Application of Artificial Intelligence in Digital Marketing Practices in Moroccan SMEs: A Systematic Literature Review

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Absract

This systematic literature review examines the application of Artificial Intelligence (AI) in digital marketing practices within Moroccan Small and Medium Enterprises (SMEs). Through PRISMA framework and a comprehensive search across multiple academic databases, 98 unique, indexed papers were identified and analyzed, with the top 30 most relevant studies forming the primary evidence base. The review reveals that while AI technologies—including machine learning, natural language processing, chatbots, predictive analytics, and generative AI—are increasingly transforming digital marketing globally, their adoption in Moroccan SMEs remains limited and faces significant contextual challenges. Key AI applications identified include customer personalization, content generation, social media marketing, predictive analytics, and automated customer service. The findings indicate that Moroccan SMEs encounter barriers related to resource constraints, digital infrastructure gaps, skills shortages, and cultural-linguistic considerations. However, emerging opportunities exist through mobile-first strategies, Arabic language AI tools, and government digitalization initiatives. This review provides a comprehensive synthesis of current knowledge, identifies critical research gaps, and offers strategic recommendations for practitioners, policymakers, and researchers interested in AI-driven digital marketing transformation in the Moroccan SME context.

Keywords: Artificial Intelligence, Digital Marketing, SMEs, Systematic Literature Review

INTRODUCTION

The convergence of artificial intelligence and digital marketing represents one of the most transformative developments in contemporary business practice. AI technologies are fundamentally reshaping how organizations understand, engage, and serve their customers in digital environments (Sundari, M. T., et al. 2025). For Small and Medium Enterprises (SMEs), which constitute the backbone of most economies globally, AI-driven digital marketing offers unprecedented opportunities to compete with larger enterprises through enhanced efficiency, personalization, and data-driven decision-making (Nianko, V., et al. 2025), (Cherti, M. 2024).

Morocco, as an emerging economy in North Africa, presents a unique context for examining AI adoption in digital marketing. The country has made significant strides in digital transformation, with government initiatives promoting digitalization and entrepreneurship (Ejjami, A. 2024). Moroccan SMEs represent approximately 95% of all enterprises and contribute significantly to employment and GDP (Cherti, M. 2024). However, these enterprises face distinctive challenges including limited resources, infrastructure gaps, and varying levels of digital maturity (Ejjami, A. 2024), (Halim, F., et al. 2025).

The application of AI in digital marketing encompasses a broad spectrum of technologies and practices, from machine learning-powered customer segmentation to generative AI for content creation (Sundari, M. T., et al. 2025), (Montañez, J., et al.2024). Recent advances in generative AI models, such as ChatGPT, have democratized access to sophisticated AI capabilities, potentially lowering barriers for SME adoption (Sundari, M. T., et al. 2025), (Tataryntseva, A. 2025). Yet, the extent to which Moroccan SMEs are leveraging these technologies, and the specific challenges they encounter, remains underexplored in academic literature.

This systematic literature review aims to:

1. Synthesize current knowledge on AI applications in digital marketing practices.

2. Examine the specific context of AI adoption in Moroccan SMEs.

3. Identify key technologies, applications, benefits, and challenges.

4. Analyze success factors and barriers to AI implementation in SME contexts.

5. Provide evidence-based recommendations for practitioners, policymakers, and researchers and identify critical research gaps requiring further investigation.

1. CONCEPTUAL FRAMEWORK

This review addresses a critical knowledge gap at the intersection of three important domains: artificial intelligence, digital marketing, and Moroccan SME development. While substantial research exists on AI in marketing generally, and some studies examine SME digitalization, few studies specifically address the Moroccan context with its unique linguistic, cultural, and infrastructural characteristics (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025). This synthesis provides valuable insights for multiple stakeholders: SME owners and managers seeking to leverage AI for competitive advantage, policymakers designing support programs, technology providers developing solutions for emerging markets, and researchers identifying promising avenues for future investigation.

1.1. AI in Digital Marketing:

The integration of AI into digital marketing represents a paradigm shift from traditional, intuition-based marketing to data-driven, algorithmically-enhanced practices (Sundari, M. T., et al. 2025), (Montañez, J., et al.2024). Sundari et al. propose the AI-Augmented Marketing Framework (AAMF), which positions AI not merely as an automation tool but as a dynamic capability enabling value co-creation with customers (Sundari, M. T., et al. 2025). This framework identifies five strategic domains of AI integration: personalized engagement, dynamic campaign automation, generative content planning, explainable AI systems, and ethical AI governance (Sundari, M. T., et al. 2025).

The theoretical foundation draws from multiple disciplines. The Dynamic Capabilities Framework suggests that AI enables organizations to sense market opportunities, seize them through rapid experimentation, and transform their marketing capabilities (Sundari, M. T., et al. 2025). Service-Dominant Logic emphasizes AI's role in facilitating co-creation of value through enhanced customer interactions and personalized experiences (Sundari, M. T., et al. 2025), (Indriani, D., et al. 2025).

