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An Evaluation on the Impact of Artificial Intelligence (AI) in Facilitating Digital Marketing in Telecommunication Industry, Oman

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Abstract

Artificial intelligence (AI) integration in digital marketing has changed how firms operate and communicate with clients. Examining its benefits, drawbacks, and customer perception, this research study intends to evaluate the extent to which AI is used into digital marketing in Oman's telecommunications industry. The study used a survey questionnaire approach, collecting quantitative and qualitative data from Omantel, Ooredoo, and Vodafone Oman, three significant telecom providers within Oman. The study's findings show that Oman's telecom industry highly recognizes and supports the use of artificial intelligence in digital marketing. The majority of respondents were in favor of utilizing AI to understand customer reactions and agreed that Customer Relationship Management (CRM) solutions driven by AI are essential for carrying out digital marketing activities. The industry acknowledges the advantages of AI in digital marketing, notably in its capacity to analyze enormous volumes of data and reduce costs, even though there is considerable skepticism regarding cost reduction. Despite the fact that a sizable part of customers is aware of the usage of AI in digital marketing strategies, some consumers are still uncertained or uninformed about its application. Initiatives aimed at promoting education and raising public awareness are advised in order to close this communication gap between companies and their customers. Companies in the telecommunications sector may leverage the potential of AI to optimize their digital marketing efforts and spur corporate growth by analyzing customer perception and tackling obstacles related to it.

Keywords: Artificial Intelligence (AI), Customer Relationship Management (CRM), Digital Marketing, Oman Telecommunication

Introduction

The study evaluates how the role artificial intelligence (AI) plays in the Omani telecom sector's digital marketing initiatives. The application of artificial intelligence (AI) in digital marketing is expanding as a result of technological advancements, cost reductions, the accessibility of enormous amounts of data, and the development of machine learning structures and methodologies. In order to satisfy customer demand, artificial intelligence has expanded its inventiveness in product customization and alteration. Businesses heavily depend on web-based e-commerce technologies and artificial intelligence (AI) in digital advertising to impact consumer needs and demands within the telecommunications industry (Khrais, 2020). The Sultanate already offers a welcoming environment, and it will

continue to do so in the future in accordance with the Oman Vision 2040, a blueprint to employ AI technologies and other breakthroughs in technology to draw foreign investment to the nation. This is another reason why the group believed it was crucial to look into this topic.

Statement of the Research Problem

The research topic "How Artificial Intelligence Can Pave the Way for Digital Marketing in Oman's Telecommunication Industry" focuses on aspects like data analysis, targeting, resource allocation, and competitive advantage in order to increase the effectiveness and productivity of digital marketing campaigns. It also focuses on issues of inadequate return on investment brought on by ineffective targeting, a lack of personalized content, wasteful resource utilization, inability to deliver the greatest amount of output, and a lack of ability to understand the data offered by digital marketing efforts. The project also aims to address possible privacy concerns and difficulties related to employment loss caused by AI use. The dependent variable in this study is the variable being examined, and it is called "the effectiveness of digital marketing within the telecommunications business in Oman". Despite being the independent variable, "the use of artificial intelligence in digital marketing" is controlled to determine how it will affect the dependent variable. The study will evaluate the link between the two aspects by comparing the performance of digital marketing prior to and following the implementation of AI-based digital marketing techniques.

Objectives of the Study

1. To explore how much Artificial Intelligence (AI) is now incorporated into digital marketing for Oman's telecommunication industry.
2. To examine the advantages and difficulties of applying AI to digital marketing in the Oman telecommunications sector.
3. To assess the consumer's perception on AI being used for digital marketing in Oman's telecommunications sector.
4. To recommend helpful suggestions for enhancing the impact of AI in digital marketing

Research Questions

1. To what extent has Artificial Intelligence (AI) been used by Oman's telecommunication industry for its digital marketing?
2. In Oman's telecommunication sector, what are the advantages and difficulties of implementing AI in digital marketing?
3. What is the customer's perception of AI being utilized in digital marketing among consumers in Oman's telecom industry?
4. What recommendations can improve the performance of AI in digital marketing?

Scope of the Study

The scope of this study is limited to three well-known companies operating within the telecommunication industry in Oman, they are Omantel, Ooredoo and Vodafone Oman. The population was finite and counted to 60, evaluating their knowledge on the impact of artificial intelligence (AI) in digital marketing. The main reason as to why the team has considered this topic is because digital marketplaces give consumers a plethora of brand-new buying

possibilities, and the industry is just growing stronger and bigger. The data collection process would take a maximum of one month, ending by June 2023 in order to obtain a considerable number of responses. The sample selected will include general managers, marketing managers, marketing executives and employees working in sales operations within the telecommunication company. The primary source of data will be collected by distributing questionnaires within the telecommunication companies.

Expected Outcome

The project's specific goal is to investigate how artificial intelligence (AI) may aid Oman's telecommunications industries in better comprehending the customers they serve, customizing their marketing pitches, and enhancing the general effectiveness of their marketing initiatives. The intended outcome of this research is a set of useful suggestions for Oman's telecoms companies on how they may effectively use AI to increase their efforts in digital marketing. These recommendations could include particular AI software or platforms as well as best practices for incorporating AI into current marketing campaigns. However, by helping companies use cutting-edge artificial intelligence (AI) to better understand and interact with their clients, the project has the potential to dramatically benefit Oman's telecoms sector.

Limitations of the Study

1. Limited population: The study's use of a relatively small sample size and population number has limitations since it could not fully reflect the target population as a whole. It is difficult to develop solid connections between the data and derive broad generalizations from the amount of data collected.

2. Lack of respondent collaboration: Due to the respondents' lack of participation, the study had trouble gathering enough data. This problem has been caused by a variety of unnecessary factors that resulted in a low number of survey questionnaires being completed. The accuracy and validity of the study's findings are decreased as a result of this constraint.

3. Lack of qualitative data: The study originally planned to use survey questionnaire and constructive interviews as research instruments. However, the researchers were unable to carry out interviews due to the respondents' lack of participation, which prevented the collection and analyses of qualitative data. The complexity and depth of insights that may have been drawn from qualitative data are constrained by this restriction.

4. Insufficient representation of the population: Because there were few respondents involved in this study, it's possible that the data analysis done for the study does not properly account for everyone working within Oman's telecommunications sector. Due to this restriction, sampling bias may be established, making reliable generalization of the results to a larger population challenging.

The above four constraints are major issues that the researchers faced throughout the process of project completion. In terms of prior research, there was a considerable number of credible publications available related to artificial intelligence implementation in digital marketing. The topic is comparatively new and in the process of gaining more recognition, hence it is understandable if there are less publications that directly answers certain doubts related to the subject. However, the limited number of research materials did affect the literature review of the study at a minimum extent.
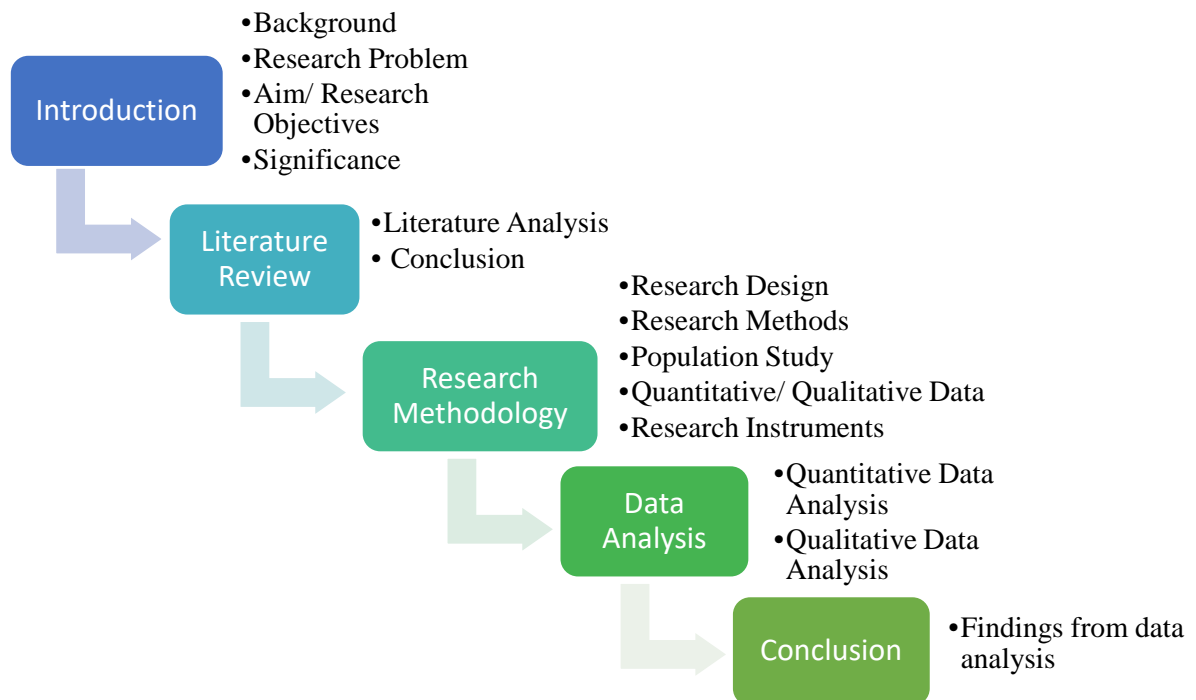
Structure of the Research

