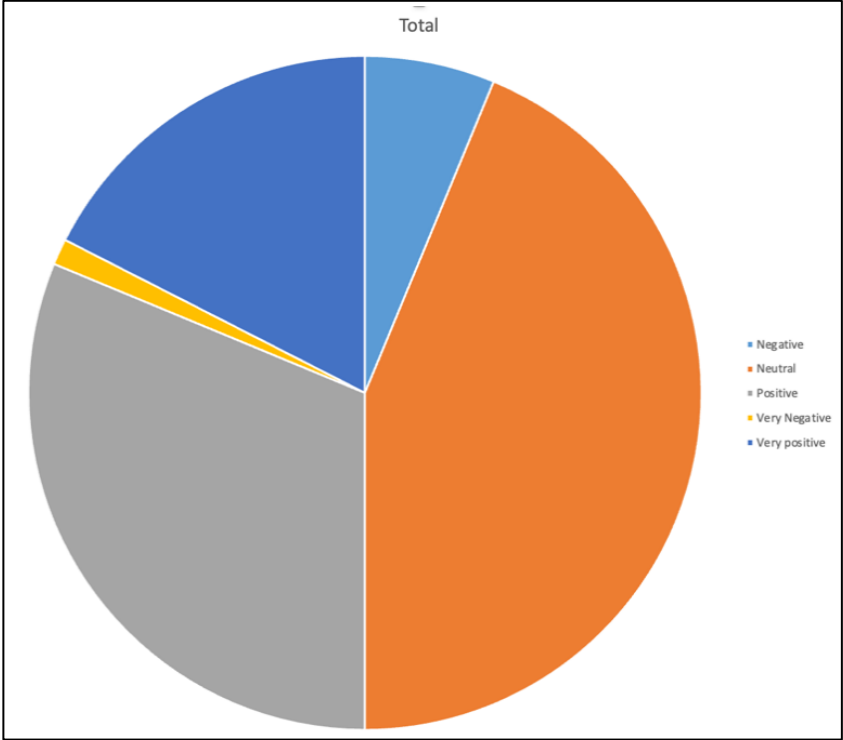
To determine the effect of AI-driven personalized marketing on consumers in the e-commerce industry, participants were asked the following questions:

- How do you feel about receiving personalized marketing content?
- What concerns do you have about AI-driven personalized marketing?
- How comfortable are you with e-commerce websites collecting and using your data for personalized marketing?

These questions were asked further to investigate consumers' perception of AI-driven personalized marketing. Their responses are as follows:

**Figure 6: Table and Pie chart showing how e-shoppers feel about receiving personalized marketing content**

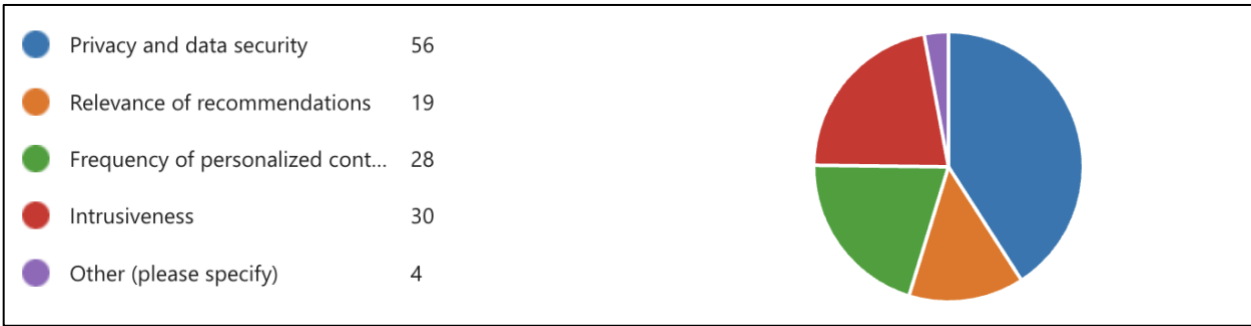
Label	Responses
Very Positive	14
Positive	25
Neutral	35
Negative	5
Very Negative	1



The responses to the questions about AI-driven personalized marketing reveal a spectrum of perceptions among participants. Specifically, a substantial number of respondent, 44% of individuals expressed a neutral stance towards AI-driven personalized marketing. This neutrality reflects a balanced view where participants neither strongly favor nor oppose personalized marketing efforts. In contrast, 14 (18%) respondents viewed AI-driven personalized marketing very positively, and 25 (31%) respondents who had a positive outlook. These positive responses suggest a notable portion of the sample appreciates the benefits and relevance of personalized marketing. On the other hand, 5 participants expressed negative feelings about AI-driven personalized marketing, and just 1 participant reported a very negative sentiment. While this indicates that there are some criticisms, they are relatively minimal compared to the overall positive and neutral feedback.

The overall analysis suggests that AI-driven personalized marketing is broadly accepted, with perceptions leaning slightly towards positivity. Consumers generally show a balanced view, indicating that while personalized marketing is welcomed by many, it is not without its criticisms. This viewpoint emphasizes how crucial it is to keep improving tailored marketing tactics in order to successfully respond to both good and negative feedback.

**Figure 7: Concerns about AI-driven personalized Marketing amongst E-shoppers**



In the context of AI-driven personalized marketing, several key concerns emerge from the data, reflecting the broader issues identified in previous studies. According to the literature, privacy and data security, relevance of recommendations, and managing the frequency of personalized content are significant factors that impact consumer trust and satisfaction (Gogonea et al., 2024; Avinash, 2021).

The data from this study aligns with these findings, revealing that a notable portion of respondents have specific concerns regarding personalized marketing. Notably, 56 participants (41%) expressed heightened concerns about privacy and data security. This reflects a critical issue in the field, emphasizing the need for robust measures to protect consumer data and address privacy fears.