AI technologies in digital marketing can be categorized into several core types: machine learning for pattern recognition and prediction, natural language processing for text analysis and generation, computer vision for image and video processing, and recommendation systems

for personalization (Montañez, J., et al.2024), (Ejjami R. 2024), (Bawaneh, A., et al. 2024). Recent advances in generative AI, particularly large language models like ChatGPT and image generation models, have expanded the scope of AI applications to include creative content production (Sundari, M. T., et al. 2025), (Tataryntseva, A. 2025), (Bastray, S. 2025).

1.2. SME Digital Transformation

SMEs face distinctive challenges and opportunities in digital transformation compared to large enterprises (Nianko, V., et al. 2025), (Juriah, J., et al. 2024), (Siddique, A. 2025). Resource constraints—financial, human, and technological—often limit SMEs' ability to invest in sophisticated AI systems (Mani, M. 2024), (Hugar, S. 2025). However, the democratization of AI through cloud-based platforms, software-as-a-service (SaaS) models, and user-friendly tools has lowered entry barriers (Khaq, M., et al. 2024), (Arce, J., et al. 2023).

Research indicates that successful AI adoption in SMEs requires alignment with business strategy, management commitment, employee training, and incremental implementation approaches (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). SMEs that view AI as a strategic enabler rather than merely a cost-reduction tool tend to achieve better outcomes (Bawaneh, A., et al. 2024), (Aslam, M., et al. 2025). The literature emphasizes the importance of starting with specific, high-impact use cases rather than attempting comprehensive transformation (Hugar, S. 2025), (Arce, J., et al. 2023).

1.3. Moroccan Business Context

Morocco's digital economy has experienced significant growth, driven by government initiatives such as the Digital Morocco 2020 strategy and subsequent programs promoting digital transformation (Cherti, M. 2024), (Ejjami, A. 2024). The country has invested in digital infrastructure, including broadband expansion and mobile connectivity, creating a foundation for digital business practices (Cherti, M. 2024).

Moroccan SMEs operate in a context characterized by several distinctive features. The business environment includes a mix of formal and informal enterprises, with varying levels of digital maturity (Cherti, M. 2024), (Halim, F., et al. 2025). Language diversity—with Arabic, French, and Berber widely used—creates both challenges and opportunities for digital marketing (Ejjami, A. 2024). Cultural factors, including preferences for personal relationships

in business and specific consumer behaviors, influence marketing effectiveness (Cherti, M. 2024).

Research by Cherti highlights that digital marketing significantly influences business performance in Moroccan SMEs, with social media, content marketing, and search engine optimization being particularly important channels (Cherti, M. 2024). However, Halim et al. note that AI adoption in Morocco faces barriers including limited awareness, skills gaps, and concerns about implementation complexity (Halim, F., et al. 2025). The study identifies both individual-level factors (perceived usefulness, ease of use, trust) and organizational factors (management support, resources, culture) as critical determinants of AI adoption intentions (Halim, F., et al. 2025).

1.4. AI Technologies in Digital Marketing

1.4.1. Machine Learning and Predictive Analytics

Machine learning (ML) forms the foundation of many AI applications in digital marketing, enabling systems to learn from data and improve performance without explicit programming (Montañez, J., et al.2024), (Ejjami R. 2024), (Gavrysh, O. 2024). Predictive analytics, powered by ML algorithms, allows marketers to forecast customer behavior, predict churn, estimate lifetime value, and optimize campaign performance (Setiarini, P., et al. 2025).

Key ML techniques applied in digital marketing include supervised learning for classification and regression tasks (e.g., customer segmentation, conversion prediction), unsupervised learning for pattern discovery (e.g., clustering customers into segments), and reinforcement learning for optimization (e.g., dynamic pricing, ad bidding) (Ejjami R. 2024), (Yusuf, M. 2024). Random forests, support vector machines, neural networks, and gradient boosting algorithms are commonly employed (Gavrysh, O. 2024), (Yusuf, M. 2024).

Setiarini et al. demonstrate that predictive analytics significantly improves targeting efficiency and click-through rates at the awareness stage of the marketing funnel (Setiarini, P., et al. 2025). The technology enables marketers to identify high-value prospects, personalize messaging, and allocate resources more effectively (Yusuf, M. 2024), (Setiarini, P., et al. 2025). For SMEs, cloud-based predictive analytics platforms offer accessible entry points without requiring extensive data science expertise (Arce, J., et al. 2023), (Yusuf, M. 2024).

1.4.2. Natural Language Processing and Conversational AI

Natural Language Processing (NLP) enables computers to understand, interpret, and generate human language, opening numerous applications in digital marketing (Montañez, J., et al.2024), (Bawaneh, A., et al. 2024), (Aleixo, A., et al. 2023). Key NLP applications include sentiment analysis of customer feedback, chatbots for customer service, content generation, and voice search optimization (Bawaneh, A., et al. 2024), (Mani, M. 2024), (Aleixo, A., et al. 2023).

Conversational AI, particularly chatbots and virtual assistants, has become increasingly sophisticated with advances in NLP and large language models (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024), (Setiarini, P., et al. 2025). These systems can handle customer inquiries, provide product recommendations, guide purchasing decisions, and collect feedback 24/7 (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024). Setiarini et al. report that conversational AI enhances engagement and conversion by delivering responsive and personalized interactions (Setiarini, P., et al. 2025).

