

A Work Project presented as part of the requirements for the Award of a Double Degree in  
Master in Management and Master in Finance from the Nova School of Business and  
Economics.

THE ROLE AND IMPACT OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN THE  
CUSTOMER JOURNEY FROM PRE-PURCHASE TO POST-PURCHASE

MANJUN WANG

Work project carried out under the supervision of:

Prof. Leid Zejnilovic

12/09/2022

## Abstract

Artificial Intelligence (AI) is widely employed in engaging customers while improving customer experience by offering ease and flexibility, and providing personalized settings. AI can carry out cognitive functions until recently, only possible for humans, and it does that by learning from data. This work project is an empirical investigation of how AI technologies influence customers' purchase behavior by discovering their role at different customer journey stages. Insights into different strategies and guidelines for companies targeting divergent customer segments with different attitudes towards AI are further provided.

## Keywords

Artificial Intelligence, Customer Journey, Digital Innovation, Customer Experience, Customer Behavior, Digital Marketing, Digital Transformation, Marketing, Digital Business, Personalized Advertising, Chatbot, Recommendations, Algorithms, E-Commerce

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

## Table of Contents

<b>1. Introduction</b>	<b>4</b>
<b>2. Theoretical Background</b>	<b>4</b>
2.1 Awareness of Artificial Intelligence	4
2.2 Digital Consumer Behavior	5
2.3 Influencing Factors of Customer Loyalty & Customer Satisfaction	6
2.4 AI-powered Tools	6
2.5 Willingness to Use and Accept Artificial Intelligence	7
2.6 Customer Decision Journey in Digitalization	7
2.7 Data Privacy Concerns in Artificial Intelligence Initiatives	8
<b>3. Research Question</b>	<b>9</b>
<b>4. Methodology</b>	<b>10</b>
4.1 Study Participants and Context	10
4.2 Research Material and Data Analysis	11
<b>5 Results</b>	<b>13</b>
5.1 Customer Initial Perspective of AI Applications at the Pre-purchase Stage	13
5.2 Focused Values during Online Shopping Purchase Stage	14
5.3 Trigger for Online Purchase	15
5.4 AI-related Factors that change Customer Purchase Behavior	17
5.5 The Effect and Customer Perspective of AI in the later Stage of the Journey	19
<b>6 Discussion</b>	<b>22</b>
6.1 The Potential and Threats of AI in the Development of Interaction with Customers	22
6.2 The Extent of AI Technology affecting Customer Behavior Change	23
6.3 AI's Function in keeping Customer Loyalty and achieving Customer Satisfaction	24
6.4 Future Implications for Leveraging AI on Customer Relationship Development	25
6.5 Limitations and Agenda for Future Research	26
<b>7. Conclusion</b>	<b>27</b>
<b>8. Reference</b>	<b>28</b>
<b>9. Appendix</b>	<b>37</b>

## **1. Introduction**

The extensive use of AI by businesses is essential for a company's future in the rising digital era (Awan 2021). As Evan (2019) quoted, by acquiring a better understanding of consumers' buying habits and behaviors, AI technologies, in particular, can potentially enhance customer experience. Companies may reap significant benefits and boost customer satisfaction by wisely utilizing AI technologies at several critical consumer touch points (Nisreen Ameen 2020). Furthermore, the effectiveness and efficiency of navigation afforded by AI technologies help companies to improve their targeted customers' perception of and interaction with the products and service offerings (De Bruyn 2020). According to Statista (2022), by 2025, the worldwide AI software industry will be worth \$126 billion.

As Stephen (2016) stated, Artificial intelligence (AI)-powered digital technologies may be used to track clients' purchasing habits and influence them to make impulsive purchases. According to Makridakis (2017), digitalization has radically changed consumers' shopping patterns. Moreover, the growth of AI technology opened many opportunities for the marketing industry to entice customers to make repeat purchases. Consumers still appear to lack sufficient awareness of the potential roles that AI may play and how AI may affect their choices, behaviors, and results (Ventura, 2021). This project aims to address these issues, exploring the role of AI throughout the whole customer journey and investigating its impact on customer purchase behavior and the intrinsic correlation between online shopping frequency and customer-AI engagements.

## **2. Theoretical Background**

### **2.1 Awareness of Artificial Intelligence**

Purchase intention is influenced by customers' Internet literacy based on the interaction model created by Hadjikhani and Bengtson (2006). In other words, the likelihood of a purchase

improves as customer knowledge grows. The theory is also further supported by the report executed by BEUC, the European Consumer Organization (2020). The report shows that the vast majority of 1000 respondents from 6 EU countries think AI will benefit them in various situations. However, regarding privacy protection, 71% of Belgian customers and 68% of German respondents report low levels of trust, as most of them desire the freedom to refuse automated decision-making and control over those processes (BEUC 2020). Even though consumers' perspectives on AI applications are positive, they still regard the benefits of AI as not yet materialized (BEUC 2020).

## **2.2 Digital Consumer Behavior**

The phrase "digital consumer behavior" refers to a wide range of topics. Mainly, it describes how consumers and potential groups connect with brands while using social media, browsing, buying, and engaging with advertisements (A. T. Stephen 2016). The utmost point from digital origins to the present is customers' freedom to make their own decisions and discover ways to access the information and content they want to view most (Dodoo 2021).

Besides the perceived convenience of the website (Sima 2020), customers' purchase decisions are easily influenced by online reviews (Fu, et al. 2020). Safari and Thilenius (2013) also pointed out that previous shopping experiences significantly impact the future potential online shopping experience. There are two crucial elements for motivating customers' online purchases: first is the resources of suppliers and goods and second is the validity of different sources (Lynch 2001). These two aspects allude to information sharing and trust in consumer behavior (Mukherjee 2007), with trust being the essential intent of online purchasing (Chang 2013). Moreover, if customers learn how to use the Internet during online shopping, they are more likely to contemplate a purchase than those who do not know (Lindh 2016).

### **2.3 Influencing Factors of Customer Loyalty & Customer Satisfaction**

Customer satisfaction refers to their experience of receiving adequate compensation during a purchase in exchange for a specific cost (Al-Alak 2009) (Jeong 2016). Customers are satisfied when they receive advantages that outweigh their costs (Liu 2010). Therefore, customers who are satisfied with their purchase experience are prone to have a higher purpose of repurchasing and of suggesting the good or service to others than those who are not (V. A. Zeithaml 1996). Also, loyalty and client satisfaction are positively correlated. (Balci 2018) (Chen 2017). Based on Jose (2011)'s study, it is feasible to conclude that satisfaction is an essential prerequisite for the existence of loyalty online, and committed customers will continue to purchase from the same brand regardless of cost or comfort.

Customer satisfaction increases the likelihood of a repeat purchase (Lu Juan, 2009) as AI has an apparent complementary effect in promoting customer loyalty. By automating straightforward, recurring operations and detecting quickened patterns at the most fundamental level, and AI can facilitate a delightful customer experience and higher satisfaction levels (Hanifin, 2019).

### **2.4 AI-powered Tools**

AI-powered techniques and tools are improving the growth of emerging markets (Anshu 2022). For example, as Rana, Gaur & Singh et al. (2022) summarized the functions of AI-powered tools, real-time Chatbot assistance with consumer concerns and the buying process; similar to Netflix's personalized recommendation lists, YouTube's video recommendations system provides viewers a tailored list of videos based on individual searching history. Marketers must balance and intergrade AI to provide a smooth consumer experience while mapping out the customer journey (Jyoti Rana 2022). As Adobe (2019) reported, 47% of marketers find it difficult to create significant amounts of content; however, with the help of

AI-assisted curation, the vast scale of personalized materials can be produced more quickly and precisely.

## **2.5 Willingness to Use and Accept Artificial Intelligence**

Actual consumer behavior is driven mainly by customers' intentions and willingness to utilize, as Fishbein & Ajzen (1975) pointed out in the Theory of Reasoned Action. The hedonic motivation was outlined by Niemelä, Arvola, and Aaltonen (2017) as the main element affecting customers' desire to use AI. Moreover, Stock and Merkle (2017) also discovered that consumers' expectations of AI technology in a general digitalized environment impact users' intentions to utilize AI applications. Vijayarathy (2004) found a correlation between consumers' attitudes regarding online purchasing and their perceptions of its utility, usability, and security. Additionally, customer attitudes, self-efficacy, and views about online shopping significantly impact decision-making.

Notwithstanding, some criticisms of customers' acceptance of AI technology were raised by Schepman and Rodway (2020). Both of them contend that consumers are passively encouraged to accept and utilize AI while purchasing online since only merchants have the authority to determine whether to incorporate AI technology into web shops. However, based on the result of the work project, which will be presented later, the choice to employ AI technology, such as interacting with AI-powered tools, is still independent of each customer.

## **2.6 Customer Decision Journey in Digitalization**

The generally accepted stages of the customer journey conclude the customer's shopping experiences through awareness, assessment, purchase, and post-purchase phases, as this simple concept is adaptable to a broad range of items and buying scenarios (Silvia Vázquez 2014).