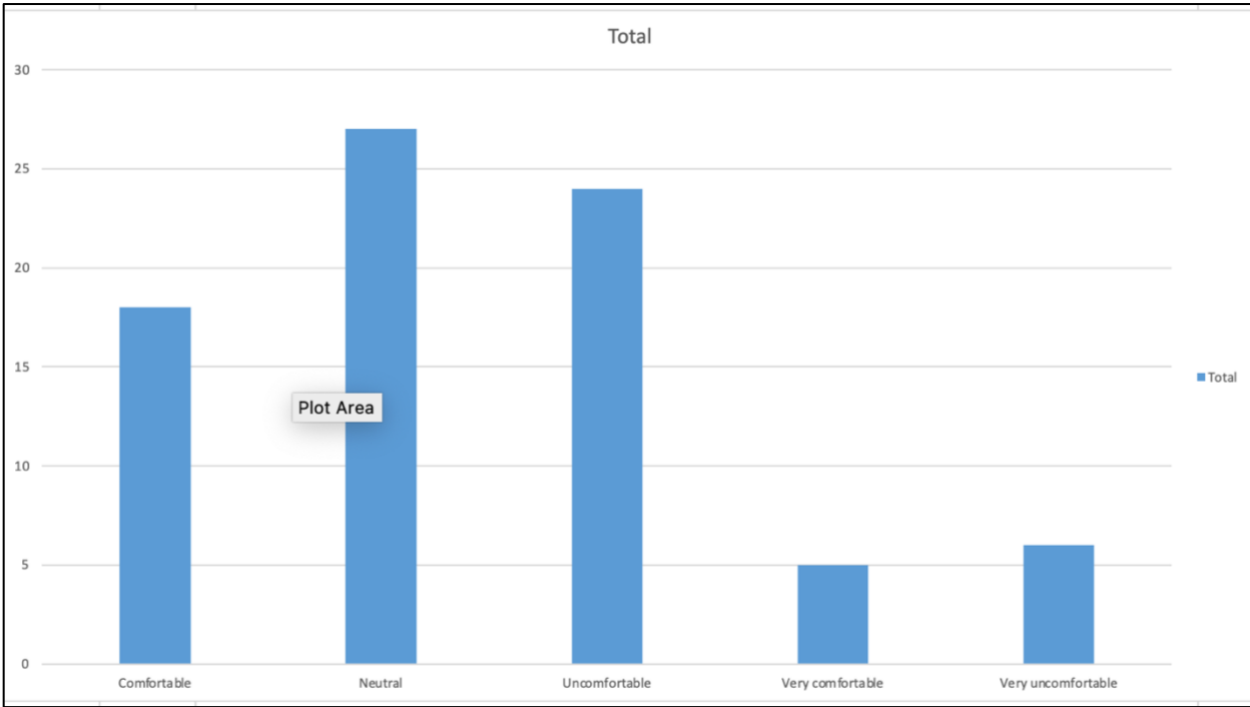
Additionally, 30 participants (24%) voiced concerns about the intrusiveness of personalized marketing efforts. This concern highlights the necessity of balancing personalization with consumer comfort to avoid creating a sense of being overly monitored or manipulated. The importance of respecting consumer boundaries is crucial for maintaining trust and preventing negative reactions (Raji et al., 2024).

Furthermore, 28 participants (22%) were concerned about the frequency of personalized content, suggesting that while personalization can be beneficial, it must be managed carefully to avoid overwhelming consumers. The relevance of recommendations also remained a concern for 19 participants (15%), underscoring the importance of ensuring that personalized suggestions are meaningful and useful.

Lastly, 4 participants (3%) mentioned other unspecified concerns related to AI-driven personalized marketing. This small percentage indicates that while the major concerns have been identified, there may be additional, less common issues that could impact consumer perceptions.

Overall, the results indicate that while AI-driven personalized marketing is generally accepted, there are significant concerns related to privacy, intrusiveness, content frequency, and recommendation relevance. Addressing these issues effectively is essential for improving consumer satisfaction and maintaining trust in personalized marketing strategies.

**Figure 8: Bar chart comfortable are you with e-commerce websites collecting and using your data for personalized marketing?**



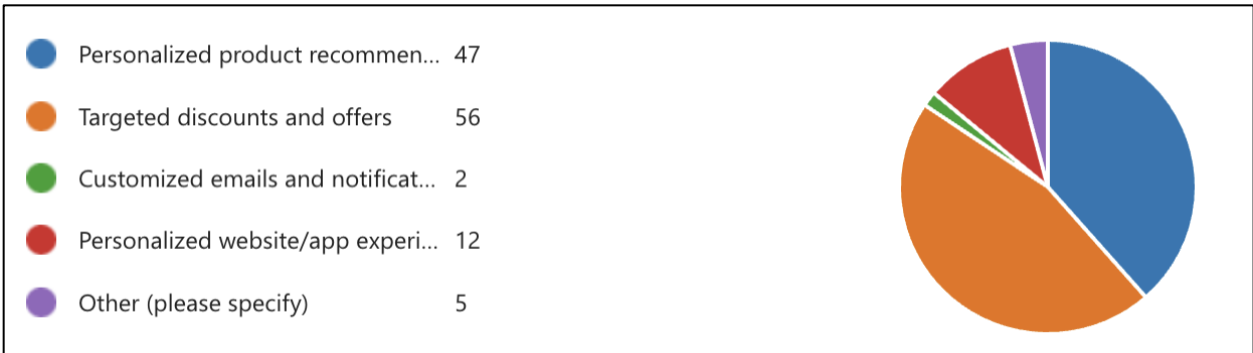
The results from Figure 7 highlight the varied attitudes of participants towards the collection and use of their data by e-commerce websites for personalized marketing. Specifically:

- **27 participants (34%)** are neutral regarding the practice, indicating that they neither strongly support nor oppose the use of their data for personalized marketing. This neutral stance suggests that these individuals may be open to or indifferent about data collection but are not actively concerned or supportive.
- **24 participants (30%)** expressed discomfort with e-commerce websites collecting and using their data for personalized marketing. This significant proportion of respondents highlights a considerable level of unease about data privacy and suggests that there is a substantial demand for more transparent and secure data handling practices.
- **18 participants (23%)** reported being comfortable with the collection and use of their data for personalized marketing. This group represents a more accepting view, where individuals are generally okay with their data being used to tailor marketing efforts to their preferences.
- **11 participants (13%)** felt very uncomfortable about e-commerce websites collecting and using their data for personalized marketing. This smaller yet noteworthy segment indicates a strong apprehension regarding privacy and data security, emphasizing the need for businesses to address these concerns more effectively.