For Moroccan SMEs, NLP presents both opportunities and challenges. While English-language NLP tools are mature, Arabic language processing requires specialized models (Ejjami, A. 2024). Recent advances in multilingual models and Arabic NLP are gradually addressing this gap, enabling more effective communication with Arabic-speaking customers (Ejjami, A. 2024), (عبدالفتاح, 2024 et al).

1.4.3. Generative AI and Content Creation

Generative AI represents one of the most transformative recent developments in AI for marketing (Sundari, M. T., et al.2025), (Tataryntseva, A. 2025), (Bastray, S. 2025). Technologies such as GPT-based language models, DALL-E for image generation, and other generative models enable automated creation of marketing content including text, images, videos, and audio (Sundari, M. T., et al.2025), (Tataryntseva, A. 2025), (Kherbachi, S., et al. 2024).

Sundari et al. highlight that generative AI models like ChatGPT facilitate "amplifiable creativity" while posing ethical and transparency challenges (Sundari, M. T., et al.2025). These tools can generate blog posts, social media content, ad copy, product descriptions, and email campaigns at scale (Tataryntseva, A. 2025), (Bastray, S. 2025), (Kherbachi, S., et al. 2024).

Kherbachi et al. demonstrate the application of AI models (e.g., Hugging Face) for visual and textual content generation in digital marketing (Kherbachi, S., et al. 2024).

For SMEs with limited content creation resources, generative AI offers significant advantages (Tataryntseva, A. 2025), (Hugar, S. 2025). However, concerns about content quality, brand voice consistency, and ethical use (including disclosure of AI-generated content) require careful management (Sundari, M. T., et al.2025), (Aleixo, A., et al. 2023). The technology is most effective when used to augment human creativity rather than replace it entirely (Sundari, M. T., et al.2025), (Bastray, S. 2025).

1.4.4. Computer Vision and Visual Marketing

Computer vision technologies enable AI systems to analyze and understand visual content, with applications in image recognition, visual search, augmented reality, and automated image tagging (Ejjami R. 2024), (Gavrysh, O. 2024). In digital marketing, computer vision supports product recognition, visual search capabilities, automated image optimization, and analysis of visual content performance (Gavrysh, O. 2024), (AlRoshoud, N., et al. 2024).

Social media platforms increasingly use computer vision for content moderation, ad targeting based on image content, and enhanced user experiences (AlRoshoud, N., et al. 2024). For e-commerce, visual search allows customers to find products by uploading images, while augmented reality enables virtual product try-ons (Gavrysh, O. 2024).

While computer vision applications are less prominent in the SME-focused literature reviewed, they represent growing opportunities, particularly for retail, fashion, and consumer goods sectors (Gavrysh, O. 2024), (AlRoshoud, N., et al. 2024). Mobile-first implementations are particularly relevant for markets like Morocco with high smartphone penetration (Cherti, M. 2024).

1.5. Digital Marketing Applications of AI

1.5.1. Customer Segmentation and Personalization

Customer segmentation and personalization emerge as primary applications of AI in digital marketing across the reviewed literature (Sundari, M. T., et al.2025), (Montañez, J., et al.2024), (Indriani, D., et al. 2025), (Ejjami R. 2024). AI-powered segmentation goes beyond

traditional demographic categories to create dynamic, behavior-based segments using clustering algorithms and predictive models (Ejjami R. 2024), (Yusuf, M. 2024).

Personalization encompasses multiple dimensions: content personalization (tailoring messages to individual preferences), product recommendations (suggesting relevant items based on behavior and preferences), timing optimization (sending communications when customers are most receptive), and channel personalization (engaging customers through their preferred channels) (Indriani, D., et al. 2025), (Setiarini, P., et al. 2025). Setiarini et al. report that personalization engines optimize purchase decisions by increasing conversion rates and average order value (Setiarini, P., et al. 2025).

The literature emphasizes that effective personalization requires balancing relevance with privacy concerns (Sundari, M. T., et al.2025), (Aleixo, A., et al. 2023). Customers increasingly expect personalized experiences but also demand transparency about data use (Sundari, M. T., et al.2025), (Naim, M., et al. 2025). For SMEs, starting with basic personalization (e.g., personalized email greetings, product recommendations) and gradually advancing to more sophisticated approaches represent a practical pathway (Arce, J., et al. 2023), (Naim, M., et al. 2025).

1.5.2. Content Marketing and Creation

AI is transforming content marketing through automated content generation, content optimization, and performance prediction (Tataryntseva, A. 2025), (Bastray, S. 2025), (Kherbachi, S., et al. 2024). Applications include generating blog posts and articles, creating social media content, writing product descriptions, optimizing headlines and calls-to-action, and personalizing content for different audience segments (Tataryntseva, A. 2025), (Bastray, S. 2025), (Kherbachi, S., et al. 2024).

Generative AI tools enable SMEs to produce content at scale without proportionally increasing resources (Tataryntseva, A. 2025), (Hugar, S. 2025). However, the literature emphasizes the importance of human oversight to ensure quality, accuracy, brand consistency, and ethical standards (Sundari, M. T., et al.2025), (Bastray, S. 2025), (Aleixo, A., et al. 2023). Hybrid approaches combining AI generation with human editing and refinement appear most effective (Bastray, S. 2025), (Kherbachi, S., et al. 2024).

