

Research Article

Evidence-Based Analysis of Digital Marketing in Algeria's Healthcare Sector: Challenges and Policy Implications

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Article History

Received: 22.07.2026
Accepted: 11.08.2026
Published: 21.09.2026

DOI: 10.61336/cjmr.1603.96

Abstract: Digital healthcare communication is increasingly mediated by data-driven systems that shape how patients seek information, choose providers and interact with care. Algeria's rapid digital expansion, an estimated 36.2 million internet users (~76.9% penetration) in early 2025, presents significant opportunities for health promotion, patient engagement and telemedicine, while simultaneously exposing regulatory and governance gaps. This analytical study (narrative review + policy scan; 2020-2025) synthesises global, MENA-regional and Algeria-specific evidence to map systemic challenges relevant to policy and governance. Using PESTLE and Porter's Five Forces frameworks, the paper identifies key risks, regulatory ambiguity, uneven access, low health literacy, misinformation flows and limited monitoring capacity and draws out their implications for data governance and regulatory design. The study proposes prioritised, data-guided policy options and practical implementation steps and supplies operational tools for decision-makers: a PESTLE matrix, a Five Forces assessment, a risk matrix and a privacy-preserving KPI dashboard intended to support accountable, evidence-based governance of digital healthcare communication in Algeria.

Keywords: Digital Health Communication, Data Governance, Health Policy, PESTLE Analysis, Privacy-preserving KPIs, Algeria

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INTRODUCTION

Digital transformation has become a defining force in the way healthcare systems communicate, deliver information and interact with the public. Across the globe, patients increasingly rely on online channels to inform their health decisions, compare providers and access essential services. Algeria is no exception. With an estimated 36.2 million internet users and a penetration rate approaching 77% in early 2025 [1], the country is experiencing a profound shift in how health information is produced, shared and consumed.

While this rapid digital uptake presents promising opportunities-ranging from enhanced health promotion and improved patient engagement to the expansion of telemedicine-it also introduces a set of complex challenges. These challenges arise not only from infrastructural and regulatory gaps, but also from disparities in digital access, varying levels of health and digital literacy, the growing prevalence of misinformation and a limited capacity to generate and use reliable performance metrics.

This study adopts a combined narrative review and policy scan (2020-2025) to examine the landscape of digital healthcare communication in Algeria through two complementary analytical lenses: the PESTLE framework and Porter's Five Forces. By integrating global, regional (MENA) and local evidence, the paper seeks to clarify the structural, technological [2], legal and behavioural factors that shape policy development in this fast-evolving domain.

In addition to its analytical contribution, the paper presents a set of operational tools intended to support policymakers, healthcare providers, payers and digital communication agencies. These tools include a structured PESTLE table, a Porter's Five Forces analysis, a risk matrix tailored to digital healthcare communication and a privacy-conscious KPI dashboard designed to strengthen evidence-based policymaking in the Algerian context.

This study asks: This study seeks to address the following central question: What are the primary challenges confronting data-driven digital healthcare communication in Algeria and which evidence-based policy and operational interventions are likely to be most effective and feasible in the short to medium term (2025-2030)?

The investigation is directed towards healthcare managers, policymakers, regulatory authorities, digital communication agencies, payers and academic audiences interested in the development and governance of digital health ecosystems within North Africa. By framing the problem in this manner, the study situates itself at the intersection of data governance, regulatory design and practical implementation, emphasising actionable insights that can guide evidence-informed decision-making in a rapidly evolving digital environment.

Significance and Objectives of the Study

The significance of this study lies in its focus on the intersection of data governance, policy development and digital healthcare communication-a nexus that remains under-explored in the Algerian context. By examining the structural, regulatory and technological factors shaping digital health practices, the study seeks to provide actionable insights for policymakers, health authorities and industry stakeholders. Specifically, the research aims to:

- Identify the key challenges and risks associated with digital healthcare communication in Algeria, including regulatory ambiguities, inequities in access, misinformation and limitations in institutional monitoring capacity.
- Analyse these challenges through established analytical frameworks (PESTLE and Porter's Five Forces) to uncover systemic pressures and governance gaps
- Propose evidence-based, data-guided policy options and practical implementation strategies that enhance accountability, transparency and equitable access within the digital health ecosystem
- Offer operational tools-such as a risk matrix, a privacy-preserving KPI dashboard and analytical frameworks-that support informed decision-making by policymakers, healthcare providers and digital agencies

Through these objectives, the study contributes to the broader discourse on data-driven policymaking and demonstrates how emerging digital health practices can be systematically analysed to inform effective governance in a rapidly digitalising environment.