Furthermore, according to Lazarus & Gurosy (1991) (2019), consumers initially judge the AI technology at the awareness stage, while performance and effort expectations are assessed at the secondary appraisal. The development of feelings about the use of AI technology is thus influenced by these expectations, resulting in an expected perception from customers of AI adoption, either positively or negatively (Gurosy 2019) (Lu 2019).

Numerous pieces of research have examined the primary factors influencing online purchasing decisions. According to Brown et al. (2003), the kind of goods, previous internet purchases, and gender may impact shoppers' online buying decisions. Furthermore, website quality is also an issue (M. Brown 2003), which is aligned with the study conducted by Ramsey, McCole, Ibbotson, and Compeau (2009). The aesthetic display of website items may also be related to consumers' purchasing intents (J. Park 2005).

## **2.7 Data Privacy Concerns in Artificial Intelligence Initiatives**

Security and privacy are two essential issues for online customers in their decision-making process (F. Belanger 2002). Privacy has been examined in a substantial body of studies as a significant element that influences people's decision-making and interaction motivations in an AI-powered shopping environment (T. Dinev 2013). Parallel to the above opinions, security is undoubtedly one of the critical factors that may accurately predict an individual's propensity to complete an online transaction (Ganapathy 2002). On the other hand, cybercriminals regard the Internet as an open platform where constant access is available (Mohammadreza Mousavizadeh 2016). Vendors and the customer data they hold are always at risk from various assaults, including hacking, social engineering, and the spread of malware (Lazarotti 2014). According to a global survey on consumer confidence about personal online data (Statista 2022), over 90% of online shoppers worldwide expressed at least one serious worry about data privacy, among which 47% of respondents are concerned about cyber criminals further compromising possessive information in a data breach.

Therefore, concerns on data protection are considered while investigating features that act on consumers' acceptance of AI adoptions and motivation to purchase. The existing body of research offers some hints as to how customers' interactions and awareness of Artificial Intelligence could potentially affect their purchase behavior, as well as potential risks harnessing acceptance of Artificial Intelligence in the Big Data era. However, given that individuals have different preferences and perspectives of AI, and the frequency of customer consumption is also likely to affect their acceptance of the technology, which further influences customer purchase behavior, a study is needed to explore the intrinsic relationship between shopper's online frequency and perceptions of AI technology.

### **3. Research Question**

Although the background literature shows several potentially relevant elements, the paucity of study in understanding the role AI plays and other intrinsic subtle connections led to an exploratory approach in this work project. Another objective of this work project is to delineate further the diversified views and perceptions of different customer groups on AI for companies to study customer behavior better when inserting AI-powered features. The following three questions built on the generally-accepted purchase conceptual model was the research query that guided the investigations:

*At the pre-purchase stage, what are the gaps in customer perception of the level of AI technology already existing?*

*What determinants convince/influence customers' purchase behavior in an AI-powered shopping environment at the purchase stage?*

*How would AI technology affect customer satisfaction and loyalty at the post-purchase stage?*

## **4. Methodology**

Qualitative research is chosen in this work project as the objective is to develop information and insight about society while learning about people's experiences (Ahmad 2019). Moreover, qualitative research is adaptable to new information while giving a comprehensive view of the investigated objective and helping the researcher to become immersed in the inquiry (Bouikidis 2018). Therefore, to deepen the understanding of customer experience, qualitative research methodology is used to develop a semi-structured interview study to get rich, in-depth insight.

### **4.1 Study Participants and Context**

A universe of potential candidates was thus mapped between two dimensions: the online shopping frequency and degree of awareness and acceptance of AI technology. A pre-selected question was designed to ensure that all participants have experience with online shopping, asking the candidates whether they have ever shopped online. As answers were cheerful, invitations for one-on-one deep in-depth interviews were extended. The in-depth interview was targeted to obtain enough people over the mapped universe to reach diversity in gender, age, and race of samples. Ten interviews were conducted in English, as shown in Figure 1 below. Numerical numbers also replace the names of the participants for privacy reasons. Noteworthy, customers with low interaction with technology or repulsive behavior towards technology were not found in this study, and most customers have had a moderate to a high level of interaction with AI. This may guide further research and companies to study measurements coping with the low categories and how to take benefits from AI advocators and supporters who use AI technology frequently and well.

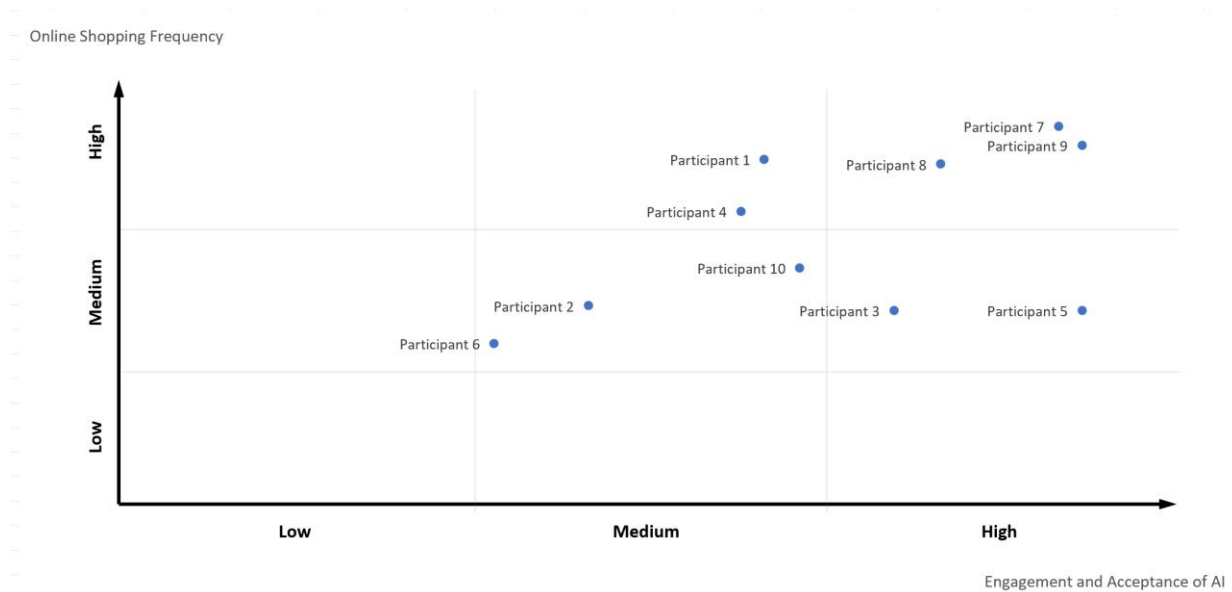


Figure 1 Representative Customer Group with different Behavior & Attitude towards AI technology

Participants range in age from 24 to 55, are of European, African, Asian, and North American heritage, and work in various sectors. 20% work in the government sector, 13% in banking, and 13% are still college students, while the rest work in diverse industries such as marketing, product management, or consulting.

Because of geographic differences, the interviews were performed through Microsoft Teams. Additionally, all of them were taped with the interviewees' consent to facilitate the analysis and then further transcribed. The semi-structured interview consisted of 16 questions to help direct the talks; the interview guidelines are indicated in figure 2 in the Appendix section, and the interview lasted around 30 to 40 minutes.

#### 4.2 Research Material and Data Analysis

The interview contains open-ended questions based on three divergent phases of purchase processes throughout the whole customer journey on the following elements:

- Shopping channel preferences and habits
- Initial personal perspectives on AI-featured online settings
- Focused values during online shopping

- Trigger of online purchasing behavior
- The impact of AI technology on customer behavior changes
- Personal preferences on AI-embedded website
- Reasons affecting the change in the shopping environment
- Impressions and perspective of AI technology after purchase journey

The participants were urged to openly consider the experience and feedback on interaction with AI to explore the most authentic thoughts on AI. As the current literature review stated, the more fabulous awareness customers have of AI technology, the higher acceptance and more positive perception they have. Therefore, the degree of awareness of AI-powered tools was asked primarily during the interview.

Interview transcripts are a common source for qualitative content analysis (Christen Erlingsson 2017). However, as Christen and Petra (2017) noted, many inexperienced researchers discover that analyzing qualitative data is surprisingly complex and time-consuming as the data cannot be subjected to a step-by-step analytics procedure like a pattern cutter. Therefore, to navigate the ambiguity between the various stages of qualitative content analysis, the data analysis template used in this paper is based on the approach proposed by Christen and Petra (2017). The qualitative content analysis aims to distill the dense body of information into a concise, well-structured summary of the key conclusions. From low levels of abstraction with similar meaning to the text and manifest content to high levels of abstraction reflecting the interpreted text, the connections and relationships are revealed through analysis of the raw data from verbatim transcribed interviews (Lundman 2004) (P.Mayring 2000). Condensation is developed to keep the first core idea of the transcript. A code then identifies the subject of a certain condensation. The codes are next analyzed and grouped to communicate a greater degree of abstraction and category. Finally, in the content

analysis process, themes are identified, which explain why, how, or what as a means of the highest level of abstraction.