Content optimization extends beyond creation to include AI-powered analysis of content performance, A/B testing automation, and recommendations for improvement (Gavrysh, O. 2024), (Yusuf, M. 2024). These capabilities help SMEs maximize the impact of their content investments (Hugar, S. 2025), (Arce, J., et al. 2023).

1.5.3. Social Media Marketing

Social media represents a critical digital marketing channel for SMEs, and AI enhances multiple aspects of social media marketing (Cherti, M. 2024), (Juriah, J., et al. 2024), (AlRoshoud, N., et al. 2024). Applications include automated posting and scheduling, sentiment analysis of comments and mentions, influencer identification, ad targeting and optimization, and social listening for brand monitoring (Juriah, J., et al. 2024), (Mladenović, D., et al. 2024), (AlRoshoud, N., et al. 2024).

AlRoshoud et al. examine the combination of neuromarketing and AI for social media advertising effectiveness, finding that AI-enhanced targeting and creative optimization significantly improve campaign performance (AlRoshoud, N., et al. 2024). For SMEs, social media AI tools offer accessible entry points for AI adoption, with many platforms providing built-in AI capabilities (Juriah, J., et al. 2024), (Mladenović, D., et al. 2024).

The Moroccan context presents specific opportunities in social media marketing, given high social media penetration rates and the importance of platforms like Facebook, Instagram, and increasingly TikTok (Cherti, M. 2024). However, cultural considerations and language preferences (Arabic, French) require careful attention in content and targeting strategies (Cherti, M. 2024), (Ejjami, A. 2024).

1.5.4. Search Engine Optimization and Advertising

AI is revolutionizing both organic search engine optimization (SEO) and paid search advertising (Gavrysh, O. 2024), (Marić, S., et al. 2024). In SEO, AI tools assist with keyword research, content optimization, technical SEO audits, and link building strategies (Marić, S., et al. 2024). Search engines themselves increasingly use AI algorithms (e.g., Google's RankBrain, BERT) to understand search intent and rank content, requiring marketers to optimize for AI-driven search (Gavrysh, O. 2024), (Marić, S., et al. 2024).

In paid advertising, AI enables automated bidding strategies, ad creative optimization, audience targeting, and performance prediction (Ejjami R. 2024), (Yusuf, M. 2024). Programmatic advertising platforms use machine learning to optimize ad placements in real-time across multiple channels (Ejjami R. 2024), (Gavrysh, O. 2024).

For SMEs with limited advertising budgets, AI-powered optimization helps maximize return on ad spend by automatically adjusting bids, targeting, and creative elements based on performance data (Arce, J., et al. 2023), (Yusuf, M. 2024). However, effective use requires understanding of platform algorithms and strategic oversight (Gavrysh, O. 2024), (Marić, S., et al. 2024).

1.5.5. Customer Service and Engagement

AI-powered customer service represents one of the most widely adopted applications in SMEs (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024), (Mani, M. 2024). Chatbots and virtual assistants handle routine inquiries, provide product information, assist with order tracking, and escalate complex issues to human agents (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024), (Setiarini, P., et al. 2025).

The literature highlights several benefits of AI customer service: 24/7 availability, instant response times, consistency in service quality, scalability during peak periods, and cost efficiency compared to human-only service (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024), (Mani, M. 2024). Conversational AI has advanced significantly with natural language understanding, enabling more natural and context-aware interactions (Bawaneh, A., et al. 2024), (Setiarini, P., et al. 2025).

However, challenges remain, particularly in handling complex queries, understanding context and nuance, and managing customer expectations (Bawaneh, A., et al. 2024), (Mani, M. 2024). Best practices emphasize transparent disclosure of AI use, seamless handoff to human agents when needed, and continuous improvement based on interaction data (Nianko, V., et al. 2025), (Bawaneh, A., et al. 2024).

1.5.6. Email Marketing and Campaign Automation

Email marketing benefits substantially from AI through personalization, send-time optimization, subject line optimization, content recommendations, and automated

segmentation (Nianko, V., et al. 2025), (Indriani, D., et al. 2025), (Yusuf, M. 2024). AI analyzes recipient behavior to determine optimal sending times, predict which content will resonate, and automatically segment lists based on engagement patterns (Indriani, D., et al. 2025), (Yusuf, M. 2024).

Marketing automation platforms increasingly incorporate AI to orchestrate multi-channel campaigns, score leads, trigger personalized workflows, and optimize customer journeys (Nianko, V., et al. 2025), (Ejjami R. 2024). These capabilities enable SMEs to implement sophisticated marketing strategies previously accessible only to large enterprises with dedicated marketing teams (Nianko, V., et al. 2025), (Arce, J., et al. 2023).

The literature emphasizes that effective email marketing automation requires strategic planning, quality data, and ongoing optimization rather than simply deploying technology (Indriani, D., et al. 2025), (Naim, M., et al. 2025). Starting with basic automation (e.g., welcome series, abandoned cart emails) and progressively adding sophistication represents a practical approach for SMEs (Arce, J., et al. 2023), (Naim, M., et al. 2025).

2. RESEARCH METHODOLOGY

This systematic review followed a comprehensive, multi-database search strategy to ensure broad coverage of relevant literature. The search was conducted across academic databases and search platforms, namely Google Scholar, Scopus and Science Direct:

More than 100 papers were selected via the following query: "Application of Artificial Intelligence on Digital Marketing Practices in Moroccan SMEs". 20 papers using a comprehensive Boolean query covering AI/ML terms, digital marketing variations, Morocco-specific terms, and SME variants.

