THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND ORGANIZATIONS DIGITAL MARKETING STRATEGY IN HEALTHCARE SECTOR

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THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND

ORGANIZATIONS DIGITAL MARKETING STRATEGY

IN HEALTHCARE SECTOR

PARASTO SHORSH HUSSEIN

A thesis submitted in fulfillment of the
Requirements for the award of the degree of
Bachelor of Management (Technology)

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DEDICATION

I dedicate this study to my family members who were the main support of my achievements in my personal and professional life. Also, I dedicate this thesis to my friends who were the source of my continuous efforts in finishing this study and appreciate their support always.

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ABSTRACT

This study intends to investigate how artificial intelligence (AI) affects organizational digital marketing strategy in the Kurdistan healthcare sector. In the digital marketing industry, AI has the potential to significantly impact the way organizations engage with customers and market their products or services. However, deep focus has been placed in the literature on how artificial intelligence is integrated with organizations digital marketing strategy and its effects on the healthcare sector. Therefore, the primary aim of this study is to identify the relationship between artificial intelligence and organizational digital marketing strategy. This research adopted quantitative research method, and employees in Faruq Medical City are the respondents for this study. With a structured questionnaire, this study obtained 150 respondents among 171 employees in FMC. The data collection started from 2nd of March until 6th of May. Descriptive analysis and frequency distribution were used to summarize the data collection in this study. The analysis extended to examine the relationship between artificial intelligence and organization digital marketing and Understanding of the adoption AI in digital marketing provides foundation for future AI application research and guidance to organization digital marketing in healthcare sector. This study aims to offer useful insights for healthcare organizations in Kurdistan on the potential advantages, challenges, and opportunities associated with integrating AI into their digital marketing practices by investigating the level of AI usage in FMC and employees' perspectives toward AI. Additionally, there is a significant and positive relationship between artificial intelligence and digital marketing.

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AI   -   Artificial Intelligence

FMC   -   Faruq Medical City

GDP   -   Growth Domestic Product

SPSS   -   Statistical Package for Social Science

ROI   -   Return of Invest

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CHAPTER 1

INTRODUCTION

1.1.   Introduction

The process of development in companies and daily life tasks for individuals is in the progress toward technological advances, and one of the modern technological advancements in the work facilitation sector is artificial intelligence. Artificial intelligence (AI) affects various industries and transforms the way we live and work. In the digital marketing industry, AI has the potential to significantly impact the way organizations engage with customers and market their products or services. It can be used to personalize marketing campaigns, improve customer service, and optimize advertising efforts, among other things (Hussein, 2019).

In Kurdistan, a region located in the northern part of Iraq, digital marketing is increasingly being adopted by organizations as a way to reach and engage customers. However, the adoption and integration of AI in digital marketing in Kurdistan is still in its early stages and faces several challenges. Looking back over the last three decades, when marketing has had to keep up with technical innovation, can help us better comprehend the transition of marketing from conventional to digital. (Kapita, 2022) These include the lack of access to AI education and training resources, the limited availability of AI research and development resources, and poor data infrastructure and data availability.

In addition to these challenges, the adoption and integration of AI in digital marketing in Kurdistan also raise important ethical and social concerns, such as issues related to data privacy and the use of algorithms to influence consumer behavior. Therefore, it is vital to count the potential implications of AI within digital marketing and to develop policies and practices that ensure its responsible use. Here is a figure 1.1 to

demonstrate why healthcare industry in Kurdistan has not yet adopted using AI in digital marketing:
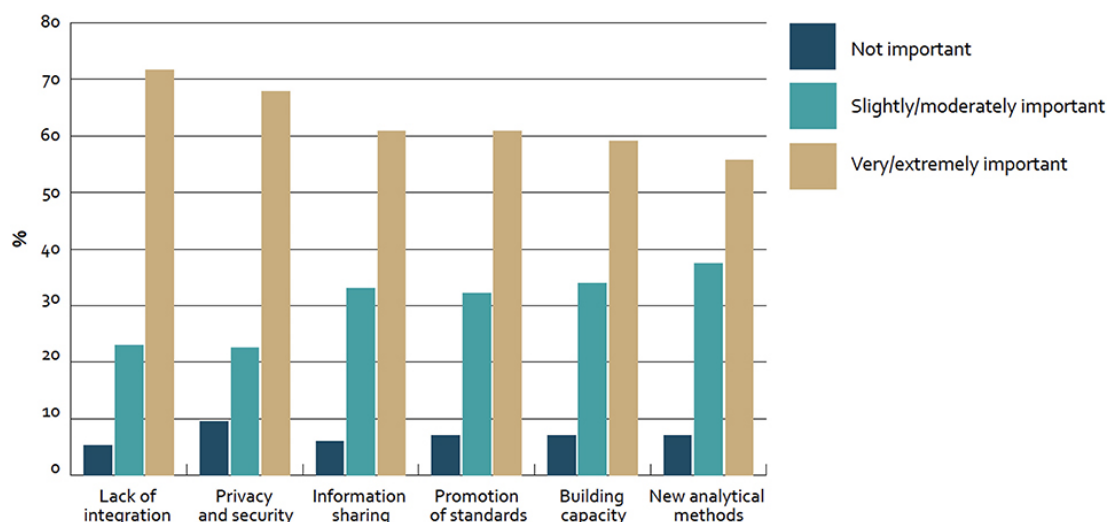
Figure1.1

Figure 1.1: Wolff, J., Pauling, J., Keck, A., & Baum-bach, J. (2021, April 22)". Success factors of artificial intelligence implementation in healthcare." Frontiers. Retrieved January 20, 2023,

Overall, the relationship between AI and digital marketing in Kurdistan is complicated and multifaceted, and it presents both opportunities and challenges. Understanding the current state of the field and the potential implications of AI in digital marketing in Kurdistan can be better navigating the path towards a future that is both innovative and ethical. In this research, the current state of AI adoption and integration in digital marketing in Kurdistan and the challenges and opportunities that it presents for organizations in the region. This will also examine the ethical and social considerations surrounding the use of AI in digital marketing and the strategies that can be implemented to ensure its responsible use. This research, it aims to provide a better understanding of the relationship between AI and digital marketing in Kurdistan and to identify strategies for leveraging AI to drive business growth and success. This starts by addressing the problem background and then elaborating on the problem statement. After that, it states the research questions as well as its objectives. Then it demonstrates the scope of the study as well as its significance of it, and it ends up with a summary.

1.1.   Problem Statement and Background

In the modern business landscape, the use of artificial intelligence (AI) in digital marketing has become increasingly prevalent. AI technologies such as machine learning algorithms and natural language processing can be used to analyze customer data and behavior, optimize ad targeting and personalization, and automate various marketing tasks.

Patient injury as a result of AI mistakes, abuse of medical AI technologies, prejudice in AI and the maintenance of current imbalances, a lack of transparency, privacy and security concerns, gaps in accountability, and implementation challenges. The study identifies three key factors that contribute to AI errors: data shift between Real-world data and AI training, noise and artifacts in clinical inputs and measurements, as well as unexpected variations in clinical environments. Additionally, AI tools even when precise and reliable are dependent on how humans utilize them in actual situations and make use of the data they generate. On the other hand, systemic human biases, such as pervasive and ingrained bias based on sex and gender, race, ethnicity, age, socioeconomic position, geographic location, and urban or rural environments, frequently find their way into AI models. AI transparency and the ideas of traceability and explain-ability go hand in hand. (Gianluca, 2022) A recent dependence on big data during the Covid-19 outbreak has exposed the possible concerns of a lack of data privacy, confidentiality, and protection for patients and people.

However, the adoption of AI in digital marketing has not been uniform across all organizations, and the extent to which it is utilized can vary greatly depending on factors such as industry, size, and resources. In particular, relationship between AI and digital marketing in Kurdistan maybe affected by the region's unique economic and cultural context. One potential challenge for organizations in Kurdistan looking to adopt AI in their digital marketing efforts is a lack of infrastructure and resources. The availability and quality of Internet connectivity, data storage, and processing capabilities, and skilled

personnel may be limited, which could hinder the implementation and use of AI technologies. Another issue that may impact the use of AI in digital marketing in Kurdistan is the potential for cultural and linguistic differences. AI systems often rely on large amounts of data to learn and improve, and the availability of relevant data in Kurdish languages may be limited. This could affect the effectiveness of AI-powered marketing efforts in the region. Overall, the relationship between AI and digital marketing in Kurdistan is complex and multifaceted, and organizations in the region face a number of unique challenges and opportunities in leveraging these technologies to drive business growth and success.

Despite the potential benefits of artificial intelligence (AI) in digital marketing, the adoption and integration of AI in digital marketing in Kurdistan is still in its early stages and faces several challenges. One major challenge is the lack of access to AI education and training resources. According to a report by the Kurdistan Region Statistics Office (KRSO) (2020), only 15% of Kurdish students have access to computer science and programming courses, which limits their ability to gain the skills and knowledge necessary to succeed in the AI field. This lack of access to AI education and training resources hinders the development of a skilled and qualified AI workforce in Kurdistan, which is essential for the region's economic growth and competitiveness (Hussein et al., 2019).

Another challenge is the limited availability of AI research and development resources in Kurdistan. The region lacks research institutions and companies specializing in AI, which limits the ability to conduct AI research and development activities (Hussein et al., 2019). This lack of research and development resources hinders the ability to keep pace with global AI advancements and to effectively apply AI technologies to solve local problems and meet the needs of Kurdish society (KRSO, 2020).

