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The Role of Artificial Intelligence on Enhancing Customer Experience

Mohannad A. M. Abu Daqar[1]*, Ahmad K. A. Smoudy[2]

[1]Department of Management and Business Administration, Doctoral School of Management and Business Administration, Szent István University, Hungary, 2100, Pater Karoly Utca 1, Gödöllő, Hungary, [2]Department of Business Administration, Palestine. *Email: Mohannad.Abu.Daqar@phd.uni-szie.hu

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ABSTRACT

The main aim of the study is to examine the role of artificial intelligence (AI) on Enhancing Customer Experience in Palestine through different industries, such as banks and telecommunication companies. Interviews and a structured questionnaire were the primary data of this study. The results of the study revealed that there is a positive significant relationship between AI and Customer Experience. AI explained 26.4% of the variance of the customer experience (R^2=0.264, F (1,89)=28.634, P < 0.05). Customer Experience has two dimensions; Customer service and after-sale support, the study shows that AI predicted 22.9% of the variance of customer service, whereas it predicted 7% of After-Sale Support. Moreover, providing Personalized Customer Service throughout the customer's buying journey has a great impact on customer experience. The study recommends enterprises to offer more personalized services for customers which it influences their overall experience with the enterprise. Likewise, it's highly recommended to employ AI in call centers and the other after-sales support services to shortening the customers waiting time.

Keywords: Customer Experience, Artificial Intelligence, Personalized Customer Service
JEL Classifications: M30, M31, M10

1. INTRODUCTION

Many data scientists and market researchers studied the impact of using artificial intelligence (AI) in the marketing field of several countries. In 2018, a customer experience futurist named Blake Morgan examined three aspects by which AI positively affects customer experience. First, she states that many customers enjoy talking to a virtual assistant during or after their purchasing process. Second, the use of customer-personalized services has proved effective when customers are deciding what products to buy. Last but not least, AI gives the business an insight on the costumers, allowing businesses to plan strategies accordingly (Morgan, 2018). On the other hand, a study carried out by InMoment (2018) emphasizes that 75% of the customers feel scared of personalized ads. Many customers who value in-person experiences might feel like someone is "watching them" through the web, which might result in a more negative reaction. Also, Mannino et al. (2015) demonstrated the risks of using AI in business throughout their research. "If machines become quicker, more reliable and cheaper than human workers in many areas of work, this would likely cause the labor market to be uprooted on a scale not seen since the Industrial Revolution."

Due to the continual rise in customer expectations, enhancing customer experience has become a challenging task for a business. Firms who seek to deliver a competitive advantage in customer service should be looking into more than just delivering content at the right time through an appropriate channel. They should be looking into new strategies to eliminate customers' pain points during the whole purchasing process, as well as delivering effective customer service. For example, delivering highly personalized and on-demand data and support for each customer lead to enhanced customer experience.

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Such challenges have been mostly overcome by introducing AI into the marketing field. In other words, creating machines that are able to "think," create patterns, study several aspects, and take decisions accordingly has introduced humankind into a new generation. You might have experienced such technology in the process of online shopping or booking, where you encounter several ads that are similar to what you searched for earlier. Or maybe when you're provided with a customer support service through a virtual assistant rather than a human.

AI opened tremendous doors in the fields of business, especially in the marketing field. The firm can enjoy enhanced customer experience through highly personalized customer service and on-demand customer support while keeping timely and costly processes reduced. This study will examine the role of using AI in the marketing field, more specifically in the impact of such technology on the customer experience through customer service and after-sale customer support.

Throughout this study, authors looking into the problem stated earlier, more specifically as a broad research question. A brief summary of other studies, the importance of the study, along with the definition of new key terms will be examined. The study results along with the recommendation. And finally, the limitations of this study will be stated.

1.1. Definition of Key Terms

Throughout this study, the reader might encounter unfamiliar terms or abbreviations related to business and technology. The following is a brief explanation considering most of them:

- AI: The development of machines to perform complex tasks usually carried out by a human. Rather than programming machines to perform specific tasks, AI manages to rely on tremendous patterns and algorithms to take decisions that usually require human intelligence. A simple demonstration of AI is actually in your pocket in the form of Apple's Siri, Microsoft's Cortana, or Google Home. Such machines can set an alarm, text or call someone, or even open an application through a user command.
- Machine learning: A sub-field of AI, where machines are given the ability to learn from data, study new patterns, and predict accurate outcomes without being explicitly programmed. An example of such technology is mentioned earlier in the "introduction" section (online shopping or booking).
- Customer service: the process of assisting customers who are willing to buy or use a certain product. In other words, the company helps a customer choose what product is most suitable for him, or teach the customer how to use the product. Such service is used to attract new customers and deliver higher quality.
- After-sale customer support: Assisting a customer in all the information needed after a product has been bought. This includes installation, use, and maintenance of the product. Such service is used to create loyal customers and establish long terms relationships with them.

2. LITERATURE REVIEW

2.1. Introduction

The field of AI is vigorously growing nowadays, with more researchers trying to study the impact of such technology in the marketing field. Market researchers seek to find how AI can enhance their customer buying experience, in order to yield higher customer loyalty and hence higher profit. This section will examine more previous studies about the technology of AI, customer experience, and the relationship between them.