## **5 Results**

All of the interviewees have some awareness of AI technology. More than half of them (6 out of 10) are identified as advanced technology users, while three also know how to make AI work better for themselves. Few customers can make AI work intelligently, regardless of their online shopping experience. Due to investigations into this subject, a rough outline of the AI-related variables that can impact a customer's decision journey will be provided.

### **5.1 Customer Initial Perspective of AI Applications at the Pre-purchase Stage**

Most participants are aware of and approve of AI technology's benefits from the collected data. For instance, as the following quotes from Participants 2, 5, and 6 on recommendations show:

- *I like how Big Data tracked my search history and then recommended to me products I've longed for before (Participant 3)*
- *I can always discover new products I like or need based on similar product recommendations (Participant 4)*

Relevant codes are thus extracted that provide value to customers, fulfill their needs, and motivate purchase.

Even more so, participants also mentioned the timeless response of Chatbot when encountering questions. Multiple participants particularly mentioned the benefits of Chatbot during off-duty hours. However, Chatbot's distinct disadvantages in autonomous control were also stated. For example, as in one of the condensations:

- *I prefer to interact with a natural person for customer service as this makes me feel everything is under control (Participant 5)*

Consequently, the perspective category on Chatbot can be concluded as Chatbot are worse for specific customer segments who value autonomy. Moreover, personalized ads could also lead to a bad experience for the customer segments who seek product authenticity.

- *I am annoyed when the quality of products recommended online is inconsistent as in real life (Participant 2)*

Even more so, personalized ads could also have a little or negative effect on already bought products as one condensation denoted:

- *Consistently pushed ads to annoy me when I have bought the products*

Nevertheless, half of the participants still claimed that personalized ads are convenient and easy to use in the summarized condensations:

- *By getting pushed with personalized ads, I can save time and effort to get the wanted product (Participant 1)*
- *Personalized ads remember search history and predict preferences which make the shopping experience more convenient (Participant 4)*

## **5.2 Focused Values during Online Shopping Purchase Stage**

The most focused value participants raised were the performance of AI-related tech features and the product itself, for example, as in the following participant report.

- *Whether the recommendation tool gives me the most wanted products and the energy and time saved to find the most appropriate product is what I care about most when shopping in an AI-powered environment. (Participant 8)*

The accuracy of recommendations and energy saved for getting matched products from recommendations are corresponding codes representing customers' focused values. Some participants also reflected on the performance of Chatbot as in the following condensations:

- *The 24/7 customer service whenever I need support (Participant 9)*
- *Live chat 24/7 possibility provides timeless service for my online shopping (Participant 7)*

Online Chatbot fast response informativeness is the summarized code in this context.

Moreover, the performance of the website was also considered as a category since several statements were brought:

- *What I care about most is the unmistakable design of websites with a navigation panel (Participant 4)*
- *I think the FAQ section is the most essential element (Participant 5)*
- *How easy the online payment method is (Participant 10)*

Under the above condensations, user-friendly website design, the possibility of self-inquiry information, and ease of payment result from codes in this context.

In addition to AI-powered tools, the performance of the product itself is also necessary for several participants concerning the values of online shopping:

- *The product quality is what I focus on most (Participant 2)*
- *I always care about how accurate the description matches the actual product (Participant 6)*
- *The fast delivery of products is the reason why I shop online (Participant 1)*

Respective codes are initiated by conforming to the above condensations: Quality of product, Value of money, and Product consistency between online and offline.

### **5.3 Trigger for Online Purchase**

Big Data recommendations do play a role in motivating customers' purchase behavior, as stated by a few participants:

- *I could match the garments with other pieces worn by the models online (Participant 8)*
- *My purchase motivation is escalated when recommendations give me discounted products (Participant 7)*

In the statement of appeal, AI plays the role of stimulating customers' potential desire to buy. What is more, from the perspective of customer concerns during online shopping, purchase motives can also be inferred: the excellent performance of the product. As for ones who are less familiar with AI technology, the focus on the product itself is greater than the technical aspects:

- *Mostly the product functionality and reviews convinced me to buy (Participant 5)*
- *I will purchase without hesitation if the products I need have reasonable prices and positive comments (Participant 1)*
- *A perfect combination of all product factors, including price, product feature, and discounts, will facilitate my purchase decision (Participant 10)*

Since the purchase journey is made online, the unique features that merely the online channel can offer cannot help but be mentioned as the below condensations:

- *I would buy when the products are exclusively sold online (Participant 3)*

Interestingly, the online price advantage supported by AI technology is also noted:

- *I always order without second thoughts when the algorithm gives me recommendations on discounts (Participant 8)*

Thus, besides the category, namely the specific benefits provided through exclusive channels, another category, AI-related resolution to personal pain points, is also the drive of desire for online purchase. Within this category, match of the need and personal preferences for products are the compacted two codes based on the following announcements:

- *When I am attracted to a product recommended by a personalized ad and do not want to let go of that product information (Participant 2)*
- *When the products recommended match my needs perfectly at the moment, I will probably proceed to the checkout page even though I do not know the product brand (Participant 4)*

#### **5.4 AI-related Factors that change Customer Purchase Behavior**

The principal goal of the interview was to investigate how technology affected and played a part in the customer journey. The identified condensations may be roughly divided into two high-level themes: the impact of AI-powered tools and personal preferences of AI-embedded web designs. Correspondingly, the codes are thus generalized from more than one-third of participants' arguments: Recommendations complete product offers and enhance customer purchasing power. The following condensations can confirm this:

- *The recommendations offer me a complete product portfolio, thus converting me to buy things I sometimes do not need (Participant 8)*
- *I buy lots of stuff not because I need them but because I am interested (Participant 7)*
- *When a personalized ad is pumped out several times, I get interested in the product and want to learn more about it (Participant 9)*

In this sense, AI expands the range of customer interests in unknown products for potential buying motivation. On top of that, AI act as a predictor and persuader for purchase is the category summarized from the following condensation:

- *The Big Data learns my behavior and predicts my preferences, thus converting my purchase (Participant 5)*

Nevertheless, on the other hand, there is also one particular category in which customer segments are unaffected by technology changes as technology is indifferent to their purchase behavior based on the quote:

- *The technology has not changed my purchase behavior as I merely buy stuff I need (Participant 6)*
- *I do not see that the technology applied online has much changed my purchase behavior (Participant 2)*

It is worth mentioning that personal preference for web design and a tech-powered environment can also influence purchasing behavior. During the interview, participants were asked to imagine two different scenarios of online shopping: one is very sophisticated

regarding the features, and another is simple for shopping easily. The three derived categories are relatively straightforward. From one perspective, AI is a guide and support throughout the customer journey; from another perspective, customer segments have specific criteria on preferences for an AI-powered environment. Another category cannot be ignored as customer segments are uninterested in AI-powered environments. For the first category, two detailed condensations show the strong preferences argued by participants:

- *I prefer a more sophisticated search model as I want more AI-inserted features to guide me through the whole shopping journey (Participant 9)*
- *I need help from AI-embedded designs when I do not know what to buy (Participant 1)*
- *I get inspired by shopping in an AI-powered environment from personalized ads and recommendations, as these technologies provide more options and fun (Participant 7)*

Furthermore, for the second category, clear shopping rules determine the interests as only when customers encounter uncertain situations they would prefer AI-embedded websites:

- *I need more AI-embedded websites when I do not know what to buy and vice versa, as the simple model is more time- & energy-saving (Participant 4)*
- *If I have a clear product/brand preference in mind, I prefer the simple one but vice versa when I do not know what to purchase (Participant 3)*

The customer segments from the third category are relatively pragmatic because they only care if the necessary modules are available on websites. The below condensations serve as a generalization for the third category:

- *I prefer a less sophisticated website with fewer AI-inserted designs as long as all necessary functions are available (Participant 6)*
- *As I only care about corresponding comments on the products, a simple website would be all I need for shopping (Participant 4)*

## 5.5 The Effect and Customer Perspective of AI in the later Stage of the Journey

Towards the end of the study, the participants were also interviewed for post-purchase feedback and an impression of AI technology at the end of the shopping experience. 70-80% of interviewers are satisfied with the overall online shopping experience, while 9% are only satisfied when purchasing specific product categories, such as clothing. One participant proposed that convenience is the most significant factor for an always-on satisfactory experience with online shopping:

- *Even though the products bought may not be satisfactory, online shopping creates a possibility to return the unsatisfied products immediately (Participant 3)*

Loyalty is the closing loop of a journey and the factor that most directly influences the trigger of starting the next journey. Consequently, this study also looks into how AI affects consumer loyalty. According to the interview transcript, two customer segments with low and high loyalty degrees are outlined. In terms of impacting factors of online shopping loyalty, the following condensations represent a relatively less loyal customer base:

- *When the products on another website have better quality or lower price, I will change the website to shop (Participant 5)*
- *When my friends or following vloggers recommend other websites, I will try on another website (Participant 6)*

For the above two statements in which customer loyalty is more affected by the performance of product and e-WOM, the category can be concluded as having a less significant impact of the use of AI on customer loyalty. For another customer segment, loyalty is closely related to the previous shopping experience, where the embedding of the technology remains doubted.

