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The Future of Digital Marketing in Yemen Amidst AI Developments: A Theoretical Foresight Study

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Abstract: This foresight study explores the future of digital marketing in Yemen in light of the rapid global advancements in artificial intelligence. Employing a theoretical and analytical methodology, the study assesses the current situation through a SWOT analysis, revealing a young and growing digital base confronted by structural challenges such as weak infrastructure, a shortage of specialized skills, and difficult economic conditions. The study aims to bridge a knowledge gap concerning how the Yemeni market can leverage the potential of artificial intelligence such as campaign automation, hyper-personalization, and data analysis—despite these obstacles. Through an analysis of supporting and hindering factors, the study presents three potential future scenarios for the period (2025-2035): Slow Growth (under the continuation of the status quo), Accelerated Growth (with improved conditions and adoption of practical applications), and a Quantum Leap scenario (in the event of comprehensive stability and significant investment). It concludes that achieving any meaningful growth is contingent upon stability and investment in human capital and digital infrastructure. The study concludes by presenting a set of practical recommendations for decision-makers and business owners to harness these technologies in support of economic recovery and building digital competitiveness.

Keywords: Digital Marketing, Artificial Intelligence, Foresight Study, Yemen.

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1 Introduction

Digital marketing is a fundamental pillar of the modern global economy, and with the accelerating developments in Artificial Intelligence (AI), it is undergoing a radical transformation. In Yemen, which is experiencing exceptional circumstances, digital marketing emerges as a potential tool for economic recovery and development, despite the challenges. This study seeks to provide a foresight theoretical approach to explore the future, relying in its methodology on the latest international and local literature and studies. It focuses specifically on dissecting how the successive developments in artificial intelligence can shape the future of digital marketing in the Yemeni market. The study also aims to identify the supporting factors that can be built upon and analyze the obstacles that must be overcome, ultimately seeking to outline potential future scenarios ranging from pessimistic to optimistic, in order to establish a proactive roadmap. (Mansori Abdulwahab, 2025).

2. Literature Review:

- (Baswed Salem, 2025): This study aimed to understand artificial intelligence and assess the readiness and expected economic impacts in Yemen. It concluded that the severe weakness in utilizing AI applications is due to a number of political, economic, technical, financial, and human challenges that have negatively affected the technological infrastructure, leading to an environment unsuitable for the proliferation of artificial intelligence.
- (Nesrine Saidi et al., 2024): The study aimed to clarify the impact of artificial intelligence technologies on e-marketing. It concluded that AI technologies have a significant impact on e-marketing through various applications adopted by many brands.
- (Nikhil V P, 2025): This study aimed to explore the transformative impact of AI tools and technologies in the field of digital marketing, particularly in brand building and marketing strategies. It assesses the role of AI technologies such as chatbots, recommendation systems, predictive data analysis, and automation platforms in enhancing customer engagement and designing personalized marketing campaigns. The study found a growing acceptance and effectiveness of AI in enhancing customer engagement, improving marketing campaign performance, and boosting brand visibility.
- (Sanjeev Verma et al., 2020): This study aimed to highlight the importance of artificial intelligence in marketing and identify future research trends. It also provided a comprehensive review of the employment of AI in marketing, concluding that AI and data analysis play a crucial role in analyzing big data, contributing to predicting customer needs and providing personalized experiences that meet their expectations.
- (Selly Anastassia Amellia et al., 2024): This study aimed to explore the potential benefits of using artificial intelligence in the digital marketing strategies of Universitas Terbuka. The study covers areas such as content personalization, predictive analysis, sentiment analysis, and target customer segmentation using AI technologies in digital marketing. It concluded that the use of AI in digital marketing is a true revolution. It enables institutions to deliver highly personalized experiences, make data-driven strategic decisions, automate routine processes, and optimize marketing campaigns with a precision previously unattainable. As technology evolves, the role of AI in digital marketing will become increasingly important, granting the university new opportunities to connect with its customers (foresight and current students) and maintain its competitive edge in a constantly changing digital environment.
- (Thanga Kumar et al., 2024): This research study aims to highlight the current level of AI adoption, its short and long-term implications, and the ethical issues associated with its use by examining the complex relationship between artificial intelligence and marketing. The research primarily aims to assess the current use of AI in marketing by surveying marketing experts and identifying leading companies and sectors in this field. It also discusses the difficulties and obstacles that companies face when implementing AI. The study concluded that AI is revolutionizing the marketing sector and the ways marketers work. Thanks to AI tools and techniques, marketers can now personalize the user experience, automate tasks, and make more strategic, data-driven decisions. A key benefit of AI in this field is its ability to help marketers better understand their customers. Vast amounts of customer data, including demographics, purchase history, and online behaviors, can be analyzed using AI algorithms.
- (Jarungjit Tiatrakul et al., 2019): The study aimed to explore the role of artificial intelligence in the future of marketing, reviewing the most important trends in digital marketing and the role of AI within it. It concluded that AI is continuously evolving, giving digital marketing managers a better opportunity to understand their customers and build stronger relationships with them, which helps improve the quality of personal information available to them, thereby enhancing the shopping experience to better meet customer needs. The information provided by AI must be used correctly, which will contribute positively to improving the user experience.
- (Mansori Abdulwahab, 2025): This study aimed to explore the role of artificial intelligence in analyzing big data and providing personalized marketing experiences that enhance customer loyalty. It concluded that AI is a key driver of digital transformation, as it contributes to analyzing vast amounts of data and anticipating consumer needs with unprecedented accuracy. Through machine learning and sentiment analysis techniques, companies can now offer personalized marketing experiences that enhance customer loyalty and increase engagement and sales rates.