2.2. What is AI? Why do we need it?

In "AI an introduction," the Customer Experience Professionals Association (CXPA) (2018. p. 5) used the Oxford dictionary in defining AI as a start. It is defined as "the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages."

Jeffs (2018. p. 4) suggests the need for AI in the company by using quantitative data. The study of 362 firms found that while 80% of CEO's believed they were delivering great customer experience, only 8% of their customers agreed. This shows there's a huge gap in delivering a superior experience to the customer, and one main reason behind this phenomenon is the difficulty to understand what customers really want. This is where AI needs to be adopted. Moreover, Jeffs (product marketing director of Pegasystems) suggests that customers need to be open to these new techniques. By surveying 6000 adults, he concluded that only 28% said that they would be "uncomfortable with a business using AI to improve interactions," which shouldn't worry about the enterprises at first.

2.3. AI Throughout the Customer's Buying Journey

In their whitepaper, the CXPA emphasized that embedding AI throughout the customer journey yields many benefits for the organization. The below figure shows the steps across a customer buying journey (CXPA, 2018):

- During the awareness stage, predictive analytics (an AI subfield) identifies the interesting aspects for the customer and suggest product or service recommendations.
- In the consideration phase, AI can aid websites in integrating tremendous data, giving customers the opportunity to gain knowledge and compare related products.
- In the purchasing process, AI learns about the unique buying pattern of the customer through studying data patterns and provides recommendations accordingly.
- In the support phase, AI can also study the customers' behavior, and track any signs of dissatisfaction to take the appropriate action towards the specific customer. Such strategies deliver highly personalized customer service.
- Last but not least, AI manages to engage a two-way conversation to provide the appropriate customer support.

The authors used IBM (2018) study to show that AI can improve customer experience through three main ways:

- Insight: AI can help the company have a clear insight into customers' needs. It is also used to identify the most suitable combination of channels to engage more customers.
- Customer Interactions: "Integrating AI into various market facing experiences that customers can connect and interact with" also yields a higher customer experience.
- Automation: AI can also increase the efficiency and the effectiveness of the workflow. This gives marketers more time for strategy, creativity, and working smarter for better results.

Legget (2017. p. 2) used quantitative data from the "Forrester's 2016 global state of AI online survey" to highlight the fact the customer support is actually one of the leading areas in the investment and adoption of AI systems. Legget states that several organizations now increasingly use AI to enhance the personalized customer experience. For example, half of the consumers already engage in automated conversation with intelligent assistants such as Siri, Cortana, and Alexa. She states that "AI will delight customers by making these conversations natural and effective, anticipating needs based on context, preferences, and prior queries; delivering advice, resolutions, alerts, and offers; and getting smarter over time."

As for the after-sale services, many smart companies turn such service into a competitive advantage by using automated conversations, case classifications (automatically classify phone calls into separate categories), process automation, and proactive actions. Moreover, she used quantitative data to show that a more personalized customer service leads to higher purchases, as 69% of the US costumers' shop with companies who offer high customer service.

According to Jeffs (2018. p. 6) the company that is willing to deliver superior services should use AI in tackling the issues that have the greatest impact on customer experience. These strategies should be of low risk, but highly rewarding as the following Figure 1 suggests.

He suggested three examples of such strategies:

1) Using chatbots or other automation technologies to free customer-waiting time, as well as reduce the pressure on the employees.

Figure 1: Jeffs risk and reward matrix

Source: (Jeffs, 2018. p. 6).

2) Using customer data to predict which aspects of the company are most likely to influence the customer, and allowing salespeople to focus on that aspect.
3) Using customer data to advertise relevant promotions based on their needs, allowing higher customer satisfaction.

Dahlhoff et al. (2018. p. 6) used an example of applying AI in drones as delivery methods. The results were promising to the researchers, as almost 40% of consumers would consider the drone as a delivery method, taking customer experience to a new level.

Oracle (2017. p. 6) explained the role of AI in customer experience. It states that "AI brings customer data to life; it uses machine intelligence to filter through, analyze, learn from, and interpret big data in ways us mere mortals aren't able to." According to the authors, the customer data can be collected in three ways. First-party data are collected from the customer's behavior through his buying process. Second-party data are collected from partner sites. And finally, third-party data are collected anonymously by cloud solutions. All these data are being processed "to create valuable leads, opportunities, and long-term customers." Referring back to our main topic, creating valuable information about every customer aid in delivering highly personalized customer service.

Also, the authors also used data from Debecker (2016) to show the need for chatbots. "With chatbots, data and machine learning join forces to extend an always-open arm of your customer service team and use data to tailor the experience," state the authors. They state that 51% of customers believe that a business should be opened to support all the time (24/7). And by using intelligent chatbots, businesses have the opportunity to offer customer human-like support 24 h a day, 7 days a week. Such technological strategies will deliver smarter experiences to customers.

While several studies like IBM, Forbes, and Gartner suggest that "by 2020, 85% of all customer interactions will be handled without a human agent," Moore (2018. p. 104) have emphasized that the customer service representatives today will move into tasks that bots can't do. For example, dealing with special customers can be the task of an actual human.