The following quotation reflects the viewpoint:

- *If the last online shopping experience is dissatisfying, I will change the website (Participant 4)*

- *I will switch my shopping site if the website has provided me with upset service, unreliable quality, and complicated payment steps (Participant 2)*

The impact of AI on loyalty is unclear from the condensations above, as the degree of AI-applications embeddedness varies significantly between websites. Another category can thus be derived from them: the depth and scope of AI application determine how AI affects loyalty. It was also reasoned that two participants had a high degree of loyalty. Nonetheless, this scenario has no apparent correlation between AI and loyalty.

- *I usually shop on specific brand websites as I have unique preferences for the brand, so switching to another shopping environment would not be the case for me (Participant 4)*
- *My main concern is always how many products are available on the website I need, so once I find the product I want, I will not change the site quickly (Participant 10)*

Extrapolating from the condensations quoted above, strong attachment to brands can enhance loyalty and same as for personal preferences on products. Based on these two codes, the category, in turn, was deduced: the influence of AI is indifferent to the customer segment with solid brand affiliation.

After enlighteningly exploring the journey of each participant's interaction with AI technology, the overall view of AI was again asked. On the one hand, such a closing question allows participants to better review their communication with AI in a guided manner to avoid personal bias, and on the other hand, it allows for comparison concerning each individual's perception of AI before starting the journey. 27% of the interviewers declared that AI simplifies shopping, helps customers make better choices, and provides innovation and inspiration.

*-I think AI technologies are promising as they know me better and more than myself (Participant 9)*

- *AI technologies provide me with many incredible shopping experiences, so I think it is good to have them (Participant 7)*
- *I like using AI as it makes my life easier (Participant 8)*

The mentioned feedback derives from the formulated category: AI brings tangible benefits as a value driver. 44% of participants stated that their positive attitude towards AI is based on certain preconditions such as the represented condensations underneath:

- *Overall, I have a positive attitude, except sometimes I am worried about data privacy (Participant 4)*
- *Cybersecurity and personal data leakage are the only points I am concerned about most while using AI (Participant 6)*
- *As long as my right and privacy are ensured, I would love to try AI technologies as much as I can (Participant 1)*

Interestingly enough, the lack of technical development of AI was also pointed out by 2 participants as they hope the new technology could always bring innovation instead of a disaster. AI needs to be developed before it works on customer behavior in the category generated from these quotations. One-third of the participants also mention the pros and cons of AI.

- *I am open-minded to new technologies, but I do not think I can adapt and apply them well (Participant 10)*
- *New customer education is needed for me to get more used to new AI applications (Participant 4)*

AI development brings uncertainty to the inferred conclusion for the above less convinced behavior performance. More noteworthy is that few participants are strong AI-advocators as they do not only have high acceptance of the technology but proactively persuade others to try:

- *I recommend friends to try more AI-inserted features during online shopping, and I support more technological advancement (Participant 7)*
- *If everyone is open enough to try new AI technologies, this can further promote the development of AI for the benefit of human life (Participant 9)*

For this customer group, AI triggers enthusiasm and motivates potential user promoters is the category summarizing the role of AI.

## 6 Discussion

The main points of the interview research on discovering the role and impact of AI technology throughout the customer journey have been provided.

Following the format of the work project, the overview of the impacts of AI through various stages of customer behavior in several ways will be firstly presented, while the new arguments found merely based on the analysis of this work project are marked in blue in the table. Based on the quadrant chart on the relationship between online shopping frequency and degree of interaction with AI, the paper will further suggest how enterprises can develop complementary strategies for various customer groups. The final portion will discuss the study's shortcomings and provide ideas for more research.

### 6.1 The Potential and Threats of AI in the Development of Interaction with Customers

At the beginning of the purchase journey, customers' perceived potentials and threats of AI are the fundamental factors influencing their interaction with the technology. The table below is therefore conducted to present the respective findings at the initial stage of the customer journey.

Customer Journey Phase	The Role of AI in this Phase	The Impact of AI at this Phase	Supportive Arguments & Findings
Initial Pre-Purchase Stage	Supportive	Push more accurate product recommendations based on learning and understanding of customer buying behavior	1. Customers are primarily concerned with how well the products can match their pain points and needs instead of innovation of AI technology 2. Customers care more about the product itself than what AI can bring to them at the

			beginning of the purchase journey
<b>Findings related to this Phase</b> <b>New Findings based on the Work Project</b>		<b>Relevant Theoretical Background</b>	
<b>AI-related Potentials</b>	<b>AI-related Threats</b>	<b>Existing Perspective on AI-related Potential</b>	<b>Existing Perspective on AI-related Threats</b>
1. 24/7 Chatbot provides more tremendous advantages during off-hours simulating customers' desire to further interact with AI. 2. Recommendations are pretty valuable and helpful as they fulfill customers' needs and act as assistants driving the consumer purchasing power. 3. Benefits of AI technology have all been well recognized by all participants.	1. Customers are not entirely receptive to AI technology because it limits their choice and access to a certain extent. 2. Too many inaccurate persistent personalized ads result in the annoyance of customers.	1. Van Doorn (2010) & Roy (2017): greater involvement is facilitated by the perceived convenience of Chatbot 2. Salesforce (2022): Customers hold a positive attitude towards AI as long as it significantly enhances customer experiences	Schepman & Rodway (2020): Customers would lose more active buying power in an AI-overwhelmed environment

## 6.2 The Extent of AI Technology affecting Customer Behavior Change

Due to store closures caused by COVID-19 in the past several years, customer buying behavior has been changing tremendously (Lavuri 2021). The relevant findings on different customer segments and behaviors are summarized in the table below by exploring the degree of impact of AI on changing customer behavior.

<b>Customer Journey Phase</b>	<b>The Role of AI at this Phase on Customer Purchase Behavior</b>	<b>The Impact of AI at this Phase on Customer Purchase Behavior</b>	<b>Supportive Arguments &amp; Findings</b>
Evaluation Stage	Inspirer	Recommendation Algorithms give customers inspiration based on items with comparable properties.	Customers get inspired by the content-based recommendation system, increasing their purchasing power and desire.
Purchase Stage	Predictor and Persuader	Recommendation Algorithms promote relevant products based on the customer's browsing history, generating their interest in new products, and promoting their purchasing behavior.	Customers without clear brand and product preferences need guidance from AI to explore their interests.
<b>Findings related to this Phase</b> <b>New Findings based on the Work Project</b>		<b>Relevant Theoretical Background</b>	
<b>Customer Segments</b>	<b>Customer Segments</b>	<b>Existing Perspective on</b>	<b>Existing Perspective</b>

<b>focusing more on the Shopping Experience</b>	<b>focusing more on Product Performance</b>	<b>Customer Segments focusing on Shopping Experience</b>	<b>on Customer Segments focusing on Product Performance</b>
Personalized settings are a significant factor in promoting customer purchases.	The use of AI has little effect on their buying behavior.	Ameen (2021), Paschen (2019) & Arco (2019): the fundamental idea underlying AI's success is using tailored information to provide product suggestions by examining data from current internet users.	n/a
<b>Customer Behavior with clear Brand &amp; Product Preferences</b>	<b>Customer Behavior without clear Brand &amp; Product Preferences</b>	<b>Existing Perspective on Customer Behavior with clear Brand &amp; Product Preferences</b>	<b>Existing Perspective on Customer Behavior without clear Brand &amp; Product Preferences</b>
AI becomes irrelevant to them as the performance of products is the fundamental solution to their pain points.	AI works as a predictor and persuader for purchase while guiding and supporting the whole shopping journey.	n/a	Duan (2019): AI has been a vital element in consumer decision-making while being used to persuade customers to proceed with impulsive purchases.

### 6.3 AI's Function in keeping Customer Loyalty and achieving Customer Satisfaction

From a certain point of view, customer loyalty is influenced by iterative technology updates.

Nevertheless, AI does not work in every scenario but would only play a relative role in

influencing customer loyalty if the previous shopping experience happened in an AI-powered

environment. In the survey, customer loyalty is influenced by different factors, of which some

minor the existing theories while others oppose them.