In addition to these challenges, the adoption and integration of AI in digital marketing in Kurdistan also raise important ethical and social concerns, such as issues related to data privacy and the use of algorithms to influence consumer behavior. It is therefore important to carefully consider the potential implications of AI in digital

marketing and to develop policies and practices that ensure its responsible use. By addressing these challenges and supporting the growth of the AI industry in Kurdistan, the region has the potential to fully leverage the potential of AI in digital marketing and participate in the global AI economy.

1.2. Research Questions

The purpose of this research is to examine the relationship between artificial intelligence and its implementations in digital marketing by analyzing how AI is currently being used in digital marketing and determining how businesses use to improve their performance. Therefore, this paper's research question will be:

1. What is the relationship between AI and digital marketing in Kurdistan?
2. What is the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC)?
3. What are employees' perspectives in FMC toward AI between male and female?

1.3. Objectives of the Study

The overall objectives of this study are to elaborate on the relationship of AI and digital marketing. To elaborate, based on the research questions the structure of the research objectives are as follows:

1. To understand the relationship between AI and digital marketing in Kurdistan.
2. To determine the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC).
3. To determine the main score of employees of FMC in the usage of AI between male and female in their place.

1.4. Scope of Study

This study is being conducted to identify the relationship between artificial intelligence and organizations' digital marketing strategies. This study will be conducted in the Kurdistan region's healthcare industry in the private sector. A questionnaire will be developed based on the healthcare industry in private sector; hospitals, and clinics' digital marketing strategies and the potential use of AI, and how AI would affect their digital marketing strategy. The questionnaire then will be analyzed and interpreted into understandable visuals and representations to facilitate for the readers to understand the elaboration more clearly.

Data will be gathered using a descriptive study approach from a sample of Kurdish people who are open to using AI technology in their goods and services. A survey questionnaire will be used to gather the information, and statistical methods will be used to analyze it. The results of this study will shed light on how AI may be employed in the Kurdish digital marketing sector to enhance customer experiences and promote corporate success. The findings are focusing on the adoption and effects of emerging technologies as well as practitioners and policymakers in the digital marketing sector may find the findings of this study to be of interest. By presenting actual data on the influence of this technology on digital marketing strategy and business outcomes in a particular context, this research seeks to add to the body of knowledge already available on the usage of AI in the digital marketing sector.

1.5.   Significance of Study

This study demonstrates the connection between AI and Digital Marketing Strategy, a booming industry in Kurdistan. Having access to such research may result in acquiring sufficient data to understand the significance and effects of AI and why it should be used more in Kurdistan, particularly in digital marketing. Due to the advancement of technology, such study that emphasizes other factors with a direct connection can enhance management and organizations as a whole.

Within elaborating on the usage of AI in Kurdish digital marketing developments, this research aims to demonstrate essential insights for businesses in the area on the use of AI in their digital marketing and sales efforts. These insights can help businesses to develop more targeted and effective strategies that may result in increased sales and customer satisfaction. In addition, this study aims to explore the preferences and AI in digital marketing in Kurdistan, and it can help businesses to facilitate in performance on their products and services to better meet the needs and expectations of their customers.

1.6. Theoretical Definition

1. Artificial Intelligence
   - Artificial intelligence is the study of the reproduction of mental processes by computers, particularly computer systems. Among the specialized applications of AI are expert systems, speech recognition, and machine vision. (Burns, 2022) This Research focuses on the usage of AI in developing marketing and advertisement strategies in digital marketing especially in healthcare industry in Kurdistan.

2. Digital Marketing
   - Any kind of advertising that uses technology to disseminate marketing messages and evaluate their success along the consumer journey is considered electronic media advertising. (Dourado, 2022) In this research, it elaborates on the digital marketing in using AI in healthcare industry in Kurdistan for making a more efficient approach in reaching target market in the sector.

3. Healthcare Industry
   - It includes a wide range of businesses that provide goods and services for patient care. This includes treating patients and preventing illness, as well as providing palliative care and rehabilitative medicine. (Timm, 2021) This research demonstrates the ways of improvement of healthcare industry in Kurdistan by using AI in digital marketing strategies for its targeted customers and clients.

1.7.   Conclusion

In this research, the problem background is covered first, followed by an explanation of the problem statement. It then outlines the aims of the study and its research questions. Then it illustrates the range of the study and its importance before concluding with a summary. Moreover, the world is turning its side to technological advances for work facilitation. The process of getting work done in classical methods is a process that takes time and effort. Because of the variety of facilitations, research, and developments deriving toward technological advances especially in the work environment, which has its main advantages in the task facilitation process. One of the sectors that companies are highly focusing on is artificial intelligence. In the modern era in Kurdistan, artificial intelligence (AI) is a broad field that employs cutting-edge methods to extract insights from large datasets. Also, it is used for digital marketing method modifications for improvement of reaching targeted costumers and makes the flow of economic growth much faster as well as facilitates individuals and companies in the process of the transaction.

CHAPTER 2

LITRITURE REVIEW

2.1   INTRODUCTION

This literature review aims to explore the use of artificial intelligence in the field of marketing, with a focus on its application in the Kurdish business landscape. By examining the definition and importance of AI in marketing, as well as the trends and benefits of its use in digital marketing, this study aims to gain a deeper understanding of the potential for AI to transform the world of marketing and help businesses stay competitive in a rapidly evolving digital landscape. In addition to reviewing existing research and theories on the topic, through this review, this study also presents a research framework for further exploration. Through this review, this study aims to provide a comprehensive overview of the current state of knowledge on the use of AI in marketing, as well as identify any gaps in the literature that may be addressed in future research.

This study starts with elaborating artificial intelligence in Kurdistan business sectors with following analysis of definition of artificial intelligence and its importance in marketing along side on defining digital marketing and trends of digital marketing. Also, it analyzes the benefits of artificial intelligence in digital marketing and pertaining artificial intelligence from marketing perspective as well as pertaining digital marketing. Finally, it ends up by explaining theories from prior studies and applied theory with research framework with discussions and summery in the end. This is study is conducted in this way is for having clear analysis on using artificial intelligence in digital marketing to have a wider view of the future the world is competing for.

Iraqi-Kurdistan as part of a developing country is still in the beginning of adapting on technology where artificial intelligence is in the high end of it. However, after covid-

19's era started, digital marketing became a new adaptation, and within the process of adaptation of digital marketing for running businesses, innovation and creativity demands of companies in Kurdistan has led to focus on artificial intelligence technology.

Real estate companies are seeking for adding artificial intelligence in houses to make it smart and more desirable. Also, in the private medical manufacturing industry, factories are using artificial intelligence to make the process of manufacturing faster and have better quality although it is in the beginning of using them because it is still new and there are lacks of profession in this area from employees' side of it. Also, the challenges that individuals face in Kurdish healthcare can be much less with the help of AI such as having an AI to analyzing the records of sick people, so the doctors have a clear understanding of the health background of the patient. However, in term of digital marketing, companies are using auto replying, auto emailing, and answering costumer and clients' concerns, which is an initial step of realizing the importance of artificial intelligence.

2.2   Definition and importance of Digital Marketing

Marketing experts may employ digital marketing, which is any form of advertising that makes use of electronic devices, to spread marketing messages and assess their effectiveness across your customer journey. Digital marketing is most commonly used to describe advertising efforts that run on a computer, phone, tablet, or other electronic device. Online video, display advertisements, search engine marketing, paid social ads, and social media postings are just a few examples of the various formats it may take. Digital marketing is frequently contrasted with "conventional marketing" methods like direct mail, billboards, and magazine advertisements. Oddly, conventional marketing is sometimes grouped with television. (Mailchimp, 2022)

The use of digital channels to promote goods and services and contact consumers is referred to as "digital marketing." Websites, mobile devices, social media, search engines, and other channels with a similar function are used in this kind of marketing. With the introduction of the Internet in the 1990s, digital marketing gained popularity.

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Digital marketing is frequently seen as a novel technique for businesses to interact with customers and comprehend their behavior. It has some of the same ideas as conventional marketing. Traditional and digital marketing methods are frequently combined by businesses. However, it has its own set of difficulties, such as unconscious prejudice. (Barone, 2022)

The Idea behind digital marketing is in the purpose of reaching out costumer faster within using online platforms. In this way, costumers have wider view of variety of products as well as companies make more profit, and the overall economic circulation gets faster with resulting having higher GDP.

In marketing, the more advanced system is used, the faster marketing systems reach its own goals. AI can be used in variety of ways in marketing as well as it advances ways in facilitation of reaching targeted audience and mass market. With the help of AI, marketers can monitor the success of their campaigns, from general message to specific social media postings. By utilizing thousands of data points, marketers may adjust their measurement framework in accordance with the goals and KPIs that are important to the company. The social, behavioral, and sales data that AI collects and analyzes can help us gain a deeper knowledge of our consumers, allowing us to more effectively focus our messages and anticipate client demands. (Sales-force, 2022)

The right technological resources are necessary for incorporating AI into your marketing technology and service platform. A quality AI system will assure easy adoption of the technology, as opposed to a less expensive system that could malfunction. Businesses that find it difficult to completely invest in hardware may choose to work with a cloud provider that can assist them find the best technological solutions. (Sales-force, 2022)

2.2.1 Trends of Digital Marketing

Digital Marketing trends come with strategic marketing that gets developed by growing strategic plans with planning of reaching the mass market. Companies have their own marketing trends where they approach by making advertisements through social media and websites with their own logos as well as promoting their products and services. "Digital marketing trends are key changes in the strategic direction of the digital marketing landscape that impact the way marketers should interact with their target audience." (Gartner, 2022) Also, digital marketing trends became more dependent by companies with the start of Covid-19 where people were at home and looked online for buying product and services.