The initial search yielded 306 papers across all databases. These results underwent AI-powered deduplication and relevance ranking via SciSpace, resulting in a final dataset of 98 unique, indexed papers ranked by relevance to the systematic review topic.

2.1. Inclusion and Exclusion Criteria

2.1.1. Inclusion criteria:

- Peer-reviewed journal articles, conference papers, and book chapters

- Published in indexed academic sources

- Focus on artificial intelligence, machine learning, or related technologies

- Application to digital marketing, online marketing, or related practices

- Relevance to SMEs, small businesses, or enterprise contexts

- Published between 2023-2025 (recent literature to capture emerging AI developments)

2.1.2. Exclusion criteria:

- Non-peer-reviewed sources (blogs, white papers, news articles)

- Studies without empirical or theoretical contribution

- Papers not accessible in English or with English abstracts

- Duplicate publications

2.2. Data Extraction and Analysis

Following the PRISMA framework principles, the top 30 most relevant papers from the ranked dataset were selected for detailed analysis (Sundari, M. T., et al.2025). Data extraction focused on:

- AI technologies and techniques employed

- Digital marketing applications and domains

- Key findings relevant to SMEs

- Methodological approaches

- Benefits, challenges, and success factors

- Contextual factors (geographic, cultural, organizational)

Thematic analysis was conducted to identify patterns, convergences, and divergences across studies. Particular attention was paid to papers addressing the Moroccan context, SME-specific findings, and emerging AI technologies such as generative AI (Sundari, M. T., et al.2025), (Ejjami, A. 2024), (Halim, F., et al. 2025).

3. RESEARCH RESULTS

Despite significant benefits, SMEs face substantial challenges in AI adoption (Mani, M. 2024), (Hugar, S. 2025), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Resource constraints represent the most frequently cited barrier, encompassing limited financial resources for AI investments, insufficient technical expertise, and lack of dedicated personnel for AI implementation and management (Mani, M. 2024), (Hugar, S. 2025), (Chuan-Fu, H., et al. 2024).

Skills gaps pose significant challenges, with SMEs often lacking employees with AI, data science, or advanced digital marketing skills (Mani, M. 2024), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Training existing staff or hiring specialized talent can be difficult given budget constraints and competition with larger employers (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

Data quality and availability issues hinder effective AI implementation (Ejjami R. 2024), (Naim, M., et al. 2025), (Yusuf, M. 2024). AI systems require substantial, high-quality data for training and operation, but many SMEs lack systematic data collection processes or have fragmented data across multiple systems (Ejjami R. 2024), (Naim, M., et al. 2025). Data privacy regulations (e.g., GDPR) add complexity to data management (Sundari, M. T., et al.2025), (Naim, M., et al. 2025).

Technology integration challenges arise when attempting to integrate AI tools with existing systems, processes, and workflows (Mani, M. 2024), (Chuan-Fu, H., et al. 2024). Legacy systems, incompatible platforms, and lack of technical infrastructure can impede AI adoption (Mani, M. 2024), (Chuan-Fu, H., et al. 2024).

Organizational factors including resistance to change, lack of management understanding or commitment, and risk-averse cultures can slow or prevent AI

adoption (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). The literature emphasizes that successful AI implementation requires organizational change management, not just technology deployment (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

Ethical and trust concerns emerge as important considerations, particularly regarding data privacy, algorithmic bias, transparency, and the appropriate balance between automation and human judgment (Sundari, M. T., et al.2025), (Aleixo, A., et al. 2023). Customers and employees may have concerns about AI use that require careful management (Sundari, M. T., et al.2025), (Naim, M., et al. 2025).

Research identifies several critical success factors for AI adoption in SMEs (Arce, J., et al. 2023), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Strategic alignment is essential—AI initiatives should align with business objectives and address specific pain points rather than being technology-driven (Arce, J., et al. 2023), (Naim, M., et al. 2025), (Aslam, M., et al. 2025). Starting with clear use cases that deliver measurable value helps build momentum and justify further investment (Arce, J., et al. 2023), (Naim, M., et al. 2025).

Management commitment and leadership strongly influence adoption success (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Leaders who understand AI potential, champion initiatives, and allocate necessary resources enable more effective implementation (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

Incremental implementation approaches prove more successful than attempting comprehensive transformation (Arce, J., et al. 2023), (Naim, M., et al. 2025). Starting with pilot projects, learning from experience, and gradually scaling successful initiatives reduces risk and builds organizational capability (Arce, J., et al. 2023), (Naim, M., et al. 2025).

External partnerships with technology vendors, consultants, or academic institutions can help SMEs overcome resource and expertise limitations (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Chuan-Fu et al. identify vendor support and external expertise as important success factors for AI marketing adoption in Malaysian SMEs (Chuan-Fu, H., et al. 2024).