3. Problem Statement:

The world is witnessing a digital revolution driven by artificial intelligence, which has redefined marketing strategies through hyper-personalization, process automation, and real-time big data analysis. In Yemen, the economy suffers from severe challenges resulting from the ongoing conflict since 2015, including the collapse of infrastructure, limited access to finance, and a lack of employment opportunities.

Nevertheless, the Yemeni digital sector has shown remarkable resilience. According to the "We Are Social & Meltwater" report (January 2025), the number of mobile phone subscriptions in Yemen at the beginning of 2025 reached a total of 22.6 million, representing 54.9% of the total population. It is worth noting that some of these subscriptions may not include internet service and may be limited to call and text services only. At the beginning of 2025, the number of internet users in Yemen was 7.29 million, with a penetration rate of 17.7%. The number of social media users in Yemen in January 2025 was approximately 4.40 million, equivalent to 10.7% of the total population. This digital growth, despite the difficulties, opens a window of hope for adopting digital marketing as an effective and economical means of reaching customers. So, The research problem lies in the knowledge and practical gap concerning how the Yemeni market can benefit from the capabilities of artificial intelligence in digital marketing. This is compounded by the absence of comprehensive studies that link global developments in AI to the specific reality of Yemen, particularly in analyzing the factors affecting the adoption of these technologies and foreseeing their future. What are the prospects for applying AI marketing solutions in Yemen? What are the challenges and opportunities facing this trend? And how can the future of Yemeni digital marketing be shaped in light of this technological revolution?

4. Study Objectives:

1. To analyze the reality of digital marketing in Yemen using the SWOT model.
2. To track the latest developments in artificial intelligence and its innovative applications in digital marketing globally.
3. To identify the supporting factors, obstacles, and opportunities associated with adopting artificial intelligence in Yemeni digital marketing.
4. To build realistic future scenarios for the development path of digital marketing in Yemen under the influence of artificial intelligence.
5. To develop actionable theoretical and practical recommendations for decision-makers, small and medium-sized enterprises (SMEs), and marketers in Yemen.

5. Study Significance:

- Theoretical Significance: It fills a knowledge gap in Arabic literature on the impact of artificial intelligence on digital marketing and provides an analytical framework that can be applied to similar countries.
- Practical Significance: It offers a strategic vision for decision-makers in Yemen (government, private sector, international organizations) on how to leverage artificial intelligence to enhance marketing efficiency, create job opportunities, and support economic recovery.
- Significance for Practitioners: It provides marketers and business owners in Yemen with a deep understanding of the practical applications of AI in their field, the expected challenges, and ways to adopt them gradually and effectively.
- Futures Significance: It helps direct investments towards adopting modern technologies, thereby strengthening Yemen's position in the regional digital economy in the long term.