#### **4.4 Customer retention and loyalty led by AI-driven Personalised Marketing**

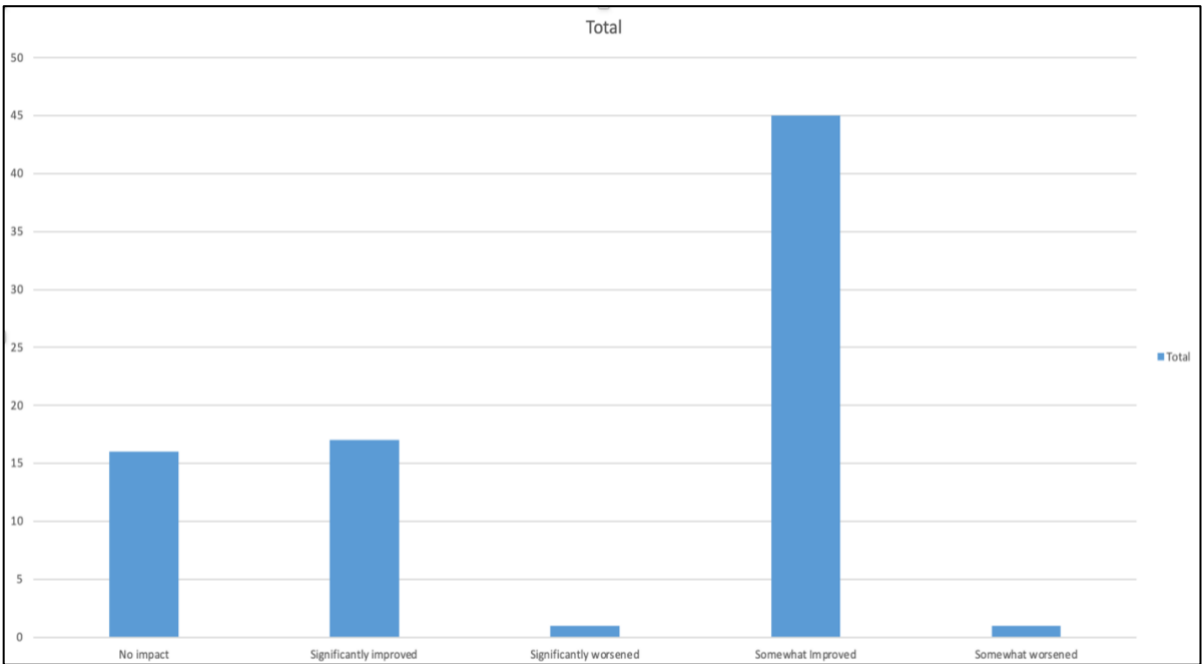
To explore the relationship between customer retention and loyalty driven by AI-driven personalized marketing in the e-commerce industry, participants were questioned on various aspects of personalized marketing. The questions aimed to uncover the influence of personalized marketing on their shopping behaviors and loyalty. The findings from their responses are detailed below:

**Figure 9: Pie chart Showing the Beneficial Aspects of Personalized Marketing**



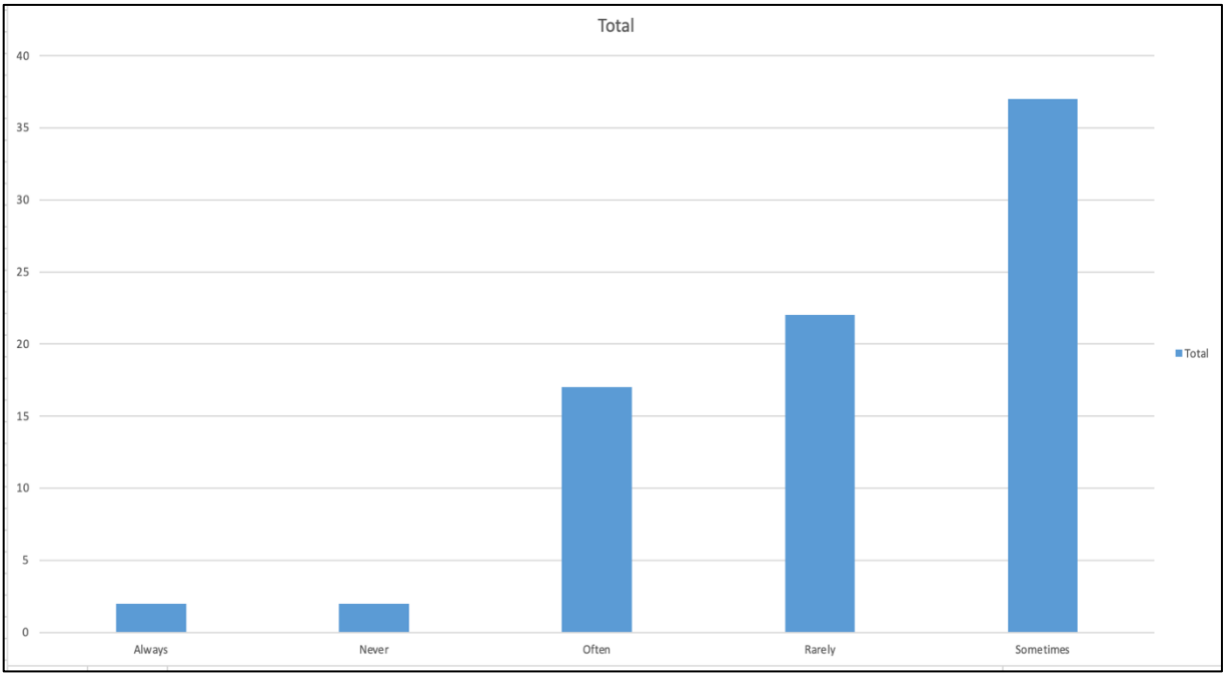
The majority of participants identified targeted discounts and offers as the most beneficial aspect of personalized marketing, with 56 respondents (46%) favoring this feature. Personalized product recommendations were also highly valued, with 47 participants (39%) finding this aspect particularly beneficial. Personalized website/app experiences were noted by 12 respondents (10%), highlighting its importance to a smaller group. Customized emails and notifications were considered beneficial by 2 participants (2%), and 5 participants (4%) mentioned other aspects of personalized marketing that were important to them.

**Figure 10: Bar chart showing the Influence of Personalized Marketing on Online Shopping Experience**



45 respondents (56%) felt that AI-driven personalized marketing has improved their online shopping experience to some extent. 17 participants (21%) believed that personalized marketing had significantly improved their shopping experience. A smaller segment, 16 respondents (20%), reported no impact from personalized marketing, while 2 participants (3%) felt it had worsened their shopping experience.