Fig. 1.1 Structure of the Research

Figure 1 depicts the overall framework of this research study with 5 chapters as the main body. Introduction will introduce about the research topic, the research problem, objectives and its significance. A literature review will be considered as chapter 2 of the study, providing evidences from readings. Describing the research methodology and introduction of who the respondents are will also be provided. The next two chapters will involve data analysis of the quantitative and qualitative data with a summary of noteworthy findings. The study's research design will mostly be descriptive. By gathering quantitative data, descriptive research frequently aims to characterize a phenomenon or a collection of events. Descriptive research encompasses a number of subcategories of research procedures, including questionnaire, correlative study, qualitative research strategy, and textual analysis (Atmowardoyo, 2018). Given that the research method will be a survey questionnaire to gauge the opinions of a sizable population on a certain issue or topic, it is obvious that the project would be descriptive in nature.

Definition of Terms

1. Artificial Intelligence (AI): The capacity of a computer system or computer-driven robot to carry out functions often performed by people with high intelligence. It is commonly used as an effort to create artificial intelligence (AI) systems that possess human-like cognitive abilities including the capacity for reasoning, provide meaningful findings, interpretation, and experience-based learning (Copeland, 2022).

2. Customer Relationship Management (CRM): CRM has been conceptualized as an approach that focuses on acquiring, maintaining, and working with clients in accordance with relationship marketing philosophy. In other words, it is regarded as an essential strategy used by businesses to integrate consumer behavior in order to establish a secure bond with them. CRM employs several aspects, these aspects include customer autonomy, orientation towards customers, staff conduct, customer service value, interconnections

management, and building relationships with customers (Altarifi, 2020).

3. Digital Marketing: Digital marketing is the practice of promoting goods or services through the use of digital technology, primarily the Internet, as well as smartphones, display ads and other digital media. To engage with both present and potential consumers, businesses use digital platforms that include social media, search engines, electronic mail, and web pages. Search engine optimization (SEO), search engine marketing (SEM), influencer marketing, content marketing, automation of content, promotional digital campaigns, data-driven advertising, etc. are all examples of digital marketing approaches (Desai, 2019).

4. Oman Telecommunication: Transmission of television and radio programs, television and cable services, internet service providers (ISPs), Voice over Internet Protocol, or VoIP, and radar services are just a few of the many fields that fall under the general category of telecommunications (Bennett, 2023). In the Middle East, the telecommunications industry has seen significant development and competitiveness. As a result, consumer demands for various telecommunications products and services, notably telephone and internet services, are increasing daily.
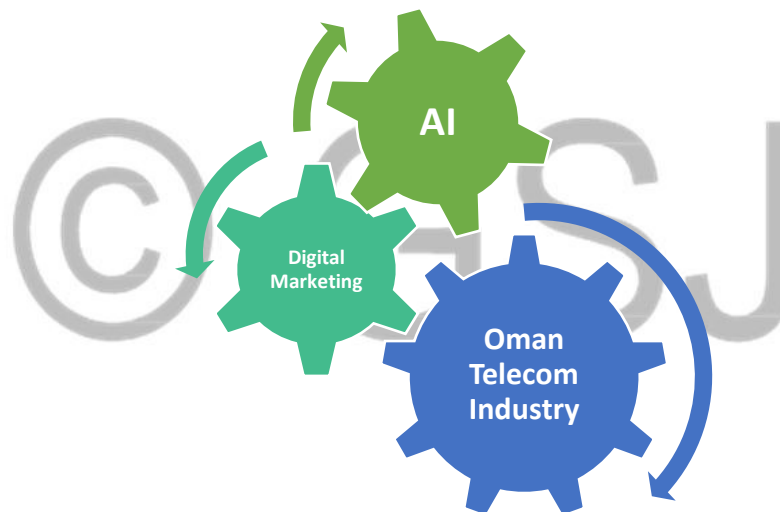
Theoretical Framework

Fig. 1.2 Theoretical Framework

A theoretical framework or structure establishes the variables to be measured and the statistical relationships to be searched for. The researcher's efforts to apply a theory through each study are reflected in a theoretical framework (Ukwoma & Ngulube, 2021). The goal of this theoretical framework is to investigate the connection between artificial intelligence (AI) application in digital marketing and the efficiency of AI powered digital marketing in the Oman telecommunication's industry. According to the theoretical framework figure, the Omani telecom industry's usage of artificial intelligence (AI) in digital marketing has an advantageous effect on the efficiency of digital marketing and that the Oman's telecom providers will likely see gains in effectiveness of their marketing initiatives.

Literature Review

1) Amount of Artificial Intelligence (AI) being incorporated into Digital Marketing

Digital technology has completely changed both consumer and corporate advertising over the past 20 years. The broader notion of "digital marketing," which encompasses all actions, organizations, and procedures made possible

by digital technology, includes electronic commerce, handheld devices, innovative goods, the Internet of Things (IoT), Machine Learning and Artificial Intelligence (AI) (Herhausen et al., 2020). Artificial intelligence will be a crucial topic in the future, and digital products are necessary, raising the bar for digital marketing. According to researcher Peyravi et al. (2020), technological advancements have altered the nature of the economic world, sparked the globalization process, and heightened competition on a global scale. Today's competitive marketing world is already being driven by artificial intelligence, as firms adopt plans to use the technology to make enormous strides. Using consumer information, machine learning, including other computing methods, AI is being implemented in marketing to predict how customers would react to certain products. The researcher also proposes that current AI technologies are implemented into a more digital setting in marketing, such as customer relationship management (CRM), customization, automation, and enhancement of marketing activities. A survey study of 12,800 digital marketing professionals conducted by Bhalerao and Bagale (2019), concluded that in assessing brand loyalty and response mechanisms, AI plays a role of up to 24% and its related technologies, such as deep learning and machine learning, have also been implemented by e-commerce companies. The researcher claims that more than half of worldwide marketers are adopting artificial intelligence (AI) for customization, understanding market trends, and monitoring transactions. Because of the perks and advantages that are currently available, artificial intelligence (AI) systems have developed into one of the most significant tools and techniques that aid in boosting the profits of retailers working under electronics. As one of the most significant sources of revenue for online shopping in 2019, chatbots have been incorporated into numerous designs and the structure of online stores. Some of the key marketing activities where AI is currently being incorporated involve handling data on customers, evaluating consumer behaviors, identifying possible advertising campaign trends, analyzing smart promotional effectiveness and what must be adjusted in the near future, advocating the application of voice-based search techniques, etc. AI is also commonly utilized in social media to gather highly precise information about client preferences and characteristics. It also enhances the outcomes of electronic searches. Due to the development of artificial intelligence (AI), online search results have undergone a remarkable development, and as a result, the pages that appear on the initial result page of search results become more valuable and beneficial as well as connected with the search query, which has given rise to a broad study now referred to as SEO (Search Engine Optimization) (Hassan, 2021).