A new era of human interaction in all facets of life has begun as a result of the fast expansion of the digital market. The combined influence of digital technologies in promotion and marketing has shown to be of considerable value to online commerce and distribution for business-centered sectors. Today's company strategy prioritizes marketing techniques incorporating the usage of electronic media since the world is now experiencing the viability of the digital era. The widespread daily consumption of digital information that is either shared or dispersed via the Internet contributes to this. (Media-link, 2017)

2.3   Artificial Intelligence

AI is the system of facilitation using network and/or computer systems. In another word, Artificial intelligence is the emulation of human intellectual functions by technology, particularly computer systems. Expert systems, natural language processing, speech recognition, and machine vision are some examples of specific uses of AI. (Burns, 2022)

In its most basic form, artificial intelligence is a subject that integrates computer science with huge datasets to aid in problem solving. Additionally, it incorporates the artificial intelligence subfields of deep learning and machine learning, which are frequently studied in tandem. These domains employ AI algorithms to create expert systems that classify information or make predictions based on incoming data. (IBM,

2022) AI technology is improving enterprise performance and productivity by automating processes or tasks that once required human power. AI can also make sense of data on a scale that no human ever could. That capability can return substantial business benefits." (Oracle, 2022)

It is simply the knowledge of creating more productive works and have higher standard of work and living. By all means, AI is assumed to be the future most used technology that facilitates the needs and desires of individuals. Also, it is speculated that it maybe saves the planet because of its advanced facilitation tools, or there are some conspiracy theories that AI may overtake human tasks and lead to humanity's worst nightmare, which is AI controlling humanity.

2.4   Benefits of AI in Digital Marketing

Companies are acquiring more and more experience with developing AIs to make their marketing strategies more advanced in reaching and facilitating for their targeted customers and clients. The world has come a long way in technology and marketing. The utilization of AI products and applications has been steadily and easily expanding. The algorithms are improving and running more quickly, leading to more developed and effective AI products. It seems certain that AI will be a crucial component of next digital products.

AI in digital marketing is useful for examining vast volumes of data and forecast each customer's purchasing behavior, helping you better understand your audience. This makes it possible for you to efficiently carry out targeted marketing efforts. Additionally, it increases consumer involvement and happiness. Additionally, by utilizing AI-driven techniques, marketers may quickly turn a lead into a sale at the ideal moments to increase conversions. Also, it has advantages for increased productivity. Using AI, it can easily automate in several repetitive tasks. As a result, production will rise and a lot of time and resources will be saved. Effective marketing: AI does away with presumptions in advertising. AI-driven data analysis and services can help you create a digital marketing plan that is more successful.

On the same hand, it benefits in increased ROI. AI improves decision-making and aids in the production of more effective content. You may direct focused digital marketing initiatives with a greater ROI thanks to its benefits in improving audience knowledge. Also, it is useful for improving users Experience. With AI in marketing, you provide the right audience with the right content. This enhances customer satisfaction as they find what they need. Reports have shown that consumers are more likely to be driven towards brands implementing AI in their marketing strategies. (Hosalikar, 2022).

2.5   Theoretical Framework

Marketing researches nowadays has variety of involvements of AI because they are currently inter-connected with each other. The better AI systems evolve; it is used in better ways of marketing. The applications of artificial intelligence in today's corporate environment are many. Artificial intelligence, in the opinion of both professionals and academics, will shape our civilization in the future. The globe is now a web of linked networks as a result of technological advancements. Investments in Artificial Intelligence for big data analytics to produce market intelligence were made as a result of the technology deployment. Applications of artificial intelligence are not just found in the field of marketing; they are also widely employed in fields like medicine, e-commerce, education, law, and manufacturing. AI is continually being used to the advantage of several sectors. Artificial intelligence and other new technologies are developing concurrently as firms advance toward Industry 4.0. (Panel, 2021)

This field requires constant developments because of the fast mas market competitions movements that is why researches are focusing on more facilitation in using AI for marketing strategies. Today, AI marketing is being utilized to improve the effectiveness and return on investment of digital marketing initiatives. It can also result in numerous corporate advantages, including smarten up your advertisements. AI advances account-based marketing strategies by utilizing big data to foster intelligent research and provide cleverer online advertisements. AI can also analyze your data and results to generate more precise advertising. It may also improve search results. Big data and AI

technologies can monitor consumer digital search behavior and assist identifies important areas where marketing efforts should concentrate. However, it may also customize the content. Marketers may improve analytics to understand clients individually and tailor content accordingly by fusing big data, machine learning, and AI. (Cognizant, 2022)

With the transition from analog to digital, marketing is not an exception. Digital marketing, social media marketing, and search engine marketing are all becoming more and more popular as technology advances. Digital marketing has benefited the most since it relies so heavily on the Internet, despite the enormous growth in Internet users. The way that consumers shop is evolving, and they are now more likely to choose digital marketing than conventional marketing. This review paper's goal is to investigate the effects of digital marketing and how significant it is for both consumers and marketers. This essay begins with an introduction to digital marketing before focusing on the many forms of digital marketing, the distinction between traditional and digital marketing, as well as the advantages, disadvantages, and significance of digital marketing. (Kishan, 2022)

A number of studies have been conducted on the use of artificial intelligence (AI) in organizations' digital marketing strategies. For example, a study by McKinsey found that AI-powered personalization can lead to a 5-15% increase in revenue for retail companies (McKinsey). A study by the Interactive Advertising Bureau (IAB) found that marketers using AI-powered audience segmentation saw a 30% increase in engagement with their ads (IAB). Accenture found that companies using AI in their marketing strategies are able to reduce their costs by up to 20% (Accenture). According to Research and Markets, the global AI in digital marketing market is expected to grow at 29.8% from 2019 to 2024 (Research and Markets, 2019). Gartner research shows that by 2022, 85% of customer interactions will be handled without a human agent (Gartner, 2022). Additionally, Adobe found that companies that are already investing in AI are seeing a 49% year-over-year increase in revenues (Adobe). In addition to the aforementioned studies, there are many other examples of research that has been conducted on the use of AI in digital marketing. A study by the Digital Marketing Institute found that companies that are using AI in their digital marketing strategies are seeing improved customer

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engagement; increased conversion rates, and betters ROI (Digital Marketing Institute). Similarly, a study by Sales-force found that AI-powered personalization could lead to a 20% increase in sales (Salesforce). Additionally, a study by the marketing automation platform, Marketo, found that companies that use AI in their marketing campaigns experience an average uplift of 10-30% in email open rates (Marketo).

It is worth noting that there are some industry and vertical specific research, for example, a study by Forrester Research and Acquia found that businesses using AI-powered chat-bots see a 71% reduction in customer service costs (Forrester Research, 2017) Furthermore, it's not only the benefits, but some studies also show the challenges and drawbacks of AI in marketing such as a study by MIT Technology review, that AI-based marketing can perpetuate human biases, reinforce stereotypes, and can also affect the way people think about their own personal data (MIT Technology Review, 2018). Overall, the studies show that AI can bring significant benefits to organizations' digital marketing strategies, such as increased revenue, reduced costs, improved customer engagement and ROI, but it is also important to keep in mind that, as with any technology, there are potential drawbacks and challenges that organizations will need to consider when implementing AI in their marketing efforts

Table 1.1 PRIOR STYDY

Author(s)	Method	Context	Findings
McKinsey, (2019)	Quantitative	Retail	AI-powered personalization can lead to a 5-15% increase in revenue for retail companies
IAB, (2016)	Quantitative	Advertising	Marketers using AI-powered audience segmentation saw a 30% increase in engagement with their ads

Accenture, (2022)	Quantitative	Marketing and Advertising	Companies using AI in their marketing strategies are able to reduce their costs by up to 20%
Research and Markets, (2017)	Quantitative	Digital Marketing	The global AI in digital marketing market is expected to grow at a CAGR of 29.8% from 2019 to 2024
Gartner, (2021)	Qualitative	Customer Service	By 2022, 85% of customer interactions will be handled without a human agent
Adobe, (2018)	Qualitative	Marketing	Companies that are already investing in AI are seeing a 49% year-over-year increase in revenues
Digital Marketing Institute, (2022)	Qualitative	Digital Marketing	Companies that are using AI in their digital marketing strategies are seeing improved customer engagement, increased conversion rates, and better ROI
Salesforce, (2022)	Qualitative	Marketing	AI-powered personalization can lead to a 20% increase in sales
Marketo, (2022)	Qualitative	Marketing	Companies that use AI in their marketing campaigns experience an average uplift of 10-30% in email open rates

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The table above provides an overview of several studies that have been conducted on the use of AI in digital marketing strategies. The studies discussed in the table include research from consulting firm McKinsey, the Interactive Advertising Bureau (IAB), Accenture, Research and Markets, Gartner, Adobe, the Digital Marketing Institute, Salesforce, Market, Forrester Research and Acquia, MIT Technology Review. These studies indicate that AI can bring significant benefits to organizations' digital marketing strategies, such as increased revenue, reduced costs, improved customer engagement and ROI. However, it is also noted that AI-based marketing may perpetuate human biases, reinforce stereotypes, and affect the way people think about their own personal data. The studies also show that specific impact of AI on an organization's marketing strategy will depend on a variety of factors, such as the size and type of the company, the specific AI tools and techniques used, and the maturity of the organization's marketing capabilities.

2.6   Research Framework

This framework demonstrates the process of building the structure of the research by explaining AI as well as digital marketing, and the connection between them that instructed by elaborating on its advantages. The research is conducted quantitatively. In its elaboration, the AI's as well as digital marketing's implementation and previous studies and researches is explained and analyzed to make a conclusion about the relationship between artificial intelligence and organizations digital marketing strategy.