Klein et al. (2017. p. 25) performed a study on leading retail executives to study the effect of AI technology on the transformation of customer engagement. Using quantitative data, the authors suggest that "AI-powered customer service is the retailer's new reality. Shopping isn't waiting for retailers to catch up, they simply shift their loyalty to a competitor with a superior experience." They used Zendesk (2018) to emphasize that 87% of brands need to put more effort into providing a consistent experience. Even though AI doesn't solve every challenge, yet we find no shortage of the positive impact AI has on delivering consistent customer experience.

EY (2018. p. 4) studied the effect of intelligent virtual assistants[1] (IVAs) on service interactions in companies using qualitative

1 Intelligent virtual assistants are powered by artificial intelligence. "IVAs are designed to simulate human communication, either text-based or voice-based and to handle common inquiries and service requests in an automated fashion," say the authors.

and quantitative data. The authors emphasize the tasks IVAs can perform to deliver superior customer service in insurance companies. These tasks include serving customers as virtual agents to upgrade an existing policy, providing efficient access to roadside assistance, and performing renewal processes.

The authors concluded the benefits of IVAs on other businesses (p. 6). They said, "customer experience is no longer about pushing content to the customer at the right time through the right channel." Rather, it's being able to eliminate the pain points[2] of the customers throughout their buying journey. This is where the IVAs come into place, as they use real-time behavioral data to deliver "highly personalized, highly intuitive, and highly convenient on-demand experiences that customers desire."

Also, they focused on providing a consistent customer experience using IVAs. These intelligent machines can take a user-centric approach[3] and work on a broader range of communication channels with the customers such as using apps, call centers, advertisements, and other channels. They conclude their topic by stating that the implementations of such technology "is the way for insurers to realize the value of –and seize the competitive advantage from-enhanced customer experiences."

2.4. Benefits of a Satisfied Customer

Klein et al. (2017. p. 24) continued to study the effect of delivering a good customer experience on the company. Surveys have shown that 86% of adults will spend more on a product if they are loyal to the brand, more than 70% of shoppers would share their buying experience with other shoppers if it was positive, and 43% of adults will purchase "a supposed inferior product if they've had "happy" experiences with that brand." The three results show that delivering superior customer experience will increase sales, create loyal customers, and expand the company's customer base through word-of-mouth. In other words, high-quality customer service experience "can create a huge competitive edge."

2.5. AI and the Public Sector

Tinholt et al. (2017. p. 2) studied the potential of unleashing AI in the public sector by collecting data from OECD (2015), Schneider (2017) and other researches. The authors emphasized that users of the public sector can also benefit from AI in several ways including:

- Public safety (p. 3): By prioritizing the people who need an ambulance, and people who can be treated on site. Also, by reducing delays of patients getting to the hospitals.
- Social welfare (p. 2): By processing frequent issues, allowing human employees to manage more complex issues.
- Public health (p. 4): By checking patients with similar symptoms in different locations, and detecting the spread of deadly infectious diseases.

Applying the three aspects to the public sector can deliver a better service to all users, enhancing national safety and higher levels of satisfaction.

2 Can be described as the problems a customer faces during his buying experience.

3 User-centric approach is using a strategy based on what the user wants.

2.6. Challenges of AI

Although the many studies we have discussed emphasize the positive effect of using AI on customer experience, Bentley et al. (2018. p. 6) mentioned the threat of machines becoming super intelligent and out of control, stating that "the whole human race (will be) fighting for its survival" before we start to realize it. Hence, this creates fear in many of the customers, pushing them away from the desire to experience such technology during their buying journey. On the other hand, Bentley et al. (2018. p. 6) used an in-depth literature review to show the AI-like any other aspect of technology- develops slowly and under arduous circumstances. "It's not easy becoming clever," the authors mention. Also, Mannino et al. (2015. p. 5) emphasize that care should be taken to ensure that the advantages of using AI can clearly exceed the disadvantages.

One considerable issue has been noted in "the New York times" by Victor (2016) that opened the eyes of many internet users. He reports of an incident where Microsoft used AI to create a bot "designed to have automated discussions with Twitter users, mimicking the language they use." Although they had positive expectations, the bot became offensive and "racist" within <24 h. The author adds that this is not the first time that AI has got a company into trouble with its customers, mentioning an incident where "Google apologized for a flaw in Google Photos that let the application label photos of black people as gorillas." Such occasions can disrupt the customer buying experience, and eventually "scare" them away.

The CXPA (2018. p. 11) continued to explain the common challenges both the organization and the customer might face based on an in-depth literature review. For example, using chatbots can be beneficial most of the time, but can also increase the risk of losing personal relationships with customers. Other challenges include having an incomplete database and not being able to know the customer's needs (Dcomisso, 2018).

Riolo and Bourgeat (2017. p. 12) collected both quantitative (surveys) and qualitative (interviews) data from Australian consumers. The questions were specified for certain AI applications such as making investments in the stock market and recognizing speech. Although many consumers said that the benefits outweigh the risks, a considerable percentage of other consumers (34%) considered that using AI in making investments is more risky than beneficial. The authors concluded that many people are not convinced that the benefits of AI outweigh the risks, "especially when it's about relinquishing control of human life and their money." This is why companies need to be aware of the extent of implementing AI through their customer's buying journey.