2) Advantages of applying AI to Digital Marketing

According to Murgai (2018), one advantage of applying AI into digital marketing is enhancing and obtaining more data on consumer's behavior. As users engage online, they leave fragments of their data behind. Data is captured at every stage, whether they purchase, comment, or browse online. Systems using AI are now processing these significant numbers and learning about users' "internet activity" and "digital personality." These days, systems capture and retain all types of data as part of studying consumer trends to construct automated tools and customer profiles to target specific market segments. Another advantage mentioned by Guru et al. (2023), is that it aids in the identification of new marketing tactics to promote new or existing products by inculcating AI in PPC (Pay-Per-Click) advertisement campaigns. It is advantageous to the marketer as they will profit from successfully gaining a competitive edge because some of the rivals may not access these channels. Furthermore, the researcher concludes that a few elements, including the Internet of Things (IoT), big data, and approaches to machine learning, are subsidiary AI procedures that enhance effective digital marketing operations. Industries in the current era therefore want to use AI to obtain extensive consumer information and take appropriate actions to optimally satisfy customers' requests to achieve a competitive advantage in the marketplace. AI is also advantageous in forecasting and offering

long-term value to customers. Some of the most well-liked AI techniques are Google Analytics, Google AdWords, and SEO. With the help of Analytics by Google, the effectiveness of the material is evaluated. It monitors what data people access and share, evaluates the value of websites depending on their material, and provides in-depth information on the users of the site. It offers practical data that aids in the creation of the best feasible solution (Bag et al., 2021).

A study conducted by Tiago Ribeiro and José Luís Reis (2020) stated that lower expenditure and increased earnings are the primary anticipated advantages. The benefits of AI include speed, rapid outcomes, preciseness, greater efficiency, and alleviation by reducing the amount of work that humans need to complete and is not a productive use of their energy. Consumers benefit from AI's integration into digital marketing in terms of significance, ease of use, and customer experience, while businesses and marketers gain to predict buyer habits, foresee market trends, and hyper-personalize content. At the operational level, AI presents the chance to improve people's standard of work and the effectiveness of business strategy through automation of processes and optimization.

3) Disadvantages of applying AI to Digital Marketing

While artificial intelligence gives marketers strong, context-specific practical tools, they also run the danger of handing over control of their own market "knowledge" to the systems, losing control of the marketing process, and being detached from the cycle if not given enough consideration and care. According to Kozinets and Gretzel (2020), a company is more prone to changes that might have a negative impact on it the more dependent it is on AI systems, algorithms, and major technological companies' programs. Marketers are unable to control algorithms because they are always concealed from view and are always subject to modifications. In the end, technological corporations develop and tinker with such algorithms to serve their own interest in generating money and rewarding their clients. Lack of customer trust is another drawback, according to Veleva and Tsvetanova (2020). The use of AI technology in attempts to record and gather data from individuals online raises privacy concerns, particularly the integrity of such data. As a result of utilizing AI in digital marketing, consumers will build up a severe mistrust of this sort of marketing and frequently decline to engage in such events. Because of this, the issue of consumer trust and how it affects digital marketing methods is gaining importance and has been the focus of a lot of scholarly investigation. Security is arguably also one of the biggest problems with AI use. Organizations frequently forget that the information they store belongs to their clients and not to themselves. Specialists must be courteous if they want to benefit from the information provided. Therefore, to avoid upset clients, businesses must protect the information that clients give them, be transparent about it to the consumers, repeatedly request permission to use the information, and inquire about the interests of the consumers. However, data merely does not create possibilities but also has the potential to increase costs for any business. Due to the high costs of data storage and the growing volume of data, businesses are finding it more challenging to manage their data. As a result, marketers are competing to obtain the same opportunities as others. Corporate decision-making over which data to keep and which to discard may be challenging. The disadvantage of employing such a procedure is that the marketing department will face the risk of sacrificing data that could help them sustain client retention or other crucial data (Mozeryte, 2019).

4) Consumer's Awareness on AI being used for Digital Marketing

Although the use of AI in digital marketing is constantly growing, it seems that there are customers who are not aware of technical breakthroughs and therefore lack knowledge on this topic. Contissa et. al. (2018) states that consumers hardly know how they are being tracked and controlled by AI systems, which leaves them primarily in the dark and unaware of how the system works. Moreover, individuals are unable to challenge the methods being used.

By strengthening consumers' defenses, such as by shielding them from dishonest marketers or hostile business activities, such tools may aid in the development of an effective consumer response. Likewise, Chen et. al. (2021) findings show that consumers' perceptions of AI are multifaceted and dynamic, with an emphasis on usefulness and emotions, including major comparisons and contrasts between AI and people. Consumers feel that artificial intelligence in digital marketing is largely acceptable and inevitable, and that its ability to influence how they evaluate goods or brands or how they behave as customers is only moderately affected. Customers also understand and are aware that data collection enables artificial intelligence (AI) to serve them through personalization, yet because AI is inherently incomprehensible, they feel used. This tension permeates data gathering situations. Real as well as imagined loss of autonomy feeds these feelings of exploitation, which has significant cognitive repercussions. One instance is the case of a German customer who, while not owning any Amazon Alexa gadgets, asked for his own personal information from Amazon and obtained recordings of Alexa's processing of voice requests. A nearby magazine tried to find the consumer whose privacy was violated after hearing the client's claim (Puntoni et al., 2020).

5) Strategies in improving the effect of AI being used for Digital Marketing

AI is currently entering a new era where it will help enterprises become more productive, efficient, and profitable. According to Thiraviyam (2018), making the appropriate choices is essential for an effective marketing strategy that helps a business succeed online. Maintaining communication with customers and keeping up with current social trends are essential for a successful marketing strategy. As a result, a marketer may successfully promote his goods or services and run his business effectively thanks to the strength of artificial intelligence systems in digital marketing techniques. To forecast consumer behaviors, the researcher also suggests probability modeling and predictive analytics. To seek prospective buyers who are more inclined to accept an offer, probability models are statistical scores. It links client attributes to predicted actions. With this model, the target market and campaign objectives will be specified, and the program will automatically suggest methods to achieve those results.

Meanwhile, another recommendation proposed by Nadanyiova et. al. (2021), is the successful integration of digital marketing in accordance with company practices centered on the concepts and trends that are progressively developing under the circumstances of the high-tech sector. It involves personalizing the advertising tools based on the specific tastes of the brand's target consumers. More study of digital marketing as a means of gaining a competitive edge is very desirable. Examining and contrasting the effects of AI in digital marketing and how customers perceive it in specific industries would be useful.

Research Methodology

The study's research approach will be completely descriptive, with no elements of exploratory research. By gathering quantitative data, descriptive research frequently aims to characterize a phenomenon or a collection of events. Descriptive study encompasses a number of subcategories of research approaches, including questionnaire, correlative study, qualitative research strategy, or textual analysis (Atmowardoyo, 2018). It is clear the project will be a descriptive one as it will use a survey questionnaire as the main research tool to investigate the perspectives of a large population regarding a certain topic or concern. The researchers will be able to construct a complete picture of the present status of the sector and how it is regarded by evaluating how this data are being perceived by the community with the help of descriptive statistics, correlational study and regression analysis. The primary source of data collection is the survey questionnaire. The researchers will utilize this instrument to collect all primary data and analyze it using the appropriate data analysis techniques. Meanwhile, secondary-based data will be collected through

a wide collection of literature material that focuses on the variables of the topic through credible journal articles such as international journals, journal of marketing, journal of latest technology in engineering etc., conference publications such as the 27th International Joint Conference on Artificial Intelligence, online reports and other publications that are available online. The secondary material will only be utilized for the literature review section of the project whereas the primary data will be analyzed after the literature review, while also including arguments or statements that support the analysis with secondary material, providing respondent's insights and statistical results. Since the project will be targeting the telecommunication industry, the respondents would consist of marketing professionals, marketing managers, executives within marketing and sales department of the telecommunication company and employees who work and conduct personal selling of the products of the few stated companies operating in the Oman telecommunication industry i.e., Omantel, Ooredoo and Vodafone Oman. The population size was counted to 60 since the telecommunication industry is the focused population in this study. By using the sample size calculator, the researchers were able to compute the sample size as shown below:

Sample Size Calculation:

Confidence Level = 90%

Margin of Error = 5%

Population Proportion = 50%

Population Size = 60

∴ Sample Size = 53

Therefore, at least 38 responses will be required for this research project. The sampling technique utilized will be non-random sampling. Non-random sampling refers to a non-probability sampling where every individual belonging to the specific demographic and has an equal opportunity to be selected when using the sampling approach. Highlighting all members of the study population is the first phase of this procedure. Non-random sampling is followed by determining the necessary number of participants in a manner that ensures everyone has an equal opportunity of being a participant. However, not everyone within the population will have a chance to answer the survey questionnaire.