MATERIALS AND METHODS

This analytical study uses a narrative literature review combined with a policy scan and practical synthesis. The objective was to collate peer-reviewed evidence, international guidance, regional market analyses and Algeria-specific policy documents published between 2020-2025, supplemented by earlier foundational sources when necessary. The selection strategy prioritized: (1) high-quality systematic or narrative reviews on digital health and health misinformation; (2) official international guidance (WHO); (3) regional industry reports (e.g., Galen Growth); and (4) Algeria-relevant statistics and regulatory documents (ARPCE observatory reports; Law No. 18-07 texts and legal analyses).

Search queries included: "digital health Algeria", "healthcare social media misinformation", "Law 18-07 Algeria personal data", "internet penetration Algeria 2025" and "MENA digital health report". Databases and sources searched included PubMed/PMC, JMIR, WHO publications, DataReportal, ARPCE, Galen Growth reports and legal commentaries (DLA Piper, CMS, Dataguidance). Where Algeria-specific peer-reviewed studies were sparse, regional and global findings were triangulated and contextualized using PESTLE and Porter's frameworks to derive locally-relevant recommendations.

Limitations: The approach relies partly on grey literature for national statistics and regulatory interpretation due to limited peer-reviewed Algerian studies. The policy environment and platform practices evolve rapidly; hence findings reflect the state of evidence and regulation as of mid-2025 [3].

Literature Review

The Concept of Digital Marketing for Health Services: Digital marketing in healthcare is a multidisciplinary practice focused on developing, communicating and implementing scientifically sound, patient-centered marketing strategies. Its primary aim is to attract and engage a diverse patient population by utilizing digital tools and platforms to enhance accessibility, awareness and the overall patient experience [4], healthcare marketing plays a vital role in promoting health and well-being by educating patients, fostering trust between healthcare organizations and their audiences and encouraging individuals to prioritize their physical and mental health. As previously mentioned, healthcare marketing is unique, particularly in the modern era, where practitioners compete by implementing a wide range of innovative

marketing strategies [5]. This includes the development of advanced digital platforms for self-diagnosis and patient engagement. As a result, effective digital healthcare marketing has become more crucial than ever in enhancing accessibility, patient awareness and overall healthcare service delivery [6] Benefits of digital marketing in the healthcare industry.

The healthcare industry can derive numerous advantages from digital marketing. Below are some of the key benefits that contribute to improving patient engagement, accessibility and overall healthcare service delivery [7]:

- **Strengthening Relationships:** Another significant advantage of digital marketing in healthcare is its ability to enhance communication between healthcare providers and patients. By facilitating a two-way exchange of information, digital marketing enables healthcare organizations to engage with patients more effectively, address their concerns and provide timely updates. This strengthened interaction fosters trust and encourages long-term relationships, ultimately leading to improved patient satisfaction and better health outcomes
- **Reduce Marketing Budget:** While some healthcare organizations may have substantial marketing budgets, this is not the case for most small and medium-sized healthcare providers. Digital marketing offers a cost-effective alternative, allowing healthcare brands to reduce marketing expenses while achieving a high return on investment. Compared to traditional media channels such as television, newspapers and billboards, digital marketing strategies-including social media, email campaigns and search engine marketing-are often more affordable and provide greater reach and engagement
- **Targeting marketing Efforts:** Healthcare companies often have a clear understanding of the demographics they aim to reach through their marketing campaigns. Digital marketing enables them to address this challenge effectively by offering highly targeted strategies that surpass the precision of traditional marketing methods. Through data-driven insights and advanced targeting tools, healthcare organizations can tailor their marketing efforts to specific audiences, ensuring greater engagement and improved outreach
- **Improve Brand Metrics:** In an increasingly competitive healthcare industry, establishing a strong brand is essential for companies seeking to differentiate themselves from competitors. Digital marketing plays a crucial role in enhancing key brand metrics, including brand awareness, reputation and perceived value. By strengthening these aspects, healthcare organizations can foster patient trust, encourage repeat visits and achieve long-term success.
- **Improving Customer Experience:** Healthcare digital marketing enhances convenience and efficiency for patients by granting them easy access to essential provider information, ensuring a seamless and comprehensive service experience. Simultaneously, healthcare providers can refine every stage of the patient journey-before, during and after treatment-by offering crucial information online, ultimately improving overall patient engagement and satisfaction
- **Marketing Personalization:** Health is an inherently personal matter and marketers recognize that consumers respond best to a personalized approach. An individual seeks medical care not only for personal well-being but also for public safety and the treatment of life-threatening conditions. In this context, digital marketing enables healthcare providers to connect with patients in a way that is customized to their unique needs, ensuring more effective communication and care
- **Flexible Marketing Campaign:** Digital marketing empowers healthcare companies to utilize a diverse range of marketing strategies, allowing them to better align with the interests of their **customers**. The flexibility of these approaches enables dynamic and adaptable campaigns, incorporating various marketing methods to maximize effectiveness. Moreover, these tools can be easily modified, refined and updated, ensuring continuous improvement and optimization over time

