Leveraging AI and Omnichannel Strategies for Enhanced Business Excellence in Saudi Pharmaceutical Industry

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Abstract: This study examines the impact of digital transformation on business excellence in the Saudi pharmaceutical industry, emphasizing the adoption of big data analytics and artificial intelligence (AI). With recent technological advancements, Saudi pharmaceutical firms have utilized AI to enhance revenue generation and customer satisfaction. Data was gathered from 200 responses via an online questionnaire distributed among five pharmaceutical companies and two technology providers, involving industry experts, executives, and technology suppliers. The findings indicate that integrating AI and Omnichannel applications not only boosts revenue and customer satisfaction but also streamlines operations and optimizes resource allocation through AI-driven personalization, predictive support, and seamless interactions across various channels. This approach allows for a comprehensive analysis of data to maximize sales, marketing effectiveness, and customer loyalty, ultimately enhancing profitability. The study highlights the practical implications of AI in improving operational outcomes and provides valuable insights for both researchers and practitioners on leveraging AI and Omnichannel strategies to elevate business performance. However, the research is limited to the context of Saudi pharmaceutical companies and considers specific ethical aspects, suggesting the scope for future studies to expand on these findings by incorporating additional variables and broader applications.

Keywords: digital transformation, artificial intelligence, revenue growth, customer satisfaction, marketing.

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الاستفادة من استراتيجيات الذكاء الاصطناعي والقنوات المتعددة لتعزيز التميز التجاري في صناعة الأدوية السعودية

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مستخلص البحث: تستكشف هذه الدراسة تأثير التحول الرقمي على التميز التجاري في صناعة الأدوية السعودية، مع التركيز على تبني تحليلات البيانات الكبيرة والذكاء الاصطناعي. مع التطورات التكنولوجية الأخيرة، استخدمت شركات الأدوية السعودية الذكاء الاصطناعي لتعزيز توليد الإيرادات ورضا العملاء. تم جمع البيانات من 200 استجابة عبر استبيان إلكتروني تم توزيعه على خمس شركات أدوية ومزودين اثنين للتكنولوجيا، بما في ذلك خبراء الصناعة والتنفيذيون وموردوا التكنولوجيا. تشير النتائج إلى أن دمج الذكاء الاصطناعي وتطبيقات الأومني تشانل لا يعزز الإيرادات ورضا العملاء فقط، بل يعمل أيضاً على تبسيط العمليات وتحسين تخصيص الموارد من خلال التخصيص الشخصي بناءً على الذكاء الاصطناعي، الدعم التنبؤي، والتفاعلات المتقاطعة السلسة. يسمح هذا النهج بتحليل شامل للبيانات لتعظيم المبيعات، فعالية التسويق وولاء العملاء، وفي النهاية تعزيز الربحية. تسلط الدراسة الضوء على الآثار العملية للذكاء الاصطناعي في تحسين النتائج التشغيلية وتقدم رؤى قيمة للباحثين والممارسين على حد سواء حول استغلال استراتيجيات الذكاء الاصطناعي والأومني تشانل لرفع أداء الأعمال. ومع ذلك، فإن البحث محدود بسياق شركات الأدوية السعودية ويأخذ في الاعتبار الجوانب الأخلاقية المحددة، مما يقترح إمكانية للدراسات المستقبلية لتوسيع هذه النتائج من خلال دمج متغيرات إضافية وتطبيقات أوسع

الكلمات المفتاحية: التحول الرقمي، الذكاء الاصطناعي، نمو الإيرادات، رضا العملاء، التسويق

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1. Introduction

The pharmaceutical industry has always been at the forefront of innovation, but the pace and impact of adopting digital technologies have differed (Chircu et al., 2017). This study aims to examine the impact of digital transformation, particularly through the use of big data analytics and artificial intelligence (AI), which is revolutionizing commercial excellence in the pharmaceutical industry.

In the recent history, drug development, marketing, and sales were dominated by traditional models. During the past few years, there has been a shift towards a more data-driven and personalized approach resulting from the advent of digital technologies. Several studies have shown that digital transformation can lead to improve efficiency, customer engagement, and to informe decision-making. Even though these technologies offer many benefits, a comprehensive analysis of how they affect profit margins and customer satisfaction in the pharmaceutical sector has not been conducted (Ievtushenko & Grynenko, 2023).

Furthermore, while there is literature on the general impact of digital technologies on business models and operations, these studies frequently do not address the unique challenges and opportunities of the pharmaceutical industry. In the pharmaceutical industry, there are several unique challenges to consider when it comes to digital transformation, including the complex nature of pharmaceutical products, the strict regulatory environment, and the critical nature of customer (patient) satisfaction (Vermeer & Thomas, 2020).

Currently, there is a noticeable gap in literature regarding the empirical studies which link digital technologies to customer satisfaction and financial performance. There have been few studies on the impact of digital transformation on revenue and customer satisfaction metrics (Liu et al., 2021).

To fill the gap, this study examines how big data analytics and artificial intelligence are shaping the future of commercial excellence in pharmaceutical companies. The direct correlation between digital transformation initiatives and key performance indicators such as profit and customer satisfaction are examined. It is expected that research conducted in this area would contribute to both academic knowledge and practical applications in the pharmaceutical industry.

1.1 Significance of the Study

The research demonstrates the effects of digital technologies on customers' lifestyles and how companies are affected by the increasing complexity of the market environment. Since all companies seek to achieve commercial success and increase profitability, which depend on many variables, including the extent to which artificial intelligence applications improve Omnichannel capabilities, increase revenues and customer convenience. Since many studies have addressed Omnichannel management, the primary goal of commerce is to improve customer experience. This research then addresses the issue of Omnichannel customer experience and explains how AI impacts Omnichannel and increases revenue and customer satisfaction.

1.2 Research Questions

The research problem is concerned with the under-explored impact of digital technologies, particularly big data analytics and artificial intelligence (AI), on commercial excellence in pharmaceutical companies with regards to sales, marketing, and supply chain. While these technologies are widely recognized as having potential, their direct influence on revenue, profit, and customer satisfaction remains unclear (Krendyukov & Nasy, 2020). The purpose of this study is to fill this gap by providing empirical insight into how digital transformation can benefit pharmaceutical companies in these key areas.

The research questions for this study are:

1. Does the adoption of AI technologies in pharmaceutical firms correlate with increased revenue and customer satisfaction?
2. Does the integration of an omnichannel approach in pharmaceutical firms correlate with enhanced revenue and customer satisfaction?
3. Is there a positive correlation between customer satisfaction and revenue in pharmaceutical companies?

2. Literature Review

In the pharmaceutical industry, digital transformation has ushered in an era in which artificial intelligence (AI) and big data analytics are becoming increasingly important to drive commercial success through innovative marketing, sales, patient engagement strategies, and increasing customer satisfaction. The literature review, therefore, focuses on how digital transformation to (AI), the extent of integration into business processes, and the Omnichannel experience can be integrated to reimagine the traditional practices, facilitating a deeper understanding of market dynamics, consumer behavior, and personalized patient care. The use of these technologies enables pharmaceutical companies to uncover insights that improve marketing campaigns, sales operations, and patient outcomes, thereby significantly impacting profitability and customer satisfaction.

The use of AI, the extent of integration into business processes, and the Omnichannel in digital marketing enables targeted marketing strategies that resonate with specific demographics and patient groups. According to Baviskar and Bedse (2023), AI algorithms can analyze a vast amount of data from social media, search engines, and online interactions to optimize marketing messages and channels. According to Marr (2021), AI-driven tools and big data analytics are instrumental in identifying potential sales leads, optimizing resource allocations, and predicting market trends in sales operations. Sales strategy with this level of precision maximizes efficiency and aligns product offerings more closely with market demands.

Aspects such as artificial intelligence (AI) and the extent of integration into business processes contribute significantly to the transformation of patient engagement. Pharmaceutical companies can personalize communication, offer tailored health solutions, and monitor patient adherence and outcomes by analyzing patient data and health information. In addition to enhancing patient experiences, pharmaceutical companies can foster a stronger relationship with their customers, resulting in increased loyalty and trust.

The purpose of this literature review is to illustrate how sales, profit, marketing, and customer satisfaction can be improved through the utilization of digital transformation by pharmaceutical companies. The capabilities of these technologies can enable companies to achieve competitive advantages, increasing efficiency, providing deeper insights, and improving customer satisfaction.