6. Study Scope:

- Thematic Scope: The study focuses solely on digital marketing without delving into the details of other sectors. It also concentrates on AI developments directly relevant to marketing (such as data analysis, personalization, content automation, chatbots, and sentiment analysis).
- Geographical Scope: The study is limited to the Yemeni market (Yemeni organizations).
- Temporal Scope: It reviews studies and data from 2020 to the first half of 2025. The future foresight covers the period up to 2035.

- Methodological Scope: The study relies on a descriptive-analytical and foresight theoretical approach (scenario building) and does not include quantitative or qualitative field research due to implementation difficulties in the current situation.

7. Study Methodology:

This study adopts the following methodology:

- Descriptive Method: To describe and analyze the reality of digital marketing in Yemen and the developments of artificial intelligence in marketing globally, based on secondary data.
- Analytical Method: To analyze supporting factors, obstacles, and opportunities using tools such as SWOT analysis.
- Foresight Theoretical Method (Scenario Planning): To construct potential future scenarios for the development trajectory of digital marketing in Yemen under the influence of artificial intelligence, based on an analysis of key drivers.

Data Sources: The study primarily relies on:

- Reliable international reports.
- Academic studies published in peer-reviewed scientific journals (Arabic and international) from databases.

8. Theoretical Framework:

8.1. Digital Marketing: Evolution and Core Concepts

Digital marketing is the use of digital channels to reach potential customers, build relationships with them, convert them into actual customers, and then retain them (Chaffey & Ellis-Chadwick, 2022). It has undergone a tremendous evolution from simple websites and early advertisements to a complex ecosystem that includes:

- Search Engine Optimization (SEO): Increasing a website's visibility in organic search results.
- Search Engine Marketing (SEM): Paid advertising in search results.
- Social Media Marketing (SMM): Building a brand and communicating with the audience through platforms like Facebook, Instagram, TikTok, and LinkedIn.
- Content Marketing: Creating and distributing valuable content (text, video, podcasts) to attract the target audience.
- Email Marketing: Direct and targeted communication with customers.
- Affiliate Marketing: Earning commissions by promoting others' products or services.
- Influencer Marketing: Collaborating with individuals who have influence over the target audience.

Recent Developments: Current evolution revolves around:

- Big Data: Collecting and analyzing vast amounts of data to accurately understand customer behavior.
- Conversational Marketing: Using chatbots and voice assistants for real-time interaction with customers.
- Hyper-Personalization: Customizing offers and content for each individual customer based on their data and behavior.
- Artificial Intelligence: It has become the primary driver for most of these recent developments.

8.2. The Artificial Intelligence Revolution in Global Marketing:

Artificial Intelligence (AI) is the "simulation of human intelligence processes by machines, especially computer systems" (Russell & Norvig, 2021). As noted by Amol Murgai (2018), AI is bringing about a true revolution in digital marketing through:

- Data Analysis and Prediction: Using Machine Learning algorithms to analyze big data (purchasing behavior, content interaction, demographic data, social media data) to predict customer needs, identify high-value potential customers, and forecast market trends with unprecedented accuracy.
- Marketing Automation: Automating repetitive tasks such as sending personalized emails, posting content on social media, managing advertising campaigns, and generating performance reports, which saves time and reduces errors.
- Content and Offer Personalization: Creating dynamic content tailored to each user based on their preferences and real-time behavior (e.g., product recommendations on Amazon, suggested YouTube videos).
- Chatbots & Virtual Assistants: Providing 24/7 customer service, answering common queries, assisting customers in the purchasing process, and collecting preliminary data. Tools like ChatGPT and Gemini are elevating the level of these interactions.
- Content Generation (Generative AI): Using Large Language Models like GPT-4 and Gemini to create ad copy, social media posts, emails, and even simple images and videos, significantly accelerating the content production process.

