

**Clara Bernard & Gabriel Ampart**

**THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SALES  
OPTIMISATION IN E-COMMERCE: STRATEGIES, TOOLS AND  
FUTURE PROSPECTS**

**Analyzing AI Strategies to Drive Sales Performance and Customer Engagement in  
E-Commerce**

**Thesis**

**CENTRIA UNIVERSITY OF APPLIED SCIENCES**

**Bachelor of Business Administration, Business Management**



**ABSTRACT**

<b>Centria University of Applied Sciences</b>	<b>Date</b> May 2025	<b>Author</b> Gabriel Ampart and Clara Bernard
<b>Degree programme</b> Bachelor of Business Administration, Business Management		
<b>Name of thesis</b> THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SALES OPTIMISATION IN E-COMMERCE: STRATEGIES, TOOLS AND FUTUR PROSPECTS. Analyzing AI Stategies to Drive Sales Performance and Customer Engagement in E-Commerce.		
<b>Centria supervisor</b> Hannu Kari	<b>Pages</b> 29	
<p>During the last years, artificial intelligence has become a major strategic tool in the growth of e-commerce. With personalization automation and predictive analysis, artificial intelligence as deeply changes the way companies work and the expectations of customers in a digital market that always evolves.</p> <p>In this context, this thesis is focused on the impact of artificial intelligence on how companies optimize their sales performance and build their strategies in online business. It analyze how tools like recommendation systems, chatbots or predictive stock management have an influence on sales, decision making and, in a more general way, the quality of the relation with customers.</p> <p>To do that, a mixed methodology was used. Five semi-structured interviews was made with three companies (fashion, electronics and decoration) and two consumers. Primary data, collected through qualitative semi-structured interviews, were combined with secondary sources, like market reports made by specialized agencies, recent scientific papers about the use of AI in online retail, and international case studies showing examples of companies who implement those technologies. This comparison helped to put in perspective the collected insights with the big trends observed at global level and made the analysis more complete.</p> <p>Results show that artificial intelligence makes companies more efficient, improves customer journey personalization, and increases conversion rate. However, there are still many challenges, like costs, technical complexity and ethical issues about data protection. The consumers interviewed mostly liked those innovations but also showed clear expectations of transparency and consent.</p> <p>This thesis brings forth some reflections from the interviews and from market analysis, to help better understand the current challenges related to artificial intelligence integration in e-commerce, and how it affects strategy and the relation between brands and clients.</p>		

**Key words**

Artificial Intelligence, Automation, Business Strategy, Chatbots, Customer Conversion, Customer Experience, Data Privacy, E-commerce, Personalization, Predictive Analytics, Recommendation Systems, Sales Optimization

## **CONCEPT DÉFINITIONS**

### **AI**

Artificial Intelligence

### **Automation**

Automatic execution of various tasks by technology without any direct human intervention.

### **B2C**

Business to Consumer

### **Conversion Rate**

The percentage of visitors who complete a desired action.

### **ML**

Machine Learning

### **NLP**

Natural Language Processing

### **Personalization**

Adaptation of different types of content and/or services based on a user's preferences and/or behavior.

### **Predictive Analytics**

Techniques that use data to forecast future outcomes.

### **SME**

Small and Medium-sized Enterprises

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## 1 INTRODUCTION

E-commerce appeared in the 1990s and changed the way companies and customers interact. At first, it was just about simple sales platforms, but it evolved quickly with the integration of more advanced digital technologies. Among them, artificial intelligence (AI) now plays a key role in the redefinition of business processes and customer experience. (Joshi, 2024)

After the COVID-19 crisis, the use of AI in e-commerce increased a lot. The closure of a lot of physical stores pushed companies to go faster in their digital transition, to follow the growing demand on online channels (Santos, Bacalhau, Augusto, Sousa, Vieira & Pontes, 2022). AI technologies help companies to analyze big volumes of data, detect buying behaviors and support decision-making more quickly (Ntumba, Aguayo & Maina, 2023).

From a sales performance point of view, AI contributes to better conversion rates, customer loyalty, and operational efficiency (Madanchian, 2024). It is also seen as a strategic tool that helps companies to better anticipate customer needs, adjust many marketing actions, and manage operations in a more flexible way (Farayola, Kaggwa, Eleogu, Okonkwo, Uwaoma & Akinoso, 2024). However, despite all these advantages, lots of limits still exist, like for example high implementation costs, technical complexity, data protection concerns, and difficulties to integrate AI into a long-term company strategy (Shah & Jhanjhi, 2024; Gołąb-Andrzejak, 2023).

Considering all these evolutions, but also the many challenges they bring, it seems both relevant and important to analyse how artificial intelligence influences the sales performance of e-commerce companies, and what kind of strategies can be used for optimise it while reducing the risks as much as possible. This is the goal of this research.

This thesis seeks to answer the following question: How does the integration of artificial intelligence improve sales performance as well as the business strategy of e-commerce companies? To answer this question, the research has several objectives. First, to analyse the main strategies and AI tools used in the e-commerce sector. Then, to understand their impact on sales performance (conversion, loyalty, engagement) and on customer satisfaction. Next, identify concrete barriers to their implementation. Finally, explore the possible evolution of AI in this fast-changing sector.

To clearly present the content and structure of this thesis, here is a short overview, the first part is dedicated to the theoretical framework. It is based on academic, professional, and recent sources, like Saleh & Zeebaree (2025), (Raji, Olodo, Oke, Addy, Ofodile, & Oyewole, 2024), Madanchian (2024), and also more specific studies about natural language processing (Takale, 2024; Patel & Trivedi, 2020), machine learning (Zhang, Wang, Li, Liu & He, 2023; Khamoushi, 2024), automation and personalization (Upadhya, 2024; Potwora, Vdovichena, Semchuk, Lipych & Saienko, 2024), and conversion or stock management (Tomescu, 2020; Karl & Khurana, 2022; Waleed, Khan, Rehman & Farooq, 2025). These sources help to understand how AI became a strategic lever in the e-commerce sector. The key concepts discussed will be customer experience personalization, automation of commercial processes, automated stock management, natural language processing, machine learning, and real-time personalization.

The second part is dedicated to the practical framework. A qualitative approach (primary data) supported by secondary data was used. The qualitative part is based on five semi-structured interviews: three with companies (two already using AI, one currently planning it), and two with consumers. The secondary data comes from market reports and recent case studies, which add an international and comparative perspective. This combination allows to compare field experience with broader industry trends and gives more depth to the analysis. Then, the results will be presented, followed by a discussion and a general conclusion. The thesis will end with a final summarizing conclusion.

As in most academic works, this study has limitations. It focuses on e-commerce companies that already use AI or plan to do so in the near future. It also targets companies operating mostly in developed markets. Even if the study is focused on companies, the perspective of consumers is also included. Legal or ethical topics are mentioned when needed, but they are not the central focus of this research.

## 2 THEORETICAL FRAMEWORK

Artificial intelligence is today very important in digital commerce. It helps companies to improve their customer relationships, optimize sales and operations. Several researchers have studied the use of AI in e-commerce and how it became a strategic tool for business and customer experience (Saleh & Zeebaree, 2025; Raji et al., 2024). Before explaining the concepts, this part shows how AI is applied today.