The purpose of this paper is to examine how digital technology, artificial intelligence (AI), integration into business processes, and the Omnichannel experience impacted the pharmaceutical company's success. Three independent variables are examined: AI, integration extent, and the Omnichannel experience, as well as their impact on three dependent outcomes: implementation success rate, revenue growth, and customer satisfaction scores. AI and big data analytics enhance commercial success and customer satisfaction by revolutionizing marketing, sales, and patient engagement. The article emphasizes the importance of integrating these technologies into business processes to maximize efficiency and align product offerings with market demands. Furthermore, it discusses the Omni-channel experience's role in delivering personalized

patient care and improving patient engagement. Using digital transformation in these areas can help pharmaceutical companies increase revenue, increase customer satisfaction, and improve implementation success.

2.1 Research Background and Saudi Pharmaceutical Market

A significant transformation is taking place in the pharmaceutical industry due to the advancement of digital technologies such as Artificial Intelligence (AI) and Big Data analytics. These innovations are fundamental for reshaping marketing, sales, and patient engagement strategies, resulting in better operational efficiency, customer satisfaction, and profitability for pharmaceutical companies. These technologies facilitate a deeper understanding of consumer behavior and market dynamics, resulting in more personalized and effective healthcare solutions (Baviskar et al., 2023).

Saudi Arabia's pharmaceutical market exemplifies these global trends, characterized by rapid growth and increased openness to digital innovation. In the Kingdom's Vision 2030, healthcare is emphasized as a key sector for development, with substantial investments in infrastructure, services, and digital health initiatives. Saudi Arabia is a promising market for AI, Big Data analytics, and the Omnichannel strategies due to this national agenda that has accelerated the adoption of digital technologies in the pharmaceutical sector. Saudi Arabia's uniqueness lies in its regulatory environment, consumer behavior, and government role in healthcare, all of which influence how digital transformation occurs there. For instance, the Saudi Food & Drug Authority (SFDA) has adopted regulations that facilitate the use of digital health solutions, encouraging pharmaceutical companies to integrate AI and digital technologies into their operations (Alsager, et al., 2015).

The Saudi pharmaceutical market is growing because of several factors, including an increased population, an increased prevalence of chronic diseases, and a growing emphasis on the quality and accessibility of health care. For pharmaceutical companies operating in the Kingdom, these dynamics present both opportunities and challenges, and at the same time necessitating innovative approaches to marketing, sales, and patient engagement. A digital transformation utilizing artificial intelligence and theOmnichannel strategies offer pharmaceutical companies in Saudi Arabia the opportunity to navigate this complex market effectively. Through the application of artificial intelligence, companies can gain insight into consumer behavior and preferences, optimize their marketing strategies, and enhance patient engagement through personalized healthcare services. The Omnichannel approach, on the other hand, allows for seamless customer experiences across digital and physical touchpoints, catering to the unique needs and expectations of the Saudi population (Alasiri & Mohammed, 2022).

2.2 Introduction to Digital Transformation in the Pharmaceutical Industry

Throughout the pharmaceutical industry, digital transformation has been both gradual and revolutionary, reflecting the broader technological advancements and changing healthcare demands. In the late 20th century, industries began digitizing through the integration of information technology (IT) and automation systems (Hole et al., 2021). A foundational digital infrastructure was built during this era, which focused on enhancing efficiency and productivity in research and development (R&D), manufacturing, and data management.

In the new millennium, the advent of the internet and digital communication tools marked the beginning of a transformational period for the pharmaceutical industry (Bauer, 2012). Digital platforms have enabled companies to

manage clinical trials more efficiently, utilize electronic health records (EHRs), and improve stakeholder communication (Dockendorf et al., 2021). In this phase, digital marketing was also introduced within the pharmaceutical industry, initiating a shift towards online engagement with healthcare professionals and patients.

A new era of drug development and market analysis was ushered in by the emergence of big data and advanced analytics during the 2010s, with the ability to process and analyze extensive datasets, pharmaceutical companies could refine their R&D efforts, enhance patient stratification in clinical trials, and gain a deeper understanding of the market. During this period, it has also been highlighted that digital health solutions, such as mobile health apps and wearable devices, are becoming increasingly important for monitoring health and medication effectiveness (Ahmad & Van Looy, 2020).

Artificial intelligence (AI) and machine learning (ML) are currently being explored across several domains, from drug discovery to supply chain optimization and patient engagement. Artificial intelligence and machine learning are not only improving drug discovery but also enabling integrated digital ecosystems. To facilitate data sharing, collaboration, and healthcare delivery, these ecosystems connect patients, healthcare providers, and other stakeholders through seamless digital platforms (Kulkov, I, 2021).

Furthermore, digital therapeutics and personalized medicine are facilitating patient engagement and adherence in the ongoing digital transformation (Kuwabara, A., Su, S., & Krauss, J, 2020). The pandemic of COVID-19 has accelerated this trend, emphasizing the role that digital channels can play in remote patient monitoring, telehealth, and conducting virtual clinical trials (Dabla et al., 2021).

Artificial intelligence (AI) and machine learning (ML) integration in the pharmaceutical industry will drive significant growth and revenue by optimizing operations and enhancing decision-making. By sifting through and interpreting complex datasets rapidly, AI enables more precise market insights and patient needs forecasting, resulting in more personalized customer engagement strategies. Through this technological leap, we will not only streamline research and improve operational efficiencies but also boost customer satisfaction by providing tailor-made healthcare solutions and improving patient outcomes. The pharmaceutical sector is expected to undergo a noteworthy transformation as regulatory frameworks adapt to these innovations, resulting in competitive advantage, market growth, and improved customer loyalty.

The digital transformation of the pharmaceutical industry is a multifaceted and ongoing journey, shaped by the relentless pace of technological innovation and the shifting landscapes of healthcare needs and regulatory environments. This evolution reflects the industry's ongoing commitment to harnessing digital technologies in improving health outcomes and patient care, from the first steps towards digitization to the current exploration of AI, ML, and digital ecosystems.

2.3 Early Adoption of Digital Technologies in Commercial Pharmaceutical Companies

In the pharmaceutical companies, early adoption of digital technologies has been a focal point of industry transformation. Digital technologies have increasingly been used by pharmaceutical companies to improve engagement with healthcare professionals (HCPs), improve patient outreach, and optimize sales and marketing. Pharmaceutical marketing and sales have been significantly impacted by the integration of digital tools such as CRM systems, analytics, social media platforms, and mobile applications (Demirel, 2022).

Healthcare communication has undergone a fundamental shift, with traditional face-to-face interactions increasingly supplemented or replaced by digital channels. A global event like COVID-19 accelerated this transition, making

remote engagement strategies necessary (Chiplunkar et al., 2020). In periods when physical access was limited or impossible, companies that had invested in digital platforms were able to quickly adapt to these changes, maintaining or even enhancing their engagement with HCPs and consumers.

Pharmaceutical companies have gained a deeper understanding of customer behavior, preferences, and needs through the use of data analytics and artificial intelligence (AI). As a result of this data-driven approach, marketing campaigns are more personalized and targeted, improving the efficiency of sales operations and the effectiveness of marketing campaigns (Kulkov, 2021). The use of digital platforms has also allowed patients and HCPs to engage directly with educational content, product information, and experience services, thus improving the overall customer experience.

Despite all its values, the early adoption of digital technologies also creates some challenges. As the pharmaceutical companies handle sensitive health information, regulatory compliance, data privacy, and security remain paramount. A digital divide between different regions and demographics can also affect the reach and effectiveness of digital sales and marketing efforts.

2.4 The role of artificial intelligence in business transformation in pharmaceutical companies

In the realm of business productivity, Artificial Intelligence (AI) emerges as a pivotal enhancer, purportedly capable of amplifying efficiency by up to 40% (Jada & Mayayise, 2024). However, the implications of AI — including technologies such as ChatGPT — on the productivity landscape amid digital transformation remain veiled in ambiguity. A foundational understanding of digital transformation within the AI milieu is deemed imperative for the corporate sector before navigating future implications. Greenway et al. (2021) elucidates that digital transformation encapsulates the integration of the internet era's culture, practices, business models, and technologies aimed at elevating productivity and quality expectations. This transformation journey, when executed adeptly, affords organizations the leverage to streamline, economize, and enhance their product and service offerings, thereby ensuring operational efficacy in the digital dominion.

