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Abstract

Customer satisfaction is one of the key elements for companies to achieve greater brand awareness and better market competitiveness. In websites and e-commerce, one of the most important ways to ensure visitor satisfaction is developing and optimising Customer Experience and Customer Journey, the experiences and interactions of consumers and the path they take through the points of contact with the website and e-commerce, in a personalised way. This paper reviews the literature to understand how Artificial Intelligence can improve the personalisation of services and content and enhance customer satisfaction and support during the Customer Journey. This work also presents the applications and tools of Artificial Intelligence implemented in the purchase process, such as recommendation systems, sentiment analysis, emotion recognition, virtual assistant, and chatbots.

Keywords: Artificial Intelligence, Customer Journey, Customer Experience, Personalisation.

1. INTRODUCTION

With technological innovation and the increasing expectations created, Artificial Intelligence (AI) has become a key element in customers' interactions with organisations. A 2020 study by Capgemini Research Institute found that 54% of customers use AI in interactions with companies; in 2017, they used only 21% (Thieullent et al., 2020). Customers have expectations about service quality, so companies develop their digital strategies and IT systems to improve service delivery. With the increase of online shopping, e-commerce websites need to respond to many users. Organisations have to manipulate and use a large amount of data, implying investments in technologies that ensure better data management.

The use of AI, applied to the Customer Journey (CJ), improves its operation through a personalised experience developed according to the needs, characteristics, and actions adapted to customer profiles. The development of CJ proves to be essential for companies, given that 76% of consumers expect constant interactions during their journey in online shops. In addition, 52% of customers expect a personalised offer, and 66% expect organisations to understand their needs and demands (SFR, 2020).

Based on a literature review, this paper presents CJ and Customer Experience (CX) concepts and their importance and relationship, analyses how AI can be used in CJ and explores its applications

and benefits. The second part of the paper addresses AI and how it can be used in e-commerce and CJ. Finally, the article evaluates how AI influences and improves personalisation with the tools like recommendation systems, sentiment analysis, emotion recognition, virtual assistant, and chatbots.

2. METHODOLOGICAL APPROACH

This study intends to understand how companies can use AI in e-commerce, namely, optimising the CJ and CX, personalising services and content, and valuable AI tools. Thus, the paper aims to answer how artificial intelligence can improve the CJ.

A literature review was conducted in this study, which comprised three steps (Webster & Watson, 2002). In the first step of the research, platforms and databases of academic documents, such as B-ON, Google Scholar, and Scopus, were used to identify valuable papers and research sources. To achieve an initial but comprehensive knowledge about the subject, the first keywords used in the search were "Artificial Intelligence", "Customer Journey", and "Customer Experience", either alone or in combination (i.e., "Customer Journey" + "Artificial Intelligence"). As the work evolved, other keywords like "Personalisation", "Recommendation Systems", "Sentiment analysis", "Emotion Recognition", "Virtual Assistant", and "Chatbots" were used either alone or in combination with the first keywords (i.e., Customer Journey + Personalisation). In order to extract a more significant number of academic papers and reports, the search was carried out in Portuguese and English, with the translation of the identified keywords. In addition, advanced search filters were used to select documents with publication dates after 2010 and sources available with full text. However, in the following steps, we identified documents published before 2010 relevant to the current research. All the identified and selected documents were analysed based on titles, abstracts, keywords, and concepts, to guarantee their relevance for this literature review

In the second step, a review of the bibliographic references of the selected documents was carried out to understand whether the original references should be used. Finally, in the third stage, with the support of academic content platforms, documents citing the key papers recognised in the previous phases were identified and assessed, thus determining which documents should be included in the literature review. At the end of the search process, 31 documents considered relevant to the research were selected for analysis. Table 1 identifies for each document selected the author and the concepts covered.