Test for Validity and Reliability

According to Bolarinwa (2015), although the reliability and validity of research equipment, particularly surveys have been shown to be crucial in several research projects. Researchers in the behavioral and social sciences in developing nations do not frequently measure these variables. This has been connected to the lack of understanding of these assessments. Surucu and Maslakci (2020) defines validity as an indicator of how effectively a measuring tool performs its stated purpose, and it deals with whether the tool measures the conduct or attribute that it is meant to be evaluated whereas reliability is a measure of how stable a set of values determined are when they are acquired through successive measurements using an identical measuring tool and the same environmental conditions. In addition to being a characteristic of the measuring device, reliability is also a characteristic of the outcomes of the instrument being measured. However, Mohajan (2017) states that, a researcher's results' reliability and validity may be endangered by several elements. One of those is error. Therefore, when planning and carrying out research studies, researchers need to be aware of potential sources of inaccuracy. The primary causes of research

mistakes can be found in the negligence on the part of the researcher, the study respondents, the social environment, and the data gathering and analysis procedures. Practically, at every stage of the research process, a project's validity and reliability are at risk. Since it can never be completely removed, a researcher must do everything in their power to reduce the risks as significantly as possible. For the purpose of testing the validity, the researchers provided the survey questionnaire to three subject-matter experts with in-depth experience of survey procedures. They understood the survey's questions, and neither the grammar nor the sentence structure contained any errors. However, it was suggested that the survey be conducted online since it is more effective and the online survey technology itself can summarize the data provided by the respondents rather than having to manually do it for each response. Whereas, for the reliability testing, the questionnaire was distributed to 7 individuals who had a good understanding on the subject and rated each question based off a 5-point scale. The scaling is as follows:

1: Not Reliable

2: Low Reliability

3: Moderate

4: Likely Reliable

5: Highly Reliable

The below table, with the help of Excel, depicts the Cronbach's Alpha for the test of validity and reliability.

Respondent	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Total
1	3	2	2	3	2	3	3	1	2	1	2	24
2	4	4	3	2	2	4	3	2	2	2	2	30
3	3	2	4	3	3	3	4	2	1	1	3	29
4	3	3	4	3	3	3	3	3	3	3	2	33
5	2	3	3	2	2	3	4	2	2	1	2	26
6	3	2	2	2	2	3	3	2	2	2	1	24
7	3	3	2	4	3	4	4	3	2	1	1	30
Sum of Total Variance												11.66667
Variance	0.333	0.571	0.809	0.571	0.285	0.238	0.285	0.476	0.333	0.619	0.476	4.52381
Cronbach's Alpha												0.673469

Fig.1.3 Cronbach Alpha of Survey Questions

Cronbach Alpha Calculation:

$$\alpha = \left[\frac{k}{k-1}\right]\left[\frac{S_{y^2} - Sum\ S_{i^2}}{S_{y^2}}\right]$$

k = 11

k – 1 = 11 – 1 = 10

$S_{y^2} = 11.66667$

$Sum\ S_{i^2} = 4.52381$

$\therefore \alpha = \left[\frac{11}{10}\right]\left[\frac{11.66667 - 4.52381}{11.66667}\right] = 0.673$

A score of 0.673 is obtained for Cronbach's Alpha. Validity and reliability are considered satisfactory when the Cronbach's alpha score is between 0.6 and 0.8 (Raharjanti et al., 2022). Hence, the researchers conclude that the survey questionnaire has an acceptable internal consistency, making it a reliable source for data collection required for this study.

Presentation and Analysis of Quantitative Data

1. **Demographic Data Analysis**

Section I of the questionnaire was based on the demographic data of the respondents. Total number of demographic related questions were 5. The questions asked were of the respondents' age, their nationality, gender, educational level and lastly, their level of income. The following data will be presented using descriptive statistics with its frequency and percentage.

Question 1: What is your age?

Age	Frequency	Percentage
20-27	9	22%
28-35	11	26.8%
36-43	15	36.6%
44-51	6	14.6%
52-59	0	0.00%
60 and above	0	0.00%
Total	41	100%

Table 1. Age Distribution

Table 1 portrays six categories of age that is used to segment the data, which are 20–27, 28–35, 36–43, 44–51, 52–59, and 60 and over. The last two age ranges— 52-59 and 60 and over have no frequency, which means that there are no respondents who fall into those age ranges. It is observed that the age range of 36 to 43 has the greatest proportion at 36.6%, followed by the age range of 28 to 35 at 26.8%. The percentages for the age ranges 20–27 and 44–51 is 22% and 14.6%, respectively. Because prime age employees (those between the ages of 25 and 49) tend to save more than younger workers (15 to 24), the growing working-age population—particularly the number of youthful age workers—would lead to more accumulation of financial assets and capital. Employees in their prime tend to be more productive than younger employees, which increases their likelihood of making higher salaries as well. Hence, due to the fact that most workers in Oman are in their prime years of age, there are no respondents who are older than 51 in this survey questionnaire (Islam, 2020).

Question 2: What is your nationality?

Nationality	Frequency	Percentage
Omani	32	78%
Non-Omani	9	22%
Total	41	100%

Table 2. Nationality Distribution

Based on the data in Table 2, it is seen that out of the 41 total respondents, 78% are Omani nationals, while the remaining 22% are expatriates. In this demographic, the Omani nationality is most prevalent. One main reason is due to Omanization. Establishing nationalization objectives and targets for every business sector and governmental body, the Omanization program was launched by the Omani government with the aim of adjusting Omani workers and reducing foreign employment in both the public and commercial sectors (Said et al., 2020). According to De Bel-Air (2018), more than 115,000 overseas workers left Oman as a result of the Omanization drive between March of 2016 to March 2018, which raised concerns about an economic collapse in the Sultanate of Oman. More specifically, as businesses look for ways to reduce costs, high-paid expatriates are now becoming a target. This explains as to why there's a huge difference between Omani and Non-Omani workers within the industry (De Bel-Air, 2018).

Question 3: Please specify your gender.

Gender	Frequency	Percentage
Male	28	68.3%
Female	13	31.7%
Total	41	100%

Table 3. Gender Distribution

In Table 3, according to the given data, it is clear that there exists a gender gap in Oman's telecommunications industry. In this sector, male employees are more in number and make up a sizable portion of the labor force. Despite female workers being represented, they are comparatively less in proportion to male employees. Because of societal conventions and cultural opinions, women in Oman prefer not to work within other industries when it comes to employment in the private sector (Mansour et al., 2020). However, the ratio of women workers are more than males in service sectors including social services, medical care, and teaching. They make up 88% of the nation's artisans and are heavily represented in the retail industry. Comparative to adult males in Oman, some women are also setting the bar for entrepreneurship by operating their own enterprises (Liloia, 2022).

Question 4: What is your educational level?

Educational Level	Frequency	Percentage
High School Certificate (Secondary Education)	2	4.9%
Foundation Degree	0	0.00%
Diploma	9	22%
Bachelor's Degree (BA or BSc)	23	56.1%
Master's Degree (MA or MSc)	7	17.1%
Doctorate (PhD)	0	0.00%

Total	41	100%

Table 4. Educational Level Distribution

The data as a whole show that almost all of the survey respondents achieved higher education levels. 17.1% of respondents have earned a master's degree, while 56.1% have a bachelor's degree. This signifies that the population under study has an acceptable amount of high-level education. According to an employer survey conducted by International Labour Organization (2022) regarding skills required in the Oman labor market, in terms of education, 91% of international and 80% of Omani employees in the private sector, in 2019 had a high school degree or less, showing that the industry is primarily poor-skilled. Instead, it is observed that higher educated people seem to gravitate towards working in government or public sector related positions.