### 2.1.1 AI Integration in global e-commerce markets

Since many years now, artificial intelligence (AI) takes more and more place in the e-commerce. It helps both big and small companies to be more efficient and better respond to the needs of their customers. Today, we find AI in many areas: product recommendations, chatbots who assist consumers, and even stock management (Saleh & Zeebaree, 2025). One of the big advantages of AI is that it can analyze huge data. This helps companies to better understand customers' habits and adapt to their offers. The sites use it for recommending products who match with each user (Raji et al., 2024). Chatbots, which also work with AI, make communication with clients easier. They give quick and natural answers, which reduces the waiting time and makes the buying experience better. AI is not only for big business. Many small and medium-sized enterprises (SME) now use these technologies. They use it for personalizing their services and automate some tasks. This helps them stay competitive even when they face much bigger companies (Saleh & Zeebaree, 2025). But this fast evolution brings also some problems. Privacy, transparency of algorithms and the risk of bias in automatic decisions are things that cause concern (Madanchian, 2024; Raji et al., 2024). Companies must stay careful and use these tools with prudence. To resume, the coming of AI in e-commerce changed how companies communicate with their customers. This new solution creates a lot of opportunities, but they need also to care about ethical and technical things.

### **2.1.2 Recent trends in AI adoption (2021~2024)**

Between 2021 and 2024, AI is adopted very largely in e-commerce. This fast adoption has come mostly because of the change of customers' expectations and because the companies need to stay competitive. A big change was when SME's adopted AI, who before don't have many resources (Aljarboa, 2024). Many reasons explain why this adoption increases. The development of a more accessible solution and the need to personalize customer experience have been an important role. Aljarboa (2024) says that innovation, entrepreneurial spirit and attention for customers was important in this evolution. Customers also accepted AI more easily. Now, companies use chatbots more to help clients. A study by Marjerison, Zhang and Zheng (2022) showed that clients like authentic conversations, the simplicity and practical side of these tools. But some worries stay. Users still worry about their personal data and about the viability of some technologies, which are not always ready completely finished. Even if big progress has been made, technical and ethical difficulties stay. Qin (2024) explains that still many obstacles exist like updating of systems, training of staff, and the cost of these new technologies. Companies also must take care of data privacy, bias risk, and transparency in their systems. To finish, even if AI adoption in e-commerce had progressed fast between 2021 and 2024 thanks to technologies and customers' acceptance, companies still have many challenges to use correctly these tools and respect the rules and the expectations of the customers.

## **2.2 Theoretical concepts: NLP, Machine Learning, Automation.**

To better understand the role of AI in e-commerce, it is important to see the main theoretical concepts. Technologies like NLP, machine learning, automation and real-time personalization help businesses to collect and analyse big datas, predict behaviors and propose adapted solutions (Takale, 2024; Patel & Trivedi, 2020; Zhang et al., 2023; Khamoushi, 2024; Upadhyaya, 2024; Potwora et al., 2024).

### **2.2.1 Natural language processing in customer interaction**

Natural Language Processing (NLP) is now very important in e-commerce. It helps companies to understand and interact better with customers. NLP allows chatbots and virtual assistants to understand what clients say and give fast answers, often in real time (Takale, 2024).

One big advantage of NLP is that it can analyze what customers write and speak. This helps businesses to know what customers feel and what they want. NLP also helps to personalize the offers based on this information (Chavan, 2020).

Many companies use NLP for customer service. Chatbots can answer many questions without a human being. This reduces waiting time and makes customers happier. NLP also helps to understand the emotions of clients and adapt the answers (Patel & Trivedi, 2020). But there are some problems. Sometimes, NLP does not understand complex questions or language that is not standard. Also, there are worries about how customer data is used and protected (Takale, 2024).

To resume, NLP has changed how companies talk to their customers. It provides better service and faster answers but also needs to be used carefully because of the risks with data and language problems.

### **2.2.2 Machine learning for behavioral prediction**

Machine learning (ML) helps e-commerce companies predict how customers will act. ML analyse data from past purchases, navigation and other behaviors to see what customers like and what they will probably do next (Zhang et al., 2023).

One good thing about ML is that it can use a lot of data to see patterns that humans can't easily notice. For example, it can find which customers will maybe stop buying (Khamoushi, 2024). Then, companies can act early to keep those customers.

ML also helps to personalize marketing. It can recommend products or promotions that fit to each client. It makes customers feel understood and increases the chances they will buy again (Segun-Falade, Osundare, Kedi, Okeleke, Ijomah & Abdul-Azeez , 2024). But ML models need good data. If the data is wrong or incomplete, the prediction can be false. Also, there are risks of bias in the algorithms, and some customers worry about how much data is collected (Zhang et al., 2023).

To conclude, ML brings big advantages in predicting customer behavior and improving marketing, but companies must be careful with data quality and customer privacy.

### **2.2.3 Automation and real-time personalization**

Automation and personalization help e-commerce companies to provide better service and increase sales. Automation makes it possible to do tasks without humans, like sending emails or answering customer questions. Personalization adapts offers to each client (Upadhyaya, 2024).

For example, chatbots can answer questions all the time and save time for companies. They also give information fast. Automation is also used for marketing, like sending promotion emails to customers at a good time (Potwora et al., 2024).

Personalization use data to suggest products that customers will like. Dynamic pricing is another technic that changes prices based on demand or client profile (Patil, 2024).

But automation and personalization can have different problems. Some customers don't like it when companies use too much personal data. Also, automatic systems can sometimes make errors or give offers that don't match well (Upadhyaya, 2024).

To resume, automation and personalization give many benefits for e-commerce, but companies must balance between good service and respecting customer privacy.

## **2.3 Previous research on AI-Driven sales optimization**

Several studies have already analyzed how AI can optimize sales. They focus on conversion, customer engagement, and stock management. This part will present some of this previous research (Tomescu, 2020; Kaul & Khurana, 2022; Waleed et al., 2025).

### **2.3.1 Studies on conversion and customer engagement**

Conversion rate optimization (CRO) helps companies turn visitors into buyers. Clickstream analysis looks at how users move on the website to understand what works and what can be better (Tomescu, 2020).

Machine learning (ML) can study clickstream data to see patterns. It helps to know why some users buy and others don't. With this, companies can change the design or content to make more sales (Yusuff, 2024).

Personalization is also important. ML can suggest products or change website content to fit each visitor. This makes users feel the website understands them (Sharma, 2024). But there are challenges. Algorithms can make mistakes or not understand new user behaviors. Also, too much personalization can make users feel watched or uncomfortable (Tomescu, 2020; Sharma, 2024). To conclude, CRO and clickstream analysis are strong tools to increase sales. But companies must use them carefully to respect users and avoid mistakes.

### **2.3.2 Link between AI and inventory management efficiency**

Demand forecasting help companies to know what products will be needed in the future. It use data from past sales, seasons, and market trends to predict what customers will want (Kaul & Khurana, 2022).

Machine learning (ML) can analyze this data and make better forecasts than humans. It helps to avoid too much or too little stock. This saves money and makes sure products are available when clients want them (Muthukalyani, 2023).

Real-time data is also important. Some systems update the forecasts every day to follow new trends. Automatic inventory management uses this information to order new stock when needed (Waleed et al., 2025). But, if the data is wrong or incomplete, the predictions can be bad. Also, small companies may find it hard to use complex ML systems because they are expensive or difficult to manage (Kaul & Khurana, 2022).