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Authors	Concepts								
	Customer Experience	Customer journey	Artificial Intelligence	Personalization	Recommendation Systems	Sentiment analysis	Emotion recognition	Virtual Assistant	Chatbot
Ameen et al. (2021)	X		X						
Andalibi & Buss (2020)							X		
Batra (2019)	X	X	X						
Bauer & Nanopoulos (2014)					X				
Bleier et al. (2019)	X								
Bonneau et al. (2018)								X	
Brill et al. (2019)								X	
Chaffey et al. (2018)				X					
CXPA(2018)	X		X						
Daqar & Smoudy (2019)	X		X						
Even (2019)		X	X						
Garcia (2018)	X							X	
Homburg et al. (2017)	X								
Huang & Rust (2021)	X		X	X					
Kaplan & Haenlein (2019)			X						
Lemon & Verhoef (2016)	X	X							
Matias (2020)			X						X
Meyer & Schwager (2007)	X								
Norton & Pine II (2013)		X							
Puntoni et al. (2020)	X		X						
Quintino (2019)	X		X						X
Reshmi & Balakrishnan (2016)									X
Rodrigues (2017)		X							
Rosenbaum et al. (2017)		X							
SalesForce Research (2020)	X								
Schmitt et al. (2015)	X								
Schwartz & Baird (2018)	X		X						
Sujata et al. (2019)	X		X	X	X	X	X	X	X
Thiel (2018)	X		X					X	X
Thieullent et al. (2020)	X		X						
Wereda & Grzybowska (2016)	X								
Wilma (2019)	X	X	X	X	X				X

Table 1 – Table of authors and concepts

3. CUSTOMER EXPERIENCE

The CX results from the relationships between customers and the company, being that any exchange of goods and services gives rise to an experience perceived by the consumer (Schmitt et al., 2015). Meyer and Schwager (2007) define CX as all the elements and aspects associated with selling to the customer, such as product quality, ease of use, trust, advertising, and many others. The authors also mention that CX is the consumer's subjective response to any contact with an organisation. In other words, this concept corresponds to the progress and evaluation of an individual's sensory, affective, cognitive, relational, and behavioural reactions during pre-purchase, purchase and post-purchase from a company (Meyer & Schwager, 2007; Homburg et al., 2017).

Having a good and efficient CX is fundamental for an organisation to achieve differentiation and competitiveness in the market. Good consumer experience management may result in greater brand

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recognition and image, increased sales and revenue, increased customer loyalty and satisfaction, decreased costs, and better management of available resources (Wereda & Grzybowska, 2016).

With technological development and sales growth by electronic means (e-commerce), customers expect high-quality online service. Thus, it is essential to understand the CX specifications on websites and online shops. Bleier et al. (2019) refer that digital CX comprises all subjective and multidimensional responses in product/service presentation and website navigation, which includes various touchpoints and channels (website, chatbot, apps, social media, among others) (Bleier et al., 2019). This relationship and experience with the consumer results in the Customer Journey (CJ) (Wilma, 2019).

3. CUSTOMER JOURNEY

The CJ consists of the series of activities and actions that the customer performs during the process of information gathering, purchase and interaction with the company (Norton & Pine II, 2013).

According to Lemon & Verhoef (2016), the CJ depends on the temporal and behavioural dimensions. It starts with the consumer's previous experiences, which include previous purchases and external factors, that will influence the CX, i.e., pre-purchase, purchase, and post-purchase. The pre-purchase stage includes all interactions with the brand before the sale, e.g., recognition, research, and consideration. The purchase inserts all relationships and interactivity with the brand during the purchase event and its environment: the behaviours of choosing, ordering, and paying. The post-purchase stage consists of the use and consumption of the good or service, engagement after purchase and the support services. Finally, there are the future customer experiences (Lemon and Verhoef, 2016). The CJ and the CX represent different concepts; however, they work together and overlap, as shown in Figure 1. While the CJ consists of the path that customers make through the contact points, the CX is the experience the consumer perceives along with the CJ (Lemon & Verhoef, 2016).
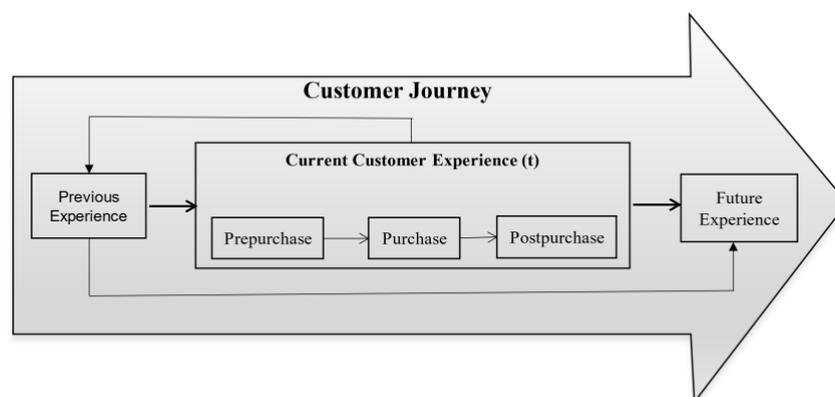

