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Research Article

A Framework for Integration of Artificial Intelligence into Digital Marketing in Jordanian Commercial Banks.

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ABSTRACT

This paper investigates the relationship between artificial intelligence (AI), and digital marketing in the Jordanian banking sector. It outlines the main implications of information gathering, data modeling, and processing & delivery, as well, the importance of human communication and ethical implications. Banks need a coherent foundation when employing AI. This paper provides a theoretical background for AI developers, policymakers, and marketers in the banking sector, and academics. Despite the extensive employment of artificial intelligence in numerous global and local businesses, few studies addressed the use of AI in the Jordanian banking sector. As well, AI has rapidly changed digital marketing practices, particularly in the light of the Coronavirus (COVID-19) pandemic. Banks in Jordan are oblivious to the challenges they face when integrating AI into their digital marketing services. This paper derives a general framework for integrating AI techniques into digital marketing practices in Jordanian banks. Recommendations designed to assist banks in targeting their clients more efficiently also presented in this paper

1. Introduction

Artificial intelligence has enabled companies to understand clients in an unprecedented way, so many companies are soliciting to adopt artificial intelligence to improve their business practices (Boerman et al., 2017; Canhoto & Clear, 2020). Companies, particularly banks, use digital marketing to target clients and reach them according to their preferences and desires. For instance, banks communicate with their clients through custom messages (Cozzi et al., 2018; Coppack et al., 2015). In this era, the increasing computing power and the emergence of big data have become predominant (Dimitrieska et al., 2018; Grover & Kar, 2017), so, it has become essential to integrate business intelligence into digital marketing practices to improve the service provided to customers.

In Jordan, commercial banks are rushing to include more clients in financial services, as a large segment of citizens does not deal with banks as in most developing countries (Adaileh & Othman, 2020; Albers-Miller & Stafford, 1999). Digital marketing has contributed to achieving access to them, as well, the Corona pandemic has prompted numerous clients to deal with banks and include them in financial services due to the imposition of curfew and the complete and semi-complete closures of many sectors. Several economists and financial service providers agree that this may lead to the changing of social attitudes associated with banks. The integration of artificial intelligence with digital marketing regarding financial services leads to the provi-

sion of new and superior services and products that exceed customer expectations (Lacasse et al., 2016; Huang & Rust, 2018). On the other hand, the integration of artificial intelligence into digital marketing may lead to various unfavorable effects that hinder the achievement of the aspired benefits, such as bias and increased social and economic vulnerability (Harazneh et al., 2020; Huang & Rust, 2018; Kihn, 2016).

This paper provides insight on how to integrate artificial intelligence into digital marketing. The researcher has developed a comprehensive framework for interaction that includes specific digital marketing strategies that focus on sustainability and ethical standards. It also converges the risks associated with the delivery of financial products and services. Also, it addresses the effects of using artificial intelligence in digital marketing that should be considered by the developers of artificial intelligence algorithms. This framework integrates the technical and behavioral aspects that lead to satisfactory customer service and improves our understanding of AI usage in digital marketing, moreover, supports the theoretical literature in this field.

In Jordan, a great reluctance to benefit from the financial services provided by banks has become observed due to the challenging economic circumstances. Furthermore, some bad events associated with the COVID-19 pandemic have been experienced, such as lack of flexibility to withstand this shock plus weakness and inability to buy financial matters offered by banks. One of the most common reasons for slipping away from financial dealings with banks is weakness, as the possibilities of defaults on bills or credit card payments are great, so banks are forced to exclude these customers from obtaining financial services such as loans (Harazneh et al., 2020). In turn, this leads to the absence of a digital presence for those clients and their continued exclusion. Furthermore, the lack of cell phones and an internet connection and the lack of technical skills of many citizens is an influential factor that impedes access to a larger segment of customers, especially in developing countries (Huang & Rust, 2018). Within the global scope, there is a high disparity in financial inclusion between developed and developing countries. The growth of technology is predominant in developed countries, and the ownership of mobile phones and Internet connection is high. Approximately 69% of the world's population have bank accounts, World Bank report (2018) indicated that only a quarter of adult individuals have a bank account in Jordan (Word Bank, 2018). A recent Find estimates the percentage of the population who own Official banking accounts for only 24.6% (of those aged 15 years and over), meaning that this percentage is about 13 percentage points lower than countries that have the same level of GDP. Contrariwise to most of the developing countries, account ownership in Jordan has stagnated since 2011 and stopped progressing, indicating that the use of financial products is low, as pointed the report only 16% of Jordanian adults used their bank accounts for savings and 14% of adults for borrowing from a financial institution. These indicators remain critical for financial inclusion as well. Despite these indicators, AI may oversee those indicators in its digital marketing for banking financial services (Huang & Rust, 2018). However, commercial banks are increasingly investing in AI and continue growing to become a competitive alternative to traditional financial services. Numerous studies indicate that financial inclusion achieves the goals of sustainable development (Lacasse et al., 2016; Lui & Lamb, 2018; Wayne et al., 2020), the financial technology aims to change financial inclusion in the long term and broad-based basis. AI capabilities can be exploited by not ignoring those factors associated with clients, which leads to less fear of potential services and products that employees have difficulty explaining to clients (Lacasse et al., 2016).