Question 5: What is your level of income?

Level of Income	Frequency	Percentage
Less than 1000 R. O	26	63.4%
1,000 – 5,000 R. O	14	34.1%
6,000 – 10,000 R. O	1	2.4%
More than 10,000 R. O	0	0
Total	41	100%

Table 5. Income Level Distribution

Overall, the data shows that Oman's telecommunications sector has a significant revenue gap. The majority of workers make comparatively modest earnings, with 63.4% making less than $1,000 monthly. Furthermore, the scarcity of those making above 10,000 R. O. suggests that there aren't many high-paying job positions within the industry. According to the findings of a study conducted by Mubarak & Khudhuri (2020), due to the unstable nature of staff performance in Oman's private sector and the absence of professional growth opportunities including appealing wages and benefits, 42% of employees are eager to quit their jobs. A corporation must maintain efficient operations and high levels of staff performance in a marketplace that is competitive by providing high wages that support the employees.

2. **Statistical Analysis of Demographic Data**

Statistical Measures	Nationality	Gender	Educational Level
Mean	1.219512195	1.317073171	3.87804878
Standard Error	0.065445892	0.073576113	0.12195122
Median	1	1	4
Mode	1	1	4
Standard Deviation	0.419058177	0.471116991	0.780868809
Sample Variance	0.175609756	0.22195122	0.609756098

Kurtosis	-0.023054431	-1.40454687	3.406578785
Skewness	1.407307199	0.816390391	-1.104095638
Range	1	1	4
Minimum	1	1	1
Maximum	2	2	5
Sum	50	54	159
Count	41	41	41
Largest (1)	2	2	5
Smallest (1)	1	1	1
Confidence Level (95.0%)	0.132271082	0.148702871	0.246472609

Table 6. Descriptive Statistics of Nationality, Gender and Educational Level

Nationality: The mean nationality score is 1.2195, indicating that, on average, the participants' nationalities are closer to 1 (Omani). The standard error of 0.0654 suggests that the mean nationality score is estimated with some level of uncertainty. The mode is also 1, indicating that the most frequently occurring nationality score is 1 (Omani). The standard deviation of 0.4191 suggests that there is some variability in the nationality scores and the sample variance of 0.1756 indicates the dispersion of the nationality scores around the mean. Kurtosis is connected to a distribution's tail, shoulder and peak. It often rises with peak height and falls in flatness (Cain et al., 2016). The kurtosis value of -0.0231 suggests that the distribution of nationality scores is close to a normal distribution i.e., mesokurtic whereas the skewness of 1.4073 indicates that the distribution of nationality scores is positively skewed.

Gender: The mean gender score is 1.3171, suggesting that, on average, the participants' genders are closer to 1 (Male). The standard error of 0.0736 indicates some uncertainty in estimating the mean gender score. When the kurtosis of a normal distribution is 3, it is said to be mesokurtic. The kurtosis is regarded as platykurtic where it's less than 3, where platy means "broad" or "thin-tailed" (Kallner, 2018). The kurtosis value of gender score is -1.4045, meaning it is having lighter tails compared to a normal distribution. The skewness of 0.8164 indicates a slight positive skew in the distribution of gender scores.

Educational Level: The mean educational level is 3.8780, suggesting that, on average, the participants have a slightly higher educational level. The median educational level is 4, implying that most of the participants have an educational level of 4 (Bachelor's Degree) or lower. The kurtosis value of 3.4066 suggests that the distribution of educational level scores is leptokurtic, meaning the kurtosis is more than 3 and has heavier tails compared to a normal distribution. The skewness of -1.1041 indicates a moderate negative skew in the distribution of educational level scores, which highlights risks. The range is 4, meaning that the educational level scores vary from the minimum of 1 (High School Certificate) to the maximum of 5 (Master's Degree).

3. Multiple Choice Questions Analysis

Section II of the questionnaire involves questions with multiple choices or options for the respondents to choose from based on their thoughts and perceptions. The total number of multiple-choice questions are 10 and they were framed on behalf of the four objectives that the researchers proposed in chapter 1.

Objective 1 Questions:

Question 1: "AI is being implemented in marketing to predict how customers would react to certain products."

Choice	Frequency	Percentage
True	38	92.7%
False	3	7.3%
Total	41	100%

Table 7. Responses on AI being implemented in marketing to predict how customers would react to certain products.

Table 7 results demonstrate that 38 out of 41 those who responded, or 92.7% of those surveyed, approve of how AI is being utilized by marketing to figure out how buyers will react toward specific items. This substantial amount demonstrates that the utilization of AI for marketing purposes has become widely accepted and known. The huge amount of "True" responds indicate that artificial intelligence (AI) tools are starting to grow increasingly common in the promotional sector. According to Ljepava (2022), data used for marketing purposes are frequently unorganized. Social media postings, behavioral data, usage of apps, transactions and purchase history, and browser history are all possible sources of marketing data. It comes in a variety of types, from textual details to photos and video elements. AI may classify customers into different categories based on their online conduct, tastes and preferences including prior purchases using behavioral patterns, supporting information-driven marketing approaches such as context-based advertising powered by algorithmic forecasting.

Question 2: Through which methods is AI being applied within the company in facilitating digital marketing?
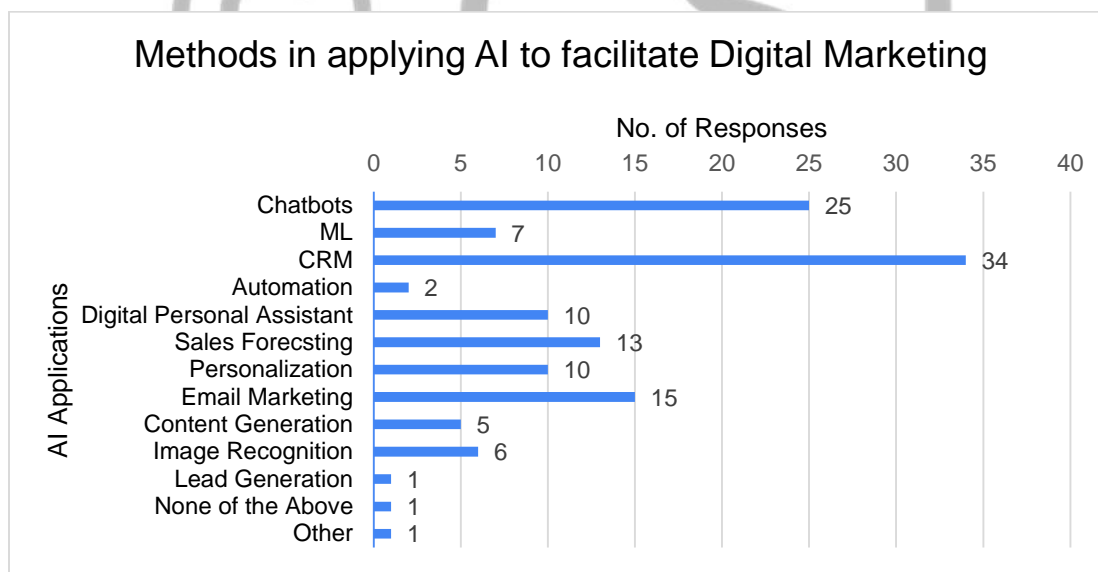

Fig. 1.4 Responses on methods of applying AI to facilitate digital marketing

Firstly, according to 25 replies, chatbots remain among the most extensively used AI applications for digital marketing. To improve all aspects of customer service, chatbots offer automated customer care, responding to queries and aiding consumers in real-time. The use of machine learning (ML), which has seven responses, is another important technique. Corporations can examine vast amounts of client data using ML algorithms to gain insights for niche marketing strategies. Companies may increase client categorization, optimize ad placements, and forecast

customer behavior by utilizing ML, thereby increasing the successful outcome of their marketing initiatives. Client relationship management (CRM) systems (34 responses), which use AI to manage and analyze client relationships, automating follow-up with leads, and customize marketing communications, are among the other significant applications. Users may browse through digital marketing content with the assistance of personalized digital assistants (10 replies), which increases engagement and conversions. Furthermore, companies can predict future sales sequences and adjust their approach to marketing by using sales forecasting (13 replies) based on AI computation. The reason as to why majority of respondents are using CRM is because when CRM is AI-enabled, marketing leaders are better equipped to concentrate on development and seek for trends that aid in creating fresher ideas to satisfy even the most basic needs of clients and subsequently provide value and long-term growth for the business. AI not only provides the marketing staff with all the details they need about the consumers, but it also analyses data in a way that reveals the needs, wants and demands of the customers. Based on this, when advertising initiatives are carried out, the reaction is such that it could enhance the company's investment returns and also stimulate aspects which include strengthened purchasing behaviors, greater sales, and successful targeting and positioning (Tahir et al., 2021).