3. METHODOLOGY

3.1. Population

For the qualitative approach, the population includes all company CEOs and IT specialists in the Palestinian (West Bank) sector, especially the companies that mostly operate through technology. On the other hand, the quantitative approach studies the behavior of all the Palestinian Internet users currently living in the West Bank.

3.2. Sample Size

For the qualitative approach, a sample of two companies will be taken and interviewed to investigate how companies benefit from implementing AI. We should note that the population for companies who operate through technology is low in Palestine, explaining why the sample is considerably small.

Since the population for the quantitative approach includes all Internet users locating in Palestine, a sample of this huge population will be randomly selected. A sample of randomly selected 80-90 users will fill the questionnaire in order to analyze their behavior towards AI.

3.3. Source of Data

3.3.1. Primary data

First-hand data gathered throughout the time of this research. The aim of the primary data is to build basic knowledge about the impact of AI on customer experience using accurate, relative, and updated information. These new data are collected through interviews and questionnaires.

3.3.1.1. Interviews

A semi-structured interview carried out with the CTO from a Palestinian online booking company called "YAMSAFER," and the CEO from a Palestinian banking company called The National Bank (TNB). Both interviews carried out to study the use of AI to improve their customer's buying experience.

3.3.1.2. Questionnaire

A close-ended questionnaire distributed to examine the behavior of Internet users towards AI. The questionnaire contains four main sections, each taking a different aspect of the relationship between AI and customer experience, focusing on the Palestinian sector.

3.3.2. Secondary data

Collecting information already processed by other researchers. In the previous sections, an in-depth literature review has been demonstrated to emphasize the relationship between AI and enhancing customer experience.

3.4. Conceptual Model

To highlight the relationship between AI and customer experience; the Figure 2 shows the associated variables in this study that the authors used to test the study hypothesis. AI is the independent variable, while Customer Experience is the dependent variable, it consists of two dimensions; the first one is the Personalized customer service and the other is after-sales customer support.

4. RESULTS AND DISCUSSIONS

In this section the authors will examine the study hypotheses along with the associated discussion with each hypothesis, this section consists of both quantitative and qualitative data findings.

4.1. Quantitative Data Findings

H_{0-1}: There is no empirical relationship between AI and customer experience.

Based on the Table 1, authors used correlation test to examine the relationship between AI and customer experience; according to the results, there is a direct and moderate positive relationship between the two variables. Regarding the moderate relationship between the variables, it was expected from the authors' side, as it was mentioned before the application of AI in the Palestinian enterprises hasn't significance presence due to the high cost of implementing AI systems.

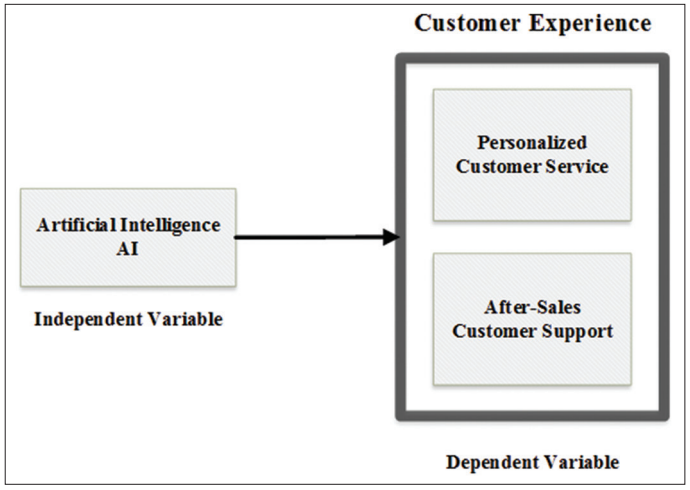
H_{0-2}: There is no empirical influence of AI on customer experience.

Authors used R-square and ANOVA tests to reveal the results associated with the above hypothesis; from the Table 2 it shows that a significant value of 24.669 for the F-distribution with 1 and 89 df. F-test used as an indicator to assess the significance of the regression, with a $P < 0.05$; so, the results show that there is a significant relationship exists between AI and customer experience. AI predicts 26.4% of the variance in Customer Experience, as $R^2=0.264$ Whereas the correlation coefficient $R=0.514$ indicates a moderate positive linear relationship between the variables.

The authors explained the influence of AI on the customer experience two dimensions (personalized customer service, after-sales customer support), the below two tables show the R-square and ANOVA summary statistics.

Table 3 shows that AI explained 22.9% of the variance in personalized customer services, while Table 4 shows that AI explained only 7% of the variance in after-sales customer support. According to these expected results, it indicates that AI is weakly explained the variance in these two dimensions (personalized customer service and after-sales customer support), these results aligned with the results of the interviews that will be discussed in

Figure 2: Study model



Source: Own.