2. Integrating Artificial intelligence and digital marketing

Traditional marketing techniques are no longer feasible with the new business environment. Several companies are increasingly examining more effective technologies (Matar et al., 2020; Metcalf et al., 2019; Mogaji & Erkan, 2019). The term digital marketing stretches and exceeding the use of digital channels to comprehensive technologies for all stages of marketing processes that focus on acquiring and retaining customers. Add to that customer relationship management and

brand building (Mogaji et al., 2020; Westpac, 2019; Yurdakul et al., 2017). Digital marketing also intends to adapt technology to satisfy customers and stakeholders (Mogaji & Erkan, 2019; Matar et al., 2020), in addition to combining digital marketing theories with the actual practice of marketing.

The rapid spread of the Internet and the increasing use of mobile devices have encouraged the rapid growth of AI (Poppleton et al., 2019; Lacasse et al., 2016). Customer groups and business companies have benefited from it in changing the traditional sales process and interacting with individual customers through various touchpoints. According to Lacasse et al. (2016), AI can realize the surrounding environment through sensors and interact through the effectors. It also uses logic to interpret perceptions and makes inferences to solve problems and make decisions. Depending on multiple touchpoints, AI can generate data that develop digital marketing strategies (Mugrauer & Pers, 2019).

AI processes information and makes better decisions and eliminating bias in making judgments (Mogaji & Erkan, 2019; Poppleton et al., 2019). The Accumulation of Disparate types of Big data through rapid sensing robots for chatting in social media, e-mail, websites, and advertisements in large volumes and at a high speed and systematic manner (Rawwash et al., 2020) has increased the power of AI. AI-enabled systems can also identify traits, emotions, or feelings from textual and unstructured data (Poppleton et al., 2019), as well as non-verbal data such as images, and natural language understanding and processing (Mogaji & Erkan, 2019), for example, customer interaction with brands. AI leverages all types of data to make informed decisions that create added value (Salampasis & Mention, 2018).

Furthermore, there are AI systems that can support analysis for audio data, as it collects and analyze voice comments and convert them into meaningful information that marketers use in critical systems such as customer relationship management systems (Mogaji & Erkan, 2019; Rawwash et al., 2020). It is also possible to collect data and identify patterns from a wide range of sources such as web and mobile platforms, traditional or social media, and perform appropriate analysis (Poppleton et al., 2019) that helps in understanding customer trends, predicting their behavior patterns, and building long-term relationships with customers. AI technologies can support marketers in developing customer segmentation strategies and targeting both individuals and groups through personalized messaging (van Esch & Black, 2019; Wayne et al., 2020). AI systems can learn by processing big data since all areas of human learning can carry out by machines, plus there are hybrid systems that combine human intelligence and machine intelligence (Silver & Johnson, 2018).

Machine intelligence occurs through multiple approaches. First, supervised learning through training and testing data. Second, unsupervised learning of the available records and the machine collects the data on its own. And, finally, reinforcement learning for unsupervised learning through feedback and modification of procedures based on actual results of previously performed actions. In marketing, AI systems assist by their ability to learn direct marketing messages, accommodate websites to attract individual customers and customize products according to the preferences of each individual, in addition to meeting their needs at prices that suit them, and finally presenting and promoting the product in the right place and time through the correct and appropriate media (Pan, 2016; Salampasis & Mention, 2018).

The learning advantage of AI systems is not only the technical ability but also the commercial ability to meet the critical needs of businesses such as automating business processes and marketing processes. AI enables companies to define the target audience, personalize the content, and then present it through the right channels (Sun & Medaglia, 2019; Treleaven & Batrinca, 2017). Therefore, incorporating AI into digital marketing is no longer a luxury but is considered crucial in digital environments. Many researchers (e.g., (Pan, 2016; Mogaji & Erkan, 2019; Salampasis & Mention, 2018) suggest that AI should integrate the human factor for successful adoption. Therefore, as a concept, it is not just a technology or an algorithm, but rather an ecosystem that incorporates the technology with the behavioral and physiological elements of human beings (e.g., marketers and customers). Behavioral and physiolog-

ical factors can determine how a machine learns, and those factors must manage before using AI, which this research touched.