Employee training and engagement ensures that staff can effectively use AI tools and understand their role in AI-augmented processes (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Involving employees in AI initiatives and addressing concerns proactively improves adoption outcomes (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

Data infrastructure and governance provide the foundation for effective AI use (Ejjami R. 2024), (Naim, M., et al. 2025). Establishing data collection processes, ensuring data quality, and implementing appropriate governance frameworks enable AI systems to function effectively (Ejjami R. 2024), (Naim, M., et al. 2025).

3.1. Moroccan Context: Digital Marketing and AI

3.1.1. Digital Marketing Landscape in Morocco

Morocco has experienced significant digital transformation in recent years, creating opportunities for digital marketing adoption (Cherti, M. 2024), (Ejjami, A. 2024). Cherti's research demonstrates that digital marketing significantly influences business performance in Moroccan SMEs, with social media marketing, content marketing, and search engine optimization being particularly impactful channels (Cherti, M. 2024).

The Moroccan digital landscape is characterized by high mobile penetration, growing internet access, and increasing social media usage (Cherti, M. 2024). Facebook, Instagram, YouTube, and increasingly TikTok are popular platforms, with users engaging actively with content in both Arabic and French (Cherti, M. 2024). E-commerce is growing, though cash-on-delivery remains prevalent due to limited credit card penetration and trust concerns (Cherti, M. 2024).

Moroccan consumers demonstrate distinctive behaviors and preferences that influence digital marketing effectiveness (Cherti, M. 2024). Personal relationships and trust play important roles in purchasing decisions, making influencer marketing and user-generated content particularly effective (Cherti, M. 2024). Visual content resonates strongly, and mobile-first approaches are essential given smartphone dominance (Cherti, M. 2024).

3.1.2. AI Adoption in Moroccan Enterprises

Research on AI adoption in Morocco reveals a complex picture of opportunities and challenges (Ejjami, A. 2024), (Halim, F., et al. 2025), (Ejjami R. 2024). Halim et al. examine AI usage intentions at both individual and organizational levels in Morocco, finding that perceived usefulness, ease of use, and trust significantly influence adoption intentions (Halim,

F., et al. 2025). At the organizational level, management support, organizational resources, and organizational culture emerge as critical factors (Halim, F., et al. 2025).

The study by Ejjami provides valuable insights through a teaching case study on launching AI marketing solutions for SMEs in Morocco (Ejjami, A. 2024). This research highlights practical considerations for AI implementation in the Moroccan context, including the need for culturally appropriate solutions, language support (Arabic and French), and affordable, accessible platforms (Ejjami, A. 2024).

Research on adopting AI and big data tools across industry sectors in Morocco identifies several barriers: limited awareness of AI capabilities, skills shortages in data science and AI, infrastructure gaps, and concerns about implementation complexity and costs (Ejjami R. 2024). However, the study also notes growing interest and recognition of AI's potential, particularly among younger, more digitally-savvy entrepreneurs (Ejjami R. 2024).

3.1.3. Moroccan SME Characteristics and Challenges

Moroccan SMEs operate in a distinctive context that shapes their digital marketing and AI adoption patterns (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025). Key characteristics include:

Resource limitations: Most Moroccan SMEs have limited financial resources, small teams, and minimal IT infrastructure (Cherti, M. 2024). This constrains their ability to invest in sophisticated AI systems or hire specialized talent (Ejjami, A. 2024), (Halim, F., et al. 2025).

Digital maturity variation: SMEs exhibit wide variation in digital maturity, from traditional businesses with minimal online presence to digitally-native startups (Cherti, M. 2024). This heterogeneity requires differentiated approaches to AI adoption (Ejjami, A. 2024).

Language and cultural considerations: The multilingual environment (Arabic, French, Berber) creates both challenges and opportunities. AI tools must support multiple languages, and marketing content must be culturally appropriate. Arabic language NLP capabilities, while improving, remain less mature than English (Ejjami, A. 2024), (عبدالفتاح, 2024 et al).

Skills gaps: Limited availability of digital marketing and AI skills constrains adoption. Educational institutions are gradually expanding relevant programs, but skills shortages persist (Halim, F., et al. 2025), (Ejjami R. 2024).

Infrastructure challenges: While urban areas have good digital infrastructure, rural and some peri-urban areas face connectivity limitations. This affects both SME operations and customer reach (Cherti, M. 2024).

Regulatory environment: Morocco's regulatory framework for data protection and digital business is evolving, creating some uncertainty for AI adoption (Ejjami, A. 2024), (Halim, F., et al. 2025). However, government initiatives supporting digitalization provide positive signals.

Despite these challenges, Moroccan SMEs demonstrate entrepreneurial spirit and adaptability. Many are actively exploring digital marketing channels and showing interest in AI capabilities, particularly for customer engagement, social media marketing, and e-commerce (Cherti, M. 2024), (Ejjami, A. 2024).

4. DISCUSSION

This systematic review reveals several critical insights about AI application in digital marketing for Moroccan SMEs. First, while AI technologies offer substantial potential benefits—including enhanced personalization, operational efficiency, and competitive advantage—their adoption in Moroccan SMEs remains limited and faces significant contextual barriers (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025).

Second, the gap between global AI marketing capabilities and Moroccan SME implementation is substantial. The reviewed literature demonstrates sophisticated AI applications in digital marketing globally (Sundari, M. T., et al.2025), (Montañez, J., et al.2024), (Ejjami R. 2024), (Setiarini, P., et al. 2025), yet Moroccan-specific research reveals that most SMEs are still in early stages of digital marketing adoption, let alone AI integration (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025).