9. The Reality of Digital Marketing in Yemen: A SWOT Analysis:

Strengths:

- Growing Internet and Smartphone Penetration: As mentioned earlier, the internet penetration rate has reached 17.7%. Smartphone subscriptions (estimated at 54.9% of the total population) create a relatively large and growing digital user base (We Are Social, 2025).
- Youthful Population: Over 60% of the population is under the age of 25, the demographic most engaged with technology and digital platforms (UNDP Yemen, 2023).
- Relatively Low Entry Costs: Compared to traditional marketing (TV ads, print), starting a digital campaign (especially on social media) requires significantly less capital, which is suitable for SMEs and startups.
- Youth Resilience and Innovation: Young Yemeni entrepreneurs demonstrate resilience and an ability to innovate in using available digital platforms for marketing, especially in sectors like basic e-commerce, services, and creative content (field observation from reports on startups in Yemen).
- Prevalence of Social Media Platforms: Facebook, Instagram, TikTok, and WhatsApp are the most used channels, providing direct access points to consumers.

Weaknesses:

- Weak Digital Infrastructure: Frequent power outages, slow and unstable internet speeds, especially outside major cities, and limited network coverage in remote areas (ITU, 2023).
- Lack of Specialized Digital Skills: A scarcity of trained professionals in advanced digital marketing (SEO, SEM, Analytics), and almost non-existent expertise in applying AI in marketing.
- Limited E-payment Options: Difficulties in completing online financial transactions due to the limited prevalence of bank cards and reliable electronic banking services, which hinders actual e-commerce (Al-Junaid Sakhr et al., 2025).
- Low Trust in E-commerce: Consumer concerns about fraud, product quality, and delivery processes, especially in the absence of effective digital consumer protection systems.

Opportunities:

- Growth of E-commerce: The increasing demand for goods and services online, particularly in cities, represents a huge opportunity for digital marketing (Middle East E-commerce Growth Report, 2023).
- Relatively Low Advertising Costs: Advertising costs on platforms like Facebook and Instagram in Yemen are still low compared to neighboring countries, allowing for a wider reach with limited budgets.
- AI as an Enabler: The potential to use simple and accessible AI applications (such as basic chatbots, rudimentary content creation tools) to enhance digital marketing efficiency at a reasonable cost.

Threats:

- Unstable Current Situation: The continuation of the current conflict threatens economic stability, discourages investment (including in digital infrastructure and skills), and impedes commercial activity.
- Economic Crisis: The decline in citizens' purchasing power and high unemployment rates limit companies' ability to invest in marketing and reduce consumer spending.
- Regional and Global Competition: Yemeni companies may find it difficult to compete with regional and global brands that use advanced digital marketing tools and have large budgets.
- Widening Digital Divide: The risk of expanding the gap between urban areas (with better access) and rural areas, and between different social groups, which limits the inclusiveness of digital marketing.

10. Future Scenarios: A Foresight Analysis (2025-2035):

The following scenarios were developed using the Scenario Planning methodology, which focuses on identifying key drivers with high impact and exploring their future interactions to create plausible alternative futures. The key drivers identified are: macroeconomic performance, investment in digital infrastructure, development of digital human capital, availability of financing and investment in technology, maturation of digital policies and regulations, and the pace of global evolution in marketing AI.

Based on the interplay of these drivers, three main potential scenarios for the period (2025-2035) were constructed:

Scenario	Core Assumptions	Digital Marketing Landscape	Impact of Artificial Intelligence	Expected Outcomes
Scenario Slow Growth	• Continued, intermittent economic deterioration. • Very limited investment in digital infrastructure (except for minor improvements in major cities). • Severe skills shortage with very limited training. • Near-total absence of tech funding. • Complete lack of digital policies. • Global AI continues to advance, but its sophisticated applications remain out of reach.	• Confined to social media (Facebook, Instagram, TikTok) with simple ads and basic content. • Very limited use of AI tools, restricted to very simple chatbots for pre-programmed questions. • Use of free post-scheduling tools. • Very basic use of platform analytics (e.g., Facebook Insights) without deep analysis. • No real personalization of content or offers. • Very limited e-commerce due to payment, delivery, and trust issues. • Focus on reach rather than engagement or conversion.	• **Extremely Limited:** AI remains an "external" tool, practically inaccessible to most businesses due to cost, lack of skills, and poor infrastructure. Any use is superficial and has no significant impact on overall marketing performance.	• Widening digital divide. • Stagnation of digital marketing growth. • Difficulty in creating added value or significant competitive differentiation. • Continued dominance of large corporations able to import services.
Scenario Accelerated Growth	• Relative improvement in stability in most regions, allowing for some economic recovery. • Limited but targeted investments to improve digital infrastructure	• Significant expansion in the use of social media platforms with more targeted advertising using native platform tools. • Emergence of genuine e-commerce with limited but reliable e-payment solutions (e.g., local e-wallets). • Increased use of	• **Noticeable and Growing:** AI becomes a key enabler for startups and SMEs able to access and use it. It improves efficiency (cost reduction, time-saving) and allows for some personalization and enhanced customer experience. It contributes to a relatively rapid growth of the digital sector.	• Accelerated growth in the volume of digital marketing and e-commerce. • Creation of jobs in the digital sector. • Increased competitiveness of local companies. • Beginning to bridge the

Scenario	Core Assumptions	Digital Marketing Landscape	Impact of Artificial Intelligence	Expected Outcomes
	(especially electricity and internet in major cities). • Launch of intensive training programs (local and international) to build basic and intermediate digital skills. • Availability of limited funding (grants, soft loans) for digital startups. • Enactment of basic legislation for e-commerce and consumer protection. • Global AI development focuses on practical, user-friendly applications.	low-cost, cloud-based AI marketing tools. • Smarter chatbots for answering customer queries and providing guidance. • Use of marketing automation tools (email, social media) with initial personalization. • Use of basic sentiment analysis tools for brand monitoring. • Use of content generation tools (text, simple images) to speed up production. • Basic analysis of user behavior on websites and apps.		digital divide in urban areas.
Scenario The Quantum Leap	• Comprehensive stability and a strong economic recovery backed by massive investments. • Large-scale investments in advanced digital infrastructure (high-speed internet, 5G networks). • Comprehensive and advanced education and training programs in AI, data science, and digital marketing. • Significant inflow of local and foreign investment into the technology sector. • A modern, advanced regulatory framework that supports innovation and protects consumers and data. • Rapid global AI development providing advanced	• Full transition to a digital economy; e-commerce is the main channel for trade. • Widespread use of advanced app-based and website marketing. • Advanced and comprehensive use of AI in all aspects of marketing. • Hyper-Personalization: Real-time customized offers and content for each customer based on comprehensive data. • Intelligent Automation: Full automation of most marketing processes with high precision. • Advanced Chatbots & Virtual Assistants: Natural, human-like interactions, solving complex problems, and assisting with purchases. • Advanced Predictive Analytics: Accurate forecasting of market needs and customer behavior. • Advanced Content Generation: Production of innovative text, images, and videos using Generative AI. • Advanced Sentiment	• **Transformational and Radical:** AI is not just a tool but the core engine of marketing strategy. It creates immense value through maximum efficiency, exceptional customer experiences, continuous innovation, and global competitiveness. It positions Yemen as a regional player in the digital economy.	• A quantum leap for the Yemeni economy. • Yemen becomes a regional hub for technology and digital innovation. • Creation of a large number of high-value jobs. • Massive increase in digital and service exports. • Comprehensive bridging of the digital divide.

Scenario	Core Assumptions	Digital Marketing Landscape	Impact of Artificial Intelligence	Expected Outcomes
	and accessible solutions.	Analysis: Deep understanding of customer feelings towards the brand and products. • Emergence of leading Yemeni companies in FinTech and AI-based digital marketing.		

11. Discussion, Conclusions, and Recommendations:

11.1. Discussion of Scenarios

- **Scenario 1 (Slow Growth):** Represents the worst-case potential but is the most likely if the current situation persists without positive change. The long-term outcomes are not favorable, deepening the digital and economic divide.
- **Scenario 2 (Accelerated Growth):** Represents the most realistic and achievable scenario if proactive and well-considered actions are taken. It requires targeted investments, and its outcomes are positive and gradual.
- **Scenario 3 (The Quantum Leap):** Represents the best-case scenario but is the least likely in the short to medium term, as it requires a radical change in the political and economic situation and massive investments. It can serve as a long-term vision.