Global Evidence (2020-2025)

Systematic reviews and meta-analyses published between 2020 and 2024 document that digital channels can meaningfully influence health-seeking behaviour and certain intermediate outcomes-particularly when interventions are theory-driven and integrate behaviour-change techniques. Social media and search engines increase the salience of health information and facilitate appointment-seeking, adherence reminders and scalable public-health messaging. However, evaluative studies frequently highlight the complexity of attributing clinical outcomes (e.g., reduction in HbA1c, improved hypertension control) to specific campaigns because exposures are multi-channel and clinical endpoints evolve slowly.

Another major global finding is the amplification of misinformation on open social platforms and the attendant risks for public health. Systematic work in JMIR and allied journals identifies clusters of misinformation (vaccines, treatment claims, disease etiology) and outlines mitigation strategies (proactive credible messaging, platform moderation, clinician involvement).

Privacy and measurement are also central themes in the literature. The global move away from third-party cookies and greater regulatory scrutiny (e.g., GDPR-like frameworks) has pushed digital-health researchers and marketers toward privacy-preserving measurement approaches: cohort-based evaluation, aggregated metrics and synthetic-control designs are increasingly recommended alternatives to deterministic tracking.

MENA Regional Trends

The MENA region is heterogeneous: Gulf Cooperation Council (GCC) countries and Israel often have more mature digital-health ecosystems and clearer regulatory frameworks, while North African countries are advancing unevenly. Reports by Galen Growth and industry trackers show a spike in digital-health startups and investment during the early 2020s in the region, but many projects remain in pilot stages. Common regional barriers include fragmented reimbursement models, inconsistent regulation and uneven human-capacity development. For Algeria, Gulf models provide illustrative best practices but need substantial contextual adaptation.

Algeria-Specific Evidence (2020-2025)

Algerian national reports and sector analyses indicate rapid growth in internet users and improved broadband infrastructure (fixed and mobile), creating a greater addressable audience for digital engagements. ARPCE’s 2024 observatory highlights gains in fixed internet subscribers and mobile data usage across quarters; DataReportal’s 2025 dataset reports approximately 36.2 million internet users, about 76.9% penetration. However, internet access remains uneven across wilayas and device heterogeneity (older smartphones vs. modern models) affects which content formats will perform well. Peer-reviewed Algerian studies evaluating digital marketing interventions linked to clinical outcomes are limited; most national evidence is found in government reports, conference proceedings and initial pilot evaluations of telemedicine and e-health platforms.

The legal environment: Law No. 18-07 [3] provides a statutory foundation for personal-data protection in Algeria [8]. Legal analyses explain that while the law frames consent, purpose limitation and data-subject rights, sector-specific implementing decrees and operational guidance-especially for sensitive health data and marketing use-cases-have been slower to materialize. The timing of the operationalization of certain enforcement powers and detailed health-sector directives remains critical for marketers and providers.

Analytical Framework

To organize findings and recommendations, the study combines three complementary frameworks:

- Political, Economic, Social, Technological, Legal, Environmental (PESTLE), to identify macro-level enablers and constraints
- Porter’s Five Forces, to examine market-level incentives and competitive structure
- Privacy and ethics overlay, to emphasize the unique sensitivity of health information and the need for clinical oversight of messaging

This composite framework allows mapping of both structural drivers (e.g., national digital strategy, broadband growth) and market dynamics (e.g., platform power, buyer bargaining power), while foregrounding patient-safety considerations. In addition to the KPI dashboard analysis (privacy-preserving).

PESTLE Analysis Growth

Below is a concise PESTLE Table 1 tailored to Algeria’s context for digital-health ma Growth marketing.