To finish, demand forecasting and inventory management with AI bring big advantages, but companies need good data and must choose tools they can really use.

## 2.4 Conclusion of theoretical framework

The theoretical framework in this chapter shows how artificial intelligence (AI) play a central role in changing the commercial and operational strategies of e-commerce companies. Through recent literature review, it was shown that AI integration in e-commerce improves automatization, personalization and help to optimize overall commercial performance.

First, the section explained how AI is more and more used by both big and small businesses. This technology is wanted to improve efficiency and to meet customers' expectations for more personalization and fast services. Then, the key concepts like natural language processing (NLP), machine learning (ML), automatization, and personalization were explained. NLP improves the quality of customer interactions, ML helps to predict customers behaviors and automatization and personalization increase engagement and loyalty.

Finally, past research on sales optimization showed that AI help to increase conversion rates by analyzing how users navigate websites (clickstream analysis) and improve user experience. Also, predictive techniques for demand forecasting and smart stock management help to reduce costs and respond faster to what customers want.

However, even if there are many advantages, using AI in e-commerce brings technical, organizational and ethical challenges. Problems like data quality, algorithm transparency and privacy need attention.

So, this theoretical framework gives a strong base to understand how AI is changing e-commerce and prepares the next chapter where the practical analysis will be presented.

### 3 METHODS AND DATA

For this research, a qualitative methodology was adopted, based mainly on semi-structured interviews. This was complemented by secondary data (market reports and case studies) to enrich the analysis and give it a broader perspective. This approach was selected because it gives a more complete and precise vision of the subject studied, which is the integration of artificial intelligence (AI) in the e-commerce sector. Using this methodology give the advantage of exploring the subjective perceptions of participants and supporting the results with numeric and objective data.

The qualitative part of the study was based on primary data collected through semi-structured interviews was conducted with two types of participants. On one side, companies who already use AI technologies in their e-commerce activities or who plan to do it soon. On the other side, customers who usually make online purchases and who have already experienced AI applications during their shopping. The interviews allowed them to collect detailed information about their feelings, experiences, and expectations concerning AI in online commerce. This type of data is useful to understand opinions and personal perceptions that statistics cannot always explain.

The secondary data include both quantitative things (like statistics or performance numbers) and qualitative elements like expert opinions or case studies. These data was obtained by analyzing market reports, existing case studies and recent scientific articles. They include statistics on the adoption of AI, performance studies of companies who integrated AI into their e-commerce strategies and analysis of current trends. Secondary data completed the qualitative results by giving a general frame and allowing to compare the individual experiences of participants with broader trends observed in the market.

By combining these two types of methods and data, this research aims to get a global and balanced understanding of the subject. This methodology allows to cross the points of view of companies and customers and to ensure the solidity and credibility of the results.

### **3.1 Data collection tools: Survey, Case study, Interviews**

To collect the primary data (qualitative), semi-structured interviews was used. An interview guide was prepared before the interviews to guarantee some coherence between the different discussions.

However, the semi-structured format allowed participants to express themselves freely and to develop their answers beyond the prepared questions. This flexibility made it possible to get rich and detailed information about their experiences with artificial intelligence in e-commerce.

The interviews was done with companies and customers. Companies was selected according to their current use or future project of integrating AI in their e-commerce activities. Customers was choosed among people with significant experience in online shopping and who was exposed to AI solutions, such as personalized recommendations, chatbots or dynamic pricing management. The interviews was conducted face to face when possible, or at distance by phone or video conference depending of the availability and preferences of participants. All interviews was recorded with the agreement of the participants and then transcribed to make the data analysis easier.

For the secondary data, the study used various sources like market reports, published case studies and recent scientific articles talking about artificial intelligence and its application in e-commerce. These documents provided key statistics, concrete examples of AI integration and market analysis helping to better understand general trends and observed performance in the sector.

The combination of these data collection tools allowed to get diversified and complementary data. This approach reinforced the reliability of the results while giving a balanced vision between the individual experiences collected in the interviews and the general trends identified in the existing literature.

### **3.2 Sample descriptions and data collection process**

The sample of this study was composed of two different groups. The first group includes companies who already use artificial intelligence (AI) technologies in their e-commerce activities or who plan to do it soon. These companies come from various sectors to collect different perspectives about motivations and practices for adopting AI. The second group was made of customers who buy online regularly and who already experienced AI applications like chatbots, personalized recommendations or dynamic pricing management.

The data collection was based on semi-structured interviews, which provided qualitative information firsthand. All interviews were conducted only remotely, by video conference using Microsoft Teams or by phone. This choice was made to offer more flexibility to participants and to allow their participation no matter their geographical location.

For confidentiality reasons and to respect data protection rules (especially GDPR), the identity of the companies and customers who participated in the interviews was anonymized. This decision was taken to make sure participants can speak freely and to protect sensitive information that could be shared during the interviews. No company name or personal identifiable information was included in the results or the analysis.

To have a diversity of answers and representations, efforts were made to include companies of different sizes and consumers from various demographic profiles.

### **3.3 Type of data used: AI use cases, performance indicators, user feedback**

This research was based on two main types of data. The primary data was collected through semi-structured interviews conducted with companies and customers. These qualitative data allowed to collect detailed information about the individual experiences, opinions and expectations of both groups about the integration of AI in e-commerce.

Secondary data was obtained from existing documents and reports. These sources included market studies, published case studies and recent scientific articles talking about the application of AI in the e-commerce sector. These secondary sources included both statistical data (quantitative) and descriptive case studies (qualitative), offering a complete view of AI integration in e-commerce. The secondary data completed and contextualized the qualitative results by providing key statistics, concrete examples of AI integration and analysis of market trends.

The combination of these two types of data allowed to compare the interview results with general trends observed in the existing literature, which helped to increase the credibility and the validity of the conclusions of this study.

## 4 RESULTS

### 4.1 Methodology reminder: semi structured interviews

For this research, qualitative data was collected by using semi-structured interviews. This method was chosen because it allowed to explore the subjective opinions, feelings and experiences of the participants while still keeping a structure to guide the discussion. Semi-structured interviews give the flexibility to adapt the questions depending of the participants' answers and to collect detailed information that cannot be obtained only with quantitative data.

The interviews was conducted between 9 April and 15 April 2025. In total, five interviews was done: three with companies and two with customers. The companies included two using already artificial intelligence (AI) in their e-commerce activities (one in the fashion sector and one in electronic distribution) and one company planning to adopt AI solutions soon (interior decoration sector). The customers included one regular online buyer (28 years old) and one occasional buyer (35 years old). Both had already experienced AI tools such as personalized recommendations, chatbots or dynamic pricing systems during their online shopping.

All interviews were conducted remotely, by video conference (Zoom or Teams) or by phone, except one customer interview which was conducted face to face. An interview guide was prepared before each interview to keep some coherence between the different discussions. However, the semi-structured format allowed participants to express themselves freely and develop their answers. All interviews were recorded with the agreement of the participants and then transcribed for the analysis. The identity of the companies and customers was anonymized to respect the confidentiality and the data protection rules (GDPR). No company name or personal identifiable information was included in the results or the analysis.

These qualitative data allowed to better understand the real perceptions of companies and customers about the integration of AI in e-commerce, and to identify both the advantages and the challenges that they observe or expect.