Current research delineates that a considerable proportion of enterprises, 77% to be exact, are either deploying or scrutinizing AI technologies (IBM). Of this demography, 35% have already integrated AI within their operational frameworks, whereas 42% are in the exploratory phase, contemplating future incorporation. The utility of AI, particularly in tasks requiring heightened accuracy, efficiency, and productivity, is being recognized across the spectrum. For instance, AI's role in scheduling software is highlighted as a strategic tool in optimizing staffing management, thus curtailing time and resource expenditure (Dennison, 2023).

Moreover, the influence of digital transformation transcends through various sectors, notably in marketing, sales, and service domains across organizations. The principal objective within marketing realms is to enhance customer acquisition while minimizing financial outlays. The evolution of digital transformation now encompasses AI and ChatGPT, marking a significant milestone. AI is conceptualized as the computational intelligence that mirrors human cognitive abilities (Monjur et al., 2023). It spans a diverse array of technologies enabling machines to emulate human-like planning, action, and learning capabilities. The application of AI is extensive, promising transformative potential across all business functionalities.

Embracing Artificial Intelligence (AI) in business transformation signifies a pivotal shift in how pharmaceutical companies approach innovation, efficiency, and competitiveness. The pharmaceutical industry is undergoing

fundamental changes as AI technologies streamline drug discovery, enhance manufacturing processes, and optimize supply chain management. AI-driven predictive analytics, for example, are used to identify potential drug candidates faster and with higher accuracy than traditional methods, thus reducing R&D time and costs. The use of AI in clinical trials is also accelerating the time to market for new drugs by improving patient selection processes (Kantarcioglu & Ferrari, 2019).

2.5 The Effect of AI on Commercial Success and Revenue Growth

Pharmaceutical companies have found that applying Artificial Intelligence (AI) to their sales and marketing has been a significant driver of revenue growth. The use of AI technologies enhances the effectiveness of marketing strategies and sales operations, resulting in higher sales results (Arzikulov, 2021). The use of AI tools in marketing enables companies to identify trends, preferences, and patient behaviors, which allows them to tailor their marketing campaigns more effectively. Pharmaceutical firms can improve customer engagement and increase sales through predictive analytics by forecasting market demands, optimizing marketing efforts, and personalizing communications to specific segments (Bharskar et al., 2020).

Moreover, chatbots and virtual assistants powered by artificial intelligence are revolutionizing pharmaceutical customer service, offering personalized assistance and 24/7 support. The process of information-gathering for potential buyers is streamlined, which enhances customer satisfaction and boosts sales (Khan, 2020).

Using AI tools, sales representatives can automate routine tasks and focus on more strategic tasks. Additionally, AI algorithms can predict which healthcare providers are most likely to prescribe certain medications, which enables sales teams to target their efforts more effectively and efficiently, thus increasing sales success rates. The return on investment from implementing AI technologies is substantial, despite the upfront costs. As a result of embracing AI in sales and marketing strategies, companies report significant improvements in customer acquisition rates, retention rates, and revenue growth (Bandari, 2019). Hence, the hypothesis stated is:

Hypothesis 1 (H1): The utilization of Artificial Intelligence (AI) technologies in pharmaceutical companies positively correlates with Revenue Growth.

2.6 The effect of AI in improving service quality to increase customer satisfaction.

The advent of digital technology, especially artificial intelligence (AI), has had a significant impact on service quality and customer satisfaction across various industries. AI has been proven to enhance service delivery, personalize customer experiences, and improve overall satisfaction in recent studies. A study published by Huang & Rust (2021) asserts that artificial intelligence can automate routine tasks, allowing employees to focus on more complex, emotionally engaging activities (Huang, 2021). A similar approach is taken by Grewal et al. (2017) highlight the importance of artificial intelligence in retail environments, noting that personalized recommendations made by AI algorithms can enhance the shopping experience, resulting in greater customer satisfaction (Grewal et al., 2017).

Additionally, AI's ability to analyze vast amounts of data in real time has been identified as a key factor in predicting customer behavior and preferences, thereby making services more tailored. According to a study by Buhalis & Sinarta (2019), AI-driven data analytics contribute significantly to service innovation and customer engagement in the tourism industry, indicating that AI can effectively improve service quality and customer satisfaction in a variety of settings (Buhalis & Sinarta, 2019).

However, the integration of artificial intelligence into the delivery of services is not without its challenges. The potential for a loss of human touch in services, data privacy issues, and ethical use of artificial intelligence requires careful consideration (Chen et al., 2021). Although AI has challenges, overall evidence suggests that it contributes to customer satisfaction and service quality, providing new opportunities for businesses (Ameen et al., 2021).

In conclusion, the literature indicates a generally positive relationship between the use of digital technology like AI and improvements in service quality and customer satisfaction (Daqar et al., 2019). In this dynamic, AI plays a crucial role in automating processes, personalizing experiences, and analyzing customer data, indicating that digital technology will continue to enhance the way businesses interact with customers (Nguyen et al., 2022). Thus, the hypothesis stated is:

Hypothesis 3 (H3): The integration of Artificial Intelligence (AI) technologies in pharmaceutical companies positively correlates with Customer Satisfaction.

2.7 Integration into business processes

Businesses across various industries have become increasingly dependent on advanced technologies and innovative processes for revenue growth and competitive advantage. Artificial intelligence (AI), and the Internet of Things (IoT) have been shown to significantly enhance efficiency, reduce costs, and create new revenue streams when integrated into business processes. Additionally, Bharadwaj et al. (2013) indicates that businesses that digitize their operations are more likely to achieve higher revenue growth rates since process efficiency and customer engagement are improved (Bharadwaj, et al., 2013).

Digital technologies have helped transform business processes in the pharmaceutical industry, from research and development to marketing and sales. Drug discovery and development are increasingly utilizing digital platforms and artificial intelligence. Further, the use of big data analytics allows pharmaceutical companies to gain a deeper understanding of patient needs, enabling them to develop more targeted and effective marketing strategies. Using digital technologies in pharmaceutical operations increases operational efficiency and allows companies to meet market demands more effectively (Mithas et al., 2012).

Regulatory compliance, intellectual property rights, and managing complex global supply chains also affect the extent of technology integration in the pharmaceutical sector and its impact on revenue growth. In addition to data security concerns, ethical concerns around patient data, and the need for substantial upfront investments in technology infrastructure, the pace and success of integration efforts can be affected (Dwivedi et al., 2021).

2.8 Omnichannel Experience in Commercial Practices and Impact on Revenue and Customer Satisfaction

In modern commercial practices, the Omni-channel experience enhances customer satisfaction and boosts revenue by integrating diverse communication and sales channels (Lehrer & Trenz, 2022). Customers' loyalty and spending behaviors are significantly impacted by Omnichannel strategies that facilitate seamless transitions between online and offline touchpoints.

In the pharmaceutical sector, Omnichannel experience is particularly important due to the industry's stringent regulatory requirements and the requirement for credibility and trust. A combination of digital channels such as social media and mobile apps with traditional in-person interactions allows pharmaceutical companies to disseminate information more effectively, engage healthcare professionals and patients more effectively, and streamline the customer journey for pharmaceutical companies (Gevano & Yuliati, 2023). A holistic

approach to customer engagement leads not only to greater revenue growth but also to more satisfied customers (Kaiponen, T, 2021).

Pharma companies must carefully navigate challenges such as regulatory compliance, channel integration, and patient data privacy when implementing Omnichannel strategies. Despite these barriers, the literature indicates that Omnichannel experience plays a significant role in driving marketing and sales success, underscoring its potential to improve customer experiences and outcomes across both general business and specialized fields, such as pharmaceuticals. Therefor, the folowing hypotheses stated are:

Hypothesis 2 (H2): The implementation of Omnichannel Experience in pharmaceutical companies positively correlates with Revenue Growth.

Hypothesis 4 (H4): Adopting Omnichannel Experience in pharmaceutical companies positively correlates with Customer Satisfaction.

Hypothesis 5 (H5): Customer satisfaction positively correlates with revenue growth.

2.9 Theoretical Framework

Digital Transformation (DT), encompasses the integration of digital technologies to revolutionize organizational processes, business models, and customer experiences. In an era marked by Volatility, Uncertainty, Complexity, and Ambiguity (VUCA), organizations are compelled to embrace DT as a strategic response to the evolving landscape (Bennett, 2014). It involves three core dimensions: organizational reinvention, technological advancement, and social integration. By leveraging these dimensions, organizations can navigate VUCA challenges, capitalize on opportunities, and achieve sustainable growth.