Based on the analysis of the literature review and prior studies pertaining AI and digital marketing superior evidence, Ai is defined or believed the function in AI at healthcare has a relationship with digital marketing. It is furthermore demonstrated in the following figure 2.1:
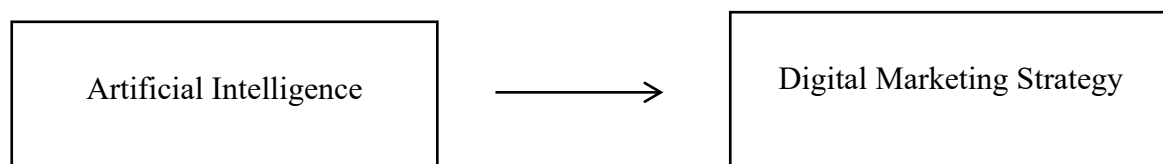
Figure2.1: Research Framework

In a study on the relationship between artificial intelligence and organizations' digital marketing, for example, the AI could be operationalized as the extent to which an organization is using AI in various aspects of its digital marketing, such as email marketing, social media marketing, and website personalization. The digital marketing could be operationalized as measures of the effectiveness of the organization's digital marketing efforts, such as conversion rates, website traffic, and customer engagement. The study could then examine the relationship between the AI and digital marketing strategy, to determine the impacts and effectiveness.

2.7.   literature Review Discussion

The main reason that marketing grows fast in using artificial intelligence is because it is highly connected to costumer analysis which artificial intelligence can be used in it in variety of useful ways. To elaborate, because of the usage of artificial intelligence, the most benefited way to use it in marketing is by using in in digital marketing strategy. This study focuses on the relationship between artificial intelligence and organizations digital marketing strategy in general and specifically its usage in Kurdistan.

This research had gone through describing artificial intelligence and its role in marketing, followed by a review of its definition in Kurdistan's commercial sectors. It also defines digital marketing and examines its developments. Additionally, it examines the advantages of artificial intelligence in digital marketing, as well as artificial intelligence from a marketing standpoint. Finally, it concludes by summarizing conversations, discussing ideas from earlier research, and applying theory to the study framework. In order to have a clear analysis of the use of artificial intelligence in digital marketing and a more comprehensive understanding of the future for which the world is vying, this study is being undertaken in this manner.

2.7   Conclusion:

This research begins with describing artificial intelligence and its role in marketing, followed by a review of its definition in Kurdistan's commercial sectors. It also defines digital marketing and examines its developments. Additionally, it examines the advantages of artificial intelligence in digital marketing, as well as artificial intelligence from a marketing standpoint. Finally, it concludes by summarizing conversations, discussing ideas from earlier research, and applying theory to the study framework. In order to have a clear analysis of the use of artificial intelligence in digital marketing and a more comprehensive understanding of the future for which the world is vying, this study is being undertaken in this manner. Artificial intelligence has the potential to significantly improve marketing efforts in a number of ways, including by improving targeting and personalization, increasing efficiency and automation, and enabling organizations to scale their marketing efforts. However, it is important for companies to carefully consider the ethical implications of using AI and ensure that they have the necessary expertise and resources to effectively implement and use AI in their marketing efforts. Additionally, governments should be aware of and monitor the progress and developments in AI to ensure that it is being used ethically and for the benefit of society. With careful planning and oversight, AI can facilitate a wide range of advancements and achievements, from solving global issues to reaching new heights in science and technology.

CHAPTER 3

RESEARCH METHODODLOGY

3.1   Introduction

This chapter focuses on the demographic, sample, and research design of the study that elaborates on the usage of artificial intelligence in digital marketing, particularly in the healthcare industry in Kurdistan. Then, the processes and sampling method are discussed, along with the pilot test and data gathering strategy. Furthermore, the study question and goals that were defined in chapter 1 will also be explained in this chapter. In the end, a summary is provided.

3.2   Research Design

A research design, also known as a research strategy, is a method for addressing a set of questions (McCombes, 2019) The objective of the research design in this study is to verify that the data obtained can be used to answer research questions. According to the research questions, the aim of this study is to examine the relationship between artificial intelligence and organizational digital marketing in health care sector among employees at Faruq hospital.

There are different types of research designs also this study is correlation study because it is tried to determine the relationship between Artificial Intelligence and digital marketing. A quantitative approach utilizing questionnaires will be utilized to analyze the data and evaluate how artificial intelligence and digital marketing relate.