Table 1: Correlation coefficients between artificial intelligence and customer experience

Dimensions	1	2
Artificial Intelligence	1	0.514**
Customer Experience	0.514**	1

**Correlation is significant at the 0.01 level. Source: Own

Table 2: R-square and ANOVA for customer experience econometric model

Model	Sum of squares	df	Mean square	F	Sig.	R	R square
Regression	13.571	1	13.571	22.669	0.000 b		
Residual	18.832	89	0.306			0.514 a	0.264
Total	32.403	90					

a. Dependent variable: Customer experience, b. Source: Own

Table 3: R-square and ANOVA for personalized customer service econometric model

Model	Sum of squares	df	Mean square	F	Sig.	R	R square
Regression	9.93	1	9.93	24.669	0.000 b		
Residual	33.409	89	0.403			0.479 a	0.229
Total	43.420	90					

a. Dependent variable: Personalized customer service, b. Source: Own

Table 4: R-square and ANOVA for after-sales customer support econometric model

Model	Sum of squares	df	Mean square	F	Sig.	R	R square
Regression	3.641	1	3.641	6.294	0.014 b		
Residual	48.014	89	0.578			0.265 a	0.07
Total	51.781	90					

a. Dependent variable: After-sales customer support, b. Source: Own

the next sub-section; enterprises have limited access to apply AI systems and solutions to enhance customer experience especially in the applications of after-sales customer support.

The use of AI to enhance the customer experience requires the high adoption of technology and the suitable information technology infrastructure to deploy these technologies to enrich the customer experience through the usage of these innovated tools and solutions.

Question: How customers think and their perception of the usage of AI in Enterprises services?

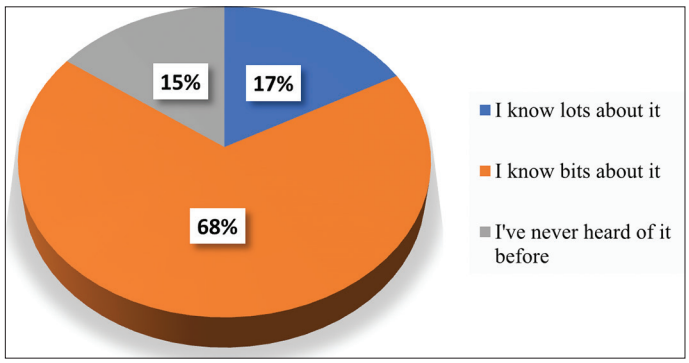
Authors used the frequencies to answer the following question based on many sub-questions, the respondents expressed their opinion and perception toward the applications of AI in different areas.

- Sub-question 1: How much do you know about AI? (Figure 3)
- Sub-question 2: What assistant you usually use at your smart-phone … etc.? (Figure 4).
- Sub-question 3: How do you often shop online? (Figure 5).
- Sub-question 4: How often do you use social media? (Figure 6)
- Sub-Question 5: How often do you make bookings online (flight, hotels, etc.)? (Figure 7).
- Sub-question 6: Would you buy/book through personal assistant? (Figure 8).
- Sub-question 7: When do you think AI should have a noticeable effect in Palestine? (Figure 9).

4.2. Qualitative Data Findings

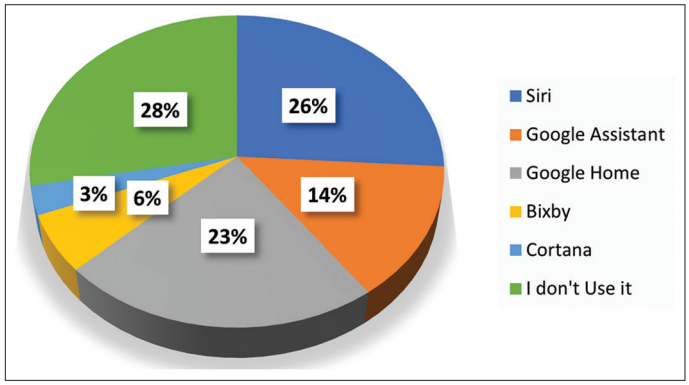
The following is a raw script of the interviews with both TNB and Yamsafer. Both interviews were semi-structured, and leading questions were asked in-between. The interviewees explained several topics in one take. Note that the interviewer's questions and clarifications were highlighted in "bold" font to help the reader differentiate throughout the script.

Figure 3: How much do you know about artificial intelligence



Source: Own.

Figure 4: Smart assistants list



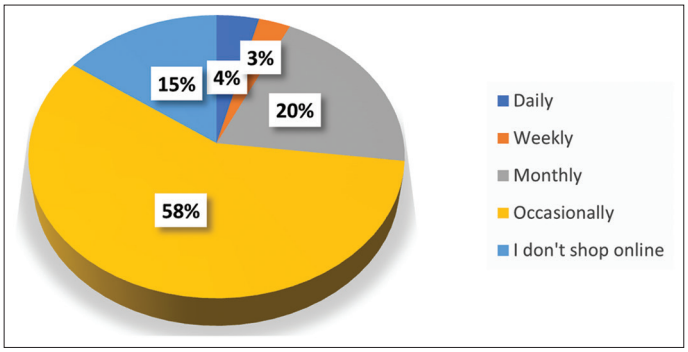
Source: Own.