Table 1: PESTLE Analysis

PESTLE Dimension	Key factors (2025)	Implications for digital-health marketing
Political	Government interest in e-government/digital health; decentralized health governance across wilayas; public-private tensions	Opportunity for national campaigns; need for stakeholder alignment across ministries
Economic	Growing internet economy; constrained public health budgets; private sector growth in urban areas	Market for paid services in private sector; procurement cycles in public sector limit uptake
Social	High social media use; multilingual populace (Arabic, Algerian dialects, French); variable health literacy	Necessitates localized multilingual content and health-literacy campaigns
Technological	36.2M users; FTTH expansion; mobile-first usage; device heterogeneity	Design for mobile and low-bandwidth; progressive enhancement of content
Legal	Law No.18-07 (2018) in force; incomplete sector-specific guidance; nascent enforcement capacity	Need for conservative, consent-based data practices; DPO roles recommended
Environmental	Urban-rural infrastructure disparities; energy/ICT resilience issues in some regions	Contingency planning for offline/low-connectivity outreach

(References: DataReportal [1,2,10,11])

Table 2: Porter’s Five Forces

Force	Assessment (Algeria, 2025)	Operational impact for digital-health marketers
Threat of new entrants	Moderate-tech-savvy entrants can build basic offerings, but clinical credibility and regulation raise barriers	Need to emphasize clinical partnerships and compliance to differentiate
Bargaining power of buyers	High-hospitals and clinics are price-sensitive; public purchasers dominate volume	Offer modular, cost-effective solutions and pilot-to-scale models
Bargaining power of suppliers (platforms)	High-global platforms (Meta, Google, TikTok) control distribution and ad products	Develop platform-agnostic creative; negotiate localized platform support
Threat of substitutes	Moderate-traditional offline marketing and clinician referrals remain important	Integrate digital with offline pathways; focus on measurable value
Industry rivalry	Increasing-local agencies, regional consultancies and global vendors compete	Build niche (healthcare) expertise and regulatory-compliant services

Table 3: Risk Matrix

Risk	Likelihood (Low/Med/High)	Impact (Low/Med/High)	Mitigation measures
Data breach exposing health data	Medium	High	Privacy-by-design, encryption, limited retention, DPO oversight, incident response plans
Misinformation spread via campaigns (or by third parties)	High	High	Clinician vetting, rapid response protocols, platform cooperation, proactive myth-busting content
Regulatory non-compliance (advertising/consent)	Medium	High	Legal review, standardized consent templates, sectoral guidance adoption
Exclusion of rural/low-bandwidth populations	High	Medium	Low-bandwidth content, SMS/USSD pathways, multilingual materials
Poor attribution leading to contract disputes	Medium	Medium	Pre-registered evaluation designs, privacy-preserving measurement, agreed KPIs
Reputational harm from influencer misuse	Medium	High	Influencer vetting, disclosure rules, contract clauses for medical claims

Notes. Highest-priority mitigations combine technical controls (encryption, secure storage), governance (DPOs, legal sign-off) and communications (clinician-vetted content, partnerships with public health authorities) [13]

Algeria’s digital-health environment combines strong state interest in e-government with decentralised execution at the wilaya level, rapid (but uneven) connectivity growth, multi-lingual user bases, constrained public budgets and a young, social-media-first population.

Porter’s Five Forces

Algeria’s digital health sector is confronted with a variety of significant challenges and pressures from buyers, suppliers and emerging or alternative competitors, as illustrated in the Table 2:

Interpretation

Platform power is a critical force: Global ad platforms determine distribution rules and content moderation, so local actors must cultivate technical expertise, platform relationships and creative localization. Buyers (public hospitals, private clinics, insurers) have differing incentives; agencies should offer flexible pricing and proof-of-performance pilots to secure contracts [9].

Overall, Algeria’s digital health sector faces strong buyer and supplier power, moderate threats from entrants and substitutes and growing rivalry. Success will hinge on building credibility, complying with local regulations and offering specialized, value-added services that integrate both digital and traditional healthcare communication channels.

Risk Matrix (Likelihood × Impact) - Key Digital-Marketing Risks

In Algeria, the digital health landscape is influenced by a number of factors that play a key role in determining how sustainably digital health strategies can be adopted. The Table 3 provides a clearer view of these factors.