The research flowchart is showed clearly in figure3.1;

```
                    ┌─────────────────────────┐
                    │  Decide the research topic │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │   Define Research Problem  │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────────┐
                    │ Determine Purpose and Objective │
                    └─────────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │   Determine Tool Design   │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌───────────────────────────────────┐
                    │ Theoretical and Conceptual Framework │
                    └───────────────────────────────────┘
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                    ┌─────────────────────────┐
                    │    Research Tool Design   │
                    └─────────────────────────┘
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                    ┌─────────────────────────┐
                    │      Sampling design      │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │    Survey Questionnaire   │
                    └─────────────────────────┘
                                  │
                                  ▼
                          ◇   Pilot test   ◇
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │        Field work         │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌───────────────────────────────────────┐
                    │ Quantitative Data Collection and Analysis │
                    └───────────────────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │       interpretation      │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │  Conclusion and Suggestion │
                    └─────────────────────────┘
                                  │
                                  ▼
                    ┌─────────────────────────┐
                    │           end             │
                    └─────────────────────────┘
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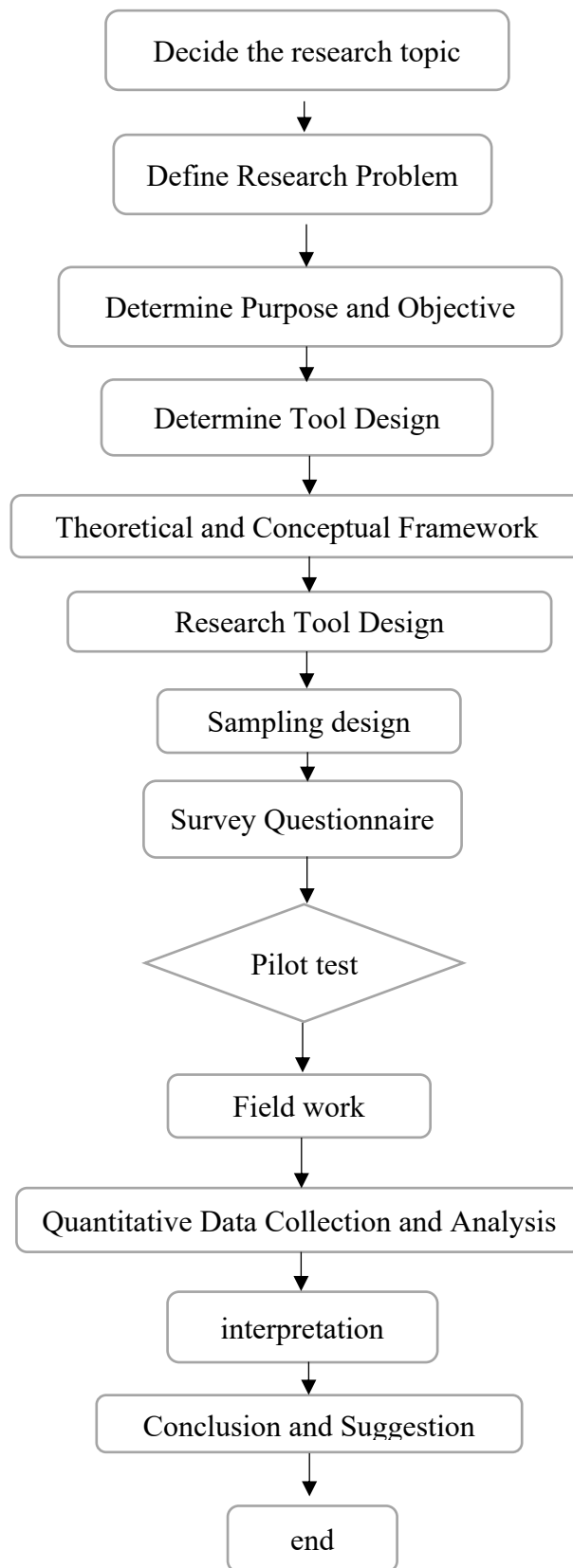
Figure3.1   Research Flowchart of This study

3.2.1 Descriptive Research

According to (Mishra et al., 2019) descriptive statistics is used to briefly convey the fundamental characteristics of the data in a study, such as the mean and standard deviation, moreover descriptive statistics can be used to summarize the data, in order to convey the most information in the simplest way possible from a series of observations. The variables, analyses that will be used in this study, were identified and described by using descriptive analysis study because the number of employees in Faruq hospital will be measured, which carried out using mean, frequency, and percentage. Data acquired in sections A, B, and C will be analyzed using a descriptive approach. Section A will go over the respondent's demographics, and Section B will talk about how the Faruq Hospital staff uses artificial intelligence. Finally, part C will talk about organizational digital marketing strategies in the healthcare industry.

3.2.2 Quantitative research

According to (Apuke's definition., 2017), quantitative research is business analysis that fulfills research goals through quantitative assessments that use numerical measurement as well as analysis techniques. A quantitative approach used to figure out the existence and strength of a link between two or more variables in an overall population or sample. Furthermore, correlation coefficients are used to express the strength of correlations. Therefore, this study is quantitative because it tries to determine the relationship between artificial intelligence and organizational digital marketing strategy among employees in Faruq Medical City.

3.3   Population and sampling

Sampling is the process of choosing a group of people from a population in order to figure out the characteristics of the entire population (Singh et al., 2014). Sampling is a method used by researchers to carefully select a smaller quantity of representative objects or subgroup from an established population to use as data sources for observation or experimentation in accordance with their research goals.

3.3.1 Population and sample size of the study:

The population of this study consists of the workers of Faruq Medical City. The example was a private hospital for healthcare. According to the observational work done for this study, there are about 300 private hospitals, and about 50 of them have the capability and potential to use AI in their digital marketing efforts. FMC, which employs 171 people, was chosen at random from among these 50 hospitals as a sample population for this study on the use of AI in digital marketing initiatives. Regarding the sample size, this study was effective in gathering 150 responses among 170 workers in Faruq Medical City. In order to conduct the final analysis for this study, 150 responses were taken into account.

3.3.2 Sampling Technique:

A sampling technique can be statistical or non-statistical. With statistical sampling there is probability-sampling technique, this technique is possible to determine the rate of collecting any specific sample. Hence, a non-probability sampling technique aids researchers in selecting units that directly correspond to the population under study (Etikan et al., (2016). This study's demographic and sample will be employees in the healthcare industry and Faruq Medical Hospital is chosen in Suleimani Kurdistan region Iraq. To select a sample for this study, probability sampling, which is simple random sampling, will be used. In the random sampling technique, each member of the population has an equal chance of being chosen as a subject (Sharma, 2017).

3.4   Data Collection Method

The entire data set for this investigation was gathered over the period of a 25-day through online survey. The process of obtaining information from all relevant sources in order to solve the research problem, test the hypothesis, and evaluate the outcomes is known as data collection. The data collection methods, this study's data gathering methods are quantitative. Therefore, quantitative data will be acquired through the distribution of questionnaires. Two of the elements used to examine means and standard deviations in this study's questionnaires are artificial intelligence and digital marketing. A survey is being carried out using an internet survey form. Internet surveys can be sent to respondents via email, social media, SMS surveys, website embeds, and other means.

3.4.1   Questionnaire Design

The study's research subject and goal are related to the questionnaire in this case. The questionnaire is divided into three sections: section A covers the demographics of the respondents; section B covers artificial intelligence; and section C covers digital marketing strategy. The questionnaire's statements and questions are all multiple choice and Likert scale created. A total of 19 questions are included in the survey. There are 4 questions in section A, 8 questions in section B regarding independent variables, as well as 6 questions in section C about dependent variables.

Table 3.1 Construction of questions in the questionnaire

Section	Aspects	Construct of the Questions
A	Demographic Profile	Multiple Choice
B	Artificial Intelligence	Likert Scale
C	Organizational Digital Marketing Strategy	Likert Scale

3.5   Research Instrument:

In this study, the researcher used questionnaire to collect the data. The questionnaire is a series of questions that have been carefully designed for a group of people to respond in order to acquire information and data. The questionnaires designed to gather information and detail about the relationship between artificial intelligence and digital marketing among employees in healthcare sector at Faruk medical city. Five Likert scale was used in this study's rating technique to gather data. 5-point Likert scale: 1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A), 5=Strongly Agree (SA). For classifying the respondents' demographic nominals have been employed. thus, interval scale will be employed for all of the other questions. Table 3.2 illustrate the Likert scale Measurement.

Table3.2 Measurement Scales of Likert Scale

Likert Scale	The level of Artificial Intelligence
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

3.5.1   Section A: Demographic:

Demographics refer to the statistical characteristics of a population, such as age the rate starts (20 – 25, 26 – 31, 32– 37, 39-44, 45or above 45) years old, the gender consists of (Male and Female), the rate of work states starts (unemployed, part time, full-time) and education level. Starts from (Bachelor's Degree, Master's Degree or Ph.D. or higher). As shown in table 3.3 Nominal scale measurement used for this section.

Table 3.3   The scale measurement for the variables in section A

	NO	Variables	Scale of Measurement
Section A:	1	Age	Nominal
	2	Gender	Nominal
Respondent's	3	Work state	Nominal
Demographic profile	4	Educational level	Nominal

3.5.2   Section B: Artificial Intelligence

Section B in this questionnaire measures the Artificial Intelligence among respondents. The items section is established by (Shinners et al. 2021). The artificial intelligence consists of 8 items categorized. In this section, artificial intelligence utilized by individuals in the health care sector is measured using a five-point scale ranging from 1 to 5. The respondents will be asked to rank their responses to the question. Table 3.4 illustrates the five-point Likert scale used to assess respondents' artificial intelligence among respondents and Table 3.4 shows the dimensions and items in Artificial intelligence.

Table 3.4 The Scale Measurement for the Variables in Section B

Section B:		Questions	Scale of Measurement	Liker scale
Artificial Intelligence	1	The usage of AI in my specialty could improve direct patient care.	Interval	5-point
	2	The application of AI in my filed could improve clinical decision making.	Interval	5-point
	3	The usage of AI has the potential to improve community health outcomes.	Interval	5-point
	4	The addition of AI will lower the financial costs associated with my work.	Interval	5-point
	5	I have received appropriate training to use AI in my work.	Interval	5-point
	6	AI may assume some of my responsibilities as a healthcare worker.	Interval	5-point
	7	If Al technology makes a mistake, the healthcare professional bears complete accountability.	Interval	5-point
	8	The introduction of Al will alter my future career as a healthcare professional.	Interval	5-point

3.5.3   Section C: Digital marketing

Section C in this Questionnaire is to measure the level of Digital marketing. The questionnaires developed by (Murray et al., 2011). Questionnaires consist of one dimension, which is Digital marketing; the total number of items is 6. In this section, Digital Marketing utilized by employees in the health care sector is measured using a five-point scale ranging from 1 to 5. The respondents will be asked to rank their responses to the question. Table 3.5 shows the dimensions and items in digital marketing questionnaires.

Table 3.5   The Scale Measurement for the Variables in Section C

		Questions	Scale of Measurement	
Section C: Digital Marketing	1	Digital marketing can boost a hospital's competitiveness.	Interval	5-point