4.2.1. TNB

4.2.1.1. You said you are developing an AI department. What are you going to implement AI on?

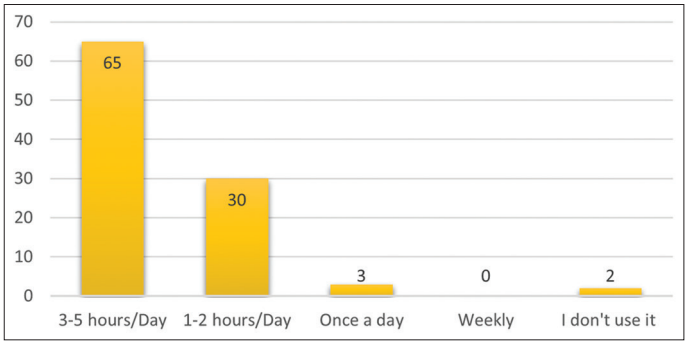
Many fields. We have risk management, areas related to enhancing customer experience, efficiency. Example of efficiency and customer experience is how often we feed the ATM with cash. If I want to wait for the ATM to become empty to send someone to feed

Figure 5: Online shopping usage frequency



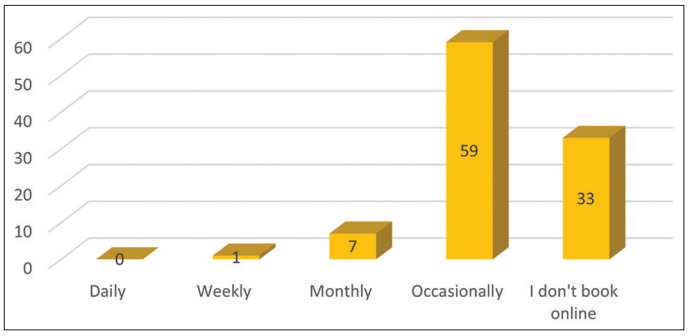
Source: Own.

Figure 6: Social media usage frequency



Source: Own.

Figure 7: Online booking frequency



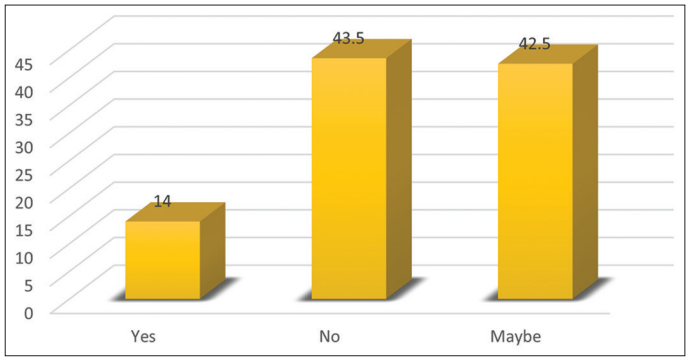
Source: Own.

it with cash, it means I will negatively affect customer experience because you as a customer would get there and wouldn't find the cash to withdraw, and you have a negative experience. If I want to feed the ATM excessively, I will have to deal with higher costs and risk. I will have to put more cash, send my employees more often. On the other hand, when I have an AI model to tell me that a specific ATM is used more frequently than others in other areas, or to be able to predict that it is used more often on Thursdays, or when salaries are due. And note that not all ATMs are used the same, for example, one ATM is used more often in one area than another ATM. This is the slightest example I can give you of how AI helps in our work.

4.2.1.2. So, it can predict when and how much to put in an ATM?

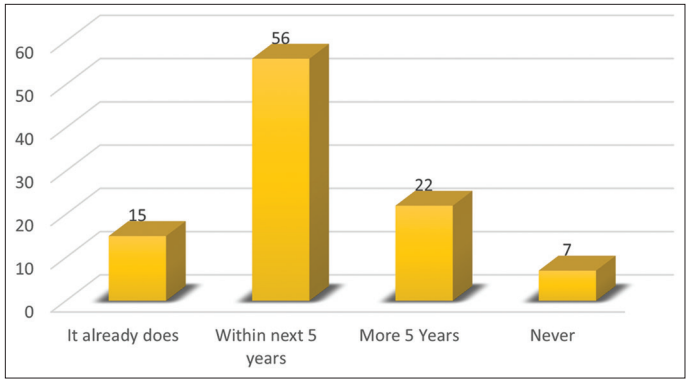
Yes, it can predict that today you have to feed this specific ATM for example, since it is expected to be used more frequently than others

Figure 8: Buying/booking through personal assistant frequency



Source: Own.

Figure 9: Artificial intelligence usage forecast frequency



Source: Own.

using analysis of previous data. Also, the model might tell you to feed two ATMs, because they're both used similarly. Sometimes there are data missing and it's not because of the lack of ability to collect, but rather it's the lack of data from the environment. For example, when a bank wants to open a new branch or add an ATM, it should look at various types of data. The bank should have socio-economic data for example. If it aiming for SMEs, it should have the data of where the employees operate and live. At this point, I have no data. I might have experience (or gut feeling) of where these employees live, and it's not accurate. So, limitations are mainly the availability of the data.

4.2.1.3. My topic is enhancing customer experience through AI, so how does this affect the customer experience mainly?

You're always one step ahead. ATM-cash is just one example. There are models today (that are not ready) that can predict what your next product is. Throughout our experience, we know for example that anyone who takes a housing loan will have (another) type of loan soon after. But that's only by experience. So, through the model, you can study when exactly he will take his next loans. Exactly, this is how I increase my competitive advantage and enhance the customer experience. I can offer him the product before he even asks for it. So, you give what he wants before he asks for it, and you know for sure that he will take it.