### **4.1.1 Overview of participants**

The sample of participants was composed of two distinct groups: companies and customers. Three companies were interviewed. The first was active in the fashion sector, using artificial intelligence from 2022 mainly for product recommendations, chatbots and dynamic pricing. The second company was an electronic distributor who integrated AI from 2021 to automate customer service with chatbots and to optimise predictive stock management. The third company, specialized in interior decoration, did not yet have AI solutions at the moment of the interview but was planning to integrate personalized recommendations and a basic chatbot before the end of 2025. These companies represented different sizes and sectors, which allowed them to collect diversified perspectives about the integration of AI in e-commerce.

Two customers who already used artificial intelligence tools in their online shopping also participated in the study. The first was a regular online buyer (28 years old), used platforms including personalized recommendations and chatbots. The second was an occasional buyer (35 years old), with moderate experience with product suggestions and dynamic pricing, and expressing some concerns about the use of his personal data. The customer profiles were selected to reflect varied purchasing behaviours and different levels of exposure to artificial intelligence technologies.

This diversity of participants allowed us to collect a rich set of points of view about the perceived benefits, the challenges encountered and future expectations regarding the use of AI in the e-commerce sector.

### **4.1.2 Interview Results**

The analysis of the semi-structured interviews allowed us to identify several general trends as well as some divergences between the answers of the companies and the customers.

For companies, the integration of artificial intelligence was seen as a strategic lever to improve customer experience and optimize commercial performance.

The companies already using AI observed important benefits, including a better personalization of product recommendations, a reduction of the workload of customer service thanks to chatbots and

more efficient stock management. These innovations helped to increase the conversion rate, to extend the time spent by customers on the website, and to increase the average basket. However, several challenges were also mentioned. The initial investment costs were high, the technical integration can be complex, and significant efforts are needed to train the internal teams to use these new technologies. Moreover, some risks were mentioned, including potential algorithmic bias and the difficulty of maintaining a human experience in a more and more automated environment.

The company planning to integrate AI in the short term shared high expectations about the potential advantages of these technologies. It hopes to improve customer satisfaction and loyalty, while being fully aware of the high costs and technical challenges associated to such an implementation. It also expressed a particular concern about preserving the human dimension of its customer service, essential to its brand identity.

From the customers' side, artificial intelligence was generally perceived in a positive way, especially when it helps to facilitate the product search and to propose relevant recommendations. The regular users highlighted the time saving and the relevance of the suggestions generated by the algorithms. Nevertheless, several frustrations were also expressed. Some customers noticed that the suggestion was not always adapted to their needs and that the dynamic pricing systems could cause price changes that they considered unfair or not transparent. Also, concerns about privacy and the use of personal data were frequently mentioned. A lot of consumers have expressed the wish to have better control over their data and more transparency from the companies about how these different data are used.

Overall, the results show that artificial intelligence is largely recognized as a very powerful tool to improve online shopping experience, both from companies and the customers' point of view. However, its adoption raises legitimate concerns, especially about cost, technical complexity and privacy respect.

#### **4.1.3 Key quotes from interviews**

To illustrate the main findings, some representative quotes were selected from among the answers of the participants. These declarations reflect both common perceptions and specific concerns identified during the five interviews (3 with companies and 2 with customers).

The marketing manager of the fashion company highlighted the essential role of artificial intelligence in personalization and improving customer experience by saying: “AI help us to give the right product to the right person at the right time.” (Interview 1). This statement summarizes the main objective sought by companies adopting AI in their e-commerce activities.

The e-commerce director of the electronic distributor pointed out the benefits of automation while recognising some technical challenges: “Automation reduced our human errors but bring new technical problems sometimes.” (Interview 2). He also said: “The chatbot handles about 65% of simple questions now. It really lightens the workload of our team.” (Interview 2), highlighting the positive impact on customer service management.

On the challenges side, the CEO of the interior decoration company, who plans to adopt AI, said: “The cost is the first challenge. And we are also afraid of losing the human side of our customer service.” (Interview 3). This reflects the concerns of small companies facing automation.

From the customer's perspective, the regular buyer (who is 28 years old) shares his personal opinion about the personalization: “Frankly, it saves me time. The suggestions are often relevant.” (Interview 4). However, he also expressed concern: “It's very practical but sometimes it's scary. It's like they know everything about me.” (Interview 4). The occasional buyer (who is 35 years old) pointed out a frustration related to dynamic pricing: “Prices change all the time. It annoys me. You never know if you're paying the right price.” (Interview 5). About data collection, he declared: “I prefer to be clearly asked for my consent before my data is used.” (Interview 5).

Finally, about the future of AI, the marketing manager of the fashion company added: “We will continue to develop more advanced AI solutions but always keeping a balance with the human experience, because it's essential”.

These quotes give a direct voice to the participants and illustrate clearly the diversity of perceptions about the different benefits, the challenges and also the expectations related to the integration of artificial intelligence in e-commerce.

#### **4.1.4 Conclusion of the interview results**

The semi-structured interviews conducted with companies and customers allowed us to collect valuable information about integration of artificial intelligence in the e-commerce sector. They confirmed that AI is perceived as a strategic technology offering a lot of important benefits, especially in terms of personalization of the customer experience, automation of processes and operational optimization. However, the results also revealed several challenges, particularly the high cost of solutions, the technical complexity of their implementation and concerns related to the privacy of personal data.

On the companies side, whether they already use AI or plan to adopt it soon, there is a clear willingness to take advantage of these different technologies to improve customer satisfaction and loyalty while maintaining a human dimension in the customer experience. On the consumers side, even if AI is generally appreciated for the advantages it provides, persistent concerns remain about the relevance of some suggestions, the transparency of dynamic pricing practices and the management of personal data.

Generally, in the results highlight a delicate balance between the opportunities offered by artificial intelligence and the challenges it raises, both for companies and for consumers. These findings will provide an essential basis for comparison with the secondary data from the case studies and for formulating recommendations adapted to e-commerce actors wishing to integrate or optimize the use of artificial intelligence.

#### **4.2 Results from secondary data: case studies and market reports**

This part presents the results obtained from the analysis of secondary data, including market reports, scientific articles and case studies. The goal was to understand the trends and impacts of artificial intelligence (AI) in e-commerce from a broader perspective. These secondary data help to complement the primary data collected during interviews with companies and customers. By combining these two types of data, the research can compare practical experiences with industry trends and academic findings.

### 4.2.1 Sources used

To complete the primary data collected through the interviews, several secondary sources were used. These include recent scientific articles and professional reports from well-known consulting firms in the field of e-commerce and artificial intelligence (AI). The works of Patel & Trivedi (2023) and Patil (2023) provided deep analysis of the impact of AI on personalization and decision-making in online commerce. In addition, market reports published by McKinsey & Company (2024), Statista (2024), and the Salesforce State of Commerce Report (2024) offered up-to-date data on AI adoption trends, business performance, and customer behaviors. The case studies mentioned in these reports, such as improvements in stock management or customer experience observed in several international companies, were used to give concrete examples of AI applications. These secondary sources included both statistical data (quantitative) and descriptive case studies (qualitative), offering a more complete perspective. Together, these different data completed the interviews results and allowed us to compare what companies and customers said with the big evolutions observed globally.