To facilitate successful DT implementation, organizations must undertake digital readiness assessments and leverage digital maturity models (Bełz et al., 2018). These frameworks provide structured methodologies for evaluating current capabilities, identifying areas for improvement, and charting strategic roadmaps aligned with business objectives. By adopting a holistic approach to DT, organizations can thrive in the VUCA environment, driving innovation, agility, and competitive advantage in the digital age.

The integration of artificial intelligence (AI) and the Omnichannel experience within the context of DT is deemed paramount. Operational efficiency, customer engagement, and data-driven decision-making are affected by AI technologies, contributing to revenue growth and customer satisfaction. Similarly, seamless interactions across multiple touchpoints are enabled by the omnichannel experience, affecting customer experiences and loyalty, ultimately impacting revenue growth and customer satisfaction completely.

2.10 Conceptual Framework

The conceptual framework of this study focuses on the pivotal role of Artificial Intelligence (AI) and the Omnichannel Experience as key components of digital transformation within pharmaceutical companies, examining their impact on Revenue Growth and Customer Satisfaction. This framework is designed to elucidate how digital transformation through these specific avenues can optimize commercial success in the pharmaceutical industry.

Artificial Intelligence (AI) and the Omnichannel Experience are key technological strategies that directly contribute to enhanced business outcomes. By leveraging AI, companies can improve their predictive analytics and operational efficiency, leading to more effective market strategies and customer service enhancements. This, in turn, will affect revenue growth and customer satisfaction. Similarly, the integration of the Omni-channel experience ensures a seamless and consistent customer experience across various communication channels, which will further affect customer satisfaction and revenue growth, see Figure 1.

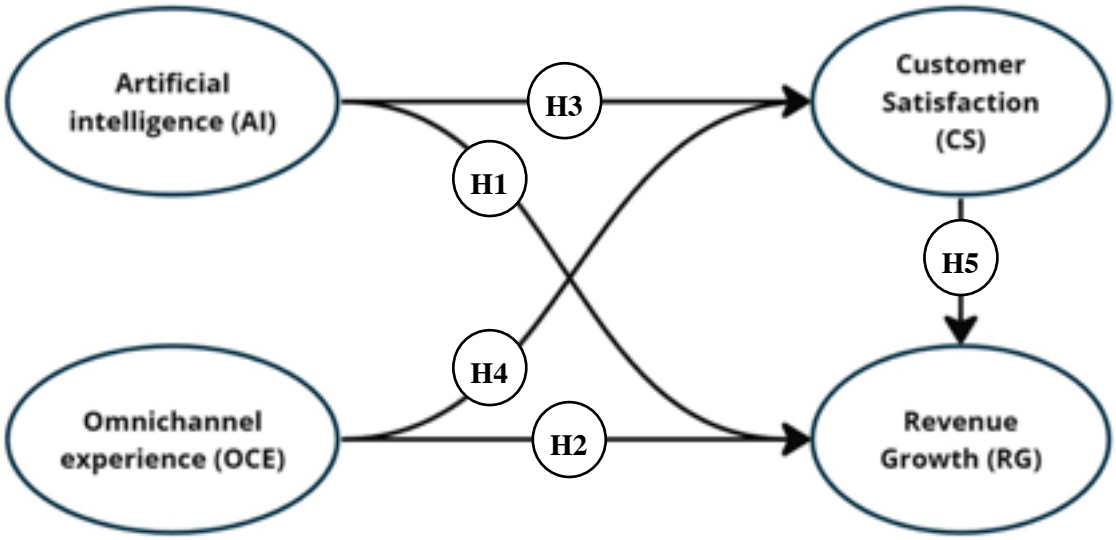

Figure (1) Research Framework

2.10.1 Independent variables:

Artificial Intelligence (AI): This represents the use of AI technologies to enhance predictive analytics for market trends, forecasting, and enhancing commercial practices.

Omnichannel Experience: Refers to the integration of various communication distribution channels (e.g., online platforms, experience channels) to provide a seamless customer experience across different touchpoints.

2.10.2 Dependent variables:

Revenue Growth: The increase in sales and market share are attributed to enhance efficiency and effectiveness in operations and marketing strategies facilitated by AI and the Omnichannel integration.

Customer Satisfaction: The enhanced satisfaction of customers, including patients, healthcare providers, and retailers, with the company's products and services due to personalized and seamless experiences enabled by AI and the Omnichannel experience.

3. Methodology

The research explores the optimization of commercial success in pharmaceutical companies through digital transformation (AI) and the omnichannel support, aiming to enhance revenue and customer satisfaction. Adopting a positivist approach, the study utilizes quantitative data collected from 200 stakeholders, including executives from five pharmaceutical and two technology companies in Saudi Arabia. Data is gathered via surveys distributed through electronic platforms and analyzed using SPSS to explore correlations between AI and the omnichannel integration and key performance indicators like revenue growth and customer satisfaction.

3.1 Questionnaire Development

In formulating the questionnaire, the alignment of each section with the research objectives and the facilitation of comprehensive data collection were intensively considered. The initial step involved the determination of the demographic profile of the respondents, with attention paid to understanding their background to contextualize their responses. Questions covering gender, age, education level, years of experience, functional degree, and the type of company they work for were included to gather demographic information, which will be invaluable in analyzing responses across different segments of the workforce in Saudi Arabia.

Moving on to the substantive sections of the questionnaire, the focus was placed on two key areas: AI application and Omnichannel experience, and revenue growth alongside customer satisfaction. Statements reflecting various dimensions of these topics were formulated, drawing from pertinent sources cited in the paper. Utilizing the Likert scale, respondents are prompted to indicate their level of agreement or disagreement with each statement, providing nuanced insights into their perceptions and experiences within their respective organizations.

Ensuring the reliability and validity of the questionnaire was deemed paramount. Questions were adapted from papers see Table (1) with a Cronbach's alpha score of over 0.7, signifying robust internal consistency reliability. Additionally, a bilingual approach was opted for, with questions presented in both Arabic and English, to accommodate respondents regardless of their language proficiency. The questionnaire was also designed to be brief, with an estimated completion time of no more than five minutes, minimizing respondent burden while maximizing participation rates.

Table (1) The Cronbach's alpha of the Variables with Resources

Variable	No of Items	Cronbach's alpha	Source
Artificial Intelligence Applications	8	0.745	Ahmed Shaikh et al. (2019)
Omni-Channel Experience	4	0.820	Wang & Jiang (2022)
Revenue Growth	6	0.930	Bouchr (2021)
Customer Satisfaction	4	0.960	Agag et al. (2024)

The questionnaire, developed in both Arabic and English, uses a five-point Likert scale to assess perceptions of AI applications and omnichannel experiences, ensuring validity with a high Cronbach's alpha score, which was over 0.7.

3.2 Reliability of the questionnaire:

The validity of the questionnaire is determined by evaluating the reliability of the questionnaire by calculating the Cronbach's alpha coefficient. This is required to make sure that the questionnaire items are appropriate for the research purpose and its questions. Cronbach's alpha coefficient was used to measure the reliability of the study in Table 2 as follows:

Table (2) Alpha Cronbach's Reliability Test

Variable	Abbreviation	Number of Items	Reliability
AI application	AI	8	0.725
Omni channel experience	OCE	4	0.820
Revenue Growth	RG	6	0.857
Customer Satisfaction	CS	4	0.881
General Total			0.910

The researcher reviewed the Cronbach's thousand index for the four sections of the questionnaire and found that the index for the AI application section reached 0.725, which is a high and acceptable index in statistical research. The index for the Omni channel experience section also reached 0.820, which is also a high and acceptable index. The Revenue Growth section had a percentage of 0.857, and the Customer Satisfaction index reached a percentage of 0.881, which is also a high and acceptable indicator. As for the Cronbach's index for the total questionnaire, it reached 0.910, and thus it becomes clear to the researcher that the data extracted from the questionnaire can be trusted and relied upon in statistical analysis and generalization of the research results (Mindrila, 2023).

3.3 Ethical issues

The questionnaire was designed based on previous studies looking at the same topic of research, and it was emphasized in the

introduction to the questionnaire that all data will be dealt with in a framework of strict confidentiality, and will only be used for scientific research purposes. Ethical considerations are strictly adhered to, emphasizing confidentiality and the voluntary nature of participation, with response bias noted as a potential limitation.