Taken together, these risks underscore that Algeria’s digital health landscape is constrained less by technological feasibility than by trust, equity and compliance factors. Sustainable adoption will depend on embedding strong governance, inclusive design and rapid-response mechanisms into digital health strategies.

KPI Dashboard (Privacy-Preserving) - Prioritized and Editable Table

Design principle: Prefer aggregated, consented, or proxy indicators to avoid unnecessary processing of sensitive data (Table 4).

Together, these indicators represent a multi-dimensional monitoring system that moves from awareness to outcomes while embedding privacy, equity and safety as core evaluation pillars. For Algeria, where regulatory enforcement is still developing but public trust is fragile, such a framework balances accountability with compliance and inclusiveness.

Table 4: KPI Dashboard

KPI Category	KPI (privacy-first)	Definition/Measurement notes	Data requirement
Awareness	Reach (unique devices)	Number of unique devices that saw campaign content (no PII)	Platform-level aggregates
Engagement	Engaged sessions per 1,000 impressions	Clicks + time on page/impressions	Aggregated analytics
Action (access)	Appointment bookings via campaign	Number of bookings attributable to campaign tokenized links (consent-based)	Campaign tokens; avoid storing health conditions
Access equity	% bookings from rural wilayas	Share of bookings from rural vs urban (aggregated by wilaya)	Aggregated geolocation (coarse)
Clinical linkage	Telemedicine attendance rate	% of scheduled telemedicine visits completed (cohort-based, consented)	Provider-side aggregated counts
Outcome proxy	Medication refill rate (proxy)	% of patients in consenting cohort who filled a prescription within X days	Requires consent and provider/payer aggregation
Safety	Reported misinformation incidents	# flagged misinformation items and response time	Platform moderation logs (aggregated)
Privacy compliance	% campaigns with recorded consent	Share of campaigns where consent audit trail exists	Internal compliance logs
ROI (financial)	Cost per completed appointment	Total campaign cost/number of completed bookings	Financial totals (non-PII aggregates)

Notes: When individual tracking is required, segmented or coded linkage is used and linkage tables are stored separately and securely with minimal retention. Pre-recorded assessment protocols and independent audits are preferred for high-risk claims [14].

Results

Findings-Major Challenges

Regulatory Ambiguity and Enforcement Capacity: While Law No. 18-07 exists, guidance specific to health-data processing, health-marketing activities, cross-border transfers and the profiling of health data is incomplete. The law sets out principles of consent and data-subject rights, but health marketers face uncertainty on what constitutes legitimate marketing versus prohibited processing of sensitive data. Moreover, advertising rules for clinical claims, medical products and influencer endorsements in Algeria are not consolidated in a single, accessible code. This regulatory ambiguity produces two practical risks: organizations may either over-restrict activities (thereby limiting beneficial patient engagement) or under-protect, exposing patients to privacy harms and organizations to legal and reputational risks.

Infrastructure and Digital-Access Divides

National averages mask significant regional heterogeneity. Certain wilayas still have constrained connectivity; many users rely on mid-range or older smartphones with limited processing power and storage. As a result, content strategies requiring high bandwidth (long-form video, heavy interactive web forms) will underperform in parts of the country. Marketers need channel-mix strategies that include SMS/USSD, lightweight web pages, audio messaging and short-form videos to maximize inclusivity.

Trust, Health/Digital Literacy and Misinformation

Misinformation poses a major threat: without trusted signals and authoritative sources, social platforms can elevate unverified claims, leading to harmful health behaviours. Algeria has experienced the need for stronger public-health communications during routine and crisis periods. Healthcare marketers must therefore integrate credibility markers-clinician endorsements, institutional co-branding, transparent sourcing-and maintain rapid response processes for misinformation.

Market Fragmentation and Stakeholder Misalignment

The mixed public-private structure creates varied demand-side incentives. Public hospitals generally operate under constrained budgets and slower procurement cycles while private clinics seek patient acquisition and differentiation. Insurers and payers have limited history of reimbursing digital-first services, making it harder for agencies and startups to build stable revenue models. Fragmentation requires modular product designs and flexible contracting to serve diverse buyers.

Measurement, Attribution and Privacy Constraints

Demonstrating the clinical impact of marketing or engagement initiatives remains challenging. Clinical outcomes have longer timelines and users are exposed to multiple channels. With stricter privacy norms and reduced cross-site tracking, privacy-preserving evaluation approaches (consented cohorts, aggregated outcomes, synthetic controls) are recommended. Aligning metrics with clinical KPIs and pre-registering evaluation protocols can help maintain credibility and enable outcome-based contracting.