### 4.2.2 Main trends identified

The secondary sources confirm that integrating AI in e-commerce had significant effects on many key areas. First, AI has helped to improve conversion rates and customer engagement. According to Patel & Trivedi (2023), personalization algorithms allow to propose product recommendations adapted to customer preferences, which increase sales and average basket size. Also, Statista (2024) reports that more than 63% of e-commerce businesses that adopted AI solutions observed an increase in their conversion rate within two years after implementation.

Then, the automation of operational processes, especially stock management and customer service, has shown to be beneficial. According to McKinsey (2024), AI-assisted automation has reduced demand forecasting errors by up to 50%, leading to lower operational costs and better product availability. Patil (2023) adds that AI systems not only optimize stock levels but also predict seasonal demand fluctuations with greater accuracy.

Moreover, personalization of the shopping experience has become a key factor for customer loyalty. The Salesforce State of Commerce Report (2024) states that 80% of consumers now expect personalized experiences when shopping online, and companies using AI technologies to personalize experiences saw an average 25% increase in customer loyalty.

Finally, several secondary sources also mentioned challenges linked to AI adoption, such as the high cost of technology solutions, the technical complexity of integration, and ethical concerns about data privacy. These limitations align with the findings of Qin (2024) and Shah & Jhanjhi (2024), who highlight the risks of algorithmic bias and the need for transparency when using AI systems.

#### **4.2.3 Comparison with primary data**

The trends observed in the secondary data show many similarities with the results obtained through semi-structured interviews conducted with companies and customers. First, both types of data confirm that personalization is seen as a major strategic advantage of artificial intelligence in e-commerce. The studies of Patel & Trivedi (2023) and the Salesforce report (2024) show that personalization significantly increases conversion and customer loyalty. This trend is confirmed by the companies interviewed. For example, the marketing manager of the fashion company said that AI allowed them to "give the right product to the right person at the right time". Also, the customers interviewed agreed that personalized recommendations made their purchases easier and saved them time, which aligns with the research of Raji et al. (2024) about improving customer experience with AI.

In terms of automation, secondary and primary data also converge. Reports by McKinsey (2024) and Patil (2023) underline that automation reduces workload for teams and improves operational efficiency. Similarly, the companies interviewed said that their chatbots handled a large part of simple requests, allowing staff to focus on more strategic tasks. The electronics sector company even mentioned that its chatbot managed around 65% of basic queries. This finding is consistent with figures from Statista (2024), which show that customer service automation with AI is now used by a majority of e-commerce companies.

The challenges identified in the secondary data also reflect what was found in the interviews. The studies by Qin (2024) and Shah & Jhanjhi (2024) mention challenges like the high cost of AI technologies, technical difficulties in integration, and ethical concerns about data privacy. The interviewed companies confirmed these points. They cited the initial cost and technical difficulties as major obstacles. Also, both companies and consumers expressed concerns about the protection of personal data. One customer even said he preferred to be "very clearly informed and give consent" before his data was used, which reflects the concerns raised in academic literature.

Finally, about the future perception of AI, both secondary and primary data show a shared desire to continue integrating AI while maintaining a balance with human experience. The Salesforce report (2024) emphasizes not sacrificing the human touch in the growing automation of services. This opinion is shared by the CEO of the interior decoration company interviewed, who stressed the desire to keep the "human side" of customer service despite the planned adoption of AI solutions.

In summary, the comparison between secondary and primary data shows a strong consistency. The perceived advantages, the challenges faced, and future expectations are similar in both sets of data. This convergence strengthens the validity of the research findings and confirms the growing role of artificial intelligence in transforming modern e-commerce.

## 5 DISCUSSIONS AND CONCLUSIONS

This research was conducted to answer the following question: how does the integration of artificial intelligence improve commercial performance and strategy of e-commerce companies? In a context where digitalization is growing very fast and customer expectations really change, artificial intelligence appears as a major strategic tool to rethink commercial practices and to optimize customer experience.

To bring a complete answer to this issue, a lot of objectives have been defined. First, the aim was to identify the main strategies and AI tools used in the e-commerce field, like for example: recommendation systems, chatbots, automatization of processes or even predictive stock management. Then, the research tried to evaluate the real effects of those technologies on commercial performance, especially their impact on conversion rate, customer loyalty, engagement and satisfaction. Another important objective was to identify the different obstacles met by companies in the adoption of these tools, financial, technical, organizational or human, in order to understand what really limit their implementation in a more and more competitive environment.

To reach those objectives, a qualitative methodology (primary data) was applied, supported by secondary data from market studies and recent research. The qualitative data was collected thanks to semi-directive interviews conducted with three different companies, two of them already using AI tools, and two customers who have been exposed to these technologies during their online purchases. These interviews helped to collect detailed feedback on types of usages, perceptions, observed advantages, but also fears and limits expressed by the participants.

In addition, a secondary data analysis was made using market reports, case studies and scientific articles. These sources brought a quantified dimension to the study by highlighting international trends, performance indicators linked to AI, and some best practices seen in the sector.

The combination of those two types of data allowed to compare concrete experiences with more global trends, to increase the credibility of the results, and to offer a complete and balanced analyze about the real impact of artificial intelligence in the e-commerce sector.

## 5.1 Cross-analysis of the results

This part aims to connect the results from all the interviews done with companies (3) and customers (2), with the trends found in market studies and the reports used as secondary data. The objective is to see if the perceptions and experiences collected from the field confirm the more general analysis about artificial intelligence in e-commerce.

First, personalization appears as a strategic advantage confirmed by both primary and secondary sources. The companies interviewed all underlined the positive impact of personalized recommendations on conversion and loyalty. The marketing manager from the fashion company said that AI allowed them to “give the right product to the right person at the right moment”. This statement is also supported by studies from Patel & Trivedi (2023) and the Salesforce report (2024), which show that personalization improves customer experience and increases sales. The customers interviewed also recognized that these suggestions made their shopping easier and also faster, even if some expressed a kind of discomfort regarding how their personal data was used.

Concerning automated customer service, the results also show a strong and big convergence. Companies explained that chatbots helped manage a large part of basic requests, which reduced the workload for their teams. The company in the electronic sector said its virtual assistant was dealing with almost 65% of simple queries. These testimonies match with the findings from McKinsey (2024), Statista (2024), and Patil (2023), who confirm that automation improves efficiency and lets human staff focus on more complex tasks. From the customer side, this automation is mostly seen as useful, but some regret the lack of human interaction or the impersonal tone of the answers.

Stock management is another field where the two data types seem to agree. One company explained that AI helped them to anticipate demand better and avoid stockouts. This is consistent with what Patil (2023) and McKinsey (2024) mention in their research: that AI helps reduce forecasting mistakes, adjust inventory levels in real time, and respond more accurately to client's expectations.

Finally, the barriers to AI adoption are clearly visible in both primary and secondary data sources. The companies interviewed talked about high costs, technical complexity and the necessity to train employees. The topic of personal data protection was also raised by both companies and customers. These concerns echo the studies from Qin (2024) and Shah & Jhanjhi (2024), who insist on challenges

such as algorithm transparency, possible biases, and the importance of user consent. One customer even said he wanted “to be clearly informed and give agreement” before his data is used, which reflects well what is highlighted in academic literature.

In brief, secondary data helped confirm and complete the results from the interviews. The consistency between both sources reinforces the validity of the study and shows that AI is generally perceived as a strategic tool, even if its adoption still needs to find a balance between technical performance, trust, and human experience.