In Jordan, commercial banks provide various services that support the daily financial activities of individuals and business companies. Banks deemed vital to ensure the flow of transactions, facilitate investment, and run the economy. Some banks have adopted various financial technologies, and have provided several services developed by international companies such as Apple pay and Google pay, and partnerships with credit unions and international banks (Rawwash et al., 2020; Adaileh & Othman, 2020). There is no doubt that banks need to provide technologies that accelerate and facilitate relationships with their customers and track, analyze and predict customer behavior. Several studies have indicated that AI techniques and algorithms can help banks implement financial inclusion strategies and target more customers (Pan, 2016; Rawwash et al., 2020), which confirms the necessity to integrate AI with the digital marketing of financial services provided by commercial banks.

3. The proposed framework for integrating artificial intelligence into digital marketing

Our proposed framework encompasses AI systems that bring together humans and computers. This approach depends on artificial intelligence techniques, machine learning, data exploration, and decision-making support, with a greater focus on human input. This consolidation is promising and creates multiple opportunities for developing AI. AI extracts data from different touchpoints, prepares and learns from that data continuously, and makes recommendations for various decisions (Albers-Miller & Stafford, 1999; Coppack et al., 2015)

The incorporation of AI algorithms into digital marketing architecture is a ground of the proposed framework. The algorithmic content and delivery model are created, for example, identifying clients interested in a particular marketing message through AI algorithms and delivering messages to them through available media. Then it is imperative to achieve integration between AI and digital marketing,

in the context of banking services, data that feeds the AI systems comes from different sources (e.g. credit agencies, external partners, social media, the web, mobile phones, and else). Attention must be devoted to the quality of the data, if not possible, inappropriate services and products will be delivered, the completeness of the data should consider so the prediction process would be accurate (Dimitrieska et al., 2018; Huang & Rust, 2018).

AI does not have the emotional flexibility to understand the full reality of clients, and algorithms may distinguish between types of clients, so, inappropriate created decisions may lead to bad customer experience (Huang & Rust, 2018; Kihn, 2016). Therefore, the more data is sufficient, accurate, and timely, the better the performance of decisions that result from AI systems. The main objective of AI is to make clients interact more. When there is no correct decision-making, digital marketing systems supported by AI can customize the most appropriate services, have a positive impact, and enhance brand loyalty (Lacasse et al., 2016).

4. The implication of the proposed theoretical framework

4.1. Obtain massive amounts of big and high-quality data
The high demand for smart cell phones and the use of online applications has prompted developers to improve data processing and AI modeling capabilities (Lacasse et al., 2016; Wayne et al., 2020). Which provides banks with valuable sources of information, as users of different applications are considered potential clients, that can reach through text messages about the related products. Agencies can facilitate reaching out to remote clients in rural areas without the need for the Internet or cell phones, those people may not have any digital hotspots, but they may have a specific data fingerprint (Huang & Rust, 2018; Harazneh et al., 2020). It may affect how targeting, ads, and products and services are offered to them. The quality and quantity of data that marketers obtain about potential consumers help in improving the right time and place to provide the service and improving the media available to meet those needs (Cozzi et al., 2018; Grover & Kar, 2017).

4.2. Ethical collection and processing of data

The proposed framework focuses on the ethical collection of data about clients. Collection of data entails obtaining prior consent to collect their data, concealing the source of the data and removing personal information, and not selling these data to third parties (Coppack et al., 2015; Albers-Miller & Stafford, 1999) . Adhering to ethical standards when collecting data is very important as much as the technical aspects of AI and the quality and quantity of data required. Different categories of clients not covered by financial services often look for other sources to gain financial services, and their terms may be more difficult, but faster than traditional banks (Adaileh & Othman, 2020). It delegates an opportunity for marketers, by entering and reaching these entities' websites, and provides insight into their financial patterns. Some protocols allow access to that data or obtain data through open-source financial services for targeted clients (Grover & Kar, 2017).

Ethical processing of customer information requires identifying and addressing biases ingrained in the data to avoid bias in decision outcomes (Huang & Rust, 2018; Kihn, 2016). AI bridges the gap between branding and improving customer experience using data, concerns arise when ethical issues such as customer privacy are not considered. AI extracts data and manipulates it automatically. Processing of data is a challenge for marketers and developers when using and generating data. Among the most prominent of these challenges are privacy and safety concerns, and algorithms may produce some errors in data processing and decisions are taken (Huang & Rust, 2018; Wayne et al., 2020). Solving this challenge requires reviewing the processes and algorithms used, examining decisions resulted, discussing their ethical dimensions, and whether those decisions depart from bias, and consider diversity. The examination also includes ensuring that the data does not contain a different or extreme value, and proving a unified data structure.