Question 3: What is the status of AI adoption in the company to ease digital marketing operations?

Choice	Frequency	Percentage
The company is already utilizing AI.	8	19.5%
The company is in the process of implementing AI.	23	56.1%
The company has plans to implement AI in the future.	7	17.1%
The company has no plans to adopt AI.	3	7.3%
Total	41	100%

Table 8. Status of AI adoption in telecommunication companies

According to the information that has been laid out, various companies are at numerous phases of adopting AI to streamline their online advertising processes. 19.5% of the studied organizations are currently implementing AI, while 56.1% are in the early stages of doing so. Also, only 7.3% of organizations have no intention of using AI, while 17.1% of them have ambitions to do so because of a lack of funds, concerns about how it will impact staff members, or a lack of understanding. These numbers show a substantial interest in and understanding of the conceivable advantages that AI may offer to digital advertising operations. According to research done by PwC (2022), the financial industry represents the countries of the Middle East biggest opportunity for implementing AI. It is predicted that only 14% of the region's total predicted AI investment will go towards developing artificial intelligence (AI) solutions in telecommunication industry. However, industries of manufacturing and public services, such as healthcare and education are prioritized first and expected to invest more by 2030. This serves a reason as to why majority of the companies are still in the development process of implementing and utilizing AI.

Objective 2 Questions:

Question 4: Advantage 1 - "Applying AI into digital marketing will enhance and obtain more data on consumer's behavior."

Options	Frequency	Percentage
Strongly Disagree	2	4.9%
Disagree	2	4.9%
Neutral	11	26.8%
Agree	23	56.1%
Strongly Agree	3	7.3%
Total	41	100%

Table 9. Responses on Applying AI into digital marketing to enhance and obtain more data

As seen in Table 9, strong agreement and agreement responses predominately indicate that respondents agree in general that AI has a good influence on gathering consumer behavior data for use in digital marketing. The idea that AI might improve gathering data may be based on its capabilities to swiftly absorb enormous amounts of data and produce insights that can guide strategies for marketing. Hence, using tools and methods from digital marketing to change consumer behavior has become a normal practice. The application of AI in digital marketing helps to reach core goals and objectives of marketing while lowering overall advertising costs and the amount of time needed to deploy strategies (Khatri, 2021).

About 26.8% of survey participants chose the neutral alternative. This classification denotes a lack of conviction or doubt regarding the influence of AI on digital marketing. This might be due to a number of reasons, such as lack of knowledge with applications of AI or the need for more details to make a firm judgement. Lastly, the small percentage of responses expressing disagreement emphasizes the significance of resolving privacy and ethical issues related to AI-driven collection of data. Although one of the biggest benefits of personal information may be the in the field of advertising, its applications go well beyond this. To oppose this disagreement, it is important to note that AI systems are better equipped to gain insight from data collected and modify their actions when additional and richer user information is provided (Bartneck et al., 2020, pp. 61–70).

Question 5: Advantage 2 - "Lower expenditure and increased earnings are the primary advantages in implementing AI to assist digital marketing."

Options	Frequency	Percentage
Strongly Disagree	2	4.9%
Disagree	6	14.6%
Neutral	17	41.5%
Agree	16	39%
Strongly Agree	0	0.00%
Total	41	100%

Table 10. Responses on lower expenditure and increased earnings being the primary advantages in implementing AI

One of the main benefits of implementing AI is lower costs. Diverse viewpoints on this benefit were expressed by the respondents. Even though a sizable majority of respondents (41.5%) indicated neutrality, a total of 53.7% objected with the statement. This suggests that there is significant skepticism among a significant portion of participants regarding the ability of AI to reduce costs. This may be the case given that obtaining reliable data for AI technology requires significant upfront expenses. Some companies that make up the telecommunications sector apart from the big companies might not be able to afford this. For research and development (R&D) and practical reasons, the high upfront expenses necessitate a sizeable monetary commitment, and accepting this risk in a market that is highly competitive will raise the potential hazards of these expenditures (Regona et al., 2022). It is clear that the opinions of respondents on the benefits of decreased costs and increased earnings as a result of the implementation of AI vary widely. However, the most participants agreed with these benefits despite a sizeable fraction of them expressing indifference. According to research done by Hang and Chen (2022), AI's data abilities can help businesses by boosting sales and lowering expenditures. Their findings imply that AI may boost income by enhancing employee efficiency, raising customer viewpoints, establishing competitive pricing, and developing distinct resources. Additionally, AI may lower costs by improving productivity and minimizing risk factors.

Question 6: Disadvantage 1 - "A company can encounter changes that can have negative impact the more dependent it is on AI systems."

Options	Frequency	Percentage
Strongly Disagree	1	2.4%
Disagree	2	4.9%
Neutral	10	24.4%
Agree	24	58.5%
Strongly Agree	4	9.8%
Total	41	100%

Table 11. Responses on AI having a negative change that can impact the company

A substantial majority of respondents, that is 68.3%, agree or strongly agree that such reliance on artificial intelligence (AI) might have a negative influence within the companies. This indicates that people are generally concerned about the possible negative effects of heavily relying on artificial intelligence technology for their business operations. AI Technologies automates the monotonous tasks and demand less interaction with humans, resulting in fewer employment, as the usage of AI systems rises in many industries. If employees believe they will be substituted as a result of increased automation brought on by the use of AI, this might trigger a lazy attitude and loss of motivation among the employees, leading to a negative impact on employees' performance, despite the fact that an employee's acceptance is necessary for increased productivity brought on by digital transformation (Malik et al., 2021). Just 7.3% of those surveyed voiced disagreement or severe disagreement, hence this statement involves mixed opinions that cannot be clarified as it entirely depends on the respondent's views and perceptions. Bankins and Formosa (2023) argue that AI has a chance to increase some workers' sense of purpose at work through taking on fewer fulfilling tasks for them and enhancing their abilities. However, it also has the potential to decrease others' sense of purpose at work by introducing new repetitive duties, limiting autonomy for employees, and unjustly

offering the upsides of AI beyond from those with fewer skills. This indicates that there will be huge and conflicting effects of AI on meaningful labor in the future.

Question 7: Disadvantage 2 - "Implementation of AI can lead to lack of consumer trust due to privacy concerns."

Options	Frequency	Percentage
Strongly Disagree	3	7.3%
Disagree	5	12.2%
Neutral	9	22%
Agree	19	46.3%
Strongly Agree	5	12.2%
Total	41	100%

Table 12. Responses on AI implementation leading to a lack of consumer trust

In Table 12, it is shown that the combined agreement percentage of 58.5% among the total 41 respondents, demonstrates the pervasive concern over privacy or security concerns related to AI. According to Anant et. al (2020), the sorts of data that consumers share—and with whom—are becoming increasingly conscious decisions. They're more likely to divulge private information when it is required for them to contact with businesses. In contrast to other relevant businesses, consumers feel more at ease exchanging data with companies in the medical and banking sectors. In contrast, 12.2% disagreed and 7.3% strongly disagreed that the implementation of AI results in a loss of customer trust due to privacy issues. These respondents most likely believe that AI technology is adequately safe and reliable, or they might have distinct views on security and its significance in relation to AI. According to Kim et al. (2021), there are a number of elements that have been found to boost trust in AI. Consumers react positively to AI, for instance, when technology is used to assist analytical or scientific aspects of decision-making, but less positively when the conclusions are more visceral and intuitive in nature.