## **5.2 Critical evaluation of the research**

This section gives a reflection about the methodological choices used in this research, and on the strengths and limits that can affect the quality of the results.

The use of a qualitative methodology, combining semi-structured interviews and secondary data from reports and scientific publications, was well adapted to the research problem. This method made it possible to cross the views of companies and consumers, and to compare them with the larger trends observed in the e-commerce sector. It helped to build a global and concrete understanding of the subject.

The quality of the data used is one of the strengths of the study. The interviews were done with companies from different industries, and with two consumers having different buying habits, which allowed us to collect complementary perspectives. The insights obtained helped to understand better the benefits of artificial intelligence, the expectations of users, but also their concerns about data protection or the reduction of human interaction. The secondary sources were selected with attention, mostly from recent and reliable publications (Statista, McKinsey, Salesforce), which reinforced the credibility of the analysis and confirmed many points raised in the interviews.

Even if the number of interviews remains limited, they were enough to highlight relevant patterns and illustrate real situations. The fact that interviews were made online helped the organisation and the diversity of the participants, even if it maybe reduced the spontaneity or depth of some answers.

As it is often the case in qualitative research, the answers collected can reflect personal opinions, depending on the experience and context of each participant. Also, this study didn't include internal numerical data from companies, like conversion rates or performance metrics, which limits the possibility to check some impacts more precisely.

However, this limitation was strongly reduced thanks to the use of solid and up-to-date secondary data. These additional sources made it possible to verify, nuance, or complete the information gathered through interviews. The combination of both data types made the findings more reliable and supported by a consistent analysis, close to both real situations and the current evolutions of the market. We can say that the reliability of the research is supported by the consistency between the primary and secondary data, and that its validity is strengthened by the good match between the research goals and the data collected.

These results don't only show operational impacts. They also suggest that artificial intelligence, when implemented in a thoughtful way, can support the long-term strategic planning of e-commerce companies. By allowing better anticipation, more precise personalization of customer journeys, and automation of important processes, AI tools help to align operational decisions with larger strategic objectives. However, this alignment still needs a clear vision and a certain internal ability to adapt, which is still a challenge for many companies.

#### **5.4 Practical implications and recommendations for companies**

From the results obtained in this research, several recommendations can be proposed for e-commerce companies who want to integrate artificial intelligence into their commercial strategy. These suggestions are directly based on the feedback of professionals interviewed, on the opinions of consumers, and on the secondary sources analyzed. The first recommendation is about the use of personalization tools. As mentioned by the companies interviewed, and confirmed by secondary sources, personalized product suggestions have a positive impact on customer conversion and loyalty. Therefore, it would be relevant for companies to invest in different AI tools that are able to offer content or type of products adapted to the preferences of each customer. However, this personalization must stay well-balanced: customers expect a tailored experience, but not one that feels intrusive. It is important to keep a balance between both: commercial performance and respect for privacy.

The second recommendation is about the automation of customer service. The companies interviewed explained that chatbots helped them save time by answering simple requests. This kind of automation can be useful to improve reactivity and reduce the pressure on customer relations. But, as some customers mentioned during interviews, human presence should not disappear completely. It is especially important when clients have more complicated or sensitive problems. In that case, a combination between automated tools and human support could be the best solution.

The third recommendation concerns the conditions for implementing AI. The interviews showed that some companies faced technical, financial or human barriers. To reduce these obstacles, it is advised to prepare the internal teams by organizing trainings or adapting internal processes. It is also important to communicate very clearly with customers about the way of AI is used, especially when it comes to data. Giving transparent information and collecting consent are good ways to build trust and to avoid misunderstandings that could generate frustration or refusal.

These recommendations are not meant to apply to every company. But they provide some realistic directions, based on real experiences observed during this research. They can help companies to benefit from AI technologies, while taking into account both the expectations of their users and the operational limits shown in the field.

## **5.5 Human and ethical issues**

Then, to technical and commercial aspects, the use of artificial intelligence in e-commerce also raises important human and ethical questions. These two topics appeared in the interviews and in the secondary sources analyzed.

From the customer's side, the main concern is related to the use of their personal data. One of the clients interviewed said he wants to be clearly informed and give his agreement before his data is used. This kind of expectation matches what is explained in the studies of Qin (2024) and Shah & Jhanjhi (2024), who highlight the importance of transparency and data privacy. If customers feel that their personal data is used without their approval, it can reduce their trust in the company.

Some companies interviewed also said that they want to keep a human relation with their customers, because it's important for many reasons even if they are starting to use AI tools. That was especially

mentioned by the decoration company, who explained they still want to keep human contact even with more automation. The Salesforce report (2024) also speaks about that and says that businesses should not forget the human aspect when developing automated services.

Another concern shown in the secondary sources is the risk of bias in algorithms. When the data used to train the AI, the system is not well balanced, the results can be unfair or incorrect. Even if this point was not clearly discussed in the interviews, it remains an important ethical topic and shows that companies need to control and supervise how their AI tools work.

These examples show that AI is not only about performance or efficiency. Companies need to consider human expectations and also explain how the tools works, protect customer data, and maintain the quality of their relationship with users. If these elements are very well respected, AI can be used in a responsible and trustworthy way, which is positive both for customers and for companies.

## 6. SUMMARIZING CONCLUSION

This research explored how artificial intelligence (AI) is transforming the e-commerce sector, by focusing on both commercial performance and customer experience. By combining a theoretical framework, secondary data from market reports and scientific articles, and qualitative interviews with companies and customers, the study gave a complete and balanced view about the impact of AI on online commerce today.

The results confirmed that AI is now a key tool for e-commerce businesses. Personalization, automation and better customer relations was some of the main benefits found, in both academic sources and real testimonies of companies and consumers. Recommendation systems, chatbots and stock management powered by AI help to increase sales and optimize daily operations. Beyond these operational benefits, the findings also suggest that AI can support long-term strategic planning by aligning customer insights (preferences, expectations) with business objectives. However, some limits and risks are still present, like the cost of technology, the difficulty of technical integration and the questions around data privacy.

The interviews done with companies and customers showed that even if AI brings a lot of new opportunities, the human side and ethical values must stay at the center of the customer experience. The mix between academic studies and the real field feedback make the results more credible and shows that AI will continue to grow in next years, but should be used with precaution and strategy.

In conclusion, AI is not only a temporary trend, but a real transformation in the way e-commerce businesses work and interact with their clients. This research give useful ideas for managers who want to use AI in a responsible and efficient way, and also open space for future studies about innovation and digital customer relation. It could also be interesting to explore how small business, or emerging markets can integrate AI tools with limited resources, in order to reduce numeric inequalities and promote a more inclusive adoption of these technologies.