**Figure 11: Barchart Showing the Frequency of Purchases Based on Personalized Recommendations**

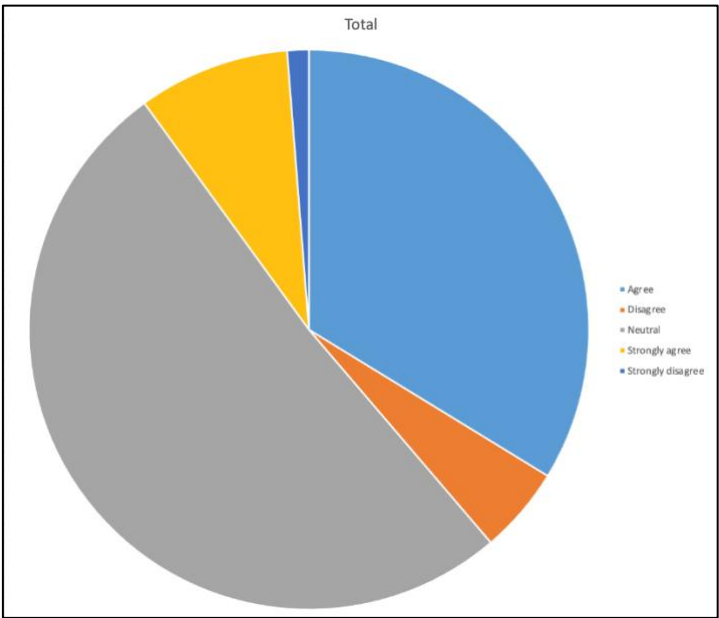


Based on the sample population used for this research, 37 (46%) of the participants make a purchase based on AI-driven personalized recommendation while 22 (28%) rarely utilize AI-driven personalized recommendations to make a purchasing decision and in hindsight, 17 (21%) of the participants often use AI-driven personalized recommendations to make an online purchase and 2 (3%) of the participants always use AI-driven personalized recommendations to make an online purchase but and 2 (3%) of the participants never use AI-driven personalized recommendations to make an online purchase. Respondents indicated moderate to high levels of satisfaction and some sort of improvement in their online shopping experience through personalized marketing. This is a positive outcome for e-commerce companies, as it implies that personalized marketing strategies are meeting consumer expectations to a considerable extent.

Based on the sample population used for this research, the data reveals that 37 participants (46%) make purchases based on AI-driven personalized recommendations, highlighting a substantial reliance on these tailored suggestions. also, 22 participants (28%) rarely use such recommendations when deciding on purchases. Additionally, 17 participants (21%) frequently use AI-driven recommendations, while 2 participants (3%) always rely on them for their online purchases. In contrast, 2 participants (3%) never use personalized recommendations when making a purchase.

Overall, respondents have reported moderate to high levels of satisfaction with AI-driven personalized marketing and noted improvements in their online shopping experience. This positive feedback suggests that e-commerce companies' personalized marketing strategies are effectively aligning with consumer expectations and enhancing their shopping experience. The findings further highlights the value of investing in AI-driven personalized marketing to foster consumer satisfaction and potentially drive increased engagement and sales.

**Figure 11: Pie chart and Table representing how respondents feel about personalized marketing and if it has increased their loyalty to specific e-commerce websites.**



Label	Respondents
Agree	27
Disagree	4
Neutral	41
Strongly Agree	7
Strongly Disagree	1

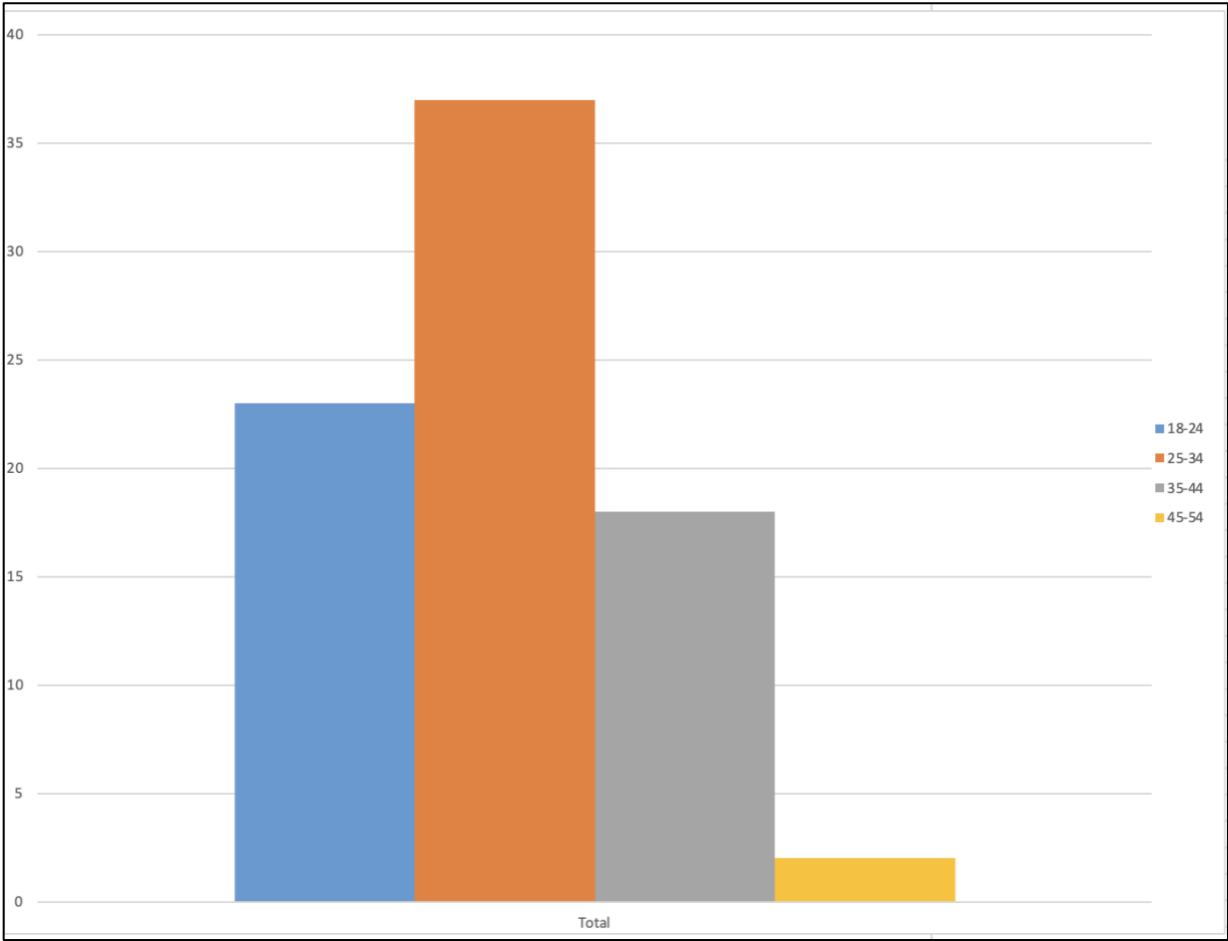
The findings from Figure 11 illustrate that more than half of the respondents (51%) maintain a neutral perspective on whether personalized marketing

influences their loyalty. However, 34% agreed that their loyalty to a brand has been positively impacted, with 9% strongly agreeing. Only 5% disagreed, and a mere 1% strongly disagreed.

Overall, the results reveal a moderate yet positive correlation between personalized marketing and customer loyalty. The data suggests that while a significant portion of respondents is neutral, there is a substantial number who recognize the positive influence of AI-driven personalized marketing on their brand loyalty and purchasing behavior.

The data shows a moderate increase in customer loyalty as a result of personalized marketing. This correlation between personalized marketing efforts and customer loyalty highlights the potential of AI-driven strategies to enhance consumer retention in e-commerce.