Third, certain AI applications appear more suitable for Moroccan SME adoption than others. Conversational AI (chatbots), social media marketing tools, and basic personalization represent accessible entry points with clear value propositions (Nianko, V., et al. 2025), (Cherti, M. 2024), (Bawaneh, A., et al. 2024). More sophisticated applications like predictive analytics, computer vision, or advanced generative AI may be premature for most Moroccan SMEs given current resource and capability constraints (Ejjami, A. 2024), (Halim, F., et al. 2025).

Fourth, successful AI adoption in Moroccan SMEs requires a holistic approach addressing not just technology but also skills development, organizational change, and ecosystem support, (Chuan-Fu, H., et al. 2024). Technology alone is insufficient; human capability, management commitment, and supportive infrastructure are equally critical (Halim, F., et al. 2025), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

Fifth, the Moroccan context presents both unique challenges (language, infrastructure, skills) and distinctive opportunities (mobile penetration, entrepreneurial culture, government support for digitalization) (Cherti, M. 2024), (Halim, F., et al. 2025). Strategies that leverage opportunities while pragmatically addressing challenges are most likely to succeed (Ejjami, A. 2024).

This review identifies several critical research gaps requiring further investigation:

Empirical studies in Moroccan context: The most significant gap is the limited empirical research specifically examining AI adoption in Moroccan SME digital marketing (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025). While some studies address digital marketing in Morocco and AI adoption intentions (Halim, F., et al. 2025), comprehensive empirical studies of actual AI implementation, outcomes, and best practices in Moroccan SMEs are lacking.

Sector-specific analyses: Research examining how AI marketing applications vary across different SME sectors (retail, services, manufacturing, tourism, etc.) in Morocco would provide valuable insights for targeted interventions (Cherti, M. 2024), (Ejjami, A. 2024).

Longitudinal studies: Most existing research is cross-sectional. Longitudinal studies tracking AI adoption journeys, learning processes, and long-term outcomes in Moroccan SMEs would enhance understanding of implementation dynamics and success factors (Halim, F., et al. 2025).

Arabic language AI effectiveness: Research specifically evaluating the effectiveness of Arabic language AI tools for marketing applications in the Moroccan context would inform technology development and adoption strategies (Ejjami, A. 2024), (عبدالفتاح, 2024 et al).

ROI and performance measurement: Studies quantifying the return on investment and performance impacts of AI marketing tools in Moroccan SMEs would help build business cases for adoption (Cherti, M. 2024), (Ejjami, A. 2024).

Ecosystem and policy analysis: Research examining the broader ecosystem supporting (or hindering) AI adoption in Moroccan SMEs—including education, infrastructure, regulation, and support programs—would inform policy development, (Halim, F., et al. 2025), (Ejjami R. 2024).

Comparative studies: Cross-country comparisons between Morocco and other emerging markets with similar characteristics could identify transferable lessons and context-specific factors (Ejjami, A. 2024), (Halim, F., et al. 2025).

5. LIMITATIONS

This systematic review has several limitations that should be acknowledged. First, while the search strategy was comprehensive, it may not have captured all relevant literature, particularly gray literature, non-English publications, or very recent working papers (Sundari, M. T., et al.2025).

Second, the review reveals a significant imbalance in the literature, with abundant research on AI in digital marketing generally and on SME digitalization, but limited research specifically addressing the intersection of these topics in the Moroccan context (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025). This necessitated drawing inferences from adjacent literatures, which may not fully capture Moroccan-specific dynamics.

Third, the rapid pace of AI development means that some findings may become outdated quickly, particularly regarding specific technologies and tools. Generative AI, in particular, has evolved dramatically even during the period covered by this review (Sundari, M. T., et al.2025), (Tataryntseva, A. 2025).

Fourth, publication bias may affect the literature, with successful AI implementations more likely to be reported than failures, potentially creating an overly optimistic picture of AI adoption feasibility and outcomes (Sundari, M. T., et al.2025).

Fifth, the heterogeneity of SMEs—in size, sector, digital maturity, and resources—means that findings may not apply equally to all Moroccan SMEs (Cherti, M. 2024), (Ejjami, A. 2024). Generalizations should be made cautiously, recognizing this diversity.

6. STRATEGIC RECOMMENDATIONS

Based on the synthesized evidence, several strategic recommendations emerge for Moroccan SME owners and managers:

Start with clear business objectives: Identify specific marketing challenges or opportunities where AI could deliver measurable value rather than adopting AI for its own sake (Arce, J., et al. 2023), (Naim, M., et al. 2025), (Aslam, M., et al. 2025). Focus on use cases with clear ROI potential, such as customer service automation, social media engagement, or email personalization (Nianko, V., et al. 2025), (Cherti, M. 2024), (Bawaneh, A., et al. 2024).

Adopt incrementally: Begin with accessible, low-risk AI applications like chatbots or social media management tools, learn from experience, and gradually expand to more sophisticated applications (Arce, J., et al. 2023), (Naim, M., et al. 2025). This approach reduces risk and builds organizational capability progressively.