4. Results and Analysis

The research effectively utilized key statistical indicators to validate hypotheses about the impact of artificial intelligence (AI) and the Omnichannel experience on revenue growth and customer satisfaction in Saudi pharmaceutical companies. Employing Cronbach's alpha revealed a reliable data set, with scores above 0.7, enabling hypothesis testing. T-test results further supported the hypotheses, showing significant t-values exceeding the critical values with a significance level consistently below 0.05, indicating strong relationships between AI and Omnichannel applications and increased revenues and customer satisfaction. ANOVA results corroborated these findings, with calculated F-values greater than tabulated ones and p-values less than 0.05. The study confirmed the positive association of AI and Omnichannel strategies with revenue enhancement and customer satisfaction, agreeing with previous research by Lehrer & Trenz (2022), and Huang (2021), highlighting the transformative impact of these technologies in the pharmaceutical sector.

The questionnaire is structured into three main axes, exploring demographics, artificial intelligence applications and omnichannel experience (independent variables), revenue growth, and customer satisfaction (dependent).

4.1 Descriptive data

4.1.1 Demographic data:

The researcher will currently display the personal data of the research sample by displaying frequencies and percentages as follows:

Table (3) Statistics for All Demographic data

		Gender	Age	Education	Experience	Department	Kind Of Company
N	**Valid**	200	200	200	200	200	200
	Missing	0	0	0	0	0	0
Mean		1.22	2.25	2.31	1.90	6.27	1.63
Median		1.00	2.00	2.00	2.00	8.00	2.00
Mode		1	2	2	1	8	2
Std. Deviation		.412	.676	.611	1.014	3.242	.485

The sample size was 200 participants who worked in Saudi pharmaceutical companies, and by analyzing the demographic data by reviewing the indicators of central tendency for these data, it was found that with regard to the arithmetic mean, median, and mode, as well as the standard deviation, the questionnaire data is concentrated around its arithmetic mean, and therefore there is no relatively large standard deviation. This indicates that the data is not dispersed and is consistent with its arithmetic mean.

Looking at Figur (2) the presentation of gender data, it is noted that men made up 78.5% of the sample size, while the percentage of women reached 21.5%. This indicates the large size of men in the research sample, and that the reliance at work is on men more than women.

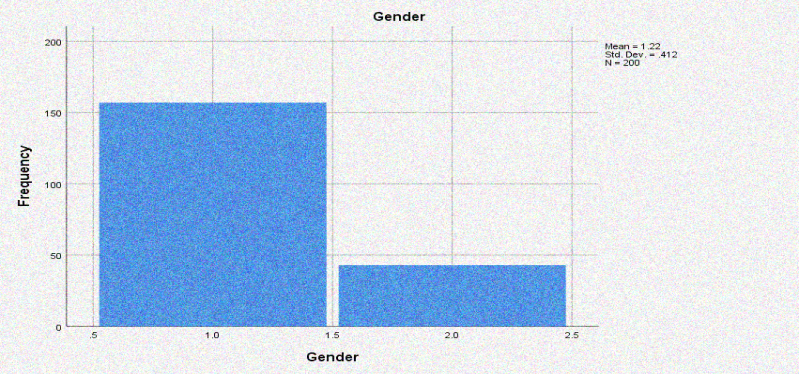

Figure (2) Gender

Figure (3) shows age data, approximately 68% of the sample size is in the age group from 25 years to 34 years, and this is the age of youth at which the volume of giving at work increases. The age group from 35 years to 44 years reached about 19% of the size of the sample. Then, followed by the group under 25 years old, which amounted to 7%, and finally the age group from 45 years to 54 years, about 7% as well, and there are no ages above this age in the sample size.

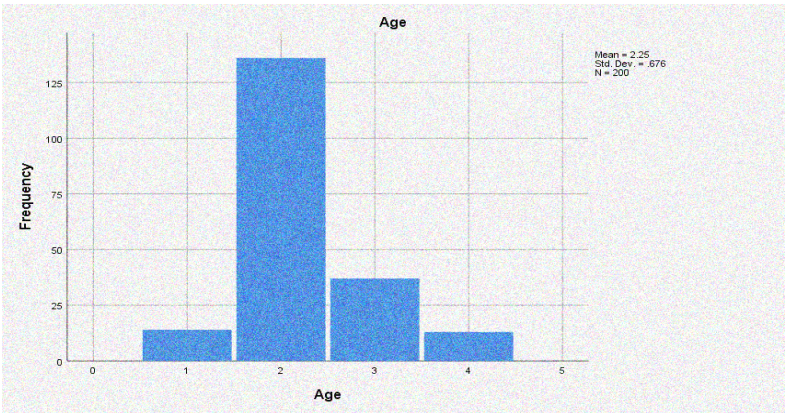

Figure (3) Age

Figure (4) presents the percentage of those holding a bachelor's degree was approximately 60% of the sample size, followed by those holding a master's degree at approximately 33%, then those with a high school diploma at 6%, and lastly those holding a doctorate at 2%.

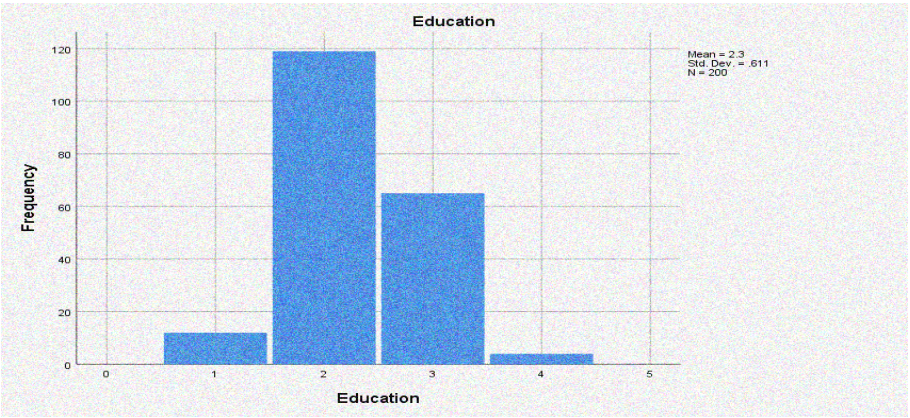

Figure (4) Education

As for experience, it is noted from Figure (5) that 46% have experience of less than 5 years, then 30% have experience of up to 10 years, 14% have experience of up to 15 years, and 11% have experience of more than 16 years.

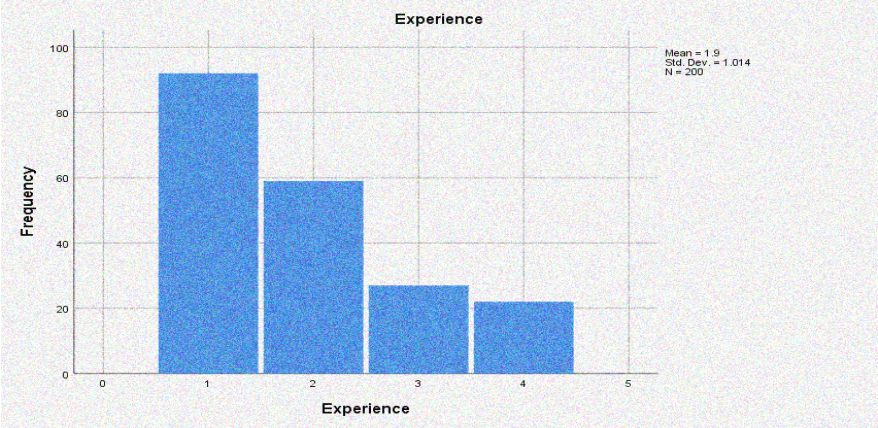

Figure (5) Experience

4.1.2 Independent Variables

Table (4) Frequencies & Percentages of the Independent Variables

	Frequencies						Percentages					
Statement	SD	D	N	A	SA	Totl	SD	D	N	A	SA	Tot1
AAIA1	1	3	14	60	122	200	0.50	1.50	7.00	30.00	61.00	**100%**
AAIA2	0	4	12	56	128	200	0.00	2.00	6.00	28.00	64.00	**100%**
AAIA3	2	3	32	71	92	200	1.00	1.50	16.00	35.50	46.00	**100%**
AAIA4	5	13	32	54	96	200	2.50	6.50	16.00	27.00	48.00	**100%**
AAIA5	4	1	25	67	103	200	2.00%	0.50%	12.50%	33.50%	51.50%	**100%**
AAIA6	0	2	8	43	147	200	0.00%	1.00%	4.00%	21.50%	73.50%	**100%**
AAIA7	2	7	26	73	92	200	1.00%	3.50%	13.00%	36.50%	46.00%	**100%**
AAIA8	0	7	29	71	93	200	0.00%	3.50%	14.50%	35.50%	46.50%	**100%**
AOS1	0	11	54	75	60	200	0.00%	5.50%	27.00%	37.50%	30.00%	**100%**
AOS2	2	6	51	81	60	200	1.00%	3.00%	25.50%	40.50%	30.00%	**100%**
AOS3	0	1	31	80	88	200	0.00%	0.50%	15.50%	40.00%	44.00%	**100%**
AOS4	0	2	31	97	70	200	0.00%	1.00%	15.50%	48.50%	35.00%	**100%**

In Table (4), the researcher reviewed the statements of the second axis, which concerns the independent variables in this research, by displaying the frequencies and percentages for each of these statements. It became clear from the answers of the participants in the questionnaire that there is clear agreement with most of the statements of this axis.