<b>Customer Journey Phase</b>	<b>The Role of AI in this Phase</b>	<b>The Impact of AI at this Phase</b>	<b>Supportive Arguments &amp; Findings</b>
Post-purchase Stage	It helps to shorten the gap of the perceived difference between expected outcomes and experience.	More advanced AI applications would change customers' loyalty to specific AI-powered shopping environments.	<ol style="list-style-type: none"> <li>1. Customer loyalty to specific shopping environments would change due to more advanced AI applications.</li> <li>2. Better online service quality, proving the core competence of AI technology in influencing customer loyalty compared to other factors.</li> <li>3. Effective only when the whole purchase journey has happened in an AI-powered environment.</li> </ol>
<b>Findings related to this Phase</b> New Findings based on the Work Project		<b>Relevant Theoretical Background</b>	

<b>Influencing Factors of Customer Loyalty in an AI-powered Environment</b>	<b>Existing Perspective on influencing Factors of Customer Loyalty in an AI-powered Environment</b>
<ol style="list-style-type: none"> <li>1. Customer loyalty is more tied to preferred brand relationships rather than exclusively to AI</li> <li>2. The more profound the preference for the brand, the higher the customer's loyalty.</li> <li>3. Customer loyalty is more closely related to the ongoing shopping environment and the satisfaction level of previous shopping journeys.</li> <li>4. Customer satisfaction is only a mere and insufficient influence condition.</li> <li>5. Satisfaction could diminish when the vast difference between expected product quality and ones recommended by personalized ads exists.</li> <li>6. For customers focusing on product authenticity, AI could have a negative effect as the consistency of the product's offline and online performance cannot be guaranteed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Safari, A. and P. Thilenius (2013): the previous shopping experience could affect the current shopping journey.</li> <li>2. Ranaweera (Ranaweera 2003): unhappy clients are more inclined to stick with their present service provider.</li> <li>3. Lu Juan (Lu Juan 2009): Service quality, customer satisfaction, and perceived value are the three most significant influencing aspects of customer loyalty.</li> <li>4. Mirzaee (Mirzaee 2001): Consumer loyalty was a required but not yet sufficient prerequisite for customer happiness.</li> <li>5. Han (Han 2007): Customer happiness and emotional reactions to consuming experience affect the likelihood of return visits.</li> </ol>
<b>Examples of Effect of AI on Customer Satisfaction</b>	
<ol style="list-style-type: none"> <li>1. The timeless response of Chatbot helps customers shorten the waiting time for answers.</li> <li>2. Diversification of product online presentation of Recommendations helps customers restore a more comprehensive offline shopping scene to enrich the online shopping experience.</li> </ol>	

#### 6.4 Future Implications for Leveraging AI on Customer Relationship Development

Although this study only took a small sample, companies can target strategic solutions for customer groups with divergent behavior based on the quadrant chart.

Accordingly, the followings are the main ramifications for developing targeted strategies companies should adopt.

<b>Customer Segments with different Degrees of Online Shopping Frequency and Interaction with AI Technology</b>	<b>Corporate Strategies for the Application of AI Technology</b>	<b>Arguments &amp; Findings in Support of Strategic Approach New Findings based on Work Project</b>
Medium online shopping frequency	<ol style="list-style-type: none"> <li>1. Provide more exclusive offers through online channels while leveraging consumers' preferences for the brand.</li> <li>2. By offering more online shopping specificity on product categories and discounts, an increase in online shopping frequency would be possible.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ignorance of the benefits of online shopping could affect their choice of shopping channels.</li> <li>2. Customers' bond with the brand would probably also transfer to motivation in shopping in an AI-powered environment.</li> <li>3. Strategically leveraging branding on individuals may produce a more positive response to technology engagement.</li> </ol>
High online shopping frequency	Personalization settings as the priority.	Customers in this segment are looking for a personalized online shopping environment because of the limitations of an offline shopping environment.
Low- & medium interaction with AI	1. More self-service	1. The lost power of partial autonomy

	alternatives are needed while ensuring customer autonomy of choice. 2. Design AI as a guider rather than a dominator when applied in a shopping scenario	of choice is a significant reason for customers having reservations about interactions with AI 2. Customers are the passive recipient of technology embedding, given that merchants have the right to decide how AI is embedded and works.
For all levels of interactions with AI, especially for the low degree of acceptance of AI	Show utmost care in protecting personal data and privacy by elaborating companies' special care on personal data protection	1. Most concerns are stemmed from personal information leakage. 2. To further improve the interaction between customers and AI
High online shopping frequency and AI technology advocates	1. Introduce more innovative technologies to evoke stronger personal preferences on AI. 2. Take advantage of AI advocates by pitching them with more advanced AI usage 3. Motivate those AI champions to be the educators and leaders for other customer groups.	Preferences for AI strengthen perceptions of the technical quality, which in turn enhances customer contentment and improves engagement with the brand.

## 6.5 Limitations and Agenda for Future Research

This work project aims to establish a foundation for understanding the role and impact of AI in customer decision journeys and purchase behavior. An exploratory interview with open-ended questions was conducted to pursue this objective, and there are several significant limitations. In this section, three constraints are brought up in particular.

First off, ten shoppers were interviewed, which limits our findings. Consequently, the universality of the findings may be questioned for a broader scope. Future research may involve more participants in both quantitative and qualitative studies.

Secondly, this work project did not cover all customer groups with different behaviors towards AI. Thus, it does not provide adequate solutions and strategies for AI-averse customer segments or is never used to shopping online. Future studies would need to develop corresponding guidelines to convert those existing customer groups into AI-receptive and online shoppers mentioned in this study.

Last but not least, since there is no available definite structure that may be used as a guide for examining the role and effect of AI in the shopping journey and exploratory interviews merely drive the result, the inability to have sufficient theoretical evidence to support this study results can act as a limitation. The results of this work project would hopefully provide fundamental insights for constructing such a framework in the future.

## **7. Conclusion**

This exploratory interview study identifies AI's diverse roles at different journey stages. The behavioral activities of various customer groups have also been divided depending on the depth of interaction with AI. Along with exploring the part AI plays in the purchasing process, this work project also serves as the first step towards a theoretical framework of how companies should better connect with their customers by designing AI applications to work and solve pain points from various customer groups. It is therefore necessary to provide more illuminating data on how AI affects customer engagement and buying motivation, enabling a better development of AI in serving the customer base.

## 8. Reference

- Adobe Enterprise Content Team. 2019. n.d. "The Magic of AI in a Content-Driven World --- Using Artificial Intelligence to Create Content Faster. " *Adobe*. April 18. Accessed July 6, 2022. [https://business.adobe.com/ph\\_fil/resources/articles/the-magic-of-AI-in-a-content-driven-world.html](https://business.adobe.com/ph_fil/resources/articles/the-magic-of-AI-in-a-content-driven-world.html)
- Agarwal, Sandeep. 2019. "10 Applications of Artificial Intelligence in Digital. " September 28. Accessed July 14, 2022 <https://medium.datadriveninvestor.com/10-applications-of-artificial-intelligence-in-digital-marketing-a562a37db2bd>.
- Ahmad, Wasim, Irfan, Gogoi, and Srivastava & Farheen. 2019. "Qualitative v/s. Quantitative Research- A Summarized Review." *Journal of Evidence-Based Medicine and Healthcare* 6 (43): 2828-2832.
- Al-Alak, A. B. 2009. "Measuring and evaluating business students satisfaction perceptions at Public and Private Universities in Jordan." *Asian Journal of Marketing* 3 (2): 33-51.
- Ameen, N., Tarhini, A., Reppel, A., and Anand, A. 2021. "Customer experiences in the age of artificial intelligence ." *Computers in Human Behavior* 114.
- Anderson, E.W., and Sullivan, M.W. 1993. "The antecedents and consequences of customer satisfaction for firms ." *Marketing Science* 12: 125-143.
- Anshu, k., Gaur, L. and Singh, G. 2022. "Impact of customer experience on attitude and repurchase intention in online grocery retailing: a moderation mechanism of value Co-creation." *Journal of Retailing and Customer Services*.
- Arco, M.D., Presti, L., Marino, V. and Resciniti, R. 2019. "Embracing AI and Big Data in customer journey mapping: from literature review to a theoretical framework." *Innovative Marketing* 15 (4): 102-115.
- Awan, U., Shamim, S., Khan, Z., Zia, N.U., Shariq, S.M. and Khan, M.N. 2021. "Big data analytics capability and decision-making: the role of data-driven insight on circular economy performance." *Technological Forecasting and Social Change* 168: 120766.
- Balci, G. Cetin, I.B., and Tanyeri, M. 2018. "Differentiation of container shipping services in Turkey."

*Transp. Policy* 61.