## REFERENCES

- Aljarboa, S. 2024. Factors influencing the adoption of artificial intelligence in e-commerce by small and medium-sized enterprises. *International Journal of Information Management Data Insights*, 4(1), 100183.
- Chavan, P. 2020. Chatbot: A Conversational Artificial Intelligence (AI) software based on NLP. *International Journal of Creative Research Thoughts*, 8(9), 2327–2333.
- Farayola, O., Kaggwa, S., Eleogu, T.F., Okonkwo, F., Uwaoma, P.U., and Akinoso, A. 2024 AI in Decision Making: Transforming Business Strategies”, *International Journal of Research and Scientific Innovation*. January 2024. Available at: [https://www.researchgate.net/publication/377345979\\_AI\\_in\\_Decision\\_Making\\_Transforming\\_Business\\_Strategies](https://www.researchgate.net/publication/377345979_AI_in_Decision_Making_Transforming_Business_Strategies). Accessed: 22 April 2025.
- Gołąb-Andrzejak, E. 2023 AI-powered Digital Transformation: Tools, Benefits and Challenges for Marketers. -Case Study of LPP”, *Procedia Computer Science*, 219, pp. 397–404. Available at: <https://pdf.sciencedirectassets.com/280203/1-s2.0-S1877050923003149/main.pdf>. Accessed: 26 April 2025.
- Joshi, M. 2024 Artificial Intelligence in E-Commerce: A Comprehensive Analysis. Available at: [https://www.researchgate.net/publication/378770428\\_Artificial\\_Intelligence\\_in\\_E-Commerce\\_A\\_Comprehensive\\_Analysis](https://www.researchgate.net/publication/378770428_Artificial_Intelligence_in_E-Commerce_A_Comprehensive_Analysis). Accessed: 25 April 2025.
- Kaul, R., & Khurana, S. 2022. AI-Driven Optimization Models for E-commerce Supply Chain Operations. *International Journal of Social Analytics*, 5(3), 121–138.
- Khamoushi, M. 2024. AI in Food Marketing: From Personalized Recommendations to Predictive Analytics. *Journal of Food Products Marketing*, 30(1), 75–95.
- Madanchian, M. 2024 The Impact of Artificial Intelligence Marketing on E-Commerce Sales Systems. 12, pp. 1–20. Available at: [https://mdpi-res.com/d\\_attachment/systems/systems-12-00429/article\\_deploy/systems-12-00429-v2.pdf](https://mdpi-res.com/d_attachment/systems/systems-12-00429/article_deploy/systems-12-00429-v2.pdf). Accessed: 22 April 2025.
- Marjerison, R. K., Zhang, Y., & Zheng, H. 2022. AI in E-Commerce: Application of the Use and Gratification Model to The Acceptance of Chatbots. *Sustainability*. 14(21), 14270.
- Muthukalyani, K. 2023. Unlocking Accurate Demand Forecasting in Retail Supply Chains with AI-driven Predictive Analytics. *International Journal of Information Technology and Management Information Systems*, 14(1), 45–59.

- Ntumba, C., Aguayo, S. and Maina, J.K. 2023 Revolutionizing Retail: A Mini Review of E-commerce Evolution. *Journal of Digital Marketing and Communication*, 3(2), 100–110. Available at: <https://tecnoscientifica.com/journal/jdmc/article/download/365/184>. Accessed: 23 April 2025.
- Patel, N., & Trivedi, S. 2020. Leveraging Predictive Modeling, Machine Learning Personalization, NLP Customer Support, and AI Chatbots to Increase Customer Loyalty. *EQM ResearchBerg*, 3(3), 1–24.
- Patel, R., & Trivedi, A. 2023. *The role of AI-driven personalization in enhancing e-commerce performance*. *Journal of Retail Technology*, 19(4), 56–68.
- Patil, A. 2024. Artificial intelligence in retail and e-commerce: Enhancing customer experience through personalization, predictive analytics, and real-time engagement. *Journal of Retail Innovation*, 12(4), 45–63.
- Patil, S. 2023. Artificial intelligence for operational efficiency in e-commerce: Demand forecasting and inventory management. *International Journal of Digital Commerce*, 12(2), 101–115.
- Potwora, M., Vdovichena, O., Semchuk, O., Lipych, T., & Saienko, V. 2024. The use of artificial intelligence in marketing strategies: Automation, personalization and forecasting. *Journal of Management World*, 8(2), 88–102.
- Qin, R. W. 2024. Navigating Integration Challenges and Ethical Considerations of AI in E-Commerce. *Technology and Investment*, 15, 168–181.
- Raji, M. A., Olodo, H. B., Oke, T. T., Addy, W. A., Ofodile, O. C., & Oyewole, A. T. 2024. E-commerce and Consumer Behavior: A Review of AI-Powered Personalization and Market Trends. *GSC Advanced Research and Reviews*. 18(3), 66–77.
- Saleh, R. A., & Zeebaree, S. R. M. 2025. Artificial Intelligence in E-commerce and Digital Marketing: A Systematic Review of Opportunities, Challenges, and Ethical Implications. *Asian Journal of Research in Computer Science*. 18(3), 395–410.
- Santos, V., Bacalhau, L., Augusto, T., Sousa, B., Vieira, J. and Pontes, D. 2022 E-Commerce: Issues, Opportunities, Challenges, and Trends. In: IGI Global. Available at: <https://www.igi-global.com/view-titlesample.aspx?id=313844>. Accessed: 26 April 2025.

- Segun-Falade, O. D., Osundare, O. S., Kedi, W. E., Okeleke, P. A., Ijomah, T. I., & Abdul-Azeez, O. Y. 2024. Utilizing machine learning algorithms to enhance predictive analytics in customer behavior studies. *International Journal of Scholarly Research in Engineering and Technology*, 4(1), 001–018.
- Shah, I.A. and Jhanjhi, N.Z. 2024 The Challenges for E-Commerce Using AI Applications. In: IGI Global. Available at: <https://www.igi-global.com/viewtitlesample.aspx?id=360006>. Accessed: 26 April 2025.
- Sharma, M. 2024. AI in E-Commerce: Revolutionizing Online Shopping Experiences. In *Emerging Issues in India* (95–110). Springer.
- Takale, P. 2024. Revolutionizing Customer Interaction: NLP-Powered Virtual Shopping Assistants and Sentiment Analysis in E-commerce. *Journal of Firewall Software and Networking*, 5(2), 14–22.
- Tomescu, R. 2020. Conversion rate optimization in e-commerce: Using machine learning to identify website satisfaction in clickstream patterns. *Master's thesis, Tilburg University*.
- Upadhyaya, A. 2024. Artificial Intelligence in Web Development: Enhancing Automation, Personalization, and Decision-Making. *International Journal of Advanced Research in Science Communication and Technology*, 10(1), 25–34.
- Yusuff, O. 2024. Generative AI for Retail Loyalty Programs: Personalized Rewards and Engagement Strategies. *Journal of Retail Technology and Innovation*, 9(2), 55–72.
- Zhang, J., Wang, Z., Li, Z., Liu, L., & He, X. 2023. A Brief Survey of Machine Learning and Deep Learning Techniques for E-Commerce Research. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(1), 1–19.

APPENDIX 1/1

**First Interview with a marketing manager in a fashion company**

Date of the interview: 15 April 2025

Duration of the interview: 28 minutes

Mode for the interview: By Zoom video conference

Participant is a marketing manager employee in a fashion company (anonymized)

Interview made by Gabriel Ampart

Start of the transcription:

Gabriel: Hello and uh... thank you for accepting this interview, it's very kind. To start, since when does your company use artificial intelligence in your e-commerce activities, if your company use it ?

Respondent: Hello! So... uh... we started in 2022. At first it was very basic, for example for product recommendations, you know, uh... the kind of "you may also like." Then, uh... we gradually added a chatbot, and last year, a dynamic pricing system.

Gabriel: okay mmh... Very good. What was the first results or the benefits you observed after integrating AI?