**Figure 12: Histogram and Table showing the correlation between the Age groups of the sample population and Awareness of AI-driven personalized Marketing in the E-commerce Industry**



	18 - 24	25 -34	35 - 44	45 - 54	Grand Total
Are you aware of AI-driven personalized marketing	23	37	18	2	80

Age has been found to have a significant link with sample population awareness of AI-driven tailored marketing. Of the respondents, 37 people (46%) who showed that they were aware of targeted marketing are between the ages of 25 and 34. This generation makes up the bulk of respondents who said they were familiar with AI-driven tailored marketing, suggesting that people in this age range are most knowledgeable about it. In contrast, younger people (18–24 years old) had a lower knowledge of AI-driven tailored marketing. This implies that, in comparison to their marginally older peers, people in this age bracket might be less exposed to or knowledgeable about tailored marketing techniques.

Additionally, despite being a smaller age group overall, a sizable portion of respondents in the 35–44 age range are aware of AI-driven tailored marketing. Their level of awareness is lower than that of the 25–34 age range, though. This pattern indicates a general trend that shows knowledge of AI-driven targeted marketing rising with age, especially among people in their late 20s to early 30s, and declining with age among other age groups.

#### 4.5 Inferential Statistics

The researcher used inferential statistics to identify the correlation between these key variables which include the following: Perception of Personalized Marketing, Comfort with Data Collection, Awareness of AI-driven Marketing, Experience with AI-driven Marketing, Satisfaction with Personalized Marketing, Purchase Frequency from Recommendations, Loyalty increase from Personalized Marketing. To identify the relationships between these variables, Pearson Correlation Analysis, T-Test result and Segment analysis were carried out, using IBM SPSS version 28.

## **I. Pearson Correlation Analysis**

According to Pallant (2013), Pearson correlation analysis is typically used to explore the strength of two continuous variables. It was used to analyze the correlation between the satisfaction of e-shoppers with personalized marketing and customer retention. There was a strong positive correlation ( $r = 0.60$ ,  $p < 0.01$ ), indicating that higher satisfaction with personalized marketing significantly increases customer loyalty. This finding is supported by existing literature, which emphasizes the role of satisfaction in fostering customer loyalty in e-commerce.

A positive correlation was found between purchase frequency and customer loyalty ( $r = 0.44$ ,  $p < 0.01$ ). This implies that consumers who frequently make purchases based on personalized recommendations are more likely to exhibit loyalty towards the brand. The strength of this relationship further supports the efficacy of personalized marketing in influencing consumer behavior.

## **II. T-Test Results**

To further understand the impact of personalized marketing on customer loyalty, a T-test was conducted to compare the satisfaction levels of respondents who felt personalized marketing increased their loyalty against those who did not. The results showed a significant difference ( $p < 0.05$ ) in satisfaction levels between the two groups. Respondents who perceived that personalized marketing increased their loyalty reported significantly higher satisfaction levels. This finding emphasizes the importance of consumer perception in the success of personalized marketing strategies.

## **III. Segment Analysis**

The segment analysis categorized respondents based on their perception and satisfaction levels, providing insights into how these factors influence loyalty and purchase behavior:

**Negative Perception:** Respondents in this segment reported lower increases in loyalty and purchase frequency. This suggests that negative perceptions of personalized marketing can diminish its effectiveness, highlighting the importance of addressing consumer concerns and improving the overall perception of such initiatives.

Neutral Perception: Those with a neutral perception exhibited moderate increases in loyalty and purchase frequency. This indicates that even when consumers are not overly enthusiastic about personalized marketing, it can still have a positive impact, albeit to a lesser extent.

Positive Perception: Respondents with a positive perception of personalized marketing reported the highest increases in loyalty and purchase frequency, particularly at higher satisfaction levels. This highlights the importance of cultivating a positive consumer perception to maximize the benefits of personalized marketing.

**Table 2: Segment Analysis of Respondents' Perception, Loyalty and purchase frequency**

Perception Segment	Satisfaction Segment	Loyalty Increase (Mean)	Loyalty Increase (SD)	Count	Purchase Frequency (Mean)	Purchase Frequency (SD)
Negative	Very Dissatisfied	2.00	NaN	1	2.00	NaN
Negative	Dissatisfied	3.00	0.00	2	2.50	0.71
Negative	Neutral	3.00	0.00	2	2.50	0.71
Neutral	Dissatisfied	3.06	0.25	16	2.50	0.73
Neutral	Neutral	3.86	0.69	7	3.14	0.69
Positive	Dissatisfied	3.38	0.52	8	2.63	1.06
Positive	Neutral	3.83	0.58	12	3.58	0.51

## 4.6 Hypotheses Testing

**Hypothesis 1** proposes that AI-driven personalized marketing can increase the customer retention rate of an e-commerce company.

This hypothesis is supported. The data demonstrates that higher satisfaction with personalized marketing and increased purchase frequency is significantly associated with higher customer loyalty. There was a strong positive correlation ( $r = 0.60$ ,  $p < 0.01$ ), indicating that higher satisfaction with personalized marketing significantly increases customer loyalty. This supports the hypothesis that personalized marketing when effectively implemented, can be a powerful tool for boosting customer retention.

**Hypothesis 2:** The most beneficial aspect of personalized marketing in e-commerce is personalized product recommendations.

This hypothesis is supported. The high correlation between purchase frequency and loyalty suggests that personalized product recommendations are highly effective in influencing consumer behavior. The results showed a significant difference ( $p < 0.05$ ) in satisfaction levels between the two groups. Respondents who perceived that personalized marketing increased their loyalty reported significantly higher satisfaction levels. This finding highlights the value of investing in sophisticated recommendation algorithms to enhance the personalization of marketing efforts.

**Hypothesis 3:** The major challenge of AI in personalized marketing is how data is mined from consumers, raising ethical concerns. When asked by respondents what improvements they would suggest for personalized marketing in e-commerce, 23 out of the 80 respondents gave similar responses related to data privacy, security improvement, and customer consent. Further research is required to understand the ethical concerns consumers may face regarding data mining practices.

## Chapter 5 – Discussion

Based on the findings of this research, It can be said that AI-driven personalized marketing is extremely important in enhancing customer retention within the e-commerce industry in Ireland. In this section, the findings of this research are discussed in relation to the secondary data from previous studies to answer the research questions.

The results of this study provides an extended view of how AI-driven personalized marketing impacts customer retention in the Irish e-commerce industry. The findings relate to the research questions and are discussed below in the context of existing literature.