4.1.3 Dependent Variables

Table (5) Frequencies & Percentages of the Dependent Variables

	Frequencies						Percentages					
Statement	SD	D	N	A	SA	Tot1	SD	D	N	A	SA	Tot2
BRG1	4	7	68	70	51	200	2.00	3.50	34.00	35.00	25.50	**100%**
BRG2	3	9	52	75	61	200	1.50	4.50	26.00	37.50	30.50	**100%**
BRG3	1	9	26	93	71	200	0.50	4.50	13.00	46.50	35.50	**100%**
BRG4	1	3	35	94	67	200	0.50	1.50	17.50	47.00	33.50	**100%**
BRG5	2	3	43	93	59	200	1.00%	1.50%	21.50%	46.50%	29.50%	**100%**
BRG6	1	2	68	71	58	200	0.50%	1.00%	34.00%	35.50%	29.00%	**100%**
BCS1	0	3	17	84	96	200	0.00%	1.50%	8.50%	42.00%	48.00%	**100%**
BCS2	0	3	15	79	103	200	0.00%	1.50%	7.50%	39.50%	51.50%	**100%**
BCS3	2	5	16	76	101	200	1.00%	2.50%	8.00%	38.00%	50.50%	**100%**
BCS4	1	4	13	84	98	200	0.50%	2.00%	6.50%	42.00%	49.00%	**100%**

In Table (5), the researcher reviewed the statements of the third axis, which concerns the dependent variables in this research, by displaying the frequencies and percentages for each of these statements. It became clear from the answers of the participants in the questionnaire that there is clear agreement with most of the statements of this axis.

Table (6) ANOVA a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.908	1	26.908	101.924	.000b
	Residual	52.272	198	.264		
	Total	79.180	199			

a. Dependent Variable: T2

b. Predictors: (Constant), T1

Regarding Table (6), the p-value was 0.000, which means it is less than 0.05. Thus, it enhances the presence of the influence of the independent variable on the dependent variable.

Table (7) Coefficients a

Model B		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	1.544	.267		5.792	.000
	T1	.620	.061	.583	10.096	.000

a. Dependent Variable: T2

It was shown from Table (7) for the t-test for the questionnaire data that the value of the significance level reached 0.000, and this indicates that it is less than 0.05 (error coefficient) and thus confirms the existence of a relationship between the two variables.

Correlations

The correlation matrix indicates that there is a correlation between the average and the strong for all items, see appendix.

4.2 T-Test

The researcher presents one of the important statistical indicators that will be used to judge the validity of the research hypotheses, which is a t-test as follows: -

Table (8) One-Sample Statistics for the Independent Variables

	N	Mean	Std. Deviation	Std. Error Mean
AAIA1	200	4.50	.737	.052
AAIA2	200	4.54	.701	.050
AAIA3	200	4.24	.846	.060
AAIA4	200	4.12	1.057	.075
AAIA5	200	4.32	.861	.061
AAIA6	200	4.68	.601	.042
AAIA7	200	4.23	.878	.062
AAIA8	200	4.25	.831	.059
AOS1	200	3.92	.887	.063
AOS2	200	3.96	.876	.062
AOS3	200	4.28	.736	.052
AOS4	200	4.1750	.71900	.05084

Table (9) One-Sample Test for the Independent Variables

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
AAIA1	86.292	199	.000	4.495	4.39	4.60
AAIA2	91.642	199	.000	4.540	4.44	4.64
AAIA3	70.865	199	.000	4.240	4.12	4.36
AAIA4	55.054	199	.000	4.115	3.97	4.26
AAIA5	70.958	199	.000	4.320	4.20	4.44
AAIA6	110.011	199	.000	4.675	4.59	4.76
AAIA7	68.130	199	.000	4.230	4.11	4.35
AAIA8	72.307	199	.000	4.250	4.13	4.37
AOS1	62.469	199	.000	3.920	3.80	4.04
AOS2	63.873	199	.000	3.955	3.83	4.08
AOS3	82.114	199	.000	4.275	4.17	4.38
AOS4	82.119	199	.000	4.17500	4.0747	4.2753

It is clear from the previous tables (8 & 9) that the calculated T value is greater than the tabulated T value, and the significance level for all statements in this axis is equal to 0.000, which is less than 0.05.

Table (10) One-Sample Statistics for the Dependent Variables

	N	Mean	Std. Deviation	Std. Error Mean
BRG1	200	3.79	.934	.066
BRG2	200	3.91	.936	.066
BRG3	200	4.12	.836	.059
BRG4	200	4.12	.778	.055
BRG5	200	4.02	.814	.058
BRG6	200	3.92	.843	.060
BCS1	200	4.37	.703	.050
BCS2	200	4.41	.696	.049
BCS3	200	4.35	.812	.057
BCS4	200	4.37	.739	.052

Table (11) One-Sample Test

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
BRG1	57.285	199	.000	3.785	3.65	3.92
BRG2	59.070	199	.000	3.910	3.78	4.04
BRG3	69.686	199	.000	4.120	4.00	4.24
BRG4	74.831	199	.000	4.115	4.01	4.22
BRG5	69.825	199	.000	4.020	3.91	4.13
BRG6	65.646	199	.000	3.915	3.80	4.03
BCS1	87.807	199	.000	4.365	4.27	4.46
BCS2	89.616	199	.000	4.410	4.31	4.51
BCS3	75.679	199	.000	4.345	4.23	4.46
BCS4	83.650	199	.000	4.370	4.27	4.47

It is clear from the previous tables (10 & 11) that the calculated T value is greater than the tabulated T value, and the significance level for all statements in this axis is equal to 0.000, which is less than 0.05 (Mindrila, 2023).

4.3 One way

The researcher presents another statistical indicator that is also used to judge the validity of the research hypotheses, which is an ANOVA analysis as follows:

Table (12) ANOVA for the Independent Variables

		Sum of Squares	df	Mean Square	F	Sig.
AAIA1	Between Groups	13.517	2	6.759	14.093	.000
	Within Groups	94.478	197	.480		
	Total	107.995	199			
AAIA2	Between Groups	4.965	2	2.483	5.275	.006
	Within Groups	92.715	197	.471		
	Total	97.680	199			
AAIA3	Between Groups	16.296	2	8.148	12.721	.000
	Within Groups	126.184	197	.641		
	Total	142.480	199			
AAIA4	Between Groups	10.991	2	5.495	5.122	.007
	Within Groups	211.364	197	1.073		
	Total	222.355	199			
AAIA5	Between Groups	18.258	2	9.129	13.913	.000
	Within Groups	129.262	197	.656		
	Total	147.520	199			
AAIA6	Between Groups	5.537	2	2.769	8.222	.000
	Within Groups	66.338	197	.337		
	Total	71.875	199			
AAIA7	Between Groups	17.612	2	8.806	12.773	.000
	Within Groups	135.808	197	.689		
	Total	153.420	199			
AAIA8	Between Groups	32.586	2	16.293	30.594	.000
	Within Groups	104.914	197	.533		
	Total	137.500	199			
AOS1	Between Groups	32.058	2	16.029	25.330	.000
	Within Groups	124.662	197	.633		
	Total	156.720	199			
AOS2	Between Groups	38.094	2	19.047	32.771	.000
	Within Groups	114.501	197	.581		
	Total	152.595	199			
AOS3	Between Groups	30.883	2	15.442	39.510	.000
	Within Groups	76.992	197	.391		
	Total	107.875	199			
AOS4	Between Groups	32.405	2	16.202	45.293	.000
	Within Groups	70.470	197	.358		
	Total	102.875	199			

The data presented in Table (12) indicates that the calculated F value is greater than the tabulated F value, and the probability value for all expressions of this axis is equal to 0.000, meaning that it is less than 0.05.