The most decisive factors in determining which scenario will prevail are political stability and investment in human capital (skills). Without improvement in these two areas, the first scenario remains the most probable.

11.2. Analytical Conclusions:

- Artificial intelligence is not a magic solution to the problems of Yemeni organizations; rather, it is a powerful tool that can enhance recovery if the basic conditions are met.
- The focus should be on practical, low-cost applications in the short and medium term (Scenario 2).
- Skill-building is the cornerstone for enabling any effective adoption of artificial intelligence.

11.3. Key Findings:

- Reality of Digital Marketing in Yemen: Characterized by a growing digital user base (especially youth) and the prevalence of social media, but suffers from severe infrastructural weaknesses, a critical shortage of specialized skills, limited e-payment options, and low trust in e-commerce.
- Factors Influencing AI Adoption in Yemen:
    - Drivers: Availability of low-cost cloud solutions, the urgent need to increase efficiency, a desire to improve customer experience, and the proliferation of smartphones.
    - Barriers: Weak digital infrastructure (electricity, internet), lack of AI and analytics skills, limited high-quality data, financial constraints, and resistance to change.
- Future Scenarios: Three scenarios were envisioned: Slow Growth (most likely without change), Accelerated Growth (most realistic with proactive measures), and A Quantum Leap (a long-term vision).
- Decisive Factors: Stability and investment in human capital are the two most critical factors that will shape the future trajectory.

11.4. Recommendations:

Theoretical Recommendations:

1. Develop a Contextual Framework: Develop a theoretical framework that connects technology adoption theories, digital marketing theories, and development theories in post-crisis contexts to understand the dynamics of AI adoption in fragile environments like Yemen.
2. Context-Specific Research: Future research should emphasize that the effectiveness of AI applications in marketing is critically dependent on the local social, economic, cultural, and technological context.
3. Redefine "Adoption" in Fragile Environments: The study suggests that "AI adoption" in fragile settings may not mean advanced implementation, but rather the strategic use of the simplest available applications to achieve maximum possible benefit under existing constraints.
4. Conduct Field Research: There is an urgent need for future field research (both quantitative and qualitative) to measure awareness of AI, identify practical obstacles, and assess the impact of simple applications on the performance of SMEs in Yemen.

Practical Recommendations:

A. For the Public Sector:

1. Supportive Regulatory Framework: Enact clear and modern legislation that regulates e-commerce, digital consumer protection, and personal data protection, while encouraging investment in technology without stifling innovation.
2. Infrastructure Investment: Allocate resources (domestic and international) to improve electricity networks (especially renewable energy) and enhance the quality, coverage, and speed of the internet, with a focus on rural and remote areas.
3. Education and Training Reform: Integrate basic and advanced digital skills (including programming fundamentals, data analysis, and digital marketing) into school curricula from early stages. Establish specialized, intensive training centers for youth and graduates in collaboration with the private sector.
4. Facilitate Financing: Create funding mechanisms or soft loan guarantee funds with favorable terms for technology and digital marketing SMEs and startups, focusing on practical AI applications.

B. For the Private Sector:

1. Invest in Skills: Allocate budgets for training current employees in basic digital skills and available digital marketing tools.
2. Start Simple: Do not shy away from experimenting with low-cost, cloud-based AI tools (e.g., basic chatbots, post schedulers, simple content creators) that solve a specific problem and save time or money.
3. Focus on Customer Experience: Use available tools, even if simple, to improve response speed and communication quality with customers to build trust.

C. For Academic and Research Institutions:

1. Develop Educational Programs: Create specializations and courses in digital marketing, data analysis, and applied AI in business.
2. Conduct Field Studies: Design and execute field studies to understand the challenges and opportunities of adopting digital marketing and AI in different sectors in Yemen.
3. Promote Awareness: Organize public seminars and lectures to raise awareness about the importance of digital marketing and AI for economic development.

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