### **1. Does AI-driven personalized marketing influence customer retention rates positively or negatively?**

From the current study, it is confirmed that AI-generated personalized marketing in most cases has an impact on the customer retention rates. Precisely, about 34% of the respondents stated that personalized marketing makes their loyalty grow towards brands; 51% did not care, which means that AI-generated personalized marketing is a positive factor but does not work simultaneously for each customer. Findings by Kumar et al. (2019) support that personal marketing strategies do, in fact, result in a higher customer loyalty and retention rate because the said strategies are specifically tailor-made to individual preferences and behaviors of customers. The positive moderate influence confirmed in this study aligns with previous research that proved that effective personalization will highly boost customer retention due to making the interaction engaging and relevant (Gogonea et al., 2024). This variability in effects, though, pointed to the fact that the impact of personalization may be subtle and could be dependent on the preferences and experiences of an individual.

### **2. What specific AI tools and techniques are most effective in personalized marketing?**

The study highlights that AI-driven personalized recommendations are particularly effective in influencing consumer behavior. A substantial proportion of respondents (46%) frequently make purchases based on personalized recommendations, and 21% often use these recommendations

to guide their online shopping decisions. This finding supports the literature that discusses the effectiveness of recommendation algorithms. Avinash (2021) emphasized that sophisticated recommendation systems, such as those using collaborative filtering and deep learning techniques, play a crucial role in enhancing consumer satisfaction and driving purchase decisions. The high effectiveness of these tools aligns with the results observed in this study, indicating that recommendation algorithms are important in achieving successful personalized marketing outcomes.

### **3. What are the benefits and challenges of AI-driven personalized marketing from the perspective of customers?**

From the perspective of customers, the study reveals several benefits and challenges associated with AI-driven personalized marketing:

**Enhanced Shopping Experience:** The study found that respondents reported moderate to high satisfaction with personalized marketing, indicating that AI-driven strategies improve the overall shopping experience. This is consistent with findings by Payne and Frow (2013), who noted that personalization enhances the quality of the customer experience by making interactions more relevant and tailored to individual needs.

**Increased Relevance:** Personalized marketing aligns content with consumer preferences, making product discovery more intuitive. Kumar et al. (2019) found that personalization increases the relevance of marketing content, which enhances consumer engagement and satisfaction.

**Privacy and Data Security:** Privacy concerns were significant, with 41% of respondents expressing worry about data security. This challenge emphasizes on past research by Raji et al. (2024), which highlights that data privacy and security are major concerns in AI-driven marketing. Consumers are increasingly aware of how their data is used, and there is a growing demand for greater transparency and control over personal information.

**Intrusiveness and Frequency:** Concerns about the intrusiveness of personalized marketing (30% of respondents) and the frequency of personalized content (28%) indicate that excessive or poorly managed personalization can lead to negative consumer reactions. Previous studies, such

as those by Avinash (2021), have emphasized the importance of balancing personalization with consumer comfort to avoid intrusiveness and maintain a positive relationship between brands and consumers.

In conclusion, this study provides evidence that AI-driven personalized marketing can positively impact customer retention, particularly through effective recommendation systems. However, the benefits come with challenges related to privacy, data security, and managing the balance between personalization and consumer comfort. These findings are consistent with existing literature and highlights the need for ongoing research to refine AI tools, enhance data protection measures, and develop strategies to ensure that personalized marketing remains beneficial and respectful of consumer preferences. Future research should continue to explore these areas to optimize the effectiveness of AI-driven personalized marketing strategies in the e-commerce industry.

### **5.1 Implications of the study**

The results of this study provide several implications for e-commerce businesses:

E-commerce firms need to develop their AI-based personalized marketing strategies by improving the relevance and accuracy of product recommendations to ensure that consumers feel satisfied and attached to the brand.

A major concern highlighted by respondents is the use of their data without their consent. Since there is an enormous concern regarding data privacy, companies should commit to transparent, ethical data practices. More effective data protection measures and efforts should be made more aware to consumers.

Being much more aware among younger consumers, businesses with an e-commerce focus can target increased engagement and higher conversion rates with AI-driven personalized marketing. Future research may explore the long-term effect of AI-driven personalized marketing on consumer behavior and the ethical implications of AI in e-commerce. Furthermore, larger and more diverse samples will help to improve and extend the findings of this research.

## 5.2 Limitations of the study

Despite the many contributions of this study, some limitations need to be considered:

The relatively small sample size of 80 respondents and geographical limitation may have implications for the generalizability of the findings. Future research should try to take on a bigger and more diverse population to gain a more comprehensive view of consumer perceptions.

Being cross-sectional in design, the study was done within a limited period and does not allow for observing changes in consumer attitudes and behaviors over time. These sort of perceptions could be better understood if longitudinal studies were conducted. While privacy issues were raised, the study did not delve deeper into the greater ethical issues of AI-driven marketing, such as algorithmic bias. Later research should take a closer look at these issues.

## 5.3 Future Research Directions

Based on the extensive review of literature on AI in customer relationship management, personalized marketing, and consumer behavior, several potential future research directions can be explored and they include the following:

**Ethical Issues with AI in Personalized Marketing:** While AI-driven personalization has a lot to offer in terms of increased customer engagement and loyalty, more research is needed to address the ethical concerns of data security, privacy, and consumer trust. Future studies could look into how businesses can reconcile consumer privacy concerns with personalization, as well as how customer trust and brand loyalty are impacted by openness in AI-driven processes.

**Consumer Acceptance of AI in Multiple Cultural Contexts:** The adoption and acceptability of AI may differ dramatically depending on the cultural setting. Future research could examine how cultural norms and values affect how consumers feel about AI in tailored marketing and customer support. Cross-cultural comparisons may be necessary to determine how AI tactics should be modified for various geographical areas.

**Long-term Studies on AI's Impact on Consumer Behavior:** Most current studies focus on the short-term effects of AI on consumer behavior. There is a need for a more extensive research that highlights the long-term impact of AI-driven marketing strategies on customer loyalty, brand

attachment, and overall customer lifetime value. Such studies would provide insights into the sustainability of AI-driven marketing efforts.

## Chapter 6: Conclusion and Recommendation

Artificial Intelligence in personalized marketing is very relevant in the e-commerce industry. The results from this research provides valuable insights into how consumers perceive and interact with personalized marketing strategies and the impact of these strategies on customer satisfaction, retention, and loyalty.

The study confirmed that AI-driven personalized marketing has a significant positive impact on customer retention. It also reveals that higher satisfaction with personalized marketing can lead to increased customer loyalty. This supports the hypothesis that effectively implemented personalized marketing can enhance retention rates. Additionally, the effectiveness of personalized product recommendations was confirmed. AI-driven personalised marketing not only enhances, but plays an important role in driving consumer behavior and fostering brand loyalty.