Objective 3 Questions:

Question 8: Are your consumers aware that the company is implementing AI (Artificial Intelligence) in digital marketing operations?

Choice	Frequency	Percentage
Yes	20	48.8%
No	8	19.5%
Not Sure	13	31.7%
Total	41	100%

Table 13. Frequency of consumer awareness on AI being implemented in digital marketing operations

In Table 13, it reveals that it may be deduced that 48.8% of consumers are aware of the company's use of artificial intelligence in their digital marketing operations. 31.7% of respondents, a sizeable fraction, are unsure about the implementation, nonetheless. In order to ensure that customers are informed, this suggests that the organization may be able to enhance its communication and transparency surrounding the usage of AI. Given that 19.5% of consumers are still unaware of the AI deployment, the business must spread information and raise awareness among this group of customers.

Question 9: Has the company received any complaints regarding consumers personal data collection, customer tracking, violation of consumer's privacy, etc.?

Choice	Frequency	Percentage
Yes	10	24.4%
No	21	51.2%
Not Sure	10	24.4%
Total	41	100%

Table 14. Frequency of complaints received by the company regarding collection of personal data

It is important to highlight that complaints about the gathering of personal data in the Omani telecommunications industry are prevalent. Concerns regarding the privacy of their personal information are held by a sizeable section of the customer base, as seen by the 24.4% of respondents who specifically referenced submitting complaints. It is crucial that telecommunications providers address these issues and implement the necessary safeguards to secure customer data. However, 51.2% of the respondents replied with a "No", indicating that the company had not received any filed complaints regarding personal data collection. This suggests that a majority of consumers within the telecommunication sector in Oman have not faced any issues or concerns regarding the collection of their personal data. There are a number of laws and rules that ban organizations from obtaining or utilizing data as it might be confidential and personal. A study conducted by Belwal et al. (2020) found that while protection of customers activities in Oman have been well-established for physical transactions, they are relatively young and restricted for online sales. The consumer security regulations for online purchasing in Oman do not adequately address many of the worldwide issues required to increase consumer trust and confidence within the digital realm, despite the adoption of digital transaction regulations, laws governing consumer protection, and laws regarding cybercrime.

Question 10: Which of the factors are not understood much by customers with AI implementation?

Factors not understood by customers with AI implemenation

Empathizing with AI applications — 5

Trust and commitment between customers and retailers online — 29

Service Quality — 15

Potential for AI based experience — 11

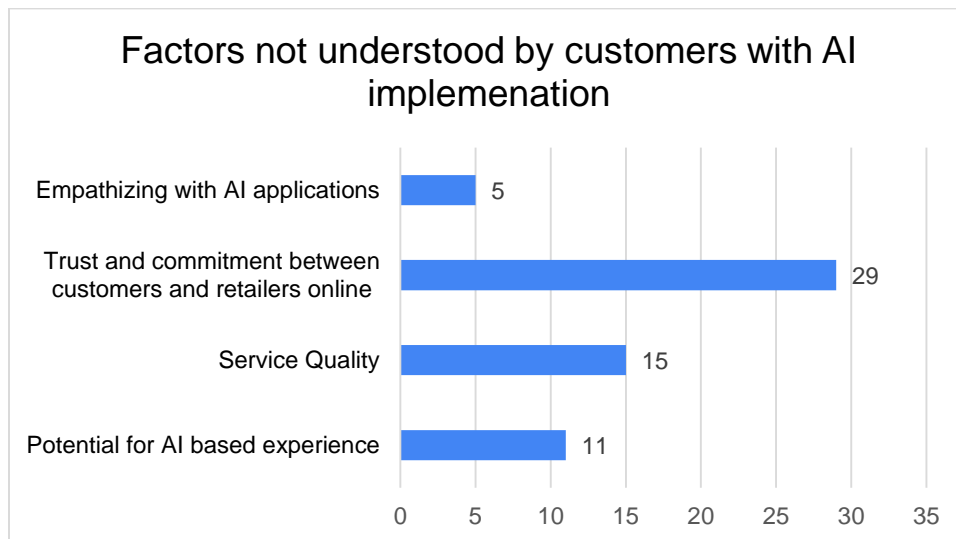(x-axis: 0, 5, 10, 15, 20, 25, 30, 35)

Fig. 1.5 Responses on factors not understood by customers with AI implementation

Empathizing with AI applications (5%): Empathy plays a crucial role in understanding and effectively utilizing AI applications. However, customers may not fully grasp the importance of empathy in AI systems. Empathy involves the ability of AI to understand and respond to human emotions and needs. The use of AI in conjunction with a customer-focused marketing strategy could appear counterintuitive. However, the reality is that automation, artificial intelligence, and machine learning are essential for organizations today to translate data into sympathetic, customer-centered experiences. AI-based marketing tools are scalable, flexible, and capable of deciphering the motivations underlying customer interactions (Bhansali, 2022).

Trust and commitment between customers and retailers online (29%): Trust and commitment are critical factors in the success of AI implementation, particularly in online retail settings. Customers may not fully comprehend the importance of establishing trust and commitment with retailers when it comes to AI-driven systems.

Service quality (15%): Customers may not fully understand the impact of AI on service quality. AI can enhance service delivery by automating tasks, personalizing experiences, and providing real-time support. However, customers may not grasp the potential benefits and improvements in service quality that AI can offer. It is understood that brand advantages and characteristics account for consumer loyalty and trust. Consumers who lack confidence in a brand, are neither loyal to the company nor to its marketing initiatives. That is, loyalty, and commitment is shown by returning customers, volume of business, and price flexibility. Brands appear in the consumer's everyday life, and as a result of their mental and behavioral relationships with these elements, customers gradually develop trust and loyalty towards them (Cardoso et al., 2022).

Potential for AI-based experiences (11%): Customers may not fully comprehend the potential for AI to create unique and personalized experiences. AI can analyze vast amounts of data to provide tailored recommendations, anticipate needs, and deliver immersive experiences. However, customers may underestimate the potential of AI in enhancing their overall experience. Artificial intelligence (AI) is transforming consumer and brand interaction. The purchasing cycle, buying habits, and customer service operations are just a few examples of how artificial intelligence (AI) affects digital marketing operations within a company. A thorough understanding of the customer, including their preferences and prior experiences, is essential for all these innovations to greatly improve the user experience. Since

artificial intelligence (AI) systems can learn how to interact with customers with the help of data and customer information, using AI may help and accelerate this expertise (Trawnih et al., 2022).

Presentation and Analysis of Qualitative data

Since no interview was conducted, the fourth and last objective had one open-ended question. The total amount of responses collected for this open-ended question was 33 as the rest of the numbers were not willing to provide an answer. The responses taken from this open-ended question will be used as our qualitative data, providing a summary of the 33 responses and what statements were more common.

1. **Summary of Responses**

Objective 4 Question:

Question 11: What solutions or strategies can be proposed for companies planning to adopt AI for their marketing operations?

Common Response 1: "Utilize AI to provide personalized product or content recommendations based on user behavior."

Out of 33 responses, this statement was stated repeatedly, making up 39.3% of the respondents. Businesses and customers may both benefit greatly from using AI to deliver personalized product or content suggestions based on user behavior. Decision-making based on data is made possible, customer engagement and involvement are increased, and the consumer's environment is also improved. While "personalization" for marketers necessitates making investments in CRM, advertising, scientific, and social networking software, businesses should understand that the cost, which is privacy, must be endured because highly educated consumers will soon demand a superior customer purchasing experience to deter them from exploring other competitors. The company may use solid information provided by this level of personalization to create optimization algorithms that can save costs and boost productivity (Pearson, 2019).

Common Response 2: "Ensure the data you collect is accurate, reliable, and complies with privacy regulations."