	2	The use of digital marketing bolstered our strategic position.	Interval	5-point
	3	Digital marketing has greatly enhanced the hospital's revenue.	Interval	5-point
	4	Using digital marketing increases client satisfaction with our marketed offerings.	Interval	5-point
	5	Digital marketing allows for the rapid development and execution of advertising campaigns.	Interval	5-point
	6	Through digital marketing, the hospital gains more consumer loyalty than ever before.	Interval	5-point

3.6   Data Analysis Method

SPSS assists market researchers in extracting useful insights from your consumer data through the use of complex statistical studies. Its sophisticated survey data processing technology makes it possible to obtain precise market trend information. (Jacobson, 2022) The advantages of analyzing data with the help of SPSS Data Analysis are such as it is not much effort that is needed for the researcher to use this software. (Silver, 2021) The collected data will be analyzed using the Statistical Package for Social Science (SPSS) software. SPSS is used to organize and analyze the raw data that has been collected in order to answer the previously proposed research questions. Both descriptive and inferential analysis will be used to study and analyze the relationship between AI and digital marketing.

3.6.1   Descriptive Method

Mean, percentage, and frequency will be used in this study's descriptive analysis. For each item, descriptive analysis will be used to analyze data collected in Sections A, B, and C. percentages, mean and frequencies will be used in Section A to discuss the demographics of the respondents, such as their ages, gender, and educational level. Section B, on the other hand, will discuss user acceptance and usage behavior toward artificial intelligence, whereas Section C will discuss digital marketing. By computing the mean score as stated in the Table 3.6, the level of the study's items will be determined.

Table 3.6 Level of Mean Score (Parasuraman et al,. 2005)

Mean score	Level
1.00 - 2.19	Very low
2.20 - 3.39	Low
3.40 - 4.59	Moderate
4.60 - 5.79	High
5.80 - 7.0	Very high

3.6.2 Inferential statistic

By analyzing the samples that have been taken from the population data, inferential statistics aids in the thorough understanding of the data. Through the use of various analytical tests and tools, it promotes the creation of demographic generalizations. Different sampling techniques are used to choose random samples that accurately reflect the population. The methodology used to meet the goals of this study is depicted in the table below.

Table 3.7 illustrates the objective approaches

Objectives	Tools	Methods
1- To understand the relationship between AI and digital marketing in Kurdistan.	5 Likert Scale Questionnaire	Mean standard deviation, and their percentage
2- To examine the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC)	5 Likert Scale Questionnaire	Mean, Standard deviation, and their percentage
3- To examine the main score of employees of FMC in the usage of AI between male and female in their place.	5 Likert Scale Questionnaire	Correlation coefficient of variation in percentage

3.7   Pilot test

Conducting a pilot test is an important step in research to ensure the feasibility and effectiveness of the methods used in a larger study or experiment. By conducting a small-scale version of the study, the pilot test allows for the evaluation of the measures' validity and reliability and for assessment of the representativeness of the sample in relation to the target population.

Additionally, pilot testing can aid in the logistics planning of the study, such as the distribution and collection of materials and the scheduling of participants. The pilot test also allows for testing of any technology or equipment used in the study and for estimation of the necessary sample size for the larger study. For this research, 25 to 35 employees will be chosen for pre-test to see whether the survey is reliable or not. It also provides insights into participant engagement and satisfaction levels. Overall, pilot testing is a valuable tool in the research process, allowing for identification and addressing of any potential issues before the main study is implemented, ultimately increasing the chances of success.

Table 3.8 Scale Cronbach's Alpha

(Siswaningsih et al,. 2017)

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

3.8 Research Ethic

       Research ethics is a key aspect of research because it involves the application of fundamental ethical principles to research activities such as research design and implementation, respect for society and others, and the researcher's obligation to protect respondents' privacy and security based on the information provided. Human rights and dignity, as well as science-society collaboration. These principles ensure that study participants' involvement is voluntary, informed, and safe.

3.9   Conclusion

       Finally, this chapter outlined the research design, population, sampling that will be utilized as well as questionnaires developed in three section, section one is about demographic, section B is about artificial intelligence and section C is about digital marketing, also in this chapter pilot test, inferential statistic and research ethic are highlighted.

CHAPTER 4

DATA ANALYSIS

4.1   Introduction

The primary goal of this chapter is to present the study findings obtained through various analyses, as well as the methodologies employed to examine the data. The chapter is broken into 5 sections. The first section ends with responder feedback. The second section is focused with the demographic analysis of respondents, which covers gender, age, job state, and educational level of (FMC) personnel. The chapter discusses the connection between AI and digital marketing in Kurdistan. It also incorporates the level of AI applied in the Kurdistan healthcare industry. Finally, the chapter depicts the major score of FMC employees in the use of AI in their place, comparing male and female employees.

4.2   Pilot Test Result

Pilot tests are being carried out as part of this project. The purpose of the pilot test is to evaluate the questionnaire's reliability and validity. Once the data's Cronbach's Alpha value exceeds 0.5, analysis of the data can begin. In Faruq Medical City in Sulaymaniyah (Iraq), the pilot test was conducted on 30 employees. The overall Cronbach's alpha rating of 1.749 is seen as good and reliable questionnaire. The pilot test results for each factor and the overall Cronbach's alpha value are clearly displayed in Table 4.1.

Table 4.1 Pilot test result and Total Cronbach's Alpha Value

Validity and Reliability tests			
Variables	Items	Factor Loadings	Cronbach's Alpha
Artificial Intelligence	AI1	0.757	0.867
	AI2	0.862	
	AI3	0.799	
	AI4	0.896	
	AI5	0.804	
	AI6	0.805	
	AI7	0.609	
	AI8	0.757	
Decision Making	DM1	0.854	0.882
	DM2	0.880	
	DM3	0.945	
	DM4	0.797	
	DM5	0.785	
	DM6	0.650	

4.2   Respondents Feedback

The response rate for this study is shown in table 4.2. the questionnaire distributed among 171 employees total of 150 FMC employees in the Kurdistan region answered to the survey, with only 150 responses approved for the purpose of the study.

Table 4.2 Summary of Respondents' Feedback

Number of distributed questionaries'	Number of answered questionaries'	Number of questionnaires Accepted	Percentage (%)
171	150	150	%88

As it's shown in the table 4.2, 150 respondents completed and submitted their replies to their replies to 171 questionnaires that were issued. This demonstrates a high degree of interest and involvement in the survey subject. Additionally, the analysis of 150 duly filled the surveys was approved as legitimate. The sample size is increased and the dataset for analysis is more complete when all surveys with answers are included. Calculating the overall percentage involves multiplying by 100 and dividing the total number of approved questionnaires (150) by the total number of distributed questionnaires (171). In this instance, the outcome was 88%. This statics shows what % of the total number sent surveys were successfully completed and approved. It gives a measure of the re-open rate and shows how well the target population is represented in the data that was collected.

4.3   Respondents' Demographic Analysis

150 participants in this study were chosen at random from the Faruq Medical City in the Kurdistan area. The questionnaire's section is divided into three parts, A, B, and C. The part A of the questionnaire asks about the respondents' demographic information

which provide information about age, gender, educational level and work state. In this section, frequency and percentage will be used to assess the respondents' demographics.

4.3.1   Age

Table 4.3 displays the age distribution of respondents in (FMC). Regarding the respondents age, most of respondents are at the age of (39 to 44) years were (25.3%) and (32 to 37) years were (24.0%), (20 to 25) years were (21.3%), (26 to 31) were (17.3%) and other remaining respondents were between (45 or above 45) were (12%).

Table 4.3 Frequency Distribution of the Respondent Age

Age	frequency	Percentage
20 to 25	32	21.3
26 to 31	26	17.3
32 to 37	36	24.0
38 to 44	38	25.3
45 or above 45	18	12.0
Total	150	100.0

4.3.2   Gender

There are (2) categories of gender, which are male and female. Table 4.4 illustrates the frequency of respondent's gender in (FMC). Majority of the respondents were female (37.3%) and (37.3%) were male.

Table 4.4 Frequency Distribution of the Gender

Gender	Frequency	Percentage
Male	56	37.3

Female	94	62.7
Total	150	100.0

4.3.3 Work State: -

Table 4.5 indicates the frequency of respondents' work states. The majority of respondents (67.3%) work full time, while 32.7% work part time.

Table 4.5 Frequency distribution of the work state

Work state	Frequency	Percentage
Part time	49	32.7
Full time	101	67.3
Total	150	100.0

4.3.4 Educational Level

In terms of educational attainment, the entire sample was literate to varying degrees. As 32.7% of respondents held a master's degree, 29.3% held a bachelor's degree, 20% held a Ph.D. or higher, and the remaining 18% held an associate degree. The frequency of respondents' educational level is shown in Table 4.6.

Table 4.6 Frequency distribution of the educational level

Educational level	Frequency	Percentage
Associate degree	27	18.0
Bachelor's degree	44	29.3
Master degree	49	32.7

Ph.D or higher	30	20.0
Total	150	100.0

4.4 First Objective: To determine the relationship between AI and digital marketing in Kurdistan.

In this study, the first objective is about understanding the relationship between artificial intelligence and digital marketing; Person's rank correlation coefficient is applied in order to examine the relationship between artificial intelligence and digital marketing strategy among employees in Faruq Medical City. The table 4.7 illustrates the correlation analysis between artificial intelligence and digital marketing among employees in Faruq medical city in Kurdistan. The independent variable of the correlation is artificial intelligence, and the dependent variable digital marketing, are both positively and significantly connected with digital marketing ($r = 0.742**$, p 0.01), as shown by the above table.