However, the study also revealed important concerns regarding data privacy and security. Respondents expressed concerns about how their data is collected and used, emphasizing the need for e-commerce companies to address these ethical challenges. The significant proportion of respondents advocating for improved data protection and transparency suggests that ethical considerations are paramount for the successful implementation of personalized marketing strategies.

### 6.1 Alignment to Objectives

This research aims to assess how effective AI-driven personalized marketing is in enhancing customer retention within the e-commerce industry in Ireland. To achieve this aim, the research looked into the several objectives, that are linked to the findings as follows:

**Objective 1: To uncover the perception of AI in personalized marketing for the e-commerce industry and how it can impact consumer satisfaction and suggest future research directions.**

The result shows a more complex perception of AI-driven personalized marketing among consumers. A high number of respondents (71%) reported experiencing personalized marketing

while shopping online, with a majority exhibiting a neutral to positive perception of its impact. This aligns with past studies, which suggests that personalized marketing generally enhances consumer satisfaction by making interactions more relevant and engaging (Gogonea et al., 2024). The study also found that the most beneficial aspect of personalized marketing is AI-driven recommendations, which aligns with previous research that highlights the effectiveness of recommendation algorithms in boosting consumer satisfaction (Avinash, 2021). This objective has been met by demonstrating that AI-driven personalization is positively received and that its benefits are evident in improving the shopping experience.

**Objective 2: To understand the relationship AI-driven personalized marketing has on customer retention in the e-commerce industry in Ireland.**

The study reveals that AI-driven personalized marketing has a moderate positive influence on customer retention. While 34% of respondents agreed that personalized marketing enhances their loyalty, and 51% were neutral, the results indicate that the impact on retention is significant but not universally understood and accepted. This finding is consistent with past research that acknowledges the potential of personalized marketing to improve customer retention, yet also points out variability in its effectiveness (Kumar et al., 2019). The study highlights that while AI-driven recommendations are effective, the extent to which they influence retention can vary among consumers.

**Objective 3: To understand and examine the impact of AI in personalized marketing.**

Several significant findings emerged from the analysis of AI's influence in personalised marketing. The most successful component of personalized marketing was discovered to be AI-driven recommendations, confirming previous research that shows recommendation systems are essential for influencing consumer behavior (Avinash, 2021). Significant worries about data privacy and intrusiveness were also found in the survey, which is consistent with earlier research demonstrating the difficulties in upholding customer trust when deploying AI-driven methods (Raji et al., 2024). The results highlight how crucial it is to strike a balance between privacy concerns and customisation in order to maximize the potential of AI in marketing. This goal is

accomplished by outlining the advantages and difficulties of AI-driven tailored marketing and offering a thorough grasp of its implications.

## **6.2 Concluding Statement**

In conclusion, a thorough investigation of customer perceptions, their impact on retention, and the overall effects of AI-driven tailored marketing on customers has effectively fulfilled the study objectives. The study highlights crucial issues regarding data privacy and user comfort while also confirming that AI personalization can improve customer satisfaction and retention, notably through efficient recommendation systems. These results offer insightful information about the use of AI in e-commerce and point the way for future studies to improve and maximize targeted marketing campaigns.

All things considered, the results of this study broaden our knowledge of the role AI plays in customized marketing and how it influences e-commerce customer behavior. E-commerce companies can improve their marketing efficacy and better match customer expectations by raising consumer understanding of how artificial intelligence (AI) operates in personalised marketing and by being more transparent about the data that is mined and used for this marketing strategy. Future studies should carry out more analysis of these processes, paying special attention to moral issues and the constantly expanding field of AI-driven marketing.

The foundation for future research can be built on these discoveries and further advance the field of personalized marketing in e-commerce. This research also provides a framework for future investigations into the area of AI, consumer behavior, and ethical marketing practices.

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XXX&enrichSource=Y292ZXJQYWdlOzM1MjcwNjIyNTtBUzoxMDQ4MTA2NjY1Nzk1NTg2QDE2MjY4OTk1MTAzNjg%3D&el=1\_x\_2&\_esc=publicationCoverPdf [Accessed 9 August 2024].

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## **Appendices**

### **Appendix A: Consent Form**

#### **In agreeing to participate in this research I understand the following:**

- ✓ This research is being conducted by Omorinsola Tolulope Lasekan, a master student at the National College of Ireland.
- ✓ The proposed method for this research project has been approved in principle by the departmental ethics committee, which means that the committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student responsibility to adhere to ethical guidance in their dealing with participants and the collection and handling of data.
- ✓ If I have any concern about participation, I understand that I may refuse to participate or withdraw at any stage.
- ✓ I have been informed of the general nature of the study and agree voluntarily to participate.
- ✓ There are no known expected discomfort or risk associated with participation.
- ✓ All data from this study will be treated confidentially. The data from all participants will be compiled, analysed and submitted in a report to the school business. No participant's data will be identified by name at any stage of data analysis or final report.
- ✓ At the conclusion of my participation, any question or concern I have will be fully addressed.
- ✓ I may withdraw from this study at any time and may withdraw my data at any point during my participation. I understand that once my participation has ended, that I cannot withdraw my data as it will be fully anonymised.

## Appendix B: Questionnaire Form

### Effect of Personalised Marketing on Customer Retention in the E-commerce Industry

The purpose of this research is to assess the effectiveness of AI-driven personalized marketing in enhancing customer retention in the e-commerce industry. By understanding how AI in personalized marketing can help businesses retain customers, this research aims to provide valuable insights to help e-commerce businesses in Ireland thrive in a post-pandemic world. Your participation in this survey is crucial to help us understand the impact of personalized marketing on customer satisfaction and loyalty. Your responses will be kept confidential and used solely for academic research purposes.

**Artificial Intelligence (AI)**

Artificial Intelligence (AI) refers to the discipline of science and technology that develops intelligent computers and machines capable of performing tasks that typically require human intellect. These tasks include learning, reasoning, problem-solving, perception, and language understanding. AI systems use algorithms and data to mimic human intelligence and provide automated solutions that can perform complex processes with high efficiency and accuracy (Copeland, 2019). In the context of e-commerce, AI helps businesses analyze vast amounts of data to make informed decisions, predict consumer behavior, and enhance customer experiences through personalization.

**Personalized Marketing**

Personalized marketing is a strategy that involves tailoring marketing messages and product offerings to individual consumers based on their preferences, behaviors, and demographic profiles. With advancements in technology and data collection, businesses can gather detailed insights about their customers and use this information to create customized marketing campaigns.

**Customer Retention**

Customer retention refers to a company's ability to keep its customers over a period. High customer retention indicates that customers are satisfied with the company's products or services and are likely to make repeat purchases.