- Bloemer, J., DeRuyter, K., and Wetzels, M. 1999. "Linking Perceived Service Quality and Service Loyalty: A Multi-Dimensional Perspective." *European Journal of Marketing* 33: 1082-1106.
- Bouikidis, Shannon Rutberg & Christina D. 2018. "Focusing on the Fundamentals: A Simplistic Differentiation Between Qualitative and Quantitative Research." *Continuing Nursing Education* 45 (2): 209-213.
- C. Van Slyke, J.T. Shim, R. Johnson, and J. Jiang. 2006. "Concern for information privacy and online consumer purchasing." *Journal of the Association for Information Systems* 7: 415-444.
- Castaneda, Jose Alberto. 2011. "Relationship Between Customer Satisfaction and Loyalty." *J Bus Psychol* 26: 371-383.
- Catherine Prentice, Sergio Dominique Lopes and Xuequan Wang. 2020. "The impact of artificial intelligence and employee service quality on customer satisfaction and loyalty." *Journal of Hospitality Marketing & Management* 29 (7): 739-756.
- Catherine Prenticea, Scott Weavenb, and IpKin Anthony Wong. 2020. "Linking AI quality performance and customer engagement: The moderating effect of AI preference." *International Journal of Hospitality Management* 90.
- Chang, Y.S., and S.R. Fang. 2013. "Antecedents and distinctions between online trust and distrust: Predicting high- and low-risk Internet behaviors." *Journal of Electronic Commerce Research* 14 (2): 149.
- Chen, K.K., Chiu, R.-H., Chang and C.-T. 2017. "Using beta regression to explore the relationship between service attributes and likelihood of customer retention for the container shipping industry." *Transp.Res. Part E* 104: 1-16.
- Christen Erlingsson and Petra Brysiewicz. 2017. "A hands-on guide to doing content analysis ." *African Journal of Emergency Medicine* 7: 93-99.
- Court, D., Elzinga, D., Mulder, S., & Vetvik, O. J. 2009. "The consumer decision journey." *McKinsey Quarterly* 1-11.
- Crist, J.D., Michaels, C., Gelfand, D.E. and Phillips, L.R. 2007. "Defining and measuring service awareness among elders and caregivers of Mexican descent ." *Research and Theory for*

- Nursing Practice* 21 (2): 119-134.
- Davis, V. Venkatesh and F.D. 2000. "A theoretical extension of the technology acceptance model: Four longitudinal field." *Management Science* 186-204.
- De Bruyn, A., Viswanathan, V., Beh, Y.S., Brock, J. K. U., and von Wangenheim, F. 2020. "Artificial intelligence and marketing: Pitfalls and opportunities ." *Journal of Interactive Marketing* 51: 91-105.
- Dedrick, J., K.L. Kraemer, and E. Shih. 2013. "Information Technology and Productivity in Developed and Developing Countries." *J. Manag. Inf. Syst.* (30): 97-122.
- Dodoo, Naa Amponsah. 2021. *Five things to know about digital consumer behavior*. 11 19. today.emerson.edu.
- Duan, Y., Edwards, J.S, and Dwivedi, Y.K. 2019. "Artificial intelligence for decision making in the era of Big Data- evolution, challenges and research agenda." *International Journal of Information Management* 48: 63-71.
- Evans, M. 2019. "Build A 5-star customer experience with artificial intelligence." *Forbes*. April 30. Accessed July 21,2022 <http://www.forbes.com/sites/allbusiness/2019/02/17/customer-experience-artificial-intelligence/#1a30ebd415bd>.
- F. Belanger, J.S. Hiller and W.J. Smith. 2002. "Trustworthiness in electronic commerce: the role of privacy, security, and site attributes ." *Journal of Strategic Information Systems* 11: 245-270.
- F.D. Davis, R.P. Bagozzi and P.R. Warshaw. 1989. "User acceptance of computer technology: A comparison of two theoretical models ." *Management Science* 35: 982-1003.
- Fishbein, M., and Ajzen, I. 1975. "Belief, attitude, intention and behavior: An introduction to theory and research ." *Reading, MA: Addison-Wesley*.
- Fu, H., G. Manogaran, K. Wu, M. Cao, S. Jiang, and A. Yang. 2020. "Intelligent decision-making of online shopping behavior based on internet of things." *Int. J. Inf. Manag.* 50: 515-525.
- Ganapathy, C. Ranganathan & S. 2002. "Key dimensions of business-to-consumer websites." *Information & Management* 39: 457-465.
- Gurosy, D., Chi, O. H., Lu, L., and Nunkoo, R. 2019. "Consumers acceptance of artificially intelligent (AI) device use in service delivery." *International Journal of Information Management* 49:

157-169.

Gursoy, D., Chi, O. H., Lu, L., and Nunkoo, R. 2019. "Consumers acceptance of artificially intelligent (AI) device use in service delivery." *International Journal of Information Management* 49: 157-169.

Hadjikhani, A. and A. Bengtson. 2006. "An interaction model for consumer-retailer relationships ." *Business networks and international marketing* 125-140.

Han, H., and Back, K. 2007. "Assessing guest emotional experiences influencing customer satisfaction in the lodging industry." *Journal of Travel and Tourism Marketing* 23 (1): 43-56.

Hanifin, Bill. 2019. "What Artificial Intelligence Means For Customer Loyalty Marketing ." *Forbes*. October 3. Accessed August 8, 2022  
<https://www.forbes.com/sites/forbesagencycouncil/2019/10/03/what-artificial-intelligence-means-for-customer-loyalty-marketing/?sh=73ddb8727fe0>.

Hyken, Shep. 2022. "These AI mistakes are slowly killing your customer experience ." *Forbes*. March 3. Accessed July 14, 2022 <https://www.forbes.com/sites/theyec/2022/03/03/these-ai-mistakes-are-slowly-killing-your-customer-experience/?sh=7d1259e0338b>.

Qureshi, Y. Fang, E. Ramsey, P. McCole, P. Ibbotson and D. Compeau. 2009. "Understanding online customer repurchasing intention and the mediating role of trust—an empirical investigation in two developed countries." *European Journal of Information Systems* 18: 205-222.

J. Park, S.J. Lennon and L. Stoel. 2005. "Online product presentation: effects on mood, perceived risk, and purchase intention." *Psychology & Marketing* 22: 695-719.

Jeong, M.S., Cha, J. E., and Jang, D. -H. 2016. "Impact of the service quality of horseback riding experience on customer satisfaction and loyalty- In case of Jangsu horse riding experience course." *Journal of Korean Society of Rural Planning* 22 (2): 131-140.

Julie S. Sexton, Ph.D., Brian M. McCann, Ph.D., and Merrill Warkentin, Ph.D. 2010. "Electronic Retailing." *The National e-Commerce Extension Initiative*.

Jyoti Rana, Loveleen Gaur, Gurmeet Singh, Usama Awan, and Muhammad Imran Rasheed. 2022. "Reinforcing customer journey through artificial intelligence: a review and research agenda." *International Journal of Emerging Markets* 17 (7): 1738-1758.

- Lavuri, R. 2021. "Intrinsic factors affecting online impulsive shopping during the COVID-19 in emerging markets ." *International Journal of Emerging Markets* 2020-1530.
- Lazarus, R., S. 1991. "Cognition and motivation in emotion." *American Psychologist* 46 (4): 352-367.
- Lazzarotti, J. 2014. "Report says Russian hackers stole 1.2 billion usernames and passwords, but don't let "breach fatigue" take hold." *Data Management & Security Report* , Workplace Privacy, NY.
- Lindh, C., P. Thilenius, and A. Hadjikhani. 2016. "Distrust online in the financial services market: The relevance of experiential knowledge and information exchange. ." *Journal of Customer Behaviour* 15 (2): 173-91.
- Liu, C.H. and Yen, L.C. 2010. "The effects of service quality, tourism impact, and tourist satisfaction on tourist choice of leisure farming types ." *African Journal Business Management* 4 (8): 1529-1545.
- Lu Juan and Lu Yan. 2009. "Dimensions and influencing factors of customer loyalty in the intermittent service industry." *Front. Bus. Res. China* 3 (1): 63-78.
- Lu, L., Cai, R. and Gursoy, D. 2019. "Developing and validating a service robot integration willingness scale." *International Journal of Hospitality Management* 80: 36-51.
- Lundman, U.H. Graneheim and B. 2004. "Qualitative content analysis in nursing research: concepts, procedures, and measures to achieve trustworthiness." *Nurse Educ Today* 24: 105-112.
- Lundman, U.H. Graneheim and B. 2004. "Qualitative content analysis in nursing research: concepts, procedures, and measures to achieve trustworthiness." *Nurse Education Today* 24: 105-112.
- Lynch, P.D., R.J. Kent, and S.S. Srinivasan. 2001. "The global Internet shopper: Evidence from shopping tasks in twelve countries." *Journal of Advertising Research* 41 (3): 15-23.
- Makridakis, S. 2017. "The forthcoming Artificial Intelligence (AI) revolution: its impact on society and firms." *Futures* 90: 46-60.
- Martin, C. 2019. "Retail AI spending is projected to hit \$12 billion." *Mediapost*. Accessed August 5, 2022 <https://www.mediapost.com/publications/article/334349/retail-ai-spending-projected-to-hit-12-billion.html>.
- M. Brown, N. Pope, and K.Voges. 2003. "Buying or browsing?: an exploration of shopping