Figure 1 – Customer Journey and Experience – adapted from Lemon & Verhoef (2016)

It is essential to draw up a map or a representation that makes it possible to visualise the process and the consumer's path to achieve the brand's goal, for example, selling a product online or observing content on the website. The customer journey map helps professionals understand and identify customers' motivations and needs, the main events and points of contact, the areas of friction, and how the user interacts with the website. As a result, it is possible to structure touchpoints as the goal of creating the most suitable process for the target audience and evaluate how this is achieved (Rosenbaum et al., 2017), delivering value to customers in a consistent, relevant way, at the right time and in the right place (Mckinsey, 2016).

4. ARTIFICIAL INTELLIGENCE

According to Kaplan & Haenlein (2019), AI refers to the ability of a system to simulate human reasoning. They define it as the ability to interpret data, learn from it, and use this knowledge to achieve intended goals through flexible adaptation.

AI has several applications and functionalities, and the concept encompasses several branches associated with this area of knowledge. According to Huang & Rust (2021), AI tools can mimic human skills, such as performing physical and mechanical tasks, thinking, and feeling.

AI presents several capabilities, such as data evaluation and detection, inferring and drawing conclusions, reasoning, predicting, and finally acting, i.e., decision-making and problem-solving (CXPA, 2018). An AI-based system uses information obtained from the Internet of Things or other Big Data sources to identify rules and patterns, using Machine Learning (ML) tools. ML consists of methods that allow computers to learn without being explicitly programmed, which is a central and essential tool in AI (Kaplan & Haenlein, 2019). However, a computer using AI can have other functionalities such as language processing, knowledge representation, automated reasoning, computer vision and robotics to manipulate and move objects (Batra, 2019).

The online commerce of goods and services could benefit from AI implementation, namely, collecting and processing data and interpretations about consumer decisions to improve the experience on the website and the purchase process (Huang & Rust, 2021).

5. ARTIFICIAL INTELLIGENCE IN CUSTOMER JOURNEY

According to an IBM study (Schwartz & Baird, 2018), AI powers the CX of organisations in 3 major categories: customer insight, customer interaction and automation. Firstly, it allows gaining insight into customer needs, identifying the most advantageous channels to attract them, assisting target audience segmentation and strategies. It also improves interaction with consumers with the development of experiences and quality of services. Moreover, the automation of tasks and processes ensures the company's efficiency and effectiveness and saves time and resources.

AI also brings several advantages during CJ. In the begging phase of the CJ, that is, previous experiences and pre-purchase, AI can be used to: identify preferences and interests of consumers with predictive analytics, facilitating the personalised recommendation of products and services; monitor activities on the website, making it possible to direct the customer to websites enjoyable and profitable; target campaigns based on the data collected; provide more information about the products, enabling their comparison and a more informed purchase (CXPA, 2018).

In the purchase stage, AI technology enables the recommendation of similar items with the data and algorithms of consumption patterns, encouraging cross-selling and upselling. Furthermore, it assists customers in the buying process with intelligent virtual assistants that can answer their questions in advance and track the purchase progress and satisfaction of purchase (CXPA, 2018).

Finally, in the post-purchase phase, AI facilitates customer support and feedback by studying the behaviour of customers and their signs of dissatisfaction and enable bilateral conversations with website users to make appropriate decisions and strengthen customer support, resulting in the customer retention purchase (CXPA, 2018).

6. ARTIFICIAL INTELLIGENCE AND PERSONALISATION

It is crucial to understand the personalisation concept and its involvement with CJ/CX when talking about AI.

Personalisation is the recommendation of content, products, or offers to customers based on their actions and characteristics. Personalisation tools use consumers' data to provide them with valuable experiences that improve engagement, loyalty, conversion, and sales (Chaffey et al., 2018).

According to Even (2019), through behavioural analysis of customers using AI throughout the CJ, a list of 'likes' and 'dislikes' can be collected that help the company optimise its delivery of value on the web, which in turn, improving CX and increasing sales and revenue. Even (2019) mentions the importance of predictive analytics tools associated with Machine Learning, which allow creating a behavioural model before the purchase, vital for building tools like recommendation systems (Even, 2019).