Leverage cloud-based and SaaS solutions: Utilize cloud-based AI platforms that require minimal upfront investment and technical infrastructure. Many platforms offer free or low-cost entry tiers suitable for SME experimentation (Khaq, M., et al. 2024), (Arce, J., et al. 2023).

Policymakers can play a crucial role in facilitating AI adoption in Moroccan SMEs:

Develop targeted support programs: Create programs specifically supporting AI adoption in SMEs, including subsidies, grants, or tax incentives for AI investments (Halim, F., et al. 2025). Ensure programs address the specific needs and constraints of SMEs rather than simply scaling down large enterprise programs (Ejjami, A. 2024).

Invest in digital infrastructure: Continue expanding high-quality, affordable internet access, particularly in underserved areas, to ensure all SMEs can access cloud-based AI tools (Cherti, M. 2024), (Ejjami, A. 2024).

Support skills development: Expand educational programs in digital marketing, data science, and AI, with particular focus on practical skills relevant to SMEs (Ejjami, A. 2024).

Support partnerships between educational institutions and businesses for applied learning (Halim, F., et al. 2025), (Ejjami R. 2024).

The research community can contribute to advancing knowledge and practice in this domain:

Conduct empirical studies in Moroccan context: Prioritize research examining actual AI adoption, implementation processes, and outcomes in Moroccan SMEs across different sectors and contexts (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025).

Develop contextually appropriate frameworks: Create theoretical and practical frameworks specifically addressing AI marketing adoption in emerging market SMEs, accounting for resource constraints, infrastructure limitations, and cultural factors (Ejjami, A. 2024), (Halim, F., et al. 2025).

Evaluate Arabic language AI tools: Conduct rigorous evaluations of Arabic language AI technologies for marketing applications, identifying capabilities, limitations, and improvement opportunities (Ejjami, A. 2024), (عبدالفتاح, 2024 et al).

CONCLUSION

This systematic literature review has examined the application of Artificial Intelligence in digital marketing practices within Moroccan SMEs, synthesizing evidence from 98 indexed papers with detailed analysis of the 30 most relevant studies. The review reveals a complex landscape of significant opportunities tempered by substantial challenges.

AI technologies—including machine learning, natural language processing, conversational AI, and generative AI—are transforming digital marketing globally, enabling unprecedented levels of personalization, automation, and data-driven decision-making (Sundari, M. T., et al.2025), (Montañez, J., et al.2024), (Ejjami R. 2024), (Setiarini, P., et al. 2025). Applications span customer segmentation, content creation, social media marketing, customer service, advertising optimization, and campaign automation (Sundari, M. T., et al.2025), (Nianko, V., et al. 2025), (Indriani, D., et al. 2025), (Bawaneh, A., et al. 2024), (Setiarini, P., et al. 2025).

For SMEs globally, AI offers pathways to compete more effectively with larger enterprises through enhanced efficiency, improved customer experiences, and data-driven insights (Nianko, V., et al. 2025), (Khaq, M., et al. 2024), (Arce, J., et al. 2023). However,

adoption faces barriers including resource constraints, skills gaps, data challenges, and organizational factors (Mani, M. 2024), (Hugar, S. 2025), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025). Success requires strategic alignment, incremental implementation, management commitment, and appropriate support (Arce, J., et al. 2023), (Chuan-Fu, H., et al. 2024), (Naim, M., et al. 2025).

In the Moroccan context, digital marketing has demonstrated significant impact on SME business performance, with social media, content marketing, and SEO being particularly important channels (Cherti, M. 2024). However, AI adoption remains limited, constrained by resource limitations, skills shortages, infrastructure gaps, and language considerations (Ejjami, A. 2024), (Halim, F., et al. 2025), (Ejjami R. 2024). The multilingual environment (Arabic, French, Berber), mobile-first digital landscape, and cultural preferences for personal relationships shape the context for AI adoption (Cherti, M. 2024), (Ejjami, A. 2024).

Critical research gaps exist, particularly the lack of empirical studies specifically examining AI marketing adoption in Moroccan SMEs (Cherti, M. 2024), (Ejjami, A. 2024), (Halim, F., et al. 2025). Future research should prioritize contextually grounded empirical studies, sector-specific analyses, longitudinal investigations, and ecosystem examinations.

Strategic recommendations emphasize incremental adoption starting with accessible applications like chatbots and social media tools, leveraging cloud-based solutions, prioritizing mobile and social channels, investing in skills development, and ensuring language and cultural appropriateness (Cherti, M. 2024), (Ejjami, A. 2024), (Arce, J., et al. 2023), (Naim, M., et al. 2025). Policymakers can support adoption through targeted programs, infrastructure investment, skills development, ecosystem fostering, and regulatory clarity. Researchers should prioritize empirical studies in Moroccan contexts, develop appropriate frameworks, and examine ecosystem factors (Ejjami, A. 2024), (Halim, F., et al. 2025).

The convergence of AI and digital marketing represents a transformative opportunity for Moroccan SMEs. While challenges are substantial, they are not insurmountable. With appropriate strategies, support, and continued research, Moroccan SMEs can leverage AI to enhance their digital marketing effectiveness, improve competitiveness, and contribute to economic development. The path forward requires collaboration among SMEs, technology

providers, policymakers, educational institutions, and researchers to build an enabling ecosystem for AI-driven digital marketing transformation.

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