Talent Gaps and Organizational Capacity

Building effective digital-health marketing requires integrated teams: clinicians, data privacy officers, UX designers, Arabic/French content specialists and data scientists. Algeria’s market is developing but needs targeted training pipelines and closer links between medical schools, communications faculties and the private sector to scale capacities.

Recommendations

Recommendations are grouped and prioritized by stakeholder [8]:

Regulators and Policy-Makers:

- Publish health-sector implementing guidance for Law 18-07. Develop practical templates for consent, clarify rules for profiling and cross-border transfers of health data and set standards for special categories of data. This reduces legal uncertainty and enables compliant innovation. Engage clinical societies and patient groups in drafting
- Create a digital-health marketing code of practice. Co-develop a code with the Ministry of Health, medical associations, patient organizations and platform reps to set standards for influencer disclosure, acceptable clinical claims and audit trails for campaigns
- Establish regulatory sandboxes. Launch public-private sandboxes allowing pilot projects that test privacy-preserving analytics (consented cohorts) and measurement approaches under regulatory oversight

Healthcare Providers:

- Adopt privacy-by-design for patient engagement systems. Limit stored sensitive data, log consent, encrypt data at rest and in transit, enforce role-based access and define retention schedules [3]
- Develop multilingual and low-bandwidth content strategies. Use short-form videos, audio messages, SMS reminders and lightweight landing pages that adapt to bandwidth and device class [10]
- Clinically-vetted content playbooks. Organize clinician sign-off, maintain an approvals register and archive campaign content for auditing

Digital Agencies and Startups:

- Offer privacy-first measurement services. Provide aggregated, cohort-based evaluation services, synthetic-control analyses and uplift measurement that do not require invasive cross-site tracking [11]
- Modular product offerings. Serve both small clinics and larger hospitals with tiered service packages aligned to procurement cycles and budgets
- Localize influencer programs with clinical oversight. Vet influencers and include legal clauses forbidding unapproved medical claims

Payers and Insurers:

- Reimburse evidence-based digital services. Pilot reimbursements for telemedicine visits and adherence programs with measurable outcomes
- Co-fund national evaluation infrastructure. Support a centralized privacy-preserving evaluation platform to harmonize metrics across providers

Cross-Cutting Measures:

- Workforce development. Launch accredited certificate programs in digital-health communication, health UX and health-data privacy through partnerships between universities and professional bodies
- National literacy and trust campaigns. Run sustained health-literacy initiatives co-branded by the Ministry of Health and clinical societies; clarify data-use practices and patient rights
- Platform engagement. Negotiate with global ad platforms and social networks to reduce misinformation and to establish local priority channels for authoritative health content

Country Vignettes: Illustrative Use-Cases for Algeria

To contextualize recommendations, the study presents three short vignettes that illustrate practical use-cases and potential pitfalls:

Vignette A

Rural NCD adherence campaign (public hospital + NGO + telco). A regional public hospital partners with a nongovernmental organization and a national telco to run an SMS- and IVR-based adherence-support campaign for patients with hypertension in a wilaya with limited broadband. The campaign uses consented patient lists (consent captured during clinic visits), leverages SMS reminders and short educational audio in Arabic dialects and measures appointment attendance via tokenized booking links. The project adopts encryption, a DPO-reviewed consent form and an evaluation pre-registered with the Ministry of Health. Lessons: low-bandwidth channels achieve reach, consented cohorts enable evaluation and partnerships with telcos reduce delivery costs.

Vignette B

Private clinic patient acquisition and telemedicine scaling. A private multispecialty clinic wants to scale telemedicine. The clinic commissions a digital agency to run search and social campaigns and to deploy a booking portal. The agency ensures clinician review of promotional claims, uses brief explainer videos and designs a lightweight portal that degrades gracefully in low-bandwidth contexts. For measurement, the agency uses campaign tokens and aggregated appointment completion rates; it shares de-identified aggregated metrics with the clinic. Lessons: modular solutions and attention to bandwidth and clinical review are vital for ethical marketing.

Vignette C

National vaccination awareness campaign. The Ministry of Health launches a national multimedia campaign combining TV, radio, social media and community mobilizers to address vaccine hesitancy in urban and peri-urban districts. The campaign is co-designed with university researchers and includes a misinformation rapid-response cell that monitors social platforms and issues corrective messaging. The campaign uses platform-level reach metrics for awareness and consented surveys to measure shifts in attitudes. Lessons: multi-channel approaches, research partnerships and rapid-response capacity strengthen resilience against misinformation.