7. ARTIFICIAL INTELLIGENCE TOOLS

7.1. Recommendation Systems

Recommendation systems, or Machine Learning filters, provide personalised recommendations for a specific customer with individual needs, based on an algorithm that can predict and learn for itself using data mining. This data is generated from users' past practices, as well as the behaviours of

similar consumers. Recommendations include similar products, complementary products, advertisements, news, links, among others (Bauer & Nanopoulos, 2014).

Recommendation systems save customers time and effort by skipping steps in the research and formulation phase, with product recommendations based on previous purchases. When evaluating alternatives, this system shows the user similar or complementary products, simplifying the process and, in the end, with the data collected during the CJ, will help the customer with future recommendations (Wilma, 2019).

7.2. Sentiment analysis

Sentiment analysis is the process of comprehending people's opinions and attitudes about a specific item or idea, such as products, services, or issues. It detects various aspects from a statement, such as popularity, i.e., if the individual is indicating a positive or negative viewpoint, what subject is being discussed, and the opinion of the person, using Natural language Processing (NLP). When the system is exposed to more data, it trains itself, improving the accuracy of the analysis. This process becomes a valuable technique for obtaining reliable information about customers' needs and, consequently, facilitating the personalisation of experiences (Sujata et al., 2019).

7.3. Emotion recognition

Emotion Recognition refers to the system that examines facial expressions of individuals to provide information about their mental and psychological state. This technology can be applied in photo and video format and often uses AI technologies (Andalibi & Buss, 2020).

This tool has a broad range of uses, from education to public safety, but it also has great importance in the CJ. It can analyse emotions to provide personalised services and recommendations and predict the customer reaction to the content exposed. Furthermore, it can facilitate customer service with their behaviour analysis during the CJ, detecting good and bad emotions (Andalibi & Buss, 2020).

7.4. Virtual Assistant

Virtual assistant consists of a software program integrated with AI that can execute different tasks and commands, answer questions, and make recommendations by interacting with the user (Bonneau et al., 2018; Brill et al., 2019; Thiel, 2018).

The key aspect of the virtual assistants is that the user is making the commands using a natural language like a normal conversation between humans, and the system can operate by voice interface, for example, Apple's Siri or by a text interface like Google Assistant (Bonneau et al., 2018).

The use of virtual assistants results in a personalised customer experience with relevant and useful interaction and improved customer service by problem-solving and assisting in its needs (Garcia, 2018).

7.5 Chatbot

A chatbot is software that enables a dialogue between an individual and a machine, simulating a real human conversation (Reshmi & Balakrishnan, 2016). It is important to mention that, in the context of this paper, only chatbots that implement AI technologies were addressed and are not including pre-programmed chatbots with answers.

Chatbots prove to be advantageous for businesses as they respond quickly to customers efficiently and conveniently, increase customer satisfaction, and improve the experience of consuming on the website. Moreover, chatbots' systems can learn from user feedback (Reshmi & Balakrishnan, 2016). In the pre-purchase stage, the chatbot helps the user find what they want, assists in searching for information and facilitates the comparison of goods or services. At the time of purchase, this tool can answer questions about payment or delivery. Finally, in the post-purchase stage, this tool helps the customer by answering questions about returns or the product (Wilma, 2019).

8. CONCLUSION

The literature review presented in this paper shows the effects and importance of AI in the CJ, based on the consolidation of existing sources of other authors. Initially, the article addressed the concepts of CJ and CX, explaining their definitions and their importance. Then, it presented the concepts associated with AI, how it can bring advantages to companies that use CJ to improve CX, and how AI can facilitate personalisation. This paper ends with a presentation of some of the most used IA tools that can be implemented in the CJ.

AI tools allow creating a more optimised and interactive website experience for consumers to meet their needs and expectations better. AI promotes a better quality of service and performance and greater satisfaction and engagement with customers, leading to increased customer loyalty, market competitiveness, and increased sales and revenue. In addition, the study provided insights that AI encourages personalisation and facilitates customer support using recommendation systems, sentiment analysis, emotion recognition, virtual assistant and chatbots.

This study analysed four of the main AI tools available; however, it will be beneficial to explore other emerging tools and how they can be implemented in the CJ in future research. Furthermore, this study lacks empirical evidence so that a study could be made to support this paper.

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