Table (13) ANOVA for the Dependent Variables

		Sum of Squares	df	Mean Square	F	Sig.
BRG1	Between Groups	35.055	2	17.528	24.895	.000
	Within Groups	138.700	197	.704		
	Total	173.755	199			
BRG2	Between Groups	42.974	2	21.487	32.213	.000
	Within Groups	131.406	197	.667		
	Total	174.380	199			
BRG3	Between Groups	34.021	2	17.010	31.884	.000
	Within Groups	105.099	197	.533		
	Total	139.120	199			
BRG4	Between Groups	27.941	2	13.970	29.781	.000
	Within Groups	92.414	197	.469		
	Total	120.355	199			
BRG5	Between Groups	20.651	2	10.325	18.281	.000
	Within Groups	111.269	197	.565		
	Total	131.920	199			
BRG6	Between Groups	22.510	2	11.255	18.625	.000
	Within Groups	119.045	197	.604		
	Total	141.555	199			
BCS1	Between Groups	19.698	2	9.849	24.667	.000
	Within Groups	78.657	197	.399		
	Total	98.355	199			
BCS2	Between Groups	20.107	2	10.053	25.966	.000
	Within Groups	76.273	197	.387		
	Total	96.380	199			
BCS3	Between Groups	28.681	2	14.340	27.557	.000
	Within Groups	102.514	197	.520		
	Total	131.195	199			
BCS4	Between Groups	21.507	2	10.754	24.319	.000
	Within Groups	87.113	197	.442		
	Total	108.620	199			

The data presented in Table (13) indicates that the calculated F value is greater than the tabulated F value, and the probability value for all expressions of this axis is equal to 0.000, meaning that it is less than 0.05 (Mindrila, 2023).

5. Discussion and Conclusion

The study has found that the Cronbach's alpha index for the axes and sections of the questionnaire reached at least more than 0.7, and this indicates the possibility of the researcher relying on the data extracted from applying the questionnaire, and thus the possibility of testing the research hypotheses and generalizing the results as the study (Lehrer, C., & Trenz, 2022) mentioned.

The study also relied on the T-test indicator, which is one of the most important statistical tests used in scientific research to determine whether there are statistically significant differences between the averages of the sample to which it was applied. In this scenario, the

calculated T-value needs to exceed the tabulated T-value. Additionally, the significance level must be 0.05 or lower to confirm the existence of a relationship between the independent and dependent variables in this research.

If the calculated T value is less than the tabulated T value and the significance level exceeds 0.05, it indicates that there is no relationship between the independent and dependent variables in this research.

Taking into account the t-value for the axes and sections of the questionnaire—whether for the independent variable (artificial intelligence applications and omnichannel experience) or the dependent variable (revenue volume and customer satisfaction)—the calculated t-value is greater than the tabulated t-value. The significance level for all statements was 0.000, which is less than 0.05. This indicates a strong relationship between artificial intelligence applications and omnichannel experience, leading to increased revenues and customer satisfaction.

The researcher also relied on the ANOVA analysis indicator, which is one of the most important statistical tests used in scientific research to determine whether there are statistically significant differences between the averages of the sample to which it was applied. In this case, the calculated F-value must be greater than the tabulated F-value, as The P. value must less than or equal to 0.05 so that we can determine the existence of a relationship between the independent variable and the dependent variable in this research.

5.1 Hypothesis Testing

Table 14 Summary of Hypothesis Testing - Presents the path, P-value, and decision for each hypothesis tested.

Table (14) Hypothesis Testing

N	path	P. value	Decision
H1	AI → Revenue Growth	0.000	Accepted
H2	AI → Customer Satisfaction	0.000	Accepted
H3	Omni-Channel → Revenue Growth	0.000	Accepted
H4	Omni-Channel → Customer Satisfaction	0.000	Accepted
H5	Customer Satisfaction → Revenue Growth	0.000	Accepted

The value of Sig. (2-tailed) and value of P. value should be <= 0.05,

It has become clear from testing the hypotheses that there is a relationship between artificial intelligence applications and revenue growth, and there is also a relationship between the Omnichannel experience and revenue growth. It was confirmed that artificial intelligence applications affect customer satisfaction. It also became clear that there is a relationship between artificial intelligence applications and customer satisfaction, and it was confirmed that there is a relationship between Customer satisfaction and revenue growth, this is consistent with what was mentioned in a study (Huang, 2021).

The use of artificial intelligence (AI) technologies in pharmaceutical companies is positively associated with revenue growth." The results of this hypothesis indicated that the degree of employment of artificial intelligence in Saudi pharmaceutical companies, from the point of view of the research sample, was moderate. The reason for this may be that the concept of artificial intelligence is still in its infancy in terms of its use in the business environment in general and Saudi Arabia in particular. The result of this hypothesis agreed with the study (Tambare, Dingare, & Gaurihar,

2023), which indicated that the use of artificial intelligence applications clearly helps support the volume of revenues in companies.

The use of Omnichannel experience in pharmaceutical companies is positively associated with revenue growth. The results of this hypothesis indicated that there is a clear impact of Omnichannel experience on revenue growth. The result of this hypothesis agreed with the study (Lehrer, C., & Trenz, 2022), which indicated that Customer loyalty and spending behaviors are significantly influenced by Omnichannel strategies that facilitate a seamless transition between online and offline touchpoints.

The use of artificial intelligence (AI) technologies in pharmaceutical companies is positively associated with customer satisfaction." The results of this hypothesis indicated that there is a clear impact of artificial intelligence applications on increasing the degree of customer satisfaction. The result of this hypothesis agreed with the study (Huang, 2021) which indicated that artificial intelligence (AI) may boost overall happiness, tailor consumer experiences, and improve service delivery. Routine chores can be automated by AI, freeing up staff members to concentrate on more difficult and emotionally charged work.

The use of Omnichannel experience in pharmaceutical companies is positively associated with customer satisfaction. The results of this hypothesis indicated that there is a clear effect of the Omnichannel experience on increasing the degree of customer satisfaction. The result of this hypothesis agreed with the study (Lehrer, C., & Trenz, 2022), which indicated that in modern business practices, Omnichannel experience enhances customer satisfaction by integrating various communication and sales channels.

There is a statistically significant effect between customer satisfaction in enhancing revenues in pharmaceutical companies in Saudi Arabia." The results of this hypothesis indicated that there is a significant effect of the degree of customer satisfaction on increasing the company's revenues. The result of this hypothesis agreed with the study of Arzikulov (2021), which indicated that Pharmaceutical companies have found that applying artificial intelligence (AI) in their sales and marketing has been an important driver of revenue growth, as the use of AI technologies enhances the effectiveness of marketing strategies and sales processes, leading to higher sales results.

5.2 Conclusion and Ploicy Recommendations

There is a statistically significant effect between the use of artificial intelligence applications in enhancing revenues in pharmaceutical companies in Saudi Arabia. Also, there is a statistically significant effect between the Omnichannel experience in enhancing revenues in pharmaceutical companies in Saudi Arabia. In addition to this, there is a statistically significant effect between artificial intelligence applications in enhancing customer satisfaction in pharmaceutical companies in Saudi Arabia. Also, there is a statistically significant effect between the use of Omnichannel experience in enhancing customer satisfaction in pharmaceutical companies in Saudi Arabia. There is a statistically significant effect between customer satisfaction in enhancing revenues in pharmaceutical companies in Saudi Arabia.