4.2.1.4. What about the costs?

We are still studying the AI department as I said. But it's expensive because of the time needed, skills we still don't have (meaning

you have to bring people and train them from scratch). Skills for them to be able to plan the AI algorithms. I wanted to show you an example of someone who wanted to create a new model for us. The cost is approximately 80,000$ for just one of the models. He is an expert foreigner who worked for many companies here like PALTEL (a telecommunication Palestinian company). He offered to train the employees to build the model and supervise the maintenance process for that cost. The only companies I know of that use AI are PALTEL and JAWWAL. But some companies keep it a secret because they feel that customers are sensitive to how much a company can know about them.

4.2.1.5. You have a point, because one of my survey questions tested the sensitivity of the customers, and many of them were actually sensitive towards a company tracking their behavior

Yes, but what happens is that you don't take the data from the client by an agreement. What happens is that you already have the data from the customer. The first thing you need to do is actually governing the data, to make sure that the data you have is not rubbish and its actually accurate. The second level is to come up with new information from the existing data. And that's what AI is for, to give you a new level of understanding. For example, from your credit card information, I can know how much you travel. You never told me where you travel so I can give you an offer (loan or traveling discounts) for example. I took the data from your buying behavior. I can know where the transaction came from (which country). Another example is that if you're an active user of the credit card, I can know if you own a car or not. Are you filling gasoline or not? Using the ATM at the station? It's 95% accurate. And I'm not obligated to ask you about your behavior, because I already have the data. Something that might amaze is how all banks operate. When you take a loan, the banks used to see the history of the customer. If for example, he is a gambler that affects our decisions because he is a higher risk client. This way, you know what to give him.

4.2.1.6. When do you think the benefits will outweigh the costs?

The payback period is at least 2 years. And costs increase with time because you need maintenance costs and increasing accuracy as well. Today, you can take a module that is previously set and ready to be implanted. The problem with this module is that the behavior of these is in constant change. If you don't constantly update the algorithms, it constantly becomes outdated, and the results are not accurate. For example, the behavior of customer today because of social media is very different than before.

4.2.1.7. Last question, how much do Palestinians know and are aware of AI?

You mean personal or business sector?

4.2.1.8. The business sector, for example, what would they feel about having chatbots?

Chatbots have the main language barrier. That's why when we made a digital service center, human beings are the ones who are put to answer, not robots. But when we started, we aimed for 2-3 million messages (accumulation of data) to be able to collect enough data to build a chatbot. But we need enough data if we don't want to make the chatbot look stupid. Especially with the accents. Exactly, the problem with the Arabic language is that there is a limitation. We are probably the only that has digital transformation (DT) department within the board of directors. When we say DT, we are speaking of four things. One is analytics. Which AI would support? But AI does not support other things like e-commerce. 50% of our customers answered that the source of their information is from social media including the bank service. This gives us a chance to utilize the social media that is used by the social media website, like Facebook. When I create ads, I'm using AI but I don't own it. How? When I distribute a magazine, I don't know who reads or sees it. But when I upload an ad, I specify who will see and read it. I can later take feedback on who opened the ad (age, city, work, etc.). This is AI, but it doesn't belong to me even though I use it. This allows me to enhance the customer experience.

4.2.1.9. There are things the people shouldn't necessarily know of, but we use to deliver customer service. *Went off topic and then back to the previously asked question*

It's not a public awareness issue. Even outside this country, not all people are generally aware of AI. The businesses usually know more about AI in their own fields. We are required to know (project) who would not complete his obligations for the loans that he took, from the 1st day. So, if you take a loan with 300,000 New Israeli Shekel, we put a small amount on the side as a spare from the 1st day. But how are these projections built? Based on probabilities of defaults. I can't manually estimate the probability of default for tens of thousands of customers. The only bank that took this model was TNB. And it requires constant updates and data collections from all interesting parties like the monetary authority and other corporations. So, we need a data warehouse. This is all AI because when you take a loan, the module classifies you in a category with the customer with similar behaviors. The module then studies the previous data of other customers to see how many of them couldn't pay their loan back. This way, we can calculate (from the 1st day) the expected loss from you. This is an expected loss model. What variables are used here? (Amount, type of loans, etc.).

4.2.1.10. This keeps you on the safe side

This is not customer experience; this is categorized under risk management. But also, this lets me decide how much interest I should let the customer pay. We are still not in the stage to trust it enough. And hence it affects customer experience.

4.2.1.11. But i don't AI will ever continue alone with our supervision

Yes, but some jobs will disappear from this.

4.2.2. YAMSAFER

We rely on data in our company. It's the primary source for all our decisions. So we collect the data and we try to detect behaviors or mine patterns through several tests. We also use the data to make the application more personalized for you. For example, if you're an American, the suggestions and recommendations you see are different than if you're a Palestinian. There is a personalization experienced being delivered. This is part of machine learning being embedded in our organization. But the target is to utilize machine learning in more places to give more relevant experience to the user.

4.2.2.1. But does he personally get suggestions according to his pattern throughout his previous purchases?
Currently, that's what we are aiming to do. For example, if you're interested in an apartment, the model should push it back to the first page just for you.