Table 4.7 Correlation analysis

Variables	Mean	SD	AI	CD
Artificial intelligence	3.584	0.758	1	0.742**
Digital marketing	3.779	0.852		1

4.5   Second Objective: To determine the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC).

4.5.1   Artificial Intelligence: -

In this study, descriptive analysis is used to examine the level artificial intelligence used in healthcare sector in Kurdistan especially in Faruq Medical City. This research uses the mean score and standard deviation to determine the level Artificial intelligence among employees. The table 4.7 shows the descriptive statistics for the use of artificial intelligence in Faruq medical city (FMC). The result shows a moderate level of the usage of artificial intelligence with a total mean of 3.58 and the standard deviation of 1.174. the highest mean score in artificial intelligence is (3.72) and standard deviation of (1.069). this shows that the data most employees did not have same perspective or answers. However, the lowest mean score is 3.38 and standard devastation of 1.269 which is considered as moderate level. The table 4.8 illustrates descriptive analysis for artificial intelligence including mean, standard deviation and the level.

Table 4.8 Descriptive analysis results for artificial intelligence

Item	SD f (%)	D f (%)	N f (%)	A f (%)	SA f (%)	Mean	SD	Level
1- The usage of AI in my specialty could improve direct patient care.	10 (6.7)	7 (4.7)	31 (20.7)	69 (46.0)	33 (22.0)	3.72	1.069	High
2- The application of AI in my filed could improve clinical decision making.	12 (8.0)	10 (6.7)	31 (24.0)	70 (38.0)	27 (25.3)	3.60	1.105	Moderate
3- The usage of AI has the potential to improve community health outcomes.	10 (6.7)	9 (6.0)	36 (24.0)	57 (38.0)	38 (25.3)	3.69	1.117	High
4- The addition of AI will lower the financial costs associated with my work.	12 (8.0)	9 (6.0)	32 (21.3)	64 (42.7)	33 (22.0)	3.65	1.130	Moderate
5- I have received appropriate training to use AI in my work	22 (14.7)	8 (95.3)	35 (23.3)	54 (36.0)	31 (20.7)	3.43	1.287	Moderate
6- AI may assume some of my responsibilities as a healthcare worker.	13 (8.7)	8 (5.3)	24 (16.0)	72 (48.0)	33 (22.0)	3.69	1.135	High

7-	If Al technology makes a mistake, the healthcare professional bears complete accountability	27 (18.0)	9 (6.0)	26 (17.3)	56 (37.7)	32 (21.3)	3.38	1.369	Moderate
8-	The introduction of Al will alter my future career as a healthcare professional.	15 (10.0)	12 (8.0)	34 (22.7)	61 (40.7)	28 (18.7)	3.50	1.180	Moderate
Total							3.58	1.174	Moderate

4.5.2   Digital Marketing:

The table of 4.9 shows the descriptive analysis of digital marketing among employees in Faruq medical city. The overall mean score of the digital marketing in this study is 3.78 with the standard deviation of 1.171, which considered as high level. This means that employees are satisfied with the using of artificial intelligence at their work. The highest mean score is 3.89 with standard deviation of 1.218, and the lowest mean score 3.67 with standard deviation of 1.174.

Table 4.9 Descriptive analysis results for digital marketing

Item	SD f (%)	D f (%)	N f (%)	A f (%)	SA f (%)	Mean	SD	Level
1- Digital marketing can boost a hospital's competitiveness.	8 (5.3)	9 (6.0)	30 (20.0)	66 (44.0)	37 (24.7)	3.77	1.058	High
2- The use of digital marketing bolstered our strategic position.	12 (8.0)	13 (8.7)	25 (16.7)	63 (42.0)	37 (24.7)	3.67	1.174	Moderate
3- Digital marketing has greatly enhanced the hospital's revenue.	13 (8.7)	7 (4.7)	23 (15.3)	62 (41.3)	45 (30.0)	3.79	1.178	High
4- Using digital marketing increases client satisfaction with our marketed offerings.	14 (9.3)	6 (4.0)	18 (12.0)	57 (38.0)	55 (36.7)	3.89	1.218	High

5- Digital marketing allows for the rapid development and execution of advertising campaigns.	14 (9.3)	8 (5.3)	27 (18.0)	52 (34.7)	49 (32.7)	3.76	1.230	High
6- Through digital marketing, the hospital gains more consumer loyalty than ever before.	12 (8.0)	7 (4.7)	26 (17.3)	58 (38.7)	47 (31.3)	3.81	1.168	High
Total						3.78	1.171	high

4.6   Third Objective: To determine the mean score of employees of FMC in the usage of AI between male and female in their place

To compare the primary scores of employees at Faruq Medical City, a t-test was employed. t test for unrelated samples an inferential statistical test known as the independent t test, also known as the unpaired t test, examines if there is a statistically significant difference among the means among two unconnected (independent) groups (Mishra et al., 2019). In this procedure mean and number of observations of the group 1 and group 2 are used to compute significant level. The number 1 is related to male and number 2 is to female. The findings indicate that female employees utilize artificial intelligence (AI) at a higher rate than their male counterparts, with a mean of 23 compared to 22.1. Moreover, female users of new technology are more prevalent in the Kurdistan

area than male users. The lower confidence interval is -3.79, and the upper interval is 0.085. The data demonstrates the significance of the results, as the obtained result significance level of Levane's test is 0.9 which is greater than (P>0.05). Therefore, based on these findings, it can be concluded that there is a difference in the usage of AI between male and female employees.

Table 4.10 T-test Analysis

			Male		Female		%95 confidence interval of the difference	
Item	Sig.	T	N	Mean	N	Mean	Lower	Upper
Artificial intelligence	0.9	-0.993	56	22.1	23	-0.962	-3.79	.085

4.7   conclusion:

This chapter analyses the findings that obtained by conducting this study among employees in Faruq medical city in Kurdistan region. The study shows the relationship between artificial intelligence and digital marketing among employees by doing correlation test. Beside that this study also investigates the level of artificial intelligence and digital marketing by using descriptive statistics. Furthermore, in this chapter reliability and validity tests are achieved. Finally, T-Independent test is used to address the difference among male and female.

CHAPTER 5

DISCUSSION, CONCLUSIO AND RECOMMENDATION

5.1 Introduction

This chapter details the study's accomplishments, findings, and implications. The results are discussed in section 5.2, and the research accomplishments are discussed in sections 5.3 in three subsections: 5.2.1 First Research Objective, 5.2.2 Second Research Objective, and 5.2.3 Third Research Objective. The limitations of this study are explained in section 5.3 after that. The study's recommendations are discussed in section 5.4. The conclusion of chapter 5 is covered in section 5.5.

5.2 Statistical Analysis

This survey had already distributed 171 questionnaires to the respondents and only 150 questionnaires were accepted and all data collected are primary data. the primary is selected from the employees in (FMC). the survey consists of 56 male respondents (37.3 percent) and 94 female respondents (62.7 percent). The result also indicated the most respondents age is between (38 to 44) with frequency 38 respondents (25.3 percent), (32 to 37) with frequency 36 respondents (36 percent), (20 to 25) with frequency 32 respondents (21.3 percent), (26 to 31) with frequency 26 respondents (17.3), and (45 or above 45) with frequency 18 respondents (12.0 percent). And for work state section results illustrate that101 respondents (67.3 percent) are working fulltime and 49 of respondents (32.7 percent) are working part time. Also, for the educational level section 49 of respondents (32.7 percent) has Master degree, 44 of respondents (29.3) has Bachelor's degree, 30 About the educational level, of respondents (20 percent) has Ph.D. or higher and 27 of respondents (18 percent) has associate degree.

5.3 Discussion

This chapter presents the research achievements of this study according to research objectives. This research started with the question "What is the relationship between AI and digital marketing in Kurdistan?" second question is "What is the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC)?" last question is What are employees' perspectives in FMC toward AI between male and female?

5.3.1 First Objective: To understand the relationship between AI and digital marketing in Kurdistan.

The first objective of this study is to illustrate how digital marketing and artificial intelligence relate to the healthcare sector. AI is useful in digital marketing because it can evaluate vast amounts of data and forecast each customer's buying behavior, helping you better understand your target market. Therefore, based on the result there is positive and significant relationship between Artificial intelligence and digital marketing. Also, according to (Huang et al, 2021). Artificial intelligence (AI) in marketing is now gaining traction as a result of increasing processing power, declining computing costs, the accessibility of massive data, and the development of machine learning techniques and models.

5.3.2 Second Objective: To determine the level of AI used in healthcare sector in Kurdistan especially in Faruq Medical City (FMC).

According to the researcher's study of the data they collected in chapter four, Faruq Medical City employees in Sulaymaniyah have a moderate level of artificial intelligence. For a number of factors, the outcome for the independent variable artificial intelligence was modest. This can be attributed to the fact that the majority of employees have advanced degrees and sufficient understanding of artificial intelligence and why digital marketing in the healthcare industry is crucial.

Also, Artificial intelligence is the study of the reproduction of mental processes by computers, particularly computer systems. Among the specialized applications of AI are expert systems, NLP, speech recognition, and machine vision (Burns, 2022).   This Research focuses on the usage of AI in developing marketing and advertisement strategies in digital marketing especially in healthcare industry in Kurdistan. Therefore, AI is assumed to be the future most used technology that facilitates the needs and desires of individuals. Also, it is speculated that it maybe saves the planet because of its advanced facilitation tools, or there are some conspiracy theories that AI may overtake human tasks and lead to humanity's worst nightmare, which is AI controlling humanity. To examine the main score of employees of FMC in the usage of AI between male and female in their place.

Additionally, based on the results, artificial intelligence received the first question's highest mean score, 3.72, and its total mean score is 3.58. Furthermore, the level of DM received the highest mean score from the fourth question, which is (3.89) and 3.87 is the overall average score for digital marketing. The outcome demonstrates that digital marketing has a higher overall mean score than artificial intelligence.

5.3.3 Third Objective: **To determine the main score of employees of FMC in the usage of AI between male and female in their place**.

The final goal of this study is to compare the major score of artificial intelligence utilization between male and females in Faruq Medical City. An analysis of artificial intelligence's average score and its impact on the usage of AI was conducted in the Kurdistan Region, with a focus on male and female employees.