4.3. Enhancing customer experience

The role of AI does not end when solving the current problems, while the outputs of decisions are considered inputs to further problems. By doing so,

the machine continues to learn, improves, and obtains more information and leads to enhanced customer experience (Huang & Rust, 2018; Metcalf et al., 2019). The capabilities of AI are forcing banks to track the comments of non-financially covered customers to understand their behaviors and preferences and to develop appropriate digital marketing strategies. Also, ethical behavior when obtaining and processing data leads to increased customer loyalty, increased participation, and desire for financial products and services. The touching points allow acquiring more information and improving recommendations, digital marketing supported by successful AI provides fair opportunities to include large segments of customers and to reach each of them according to their financial capabilities and preferences (Metcalf et al., 2019; Matar et al., 2020; Mogaji & Erkan, 2019).

4.4. Information delivery

AI provides rational alternatives that lead to better results and suitable for customers attracted. Information sent to customers should be free of bias, suggesting that the message directed is according to appropriate preferences through algorithms that avoid bias (Poppleton et al., 2019; Mugrauer & Pers, 2019; Rawwash et al., 2020). The diversified market structure may force banks to diversify their methods of communicating information. There are populated areas such as major cities, the majority of which are in the centre of the country, and there are remote rural areas. Therefore, banks use alternatives that include appropriate communication tools such as text and instant messaging via mobile phones and various applications.

4.5. The human role

The development of AI depends on humans because it requires the essence of emotional intelligence (Salampasis & Mention, 2018; van Esch & Black, 2019). AI cannot address difficult situations or make sympathetic recommendations. It also cannot access the tacit knowledge that expresses personal experiences or thoughts, emotions, and mental manipulation (Silver & Johnson, 2018; Pan, 2016). Digital marketing outlines a requirement for training AI systems through developers to produce AI systems to deal with customers'

emotions, feelings, and opinions, as well as protecting their privacy and taking into account their preferences. There is a need to provide personnel who can step in and bypass the decisions produced by AI systems and closely investigate clients' needs.

5. Conclusion

This paper is considered a theoretical contribution to integrating AI into digital marketing in commercial banks operate in Jordan. Numerous reports indicated that there is a reluctance of people in Jordan to financial services due to many factors, as well as people in rural areas outside the big cities have no desire to have official bank accounts. As a result, this makes it difficult for marketers to reach them and provide their banking services. In light of technological obstacles such as the lack of widespread use of mobile phones and internet coverage, the aforementioned is an opportunity for AI developers to improve technologies and algorithms that help digital marketers reach people who are not covered by financial services.

As previously mentioned, many people who are not included with the financial services provided by banks are always looking for financing companies, most of them usually have a digital presence, the banks can reach and target them through specific mechanisms to collect their information. These people differ from regular clients, so AI technologies should facilitate access to them, gathering their data, and allocate services that suit their economic conditions and desires. However, the focus on developing AI techniques and algorithms to support the digital marketing of financial services is considered insufficient or satisfactory. It is necessary to discuss the human implications associated with collecting and processing data and communicating information to clients and also focusing on the ethical aspects of using technology.

This paper broadly combines the technical aspects of AI with the complicated disciplines of marketing that relate to the human element and considers the ethical implications of technology. The proposed framework focuses on how to collect customer data, process it, and incorporate it into AI systems that support digital marketing, as well as allocate importance to develop algorithms that reduce bias in communication with cus-

tomers by integrating human elements in digital marketing. This paper discusses the effects of using AI in digital marketing through a theoretical review of the literature in this field and highlights the proposed solutions for effective integration between digital marketing and AI. Some clients have unique characteristics that affect their patterns of interaction with financial products and services. Therefore, knowing their conditions and marketing appropriate services will increase reliability, satisfaction, and loyalty for those services. This paper exceeding the technical and tangible benefits that accrue to banks, and highlights the ethical aspects and the social responsibility of banks and the well-being of people. Companies that use AI must understand the challenges related to data collection and processing and use appropriate models to disseminate and evaluate customer conditions to achieve effective service, in light of weak market structures and deteriorating economic conditions, flexible communication methods and interactive interfaces must be in place. In this case, AI algorithms must address biases, as well as pay attention to customer experiences of the services provided, and embrace ethical AI, especially when collecting and processing information. All of this inevitably requires the development of marketing policies that focus on privacy in gathering information, fair treatment to avoid legal conflicts, and finally focus on social and economic aspects, and customer welfare as well.

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