- orientations and online purchase intention ." *European Journal of Marketing* 37: 1666-1684.
- Merkle, R. Stock & M. 2017. "A service robot acceptance model: User acceptance of humanoid robots during service encounters ." *IEE International Conference on Pervasive Computing and Communications Workshops*. 339-344.
- Mirzaee, Saber. 2001. "The relationship between customer loyalty and customer satisfaction." *International Journal of Contemporary Hospitality Management* 13 (5): 213-217.
- Mohammadreza Mousavizadeh, Dan J. Kim, Rui Chen. 2016. "Effects of assurance mechanisms and consumer concerns on online purchase decisions: An empirical study." *Decision Support Systems* 92: 79-90.
- Mukherjee, A., and P. Nath. 2007. "Role of electronic trust in online retailing: A re-examination of the commitment-trust theory." *European Journal of Marketing* 41 (9): 1173-202.
- Niemelä, M., Arvola, A. and Aaltonen, I. 2017. "Monitoring the acceptance of a social service robot in shopping mall: First results." *Proceedings of the Companion of the 2017 ACM/IEEE International Conference on Human - Robot Interaction*. 225-226.
- Nisreen Ameen, Ali Tarhini, Alexander Reppel, Amitabh and. 2020. "Customer experiences in the age of artificial intelligence." *Computers in Human Behavior*.
- Oliver, R. L. 1999. "Whence customer loyalty?" *Journal of Marketing* 63: 33-44.
- P.B. Lowry, J. Cao, and A. Everard. 2011. "Privacy concerns versus desire for interpersonal awareness in driving the use of self-disclosure technologies: the case of instant messaging in two cultures." *Journal of Management Information Systems* 27: 163-299.
- P.Mayring. 2000. "Qualitative content analysis." *Forum Qual Soc Res* 1 (2).
- Paschen, J., Kietzmann, J. and Kietzmann, T.C. 2019. "Artificial intelligence (AI) and its implications for market knowledge in B2B marketing." *Journal of Business and Industrial Marketing* 34 (7): 1410-1419.
- Rana, Gaur, Singh and Awan & Rasheed. 2022. "Reinforcing customer journey: through artificial intelligence: a review and research agenda." *International Journal of Emerging Markets* 17 (7): 1738-1758.
- Ranaweera, C., and Prabhu, J. 2003. "The influence of satisfaction, trust, and switching barriers on

- customer retention in a continuous purchasing setting." *International Journal of Service Industry Management* 14 (4): 374-395.
- Rekettye, Gábor. 2019. "The Effects of Digitalization on Customer Experience ." *Entrenova* 340-346.
- Richardson, Kellz. 2022. "These AI mistakes are slowly killing your customer experience ." *Forbes*. March 3. Accessed August 9,2022 <https://www.forbes.com/sites/theyec/2022/03/03/these-ai-mistakes-are-slowly-killing-your-customer-experience/?sh=7d1259e0338b>.
- Roy, S.K., Balaji, M.S., Sadeque, S., Nguyen, B., & Melewar, T.C. 2017. "Constituents and consequences of smart customer experience in retailing." *Technological Forecasting and Social Change* 124: 257-270.
- Safari, A. and P. Thilenius. 2013. "Alleviating uncertainty through trust: A narrative approach to consumer's foreign online purchasing behavior." *Journal of Customer Behaviour* 12 (2): 211-26.
- Salesforce. n.d. 2022. "Salesforce Report: nearly 90% of buyers say the experience a company provides matters as much as products or services." *salesforce.com*. May 10. Accessed July 25,2022 <https://www.salesforce.com/news/stories/customer-engagement-research/>.
- San Martin, S., and N.H. Jimenez. 2011. "Online buying perceptions in Span: Can gender make a difference?" *Electronic Markets* 21 (4): 267-87.
- Schepman, A. and Rodway, P. 2020. "Initial validation of the general attitudes towards Artificial Intelligence Scale." *Computers in Human Behavior Reports* 1: 100014.
- Silvia Vázquez a , Óscar Muñoz-García c , Inés Campanella b , Marc Pocha , Beatriz Fisas a , Nuria Bel and Gloria Andreu. 2014. "A classification of user-generated content into consumer decision journey stages." *Neural Networks* 58: 68-81.
- Sima, Gheorghe, Subic and Nancu. 2020. "Influences of the Industry 4.0 Revolution on the Human Capital Development and Consumer Behavior: A Systematic Review." *Sustainability* (12): 4035-4063.
- Smith, William. 2021. "How AI is taking the frustration out of chatbot interactions ." *technologymagazine.com*. April 13. Accessed July 25, 2022 <https://technologymagazine.com/ai-and-machine-learning/how-ai-taking-frustration-out->

chatbot-interactions.

- Soderlund, M. and Ohman, N. 2005. "Assessing behavior before it becomes behavior: an examination of the role of intentions as a link between satisfaction and patronizing behavior." *International Journal of Service Industry Management* 16 (2): 169-185.
- Srini S. Srinivasan, Rolph Anderson, and Kishore Ponnaveolu. 2002. "Customer loyalty in e-commerce: an exploration of its antecedents and consequences." *Journal of Retailing* 78: 41-50.
- Statista. 2022. n.d. "Internet user concerns regarding personal digital data security as of December 2019." Statista Research Department.
- Statista. 2022. n.d. "Revenues from the artificial intelligence (AI) software market worldwide from 2018 to 2025." Bergur Thormundsson.
- Stephen, A.T. 2016. "The role of digital and social media marketing in consumer behavior." *Current Opinion in Psychology* 10: 17-21.
- Stephen, Andrew T. 2016. "The role of digital and social media marketing in consumer behavior." *Current Opinion in Psychology* 10: 17-21.
- T. Dinev, H.Xu, J.H. Smith and P. Hart. 2013. "Information privacy and correlates: an empirical attempt to bridge and distinguish privacy-related concepts ." *European Journal of Information Systems* 22: 295-316.
- The European Consumer Organisation. The BEUC. 2020. "Artificial Intelligence: what consumers say ." Accessed July 15, 2022 <http://www.beuc.eu>
- V. Venkatesh, J. Thong and X. Xu. 2012. "Consumer acceptance and user of information technology: Extending the unified theory of acceptance and use of technology." *MIS Quarterly* 36: 157-178.
- Van Doorn, J., Lemon, K.N., Mittal, V., Nass, S., Pick, D., Pirmer, P., et al. 2010. "Customer engagement behavior: Theoretical foundations and research directions." *Journal of Service Research* 13 (3): 253-266.
- Venkatesh, V., M.G. Morris, G. B. Davis, and F. D. Davis. 2003. "User acceptance of information technology: Toward a unified view." *MIS Quarterly* 27 (3): 425-478.

Ventura, Ron. 2021. *consumer gateway*. 05 14. Accessed July 18,2022

<https://consumergateway.org/2021/05/14/customer-experience-viewed-from-the-perspective-of-artificial-intelligence/>.

Vijayasathy, L.R. 2004. "Predicting consumer intentions to use online shopping: the case for an augmented technology acceptance model. ." *Information & Management* 41: 747-762.

W.D. Salisbury, R.A. Pearson, A.W. Pearson, and D.W. Miller. 2001. "Perceived security and world wide web purchase intention ." *Industrial Management & Data Systems* 101: 165-177.

Y.Y. Wang, Y.S. Wang and T.C. Lin. 2018. "Developing and validating a technology upgrade model." *International Journal of Information Management* 38 (1): 7-26.

Zeithaml, V. A. Berry, L. L. and Parasuraman, A. 1996. "The behavioral consequences of service quality." *Journal of Marketing* (60): 31-46.

## 9. Appendix

### A. Theoretical Conceptual Model of Customer Journey

CUSTOMER JOURNEY			
Consumption Stage	Pre-Purchase	Purchase	Post-Purchase
Behavioral Stage	Need identification; Information Search; Alternatives Evaluation	Choice Decision; Configuration; Personalization	Trust Establishment; Upgrade; Replacement

Source: (Julie S. Sexton 2010)

### B. Interview Guidelines & Transcript

#### Interview Guide

Stages	Pre-purchase (Awareness)	Purchase (Conversion)	Post-purchase (Impact)
<b>Research Objective</b>	To compare consumers' perspectives of AI tools to the existing AI tools	To study the determinants that influence/convince customers' purchase behavior while AI-powered tools are inserted during shopping online	To study the effect of AI tools on the degree of customer satisfaction

**The goal of this interview:** to discover the relationship between AI and consumers in the context of **awareness; existence; perspective; impact (satisfaction; loyalty)**

**Introduction:** Hi! My name is ... I am researching technology and online shopping experiences for my Master's thesis. Today, I would like to learn from you about your online shopping experience. This interview, with your permission, is recorded to facilitate the analysis. I will be the only person who can access your interview. The recording will be on my computer and deleted upon successful defense of my Master Thesis. Note that you can retract your interview at any point until my defense, send me an email to request it, and your data will be deleted from my registries.

#### Pre-purchase:

1. Do you prefer shopping online or offline?
2. How often do you shop online?

3. Think about your most enjoyable online shopping experiences. Can you walk me through why you opt for it though how it happens, and why it is so enjoyable? (Note to the interviewer: When suitable, but without interrupting the flow, take the interviewee to explain the interaction with technology more resounding.)
4. Did you have a chance to benefit from the Artificial Intelligence during your shopping experience? How?

(Note to interviewer) If no AI-powered tools are mentioned – go with the next question

5. Which technological features of online shopping make you happy or frustrated?
6. How much are you aware of the technology you've just mentioned during online shopping?

(If no AI-powered tools are mentioned, ask further by giving AI-powered tools examples)

7. What do you value most during online shopping?
8. How do you feel about the technology you just mentioned during your online shopping? Do they provide any "added value" to your shopping experience? Would you like more technology features?

#### **Purchase:**

9. What makes you buy products when shopping online?
10. Can you think of two examples of online websites? Where one is very sophisticated regarding the features it provides you to make your online shopping more accessible, and the other is very simple. Which one is better for you and when?
11. When does technology apply to online shopping change your purchase behavior? How does it change it?