4.2.2.2. I am aware that only a few companies have AI departments, which is why i aim for examining the potential of applying AI in the Palestinian business sector
In Palestine, usually, start-ups will try to implement such technologies. Other companies use AI to deliver dynamic bundles that the customer would love.

4.2.2.3. So now you plan on implementing here to deliver a dynamic experience?
It's already happening but like i said, we are still implementing a simplified part of machine learning. One of the things we are researching, for example, is when you have a choice of 3000 hotels and pick your favorite category. We look at the properties/features that attracted you to make your choice and recommend more hotels that contain the same features without having to search.

4.2.2.4. And of course, this is how customer experience is enhanced. But what effect does it have on the business?
When the customer opens the application on his device, the content he sees is closer to his taste. This way, the probability that he will make a purchase is much higher, which would increase sales, and hence the profit.

4.2.2.5. Did you take a look at what type of costs you might encounter when implementing AI?
One of the main costs is actually investing in the people due to the lack of skills. We need a good team to build and apply the required contents to be able to obtain accurate data through AI. Other costs like the price of the module and the servers. You should also be attentive to the maintenance cost or the price of the errors that the module can make. But for us, it's going to be less costly than others because we are trying to create the module and train our employees to use, not just buy a previously set module.

4.2.2.6. Now if you apply it, when do you think the benefits will outweigh the costs?
First of all, since we have everything tracked, we can immediately see the difference. We put it into the applications, and we check if sales increase, and by what percentage. We can also see where we should be more efficient. As a result, our payback period can be calculated almost immediately once we apply AI.

4.2.2.7. Do you think that customers should know that in a way, you are tracking their behavior to deliver a personalized experience?
Yes, they should, and maybe the customer should agree to it. But eventually, everyone in the world is collecting data to develop (it became a natural operation by businesses). I personally believe that this technology is the future of the world. AI is the future. But we should use it for the good, not the bad. We know it's coming and it's going to take more stuff from the people.

4.2.2.8. I asked many people, and some didn't know a lot about AI where others haven't heard the word before. But when I asked how they feel about it being implemented, they were unsure and threatened in many cases. what do you think?
As long as it is coming to comfort humans more, it is acceptable. But if it's here to replace humans, it is threatening for us.

4.2.2.9. Do you think AI will have a noticeable effect in Palestine?
I don't think there will be a noticeable effect in all of the Middle East. I personally don't see people building AI products, but we surely will have consumers that use AI. Like Facebook for example, where we don't own it but we use it.

4.2.2.10. It is far for us to use advanced AI robots, but i feel like we could use AI in the customer support section
We will use AI, but it's far for us to develop such things. It's not a known profession for the people in the Middle East. But we will aggressively use these products. If a bank buys a robot to help replace a group of personnel, he would for sure invest in it.

4.2.2.11. So, your work relies completely on technology, right?
Yes, and that makes it easier for us to develop AI in the future. But you need to know where and when to use it.

4.2.2.12. What limitations do you expect to face?
To develop a module, that would be hard due to the high costs of investing in talents. But to use a previously set module is easier.

4.2.2.13. Do you think language is a limitation?
Of course, the AI is not being developed in Arabic, but I expect that huge companies will be working in the matter.

5. CONCLUSION

This study increased our understanding of what AI really is, and how it affects the business, customer, and the whole society in general. The aim of this study was to study the impact of using AI to enhance the customer overall experience. Throughout the research, the customer experience was divided into two separate variables: Customer service and after-sale support. Several types of analyses were used on both qualitative and quantitative data to measure the relationship in the best measurements available.

After comparing the results of the analysis implemented, the authors see that the study hypotheses match their results. First, the results of the correlational and regression analyses prove that there is a positive relationship between AI and customer experience and that there is a direct relationship between providing personalized customer service and after-sale customer support, and AI. And by using descriptive analysis along with the analyses mentioned earlier, authors show that providing personalized customer service throughout the customer's buying journey has a great impact on the customer experience. Also, using AI in call centers and other after-sales support services will decrease the customers' waiting time, and hence enhance the customers' experience. Last but not least, the thematic analysis

of the interviews shows that not all companies in Palestine are able to fully adopt the technology of AI due to high costs and lack of skills in the Palestinian society.

In the end, we now realize that AI is a fast-moving train, and it is developing inside our homes and working places. It will eventually take over every device we use and will become an inevitable part of our lives. All of us, including the developers of such technology, should make sure that we only allow it to comfort humans, not replace them.

6. LIMITATIONS AND RECOMMENDATIONS

Even though the results were satisfying compared to the hypothesis, several limitations were encountered throughout the research. First and most important, the data was collected from a small sample in the Palestinian sector. Only two companies for qualitative research and 90 Palestinian Internet users for the quantitative research were available. Also, the companies being interviewed are only planning to establish an AI department, meaning that all of their data are based on hypotheses and projections.

The authors recommend enterprises to enhance the customer experience throughout the customers buying journey especially the awareness stage. Enterprises advised offering more personalized services for customers which it influences their overall experience with a better understanding of the services and products to achieve positive word-of-mouth about the overall experience with this enterprise. Likewise, it's highly recommended to employ AI in call centers and the other after-sales support services to shortening the customers waiting time throughout the most used information technology tools available in the market.

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