The study set out to understand how the use of artificial intelligence is impacted by gender-specific AI. Analyzing the mean score of AI in digital marketing revealed significant insights into the disparities in preferences and inclinations between male and female personnel. With a greater understanding of the role AI plays in shaping organizational digital marketing strategies, gender-specific targeted methodologies and tailored approaches may now be employed to successfully engage personnel in the

healthcare industry in Kurdistan. The outcome illustrates that the usage of AI between female is more than male.

5.4 Limitation for this study

This study significantly expands the body of information., yet there are still certain issues that need to be resolved. The primary focus of this study is on the relationship between artificial intelligence and digital marketing the healthcare industry in Sulaymaniyah. The influence on the private healthcare system is not sufficiently assessed.

Secondly, this study's focus is purely on the level of AI used in healthcare sector especially in Faruq Medical City (FMC) industry in Kurdistan, Iraq. It is important to note that every country has a different framework for the health care industry. Additionally, there isn't enough research on digital marketing and artificial intelligence in Kurdistan and Iraq. Also, it is necessary to carry out comparable research in another country or private sector.

Thirdly, this study compared how well male and female FMC employees employed AI in the jobs they held. Lastly, 150 employees of Faruq Medical City provided information for this study. This amount is suitable for this investigation, but larger samples yield better and more useful results.

5.5 Recommendation for this study

Based on the study's findings and their implications for the healthcare industry in the Kurdistan Region, a number of suggestions might be made. The healthcare sector must first consider incorporating AI technology into their marketing. Developing AI features or applications that provide employees the ability to interact with and perceive their products, providing a unique and immersive experience, can do this. Second, companies should spend in training employees about the benefits and applications of artificial intelligence in the healthcare field.

5.6 Conclusions

This study aims to fill a research gap by analyzing the effects of AI on digital marketing in the healthcare sector in the Kurdistan Region. Additionally, this study aims to explore how AI and digital marketing are related. However, there is a constructive interaction between AI and digital marketing. Correlation coefficient used to investigate the relationship between AI and digital marketing from the findings, there is a positive and significant relationship between AI and digital. Three objectives and three research questions were also proposed in this study. The objectives were likewise accomplished, and each question was appropriately addressed. The research question was asked by survey, and in accordance with the employees' responses, several tests were completed in chapter 4 that connected to artificial intelligence and digital marketing of this study as well as the demographics of the respondents; includes age gender, work state and educational level. Every finding is discussed and described in detail. Therefore, the result of this study helps the researcher to understand more about how AI may improve organizational digital marketing strategy in healthcare sector. The findings imply that using AI and organizational digital marketing strategy may have a favorable impact in health care sector.

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APPENDIX A

Questionnaire

Dear Respondents,

My name is Parasto Shorsh; I am a bachelor student of management technology in Qaiwan international university. I am conducting a study on the relationship between artificial intelligence and organization digital marketing strategy.

Please be aware that participation in this research is completely voluntary and that all information obtained from this questionnaire will be kept strictly private and confidential. All supplied information will be kept private and used just for research. Because of this, I would appreciate it if you would take a few minutes to complete this survey. None of the results will be divulged or published in a way that could be used to identify a specific individual.

- The questionnaire is divided in to three main sections:
- Section one: Demographic of Respondents.
- Section two: Artificial intelligence
- Section three: Digital Marketing

We respectfully request that you complete all questions to the best of your ability. Your cooperation and participation is highly appreciated. I wish you all the best in your future endeavors.

Researcher/ Student

Parasto shorsh Hussein

Qaiwan international university/ University technology Malisa

Supervisor
Dr. Abdulqadir Rohmee
Dr. Azmirul bin ashaari

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Email: psqiu190072@uniq.edu.iq or parasto.shorsh20@gmail.com

SECTION ONE: Demographic Data: Instruction: To indicate your responses, please check the box next to it with a (√).

1- Age

☐ 20-25

☐ 26-31

☐ 32-37

☐ 38-44

☐ 45 or above 45

2- Gender

☐ Male

☐ Female

3- Work state

☐ Part time

☐ Full time

4- Educational level

☐ Associate degree

☐ Bachelor's Degree

☐ Master's degree

☐ Ph.D. or higher

Section B: Artificial Intelligence: Instruction: To indicate your responses, please check the box next to it with a (√).

Strongly Disagree	Disagree	Moderate	Agree	Strongly Agree
1	2	3	4	5

No.	Statement	1	2	3	4	5
1	The usage of AI in my specialty could improve direct patient care.					
2	The application of AI in my filed could improve clinical decision making.					
3	The usage of AI has the potential to improve community health outcomes.					
4	The addition of AI will lower the financial costs associated with my work.					
5	I have received appropriate training to use AI in my work					
6	AI may assume some of my responsibilities as a healthcare worker.					
7	If Al technology makes a mistake, the healthcare professional bears complete accountability					
8	The introduction of Al will alter my future career as a healthcare professional.					

Section C: Digital Marketing: Instruction: To indicate your responses, please check the box next to it with a (√).

Strongly Disagree	Disagree	Moderate	Agree	Strongly Agree
1	2	3	4	5

No.	Statement	1	2	3	4	5
1	Digital marketing can boost a hospital's competitiveness.					
2	The use of digital marketing bolstered our strategic position.					
3	Digital marketing has greatly enhanced the hospital's revenue.					
4	Using digital marketing increases client satisfaction with our marketed offerings.					
5	Digital marketing allows for the rapid development and execution of advertising campaigns.					
6	Through digital marketing, the hospital gains more consumer loyalty than ever before.					

Thank you for cooperation

پرسیارنامە

وەڵامدەرەوەی ئازیز

ناوی من پاراستۆ شۆرش؛ خوێندکاری بە کالۆریۆسی بە ڕێوە بردنی تە کنە لۆژیام لە زانکۆی قە یوان نێوودە وڵە تی من لێکۆڵینەوەیەک ئەنجام دەدەم لەسەر پەیوەندی نێوان زیرەکی دەستکرد و ستراتیژی بازاڕکردنی دیجیتاڵی ڕێکخراو.

تکایە ئاگاداربە کە بەشداریکردن لەم توێژینەوەیەدا بەتەواوی خۆبەخشە و هەموو ئەو زانیارییانەی لەم پرسیارەوە بەدەست هاتوون بە تەواوی تایبەت و نهێنی دەهێڵرێنەوە. هەموو زانیارییە پێشکەشکراوەکان بە تایبەت دەهێڵرێنەوە و تەنها بۆ توێژینەوە بەکاردەهێنرێن. لەبەر ئەوە، من سوپاسی دەکەم ئەگەر چەند خولەکێکی پێبچێت بۆ تەواوکردنی ئەم لێکۆڵینەوەیە. هیچ کام لە ئەنجامەکان ئاشکرا ناکرێت یان بڵاو ناکرێتەوە بە شێوەیەک کە بتوانرێت بەکاربهێنرێت بۆ ناسینەوەی کەسێکی دیاریکراو.

- ئەم ڕاپرسییە لە سێ بەشی سەرەکیدا دابەش کراوە:
- بەشی یەکەم: دیمۆگرافیای بەشداربووان.
- بەشی دووەم: زیرەکی دەستکرد
- بەشی سێیەم : دیجیتاڵ مارکێتینگ

ئێمە بە ڕێزەوە داوا لە ئێوە دەکەین کە هەموو پرسیارەکانتان بە باشترین شێوە پر بکەنەوە. هاوکاری و بەشداریتان زۆر بەرز دەنرخێنین. هیوای باشترینتان بۆ دەخوازم لە هەوڵەکانی داهاتووتان.

توێژەر / خوێندکار

پە رستۆ شۆرش حسێن

زانکۆی قە یوان نێوودە وڵە تی / زانکۆی تە کنە لۆژیای مالسیە

چاودێر
دکتۆر عە بدولقادر ڕووحی
دکتۆر ئە زمیرول بن عەهشیاری

بەشی یەکەم: داتای دیمۆگرافی: ڕێنمایی: بۆ نیشاندانی وەڵامەکانت، تکایە سندوقی تەنیشتی پێشکنە لەگەڵ (√).

تەمەن -5

- ☐ 20-25
- ☐ 26-31
- ☐ 32-37
- ☐ 38-44
- ☐ ۴۵ ۴۵ یان سەروو

6- ڕەگەز

- ☐ نێر
- ☐ مێ

7- دۆخی کار

- ☐ کاتی بەش
- ☐ کاتی تەواو

8- ئاستی خوێندن

- ☐ پلەی هاوبەش
- ☐ بڕوانامەی بەکالۆریۆس
- ☐ بڕوانامەی ماستەر
- ☐ دکتۆرا یان بەرزتر

بەشی B: لەگەڵ تەنیشتی پێشکنە سندوقی تکایە، وەڵامەکانت نیشاندانی بۆ رێنمایی: **زیرەکی دەستکرد**)√(.

بە توندی ناڕازین	ناڕازی	مامناوەند	ڕازیبوون	بە توندی هاورا
1	2	3	4	5

ژ.ئەخێر	لێدوان	1	2	3	4	5
1	بەکارهێنانی زیرەکی لە پسپۆڕرییەکەمدا دەتوانێت چاودێری ڕاستەوخۆی نەخۆش باشتر بکات.					
2	بەکارهێنانی AI دەتوانێت بڕیاری کلینیکی باشتر بکات لە تۆمارەکەمدا.					
3	بەکارهێنانی ئای ئی توانای باشترکردنی ئەنجامەکانی تەندروستی کۆمەڵگای هەیە.					
4	زیادکردنی ئای ئی تێچووی دارایی پەیوەست بە کارەکەم کەم دەکاتەوە.					

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5	ڕاهێنانی گونجاوم وەرگرتووە بۆ بەکارهێنانی زیرەکی دەستکرد لە کارەکەمدا					
6	لەوانەیە هەندێک لە بەرپرسیارێتییەکانی من وەک کارمەندی تەندروستی بگرێتە ئەستۆ.					
7	ئەگەر تەکنەلۆژیای ئەل هەڵەیەک بکات، پسپۆرانی چاودێری تەندروستی بەرپرسیارێتی تەواویان هەیە					
8	بەڕێوەبەرایەتی تەندروستی سلێمانی ڕایدەگەیەنێت، پیشەی داهاتووم وەک پسپۆرێکی تەندروستی دەگۆڕێت.					

بە توندی ناڕازین	ناڕازی	مامناوەند	ڕازیبوون	بە توندی هاوڕا
1	2	3	4	5

نەخێر.	لێدوان	1	2	3	4	5
1	بازاڕکردنی دیجیتاڵ دەتوانێت کێبەرکێی نەخۆشخانە زیاد بکات					
2	بەکارهێنانی دیجیتاڵ مارکێتینگ پێگەی ستراتیژی ئێمەی بەهێزتر کرد.					
3	بازاڕکردنی دیجیتاڵ داهاتی نەخۆشخانەکەی بە شێوەیەکی بەرچاو زیاد کردووە.					
4	بەکارهێنانی بازاڕکردنی دیجیتاڵ ڕازیبوونی کڕیار زیاد دەکات لەگەڵ پێشکەشکردنی بازاڕکراومان.					
5	بازاڕکردنی دیجیتاڵی ڕێگە بە خێرا گەشەپێدان و جێبەجێکردنی هەڵمەتی ڕیکلام دەدات.					
6	لە ڕێگەی بازاڕکردنی دیجیتاڵەوە، نەخۆشخانەکە لە هەموو کاتێک زیاتر دڵسۆزی بەکاربەر دەست دەکەوێت.					

Any suggestion or comments, please indicate below.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

THANK YOU VERY MUCH FOR YOUR TIME AND EFFOR

THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND ORGANIZATIONS DIGITAL MARKETING STRATEGY IN HEALTHCARE SECTOR

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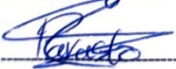
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Student Name: Parasto Shorsh Hussein

Department: Management Technology

Signature: Parasto

Date: 12 Aug. 2023

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I have examined the thesis of Mr. /Mrs. /Ms.: ....

I hereby confirm that all corrections and amendments made to the thesis have been rectified by the candidate.

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I declare that the contents presented in this thesis are my own which was done at Qaiwan International University unless stated otherwise. The thesis has not been previously submitted for any other degree.

I also declare that my thesis has been reviewed by the Main Supervisor / HoD / Dean / Faculty the comments are as stated in Section 2 (page 2).

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