Respondent: Honestly, mmh... we saw quickly that customers was staying longer on the website. The conversion rate, uh, clearly increased. Also, the average baskets went a bit higher, because the recommendations often propose more expensive or complementary items, it's you know a strategy. Ah, customer service also gained efficiency with the chatbot. It handles about, mmh, 65% of simple questions now.

Gabriel: okay. And what do you think are the main advantages that AI brought to your e-commerce activity?

## APPENDIX 1/2

Respondent: mmh (reflexion), I would say first personalization, uh... very important. Customers feel, mmh, understood. Then, uh... speed. The automatization of answers and the real-time price management, it's a big plus. And of course, the customer data analysis, it helps us a lot to take strategic decisions, yeah, it's very helpful.

Gabriel: Very interesting, thank you. Did you face difficulties or challenges during the implementation of these AI solutions?

Respondent: (small laugh) Oh yes, of course haha, it's a challenge. Uh... the cost, it's a heavy investment. The integration at the beginning, uh... it was complicated. Our teams was not really trained, so we had to organise a lot of internal trainings for everyone. Mmh... also technical problems at the start. And even today, uh... we need to monitor algorithms bias.

Gabriel: How do your customers react to these technologies? Are they aware?

Respondent: Mmh... not all. Some notice the recommendations and appreciate them. Others, uh... don't even realise there is a chatbot. But, uh... some customers express concerns about data protection. We had to be, uh, very transparent on that.

Gabriel: And finally, how do you see the future of AI in your company and in the e-commerce sector in general?

Respondent: Uh... AI will continue to evolve, that's sure. We, mmh, we are already thinking to integrate more advanced personalization solutions and maybe, uh, predictive systems to anticipate buying trends. But, uh, there will always need to find the right balance between technology and human experience.

Gabriel: Thank you very much for all these answers and uh, have a good day.

Respondent: Thank you. Good luck with your research and for your thesis!

APPENDIX 1/3

**Interview 2: Electronics company (E-commerce Director)**

Date: 9 April 2025

Duration: 26 minutes

Mode: Teams video conference

Participant: E-commerce Director, electronics distributor (anonymized)

Interviewer: Clara Bernard

Start of the transcription:

Clara : Hello and euh...thank you for accepting this interview. So we can start now when does your company use artificial intelligence in your e-commerce activities?

Respondent: Hello, it's a pleasure, mmh... we started quite early I think. Uh... in 2021. First we integrated a chatbot for customer service. Then, mmh, we developed predictive stock management solutions for the next year.

Clara: What was the first benefits or the different results you noticed after this integration?

Respondent: The chatbot really helped to reduce the workload for the customer service. Lots of repetitive requests, you know, uh... like for example "where is my package?", "how to return a product?". Mmh and... now the bot manage that very well. For stock management, uh... fewer shortages and better rotation of products.

Clara: What are the different advantages that AI brings you today?

Respondent: Mmh...I think it's : reactivity. We can change prices, anticipate stocks, almost in real time. And efficiency. Several processes are automatized, it allowed us to focus on more strategic tasks.

Clara : Did you face difficulties during the implementation?

## APPENDIX 1/4

Respondent: Yes. Uh... the cost is very high, it's you know an investment. And technical complexity. Sometimes, mmh... the systems don't communicate well together. We had to call consultants. And there is always the need to monitor automatisisation errors.

Clara: How do your customers perceive these technologies?

Respondent: Most don't even realise it's AI. For them, it's just good customer service and useful recommendations. But some customers more tech-savvy ask questions about personalization and data protection.

Clara : And how do you perceived the future?

Respondent: Clearly with more automatization and personalisation. But we must keep a balance between technology and human contact.

Clara: Thank you very much !

Respondent: With pleasure, good luck!

Clara : Bye have a nice day.

Respondent: you too!

### **Interview 3: Interior decoration company (CEO)**

Date: 11 April 2025

Duration: 24 minutes

Mode: Phone call

Participant: CEO, interior decoration company (anonymized)

Interviewer: Clara Bernard

Start of transcription:

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Clara: Hello and thank you for accepting this interview. Uh... does your company already use artificial intelligence?

Respondent: Hello Clara, mmh... no, not yet. We are still studying the question. We plan to integrate AI solutions by the end of 2025.

Clara: What applications do you consider?

Respondent: mmh... Mainly personalised recommendations. And uh... maybe a basic chatbot for customer service.

Clara: What advantages do you hope for?

Respondent: I think a better customer experience. That visitors can find what they want more easily. And, mmh... to improve the conversion rate.

Clara: Any challenges identified?

Respondent: The cost (high). And the fear to lose the human side. We want to keep a personalised customer service. And also, the management of personal data.

Clara: Okay I understand. Are your customers aware of these future changes?

Respondent: Not really. But if we explain well to them, it should be fine.

Clara: How do you see the future of AI in your sector?

Respondent: It will become essential. Even small companies will have to follow the trend. But it will be important to keep the balance between technology and human relation.

Clara: Thank you very much!

Respondent: With pleasure, Clara.

Clara: Bye, Have a nice day

## APPENDIX 1/6

### **Client Interview 1: Regular buyer (28 years old)**

Date: 13 April 2025

Duration: 18 minutes

Mode: Phone

Participant: Regular customer (anonymized)

Interviewer: Clara Bernard

Start of transcription:

Clara: Hello and thank you. Do you often shop online?

Respondent: Yes, uh... almost every week. Clothes, electronics, home.

Clara: Have you already used AI tools, like recommendations or chatbots?

Respondent: Yes, often. Amazon, Zalando... they suggest items depending my past purchases. The Fnac chatbot helped me for a return.

Clara: Are these tools useful?

Respondent: Honestly, mmh... yes. It saves time. Even if sometimes the suggestions are not relevant.  
(laughs)

Clara: Any frustrations?

Respondent: mmh.... Sometimes the chatbot don't understand. And prices changing a lot, it's frustrating .

Clara: Are you comfortable with the use of your data?

APPENDIX 1/7

Respondent: Yes and no, both ahah... Mmh... it's practical but sometimes it's scary. It seems like they know everything about me.

Clara: How do you see the future of AI?

Respondent: It will become the norm. But I hope we will keep some choice and control.

Clara: Thank you very much!

Respondent: With pleasure.

Clara: Have a nice day bye.

Respondent: Bye!!

**Client Interview 2: Occasional buyer (35 years old)**

Date: 14 April 2025

Duration: 16 minutes

Mode: Phone

Participant: Occasional customer (anonymized)

Interviewer: Clara Bernard

Start of transcription:

Clara: Hello and thank you for take the time. Do you often shop online?

Respondent: No, mmh... once or twice per month.

Clara: Have you noticed AI suggestions or virtual assistants?

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Respondent: Yes, mostly product suggestions. Sometimes useful, sometimes not. (laughs)

Clara: Do you find these tools advantageous?

Respondent: Yes, it helps to discover new products. But I feel they often push more expensive items.

Clara: Any frustrations?

Respondent: Yes, the prices changing. It annoys me.

Clara: And the use of your data?

Respondent: Mmh... I'm a bit cautious. I prefer they ask me clearly for my consent.

Clara: How do you see the future of AI?

Respondent: It will develop, but I hope we will always be able to talk with a human if necessary.

Clara: Thank you very much!

Respondent: With pleasure. Good luck!