#### **Post-Purchase:**

12. Thinking back about your online purchases, those you can remember, are you satisfied with the online shopping experience and your purchases?
13. Do you go to the same websites for your online shopping?
14. What might be why you switch to another website to do your shopping?
15. When will you shop online again, and where?
16. What is your overall perspective on the technology inserted on websites during your online shopping?

### C. Interview Data Analysis

Purchase Phase	Theme	Condensations	Codes	Categories
Pre-purchase	Shopping channel preferences and habits	-I prefer shopping online	Strong preference for a channel	Strong preferences
		-I prefer both but am inclined to choose online shopping		
		-I have a spontaneous shopping style	Without specific rules when using a channel	No rules
		-Sometimes I go online for convenience, sometimes I go offline for the discounts	Convenience and discounts determine the channel	Clear rules for channel usage
		-Product category depends on my way of shopping	The shopping channel depends on the buy category	
		-I buy things that are not in urgent need online but offline for urgent needs	Urgency determines the shopping channel.	
	The initial perspective of AI applications	-My attitude toward feeds and algorithms is positive	Feeds and algorithms generate a positive impression	An algorithm has a positive impact on customers
		-After seeing multiple ads, I would have broader consideration and much more choices	Ads augmenting choice set	
		-The recommendation function caters to my needs accurately	Recommendation fulfills the needs	Recommendations provide value to customers
		-I like how Big Data tracked my search history and then recommended products I've longed for before	Recommendation motivates the purchase	
		-I will discover the one I like based on a similar item's recommendation	Recommendations seem valuable and helpful	
-I don't enjoy Chatbot but real salespeople		Negative attitude to Chatbot and positive attitude to humans	For specific customer segment who values autonomy, chatbots are worse	
-I prefer to interact with a natural person for customer service as this makes me feel everything is under control		Prefer natural person interaction due to better self-control	Chatbots do not give customers much autonomous control	
-I like the automatic reply function during off-hours when I need instant answers for my quires		Customer recognition of benefits offered at special times by Chatbot	Chatbot provides significant benefits during off-hours	
-By getting pushed with personalized ads, I can save time and effort to get the wanted product		Perceived ease of use from personalized ads	Personalized ads are easy to use and convenient	
-Personalized ads remember search		Perceived convenience		

		history and predict preferences which make the shopping experience more convenient	from personalized ads		
		-Consistent pushed ads annoy me when I've bought the products	Persistent ad push can bring adverse effects to customers after being effective	Personalized ads for sold products are of little use	
		-I'm annoyed when the real quality of products recommended online is inconsistent as in real life	The inconsistency of product recommendations causes trouble	Personalized ads could bring negative effects for customers who seek product authenticity	
<b>Purchase</b>	Focused value in an AI-powered environment during online shopping	-I care most whether the recommendation tool gives me the wanted product	Accuracy of recommendations	Performance of AI recommendations	
		-How much energy recommendations save for me to find a satisfying product is what I care about most	Energy saved for getting the matched product from recommendations		
		-The product quality is what I focus on most	Quality of product	Performance of product features	
	-Price of products is what I care utmost	Value of money			
	-I always care about how accurate the description matches the actual product	Consistency of product features online and offline			
		-The fast delivery of products is the reason why I shop online	Product delivery speed	Region-independent product quick arrival times	
		-The variety of products online is what I value most during online shopping	Possibility of product diversification options	Product online diversification	
		-What I care about most is the apparent design of websites with a navigation panel	User-friendly website design	Performance of website features	
		-I think the FAQ section is the most important element	Possibility of self-inquiry information		
		-How easy the online payment method is	Ease of payment way		
		-The 24/7 customer service whenever I need support	Online Chatbot fast response informativeness	Performance of Chatbot	
		-Live chat 24/7 possibility provides timeless service for my online shopping			
		Trigger for online shopping	-Mostly, the product functionality and the reviews convince me to buy	Quality and feedback of products	Good performance of the product
			-I will purchase without hesitation if the products I need have reasonable prices and positive comments	Price and feedback of products	
	-A perfect combination of all factors, including price, product feature, and		Comprehensive performance of		

		discounts will trigger me to purchase	product features	
		-I could match the garments with other pieces worn by the models online	Potential inspirations from recommendations given to customers	Recommendations provide added value to customers
		-The algorithm can give me recommendations on discount	Price-wise channel specificity	Specific benefits provided through exclusive channel
		-The products are exclusively sold online	Product-wise channel specificity	
		-When I urgently need the product	The urgency of the need for products	Solutions for specific pain points are provided
		-When products are closely aligned with my needs	Match the need for products	
	The impact of AI technology on customer purchase behavior change	-The similar items recommended by AI catch my attention and interest in discovering and buying new things	Similar product recommendations expand customer interest	Expanding the range of customer interest in unknown products for potential buying motivation
		-The recommendations offer me a more complete product portfolio, thus converting me to buy things I sometimes do not need	Recommendations complete product offers and enhances customer purchasing power	
		-I buy lots of stuff I don't need but is recommended by an algorithm which arouse my interests	Recommendations arouse customer interest and facilitate purchase	
		-When I see a personalized ad several times, I get interested in the product and want to learn more about it	Continuous personalized ads trigger customer interest in exploring and buying products	
		-The Big Data learns my behavior and predicts my preferences, thus convert my purchase	Customers change purchase behavior based on Big Data predictions	AI as a predictor and persuader for purchase
		-The technology hasn't changed my purchase behavior as I only buy things I need	Technology is indifferent to customer purchase behavior	Customer segment unaffected by technology changes
		-I don't think the technology applied online has much changed my purchase behavior		
		Personal interests in AI technology-embedded web design during the shopping journey	-I prefer a more sophisticated search model as I want more AI-inserted features to guide me through the whole shopping journey	Strong preference for AI-powered environment
	-I need help with AI-embedded designs when I do not know what to buy			
		-I prefer a less sophisticated website with fewer AI-inserted designs as long as all necessary functions are available	Not interested in an AI-powered environment with a focus on non-AI-related points	Customer segment uninterested in AI-powered environment
		-I prefer the simple website as I only care about corresponding comments		

		on the products		
		-If I have a clear preference in mind, I prefer the simple one but vice versa when I don't know what to buy	Brand attachment and personal preferences determine the interests	Customer segment with clear rules on interests of AI-powered environment
		-I need more AI-embedded websites when I don't know what to buy and vice versa, as simple model is more time- & energy-saving	Clear shopping rules determine the interests.	
		-I prefer more AI-inserted websites as I like to have more fun with more multiple operation space	Perceived cognitive enjoyment arouses interest on an AI-powered environment	AI provides benefits for hedonic customers
<b>Post-purchase</b>	Influence factor of online shopping loyalty	-I will change the website if the previous one has an unstable technical environment and complicated payment steps	website performance influences customer behavior	Unstable technology performance on the website affects customer loyalty
		-Only when other websites offer what my current website doesn't do well do I change the shopping site	Perceived advanced technology design influences customer behavior	Better technology features from other websites affect customer loyalty
		-When another website has better product descriptions and broader product choices, I will change my shopping site	Perceived diversification of choices influences customer behavior	
		-I will change the website based on what my friends or vloggers recommend	Advocates from friends and surroundings influence customer behavior	e-WOM affects customer loyalty
		-I sometimes jump to other websites when they pumped out on the current one and arouse my interests	Bid Data recommendation triggers customers to explore new websites	Intelligent recommendations of AI affect customer loyalty
		-I sometimes get distracted by other websites as they seem to be more fun to shop	Big Data recommendation brings customers perceived enjoyment	
		-I do not always do shopping on marketplaces but on brand websites, so I would not switch websites as I have specific preferences for the brand	Customer behavior is indifferent to website design because of strong brand attachment	Strong brand attachment and personal preference affect customer loyalty
		Impression and acceptance of AI technology after purchasing	-I like using AI technology as it makes my life easier	AI simplifies the shopping process
	-I think AI technology is good as it knows me better and more than myself		AI helps customers make better choices	
	-AI technology provides me with many incredible shopping experiences, so I think it's pretty good		AI provides innovation and inspiration to customers	
-The premise for a good perspective on AI is that I can take control of the whole shopping journey as not all info pushed by AI is needed	AI should give more operation autonomy to customers		AI somehow impedes customer autonomy of choice	

		-Inserted AI technology needs to be refined as some are still immature and bring no innovation but disaster	AI has room for further improvement business-wise	The imperfect development of AI affects public acceptance
		-I recommend friends to try more AI-inserted features during online shopping, and I support more technological advancement	High acceptance of AI and willingness to convert to technology-advocator	Customer segment as robust technology-advocator with high enthusiasm for interacting with AI
		-As long as my right and privacy can be ensured, I am fine with AI technology	Concern about personal data security serves as a potential hindrance to accepting AI	Personal data security is a hidden danger affecting the full spread of AI applications
		-Overall, I have a positive attitude, except sometimes I am worried about data privacy		
		-Cybersecurity and personal data leakage are the only things I am concerned about most during interaction with AI		