Applying to pharmaceutical firms in Saudi Arabia, the following suggestions might be made in light of the research results to improve customer satisfaction and revenue growth:

1. Using intelligent technologies for program management and customer-management communication.

2. Helping clients from a distance with virtual reality and augmented reality technologies.
3. Employing artificial intelligence methodologies to scrutinize information and offer suggestions to clients.
4. Enhancing after-sales service procedures through the application of machine learning techniques.
5. Teaching staff members how to improve after-sales support through digital transformation strategies.
6. Setting up several avenues of contact with clients to address their questions and grievances.
7. Offering rewards to clients that communicate with after-sales support.
8. Evaluate and enhance after-sale service performance on an ongoing basis.
9. Pharmaceutical companies must adopt plans to increase the employment of artificial intelligence in the administrative field.
10. Pharmaceutical companies must adopt strategies to encourage employees to increasingly employ artificial intelligence in the management process and communicate with customers.
11. Establish incentives for employees to employ artificial intelligence in detailed areas that the employees themselves are more aware of than their managers.
12. Conducting further studies to develop the quality of performance of pharmaceutical companies, such as the difficulties facing the employment of artificial intelligence in the work environment, and the difficulties facing developing the quality of performance from the point of view of the members of the research sample.

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6. Appendix

Correlations																							
		AAIA1	AAIA2	AAIA3	AAIA4	AAIA5	AAIA6	AAIA7	AAIA8	AOS1	AOS2	AOS3	AOS4	BRG1	BRG2	BRG3	BRG4	BRG5	BRG6	BCS1	BCS2	BCS3	BCS4
AAIA1	**Pearson Correlation**	1	.230**	0.126	0.095	.228**	.230**	.242**	.240**	.302**	.276**	.340**	.431**	.235**	.275**	.181*	.219**	.172*	.230**	.286**	.263**	.350**	.220**
	Sig. (2-tailed)		0.001	0.075	0.179	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.011	0.002	0.015	0.001	0.000	0.000	0.000	0.002
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA2	**Pearson Correlation**	.230**	1	.188**	.335**	.213**	.385**	.322**	.334**	.361**	.297**	.410**	.607**	.338**	.328**	.256**	.205**	.141*	.308**	.318**	.296**	.323**	.338**
	Sig. (2-tailed)	0.001		0.008	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.046	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA3	**Pearson Correlation**	0.126	.188**	1	.390**	0.059	0.128	.219**	.197**	.206**	0.114	.185**	.361**	.188**	.269**	.247**	.172*	.220**	.166*	.161*	0.082	0.087	.220**
	Sig. (2-tailed)	0.075	0.008		0.000	0.406	0.070	0.002	0.005	0.003	0.108	0.009	0.000	0.008	0.000	0.000	0.015	0.002	0.019	0.023	0.246	0.222	0.002
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA4	**Pearson Correlation**	0.095	.335**	.390**	1	.212**	.314**	.309**	.323**	.372**	.193**	.226**	.529**	.260**	.254**	.373**	.206**	.169*	.288**	.275**	.344**	.255**	.348**
	Sig. (2-tailed)	0.179	0.000	0.000		0.003	0.000	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000	0.000	0.003	0.017	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA5	**Pearson Correlation**	.228**	.213**	0.059	.212**	1	.314**	.385**	.243**	.297**	.328**	.388**	.416**	0.135	.208**	.188**	.250**	0.134	.258**	.260**	.334**	.306**	.274**
	Sig. (2-tailed)	0.001	0.002	0.406	0.003		0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.056	0.003	0.008	0.000	0.059	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA6	**Pearson Correlation**	.230**	.385**	0.128	.314**	.314**	1	.472**	.340**	.353**	.376**	.469**	.533**	.349**	.332**	.248**	.176*	.257**	.262**	.289**	.262**	.224**	.339**
	Sig. (2-tailed)	0.001	0.000	0.070	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.001	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA7	**Pearson Correlation**	.242**	.322**	.219**	.309**	.385**	.472**	1	.341**	.423**	.372**	.406**	.581**	.423**	.390**	.360**	.275**	.303**	.350**	.395**	.400**	.331**	.484**
	Sig. (2-tailed)	0.001	0.000	0.002	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AAIA8	**Pearson Correlation**	.240**	.334**	.197**	.323**	.243**	.340**	.341**	1	.707**	.603**	.526**	.647**	.391**	.304**	.370**	.350**	.320**	.305**	.363**	.429**	.367**	.452**
	Sig. (2-tailed)	0.001	0.000	0.005	0.000	0.001	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AOS1	**Pearson Correlation**	.302**	.361**	.206**	.372**	.297**	.353**	.423**	.707**	1	.619**	.547**	.665**	.418**	.426**	.436**	.389**	.376**	.361**	.377**	.397**	.399**	.499**
	Sig. (2-tailed)	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AOS2	**Pearson Correlation**	.276**	.297**	0.114	.193**	.328**	.376**	.372**	.603**	.619**	1	.744**	.616**	.466**	.379**	.313**	.368**	.475**	.368**	.357**	.378**	.385**	.535**
	Sig. (2-tailed)	0.000	0.000	0.108	0.006	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AOS3	**Pearson Correlation**	.340**	.410**	.185**	.226**	.388**	.469**	.406**	.526**	.547**	.744**	1	.666**	.471**	.466**	.386**	.449**	.439**	.440**	.398**	.395**	.436**	.561**
	Sig. (2-tailed)	0.000	0.000	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
AOS4	**Pearson Correlation**	.431**	.607**	.361**	.529**	.416**	.533**	.581**	.647**	.665**	.616**	.666**	1	.492**	.495**	.480**	.383**	.393**	.447**	.455**	.462**	.445**	.583**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG1	**Pearson Correlation**	.235**	.338**	.188**	.260**	0.135	.349**	.423**	.391**	.418**	.466**	.471**	.492**	1	.566**	.408**	.484**	.480**	.340**	.296**	.292**	.339**	.653**
	Sig. (2-tailed)	0.001	0.000	0.008	0.000	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG2	**Pearson Correlation**	.275**	.328**	.269**	.254**	.208**	.332**	.390**	.304**	.426**	.379**	.466**	.495**	.566**	1	.605**	.484**	.499**	.532**	.416**	.346**	.383**	.714**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG3	**Pearson Correlation**	.181*	.256**	.247**	.373**	.188**	.248**	.360**	.370**	.436**	.313**	.386**	.480**	.408**	.605**	1	.528**	.436**	.419**	.442**	.446**	.319**	.637**
	Sig. (2-tailed)	0.011	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG4	**Pearson Correlation**	.219**	.205**	.172*	.206**	.250**	.176*	.275**	.350**	.389**	.368**	.449**	.383**	.484**	.484**	.528**	1	.566**	.259**	.331**	.316**	.397**	.647**
	Sig. (2-tailed)	0.002	0.004	0.015	0.003	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG5	**Pearson Correlation**	.172*	.141*	.220**	.169*	0.134	.257**	.303**	.320**	.376**	.475**	.439**	.393**	.480**	.499**	.436**	.566**	1	.315**	.299**	.271**	.244**	.629**
	Sig. (2-tailed)	0.015	0.046	0.002	0.017	0.059	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BRG6	**Pearson Correlation**	.230**	.308**	.166*	.288**	.258**	.262**	.350**	.305**	.361**	.368**	.440**	.447**	.340**	.532**	.419**	.259**	.315**	1	.720**	.615**	.551**	.642**
	Sig. (2-tailed)	0.001	0.000	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BCS1	**Pearson Correlation**	.286**	.318**	.161*	.275**	.260**	.289**	.395**	.363**	.377**	.357**	.398**	.455**	.296**	.416**	.442**	.331**	.299**	.720**	1	.780**	.593**	.673**
	Sig. (2-tailed)	0.000	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BCS2	**Pearson Correlation**	.263**	.296**	0.082	.344**	.334**	.262**	.400**	.429**	.397**	.378**	.395**	.462**	.292**	.346**	.446**	.316**	.271**	.615**	.780**	1	.657**	.623**
	Sig. (2-tailed)	0.000	0.000	0.246	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BCS3	**Pearson Correlation**	.350**	.323**	0.087	.255**	.306**	.224**	.331**	.367**	.399**	.385**	.436**	.445**	.339**	.383**	.319**	.397**	.244**	.551**	.593**	.657**	1	.576**
	Sig. (2-tailed)	0.000	0.000	0.222	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
BCS4	**Pearson Correlation**	.220**	.338**	.220**	.348**	.274**	.339**	.484**	.452**	.499**	.535**	.561**	.583**	.653**	.714**	.637**	.647**	.629**	.642**	.673**	.623**	.576**	1
	Sig. (2-tailed)	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
****. Correlation is significant at the 0.01 level (2-tailed).**																							
***. Correlation is significant at the 0.05 level (2-tailed).**																							