A total of 27.7% of respondents replied with this response, emphasizing on data privacy. Accuracy, dependability, and adherence to privacy laws must be prioritized by organizations when using AI for gathering data in digital marketing. Companies may fully use AI while fostering client confidence by authenticating data, assuring its dependability, and following privacy regulations. To guarantee the continued correctness, dependability, and respect for privacy of acquired data, ongoing surveillance, evaluation, and audits for compliance should be essential components of a company's information collecting strategy. There are a lot of ways that AI systems can affect privacy, although not always in the manner that one might expect. Elliott and Soifer (2022) have claimed that privacy in and of itself is basically about having an interest in how others view certain things but AI systems cannot generate the kinds of impressions that might obstruct this interest. Hence, businesses need to be mindful that the inclusion of a lot of personal data in AI systems does increase the danger that confidentiality will be breached if that data is viewed by a being that can develop perceptions based on it.

Common Response 3: "Using AI to improve customer communication."

The remaining 21.21% of respondents proposed recommendation of utilizing AI to improve communication with customers. AI has the power to completely transform how consumers interact by providing personalized experiences, facilitating quick responses, and providing insightful data on consumer behavior. Businesses may improve consumer satisfaction, create lasting connections, and get a competitive advantage in the market by utilizing AI technology efficiently. To fully reap the rewards of AI in customer interactions, organizations must overcome obstacles relating to privacy, preserving human contact, training, and connectivity. According to Andrade and Tumelero (2022), the AI chatbot application is forceful, effective, and quick, operating with agility, availability, and convenience, without interruption, it helps to improve customer service and communication. With the intention of helping as many people as possible, it eventually addresses straightforward and standardized questions. It functions as the initial service tier and has quick, highly objective, and resolute connections. The AI powered chatbot services has decreased wait times at customer support centers, allowing human agents to address challenging issues and improving the efficiency of services.

Correlation Analysis

	Question 3	*Question 4*
Question 3	1	
Question 4	-0.07542	1

Table 15. Correlation of Question 3 and 4

A statistical metric known as the correlation coefficient is frequently employed in research to demonstrate a link between variables or to compare the degree of agreement between two separate techniques. A correlation of -1 or +1 would allow us to accurately predict X from Y and vice versa (Janse et al., 2021). When a correlation coefficient is close to 1, it denotes a strong correlation or complete positive link between the two variables. It implies that the higher or lower an individual's score on one variable will be, accordingly, the higher or lower their score on the complementary variable. A zero depicts no kind of correlation between the variables however, if the correlation is below 0 or -1, it indicates a strong negative correlation or an inverse relationship between the two variables (Kumar & Gautam, 2020). As seen in Table 15, the correlation between question 3 and question 4 is -0.075. Hence, it is a negative correlation. To put it differently, if one of the variables rises, the second variable will fall, and vice versa. This indicates that companies in the telecommunications sector who are still working in the progress of deploying AI or not planning to implement AI at all risk lower improvements and less collection of data on consumer behavior.

Regression Analysis

Regression Statistics				
Multiple R	0.075422502			
R Square	0.005688554			
Adjusted R Square	-0.019806612			
Standard Error	0.82025827			
Observations	41			
ANOV				
	df	**SS**	**MS**	**F**	**Significance F**
Regression	1	0.150	0.150	0.223	0.639303308

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Residual	39	26.240	0.672					
Total	40	26.390						

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	2.288	0.37	6.09	0.00	1.52	3.04	1.52	3.04
Question 4	-0.068	0.14	-0.47	0.63	-0.36	0.22	-0.36	0.22

Table 16. Regression Analysis

Summary of Findings

The multiple-choice questions in section II of the survey were centered on the four objectives that the researchers had identified. The results presented several significant insights:

1. **The use of AI in digital marketing:** 92.7 percent of respondents within the telecommunication industry were in favor of using AI to facilitate digital marketing to gauge consumer reactions to certain marketing activities. This high approval percentage shows how well accepted and recognized the usage of AI in digital marketing is. According to the report, 83% of the respondents regarded customer relationship management (CRM) systems that employed AI as significant application to assist their digital marketing operations. These tools provide lead follow-up automation, personalization of marketing materials, and management and analysis of customer relationships. According to the results, 19.5% of the organizations surveyed had already adopted AI while 56.1% were only starting out. These figures imply that there is a lot of awareness of and curiosity in the potential advantages that AI may deliver for digital advertising operations. However, 17.1% said they wanted to implement it but ran into problems such a lack of financing, worries about how it would affect personnel, or a lack of knowledge since Oman is still in the early stages of technological advancement and development with reference to its e-Oman initiative, Oman Vision 2040.

2. **Benefits and Disadvantage of AI in digital marketing:** A majority of respondents concur that using AI to acquire consumer behavior data for digital marketing is beneficial. Artificial intelligence (AI) is a useful tool for directing digital marketing approaches because of its capacity to swiftly analyze large volumes of data and produce insightful results. A major advantage of using AI, is cost reduction, as taken from the literature review analysis. Although, many survey respondents are skeptical about this benefit. A substantial majority declared themselves impartial, yet more than half disagreed with the assertion. Affordable AI technology may be a barrier for some businesses, notably those in the telecommunications sector, because there are up-front costs of gathering trustworthy data. The skepticism is influenced by the dangers connected to these costs in a competitive market. Many respondents are also worried about the impact of a company's significant dependence on AI. Artificial intelligence (AI) technologies may minimize human contact and task automation, which might result in fewer job prospects.

3. **Consumer's Perception of AI:** 48.8% of customers are aware that the industry uses AI in its digital marketing strategies. This may indicate that a sizable section of the audience is aware of the use of AI. The need for more communication and openness from the companies are highlighted by the fact that 31.7% of respondents are uncertain about the its operation. Additionally, 19.5% of customers are still uninformed of

the deployment of AI, highlighting the need for education and awareness-building among this customer base. According to the 51.2% of respondents who indicated they weren't given any filed complaints; the researchers were able to clarify that majority of Oman's telecommunication industry have not had any issues or concerns about the collection of their personal data. There are still a few gaps that need to be closed, nonetheless, in order to build client confidence in the digital environment. The findings also suggest that most customers might not fully comprehend the value of building trust and loyalty with telecommunication businesses. Additionally, they might not completely see the value of empathy in AI systems or the possible advantages and enhancements in the level of service quality that AI can provide, such as automating processes, customizing user experiences, and delivering assistance in real-time.

4. **Strategy proposed for AI adoption in digital marketing operations -** One repeating statement accounted for 39.3% of the respondents. In making personalized product or content suggestions based on user behavior, this remark underlined the potential advantages for both businesses and customers. According to the respondents, using AI for making decisions through customer data analysis increases both the entire customer experience and the involvement of customers.

Conclusion

In conclusion, the study results show that the telecommunications sector strongly recognizes and accepts the use of AI in digital marketing. The majority of respondents said they were in favor of using AI to determine consumer reactions and thought AI-powered CRMs were important tools for conducting digital marketing operations. Despite some skepticism over cost reduction, the industry acknowledges the advantages of AI in digital marketing, including its capacity to analyze massive amounts of data and lower expenses. Although a sizable portion of consumers are aware of the usage of AI in digital marketing techniques, there is still a need for the companies to be more open and transparent with their customers. To reach the section of consumers who are unsure or unaware of the deployment of AI, educational and awareness-building initiatives are required. The total customer experience and consumer engagement may be considerably enhanced by using AI for decision-making through the analysis of customer data, according to the respondents.

Recommendations

Some recommendations that the researcher's would like to propose for this research study are:

1. **Embrace AI-powered CRMs**: Companies should prioritize the adoption and implementation of AI-powered Customer Relationship Management (CRM) systems.
2. **Resolve monetary concerns:** It's critical for businesses to inform decision-makers about the long-lasting benefits and cost savings that AI may provide, despite the possibility that some may be skeptical about the price reduction possibilities offered by AI in digital marketing.
3. **Increase openness and transparency:** Even if a sizeable part of customers is aware that AI is used in digital marketing, there is still a need for businesses to be more forthright and transparent about their AI practices.

4. **Personalized customer experiences:** To offer personalized marketing experiences, use AI to analyze consumer data and behavior trends. In order to customize content, offers, and suggestions based on individual tastes, AI algorithms may segment the audience.

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