3. How often do you shop online? \*

☐ Daily

☐ Weekly

☐ Monthly

☐ Few times a year

☐ Yearly

☐ Never

4. Which devices do you use for online shopping? (Select all that apply) \*

☐ Smartphone

☐ Tablet

☐ Laptop/PC

☐ Other

5. Which e-commerce website do you use for most of your online shopping? \*

**Application in the E-commerce Industry**

In the e-commerce industry, AI, personalized marketing, and customer retention are closely intertwined. E-commerce businesses collect and analyze vast amounts of data from online interactions, which AI systems process to gain insights into customer preferences and behaviors. These insights are used to develop personalized marketing campaigns that deliver targeted content, product recommendations, and special offers to individual customers. By providing a tailored shopping experience, businesses can enhance customer satisfaction and loyalty, leading to higher retention rates.

\* Required

1. What age group do you fall under? \*

☐ 18-24

☐ 25-34

☐ 35-44

☐ 45-54

2. What is your Gender? \*

☐ Woman

☐ Man

☐ Non-binary

☐ Prefer not to say

6. What factors influence your decision to shop online? (Select all that apply) \*

☐ Price

☐ Product Variety

☐ Convenience

☐ Reviews and ratings

☐ Personalised recommendations

☐ Other (please specify)

7. Are you aware of AI-driven personalized marketing (e.g., personalized product recommendations, targeted ads)? \*

☐ Yes

☐ No

☐ Maybe

8. Have you experienced personalized marketing while shopping online? \*

☐ Yes

☐ No

☐ Not sure

9. How do you feel about receiving personalized marketing content? \*

☐ Very positive

☐ Positive

☐ Neutral

☐ Negative

☐ Very Negative

10. Which aspects of personalized marketing do you find most beneficial? (Select all that apply) \*

☐ Personalized product recommendations

☐ Targeted discounts and offers

☐ Customized emails and notifications

☐ Personalized website/app experience

☐ Other (please specify)

11. How has personalized marketing influenced your online shopping experience? \*

☐ Significantly improved

☐ Somewhat Improved

13. How satisfied are you with the personalized marketing you receive from e-commerce websites? \*

☐ Very satisfied

☐ Satisfied

☐ Neutral

☐ Dissatisfied

☐ Very unsatisfied

14. Do you feel that personalized marketing has increased your loyalty to specific e-commerce websites? \*

☐ Strongly agree

☐ Agree

☐ Neutral

☐ Disagree

☐ Strongly disagree

## Appendix C: Survey Responses on IBM SPSS

IBM SPSS Statistics Processor is ready

UNICODE ON Classic

Case List

Case	Date	Time	Location	Age	Gender	Marital Status	Education	Income	Occupation	Religion	Political Party	Health Status	Smoking Status	Alcohol Consumption	Exercise Frequency	Stress Level	Life Satisfaction	Overall Health
35	11-10-2014	07:18:21	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	7.4	Good
31	10-10-2014	13:15:22	Home	5	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	7.3	Good
30	10-10-2014	13:04:23	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	7.2	Good
19	10-10-2014	08:40:33	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	7.1	Good
18	10-10-2014	08:44:30	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	7.0	Good
17	10-10-2014	08:50:30	Home	5	F	Married	High School	3,773	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.9	Good
16	10-10-2014	08:51:33	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.8	Good
12	10-10-2014	08:18:22	Home	5	F	Married	High School	5,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.7	Good
14	10-10-2014	08:01:20	Home	5	F	Married	High School	5,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.6	Good
13	10-10-2014	07:55:20	Home	3	F	Married	High School	3,773	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.5	Good
15	10-10-2014	13:40:00	Home	5	F	Married	High School	3,773	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.4	Good
11	10-10-2014	15:40:40	Home	5	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.3	Good
10	10-10-2014	15:31:04	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.2	Good
9	10-10-2014	10:51:04	Home	5	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.1	Good
8	10-10-2014	10:51:05	Home	3	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	6.0	Good
7	10-10-2014	10:40:33	Home	5	F	Married	High School	3,773	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	5.9	Good
6	10-10-2014	13:40:40	Home	5	F	Married	High School	5,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	5.8	Good
5	10-10-2014	13:04:33	Home	3	F	Married	High School	5,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	5.7	Good
4	10-10-2014	10:27:00	Home	5	F	Married	High School	3,773	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	5.6	Good
3	10-10-2014	10:44:13	Home	5	F	Married	High School	4,173	Teacher	Christian	Democrat	Good	Non-smoker	Occasional	Weekly	Low	5.5	Good

IBM SPSS Statistics Processor is ready

Untitled5 [DataSet1] - IBM SPSS Statistics Data Editor

Search application

21: Email

anonymous

Visible: 23 of 23 Variables

Q1:Age	Q2:Gender	Q3:Marital Status	Q4:Education	Q5:Income	Q6:Occupation	Q7:Religion	Q8:Political Party	Q9:Health Status	Q10:Smoking Status	Q11:Alcohol Consumption	Q12:Exercise Frequency	Q13:Stress Level	Q14:Life Satisfaction	Q15:Overall Health
9	3	3,2,1	3	3	3	3	3	3	3	3	3	3	3	3
10	3	3,2	2	3	3	3	3	3	3	3	3	3	3	3
11	3	1,1	3	3	2	4	1,3,4	4	3	3	3	3	3	3
12	3	2,1,2	1	3	3	2	2	2	3	3	3	3	3	3
13	3	2,1	2	2	2	3	3	2	4	3	3	3	3	3
14	3	2,2,1	2	2	2	3	2,1,3	2	7	3	3	3	3	3
15	3	3,2	3	3	3	3	3,1,3,4	4	4	3	3	3	3	3
16	3	3,2,1	2	2	2	2	1,4	3	4	3	3	3	3	3
17	3	2,1,2	2	3	2	2	1	3	4	3	3	3	3	3
18	3	3,2	5	4	3	3	1,4	4	3	3	3	3	3	3
19	3	1,2	1	2	2	2	1	3	2	3	3	3	3	3
20	3	4,2	3	4	3	3	4,1	5	3	3	3	3	3	3
21	2	3,2,4	3	4	3	3	1	3	6	3	3	3	3	3
22	3	1,1,2	2	3	2	1	1,1	4	4	3	3	3	3	3
23	3	3,1,2,4	2	3	2	2	1,2	3	2	3	3	3	3	3
24	3	2,1,2	2	2	2	2	1,2	2	3	3	3	3	3	3
25	3	2,1,2	2	3	4	2	2	3	6	3	3	3	3	3
26	3	3,2	2	4	3	3	2,3	3	3	3	3	3	3	3
27	3	1,1,2,4	1	2	2	2	1,2	3	3	3	3	3	3	3
28	2	3,2	2	4	2	2	1	2	7	3	3	3	3	3

Overview Data View Variable View

IBM SPSS Statistics Processor is ready

Unicode ON Classic