Implementation Roadmap

A realistic three-phase roadmap to operationalize the recommendations [3]:

Phase 1 (0-12 Months):

- Issue health-sector guidance under Law 18-07 for ministerial clarity on health-data processing for marketing and consent templates
- Pilot privacy-first measurement in a public-private sandbox on an NCD adherence or immunization campaign
- Launch clinician-vetted content templates and multilingual low-bandwidth creative packages
- Begin accredited workforce certificate courses

Phase 2 (12-36 Months):

- Scale sandbox results into national measurement standards and shared dashboards
- Extend reimbursement pilots for telemedicine and adherence programs with large payers
- Formalize DPO roles and privacy audits for major providers
- Publish a national code of practice for digital-health marketing

Phase 3 (36+ Months):

- Implement interoperable consent registries with strict privacy safeguards
- Institutionalize outcome-based contracting for digital engagement programs
- Mature local agency market with accredited training and specialized product portfolios

Limitations and Directions for Future Research

This study identifies important evidence gaps. Peer-reviewed evaluations tying digital marketing interventions to clinical outcomes in Algeria are scarce [12]; future research should prioritize randomized or well-designed quasi-experimental evaluations (consented cohorts) in multiple wilayas to assess equity and clinical impact. Economic evaluations quantifying cost-effectiveness and budget impact for providers and payers are also needed. Finally, continuous monitoring of platform policy changes and the operationalization of Algeria’s data-protection enforcement framework is critical.

CONCLUSION

Algeria's rapid digital expansion presents an important opportunity to harness digital marketing for improved health education, access and outcomes. Nevertheless, seizing this opportunity responsibly requires clarifying regulatory frameworks for health data, institutionalizing privacy-by-design approaches, investing in targeted capacity-building and adopting privacy-preserving measurement frameworks that align with clinical KPIs. The recommendations and operational tools in this study provide a pragmatic roadmap; implementation will require multi-stakeholder collaboration, sustained funding and iterative piloting.

REFERENCES

1. DataReportal. Digital 2025: Algeria. 3 Mar. 2025, DataReportal.
2. ARPCE. Autorité de Régulation de la Poste et des Communications Électroniques, Observatory of the internet market in the 4th quarter 2024. 2024, www.arpce.dz.
3. DLA Piper. "Data protection laws in Algeria-summary and analysis (Law No. 18-07)." *DLA Piper Data Protection*, 2025, DLA Piper Data Protection.
4. Bluleadz.com. "7 top healthcare marketing challenges." 13 Nov. 2020, Bluleadz.
5. Han, Q.L. "Towards privacy-preserving digital marketing: An integrated framework for user modeling using deep learning on a data monetization platform." *Electronic Commerce Research Journal*, vol. 23, no. 3, 2023, pp. 1701-1730. <https://doi.org/10.1007/s10660-023-09713-5>.
6. Mudassar, B.T. "Privacy-preserving data analytics in Internet of Medical Things." *Journal of Future Internet*, vol. 16, no. 11, 2024, pp. 407-421. <https://doi.org/10.3390/fi16110407>.
7. Mymarketing.io. "Digital marketing in the healthcare industry." 2022, Mymarketing.io.
8. CMS. "Algeria-data protection and cybersecurity laws overview." *CMS Law*, 2021, CMS Law.
9. Evaluate.com. Digital health ecosystem 2023 yearend report. 2023, Evaluate.com report.
10. WHO. Global strategy on digital health 2020-2025. World Health Organization, 2021, World Health Organization.
11. Growth, G. Digital health ecosystem report: Key trends that shaped digital health innovation in 2024. 2024, Galen Growth.
12. Magbi Mimouna, S.A. "The impact of telemedicine on improving public health services: A study of international experiences and the Algerian case." *Review of "Eco Research"*, vol. 19, no. 2, 2024, pp. 84-103.
13. Suarez-Lledo, V.G. "Prevalence of health misinformation on social media: A systematic review." *Journal of Medical Internet Research*, vol. 23, no. 1, 2021, e17187.
14. Chen, J.W. "Social media use for health purposes: A systematic review." *Journal of Medical Internet Research*, vol. 23, no. 5, 2021, e17917.