Accelerating telehealth in South Africa: Bridging the gap between policy, AI innovation, and patient access

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Background. The COVID-19 pandemic accelerated global telehealth adoption, yet South Africa (SA) continues to face barriers owing to outdated regulations, fragmented infrastructure, and limited integration of artificial intelligence (AI). While national frameworks acknowledge the role of AI, a dedicated strategy for its implementation in healthcare is absent. This study draws on international governance frameworks and comparative policy analysis to explore pathways for inclusive and effective AI-enabled telehealth in SA.
Objectives. To assess current telehealth and AI policy landscapes in SA, identify implementation gaps, and provide actionable recommendations for aligning national strategies with international standards and healthcare needs.
Methods. A qualitative policy analysis was conducted, reviewing SA regulatory instruments, including Health Professions Council of South Africa guidelines, the National AI Policy Framework and the National Health Insurance Act 20 of 2023, alongside the World Economic Forum (WEF)'s 2025 White Paper on AI in healthcare. A thematic comparative approach identified regulatory and infrastructural gaps, and proposed frameworks for sector-specific policy advancement. No human participants were included.
Results. SA's revised Telehealth Guidelines (2021) remain restrictive and lack provisions for AI integration. The National AI Policy Framework outlines ethical AI governance but fails to detail healthcare-specific implementation. In contrast, the WEF framework offers a phased, stakeholder-driven model for AI adoption, emphasising data governance, digital infrastructure, and workforce training – critical elements currently missing in SA's approach.
Conclusion. A national AI-in-healthcare roadmap, supported by regulatory reform, a dedicated oversight body, and investment in digital infrastructure, is essential for equitable telehealth expansion. Further research should focus on scalable models for rural and underserved populations.

Keywords: telehealth, artificial intelligence, AI, health policy, digital health governance, equitable healthcare access

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The emergence of telehealth as a cornerstone of modern healthcare has been accelerated by the COVID-19 pandemic, which forced a rapid pivot towards virtual consultations and digital health services worldwide.[1] In South Africa (SA), this shift exposed long-standing regulatory ambiguities and infrastructural limitations that continue to impede the equitable adoption and scaling of telehealth. Historically, the Health Professions Council of South Africa (HPCSA) imposed restrictions such as mandatory in-person consultations prior to virtual engagements, limiting both patient access and provider flexibility.[2] Although the 2021 revision of the HPCSA's telemedicine guidelines marked a progressive step by introducing broader definitions and relaxing some conditions,[3] key concerns around legal liability, consent and ethical boundaries, especially on social media platforms, remain unresolved.[4]

Global frameworks have increasingly highlighted the transformative potential of artificial intelligence (AI) in healthcare. The 2025 World Economic Forum (WEF) White Paper on The Future of AI-enabled Health: Leading the Way (WEF Report) identifies AI as a crucial enabler of diagnostic accuracy, predictive analytics, and equitable access in healthcare, particularly in low- and middle-income countries.[5] Parallel to this, SA's National AI Policy Framework (SA Framework), published in 2024, outlines broad ethical principles and infrastructure goals for AI integration, yet lacks a dedicated strategy for the health sector.[6] This policy gap presents both a challenge and an opportunity: to embed AI within telehealth in a manner that is contextually responsive and ethically grounded.

This article aims to explore how SA can bridge the divide between its emerging digital health frameworks and global AI-driven healthcare in alignment with the WEF Report's vision and the SA Framework. By analysing existing policy instruments, international best practices, and the ethical complexities of AI integration, the study presents a roadmap for accelerating telehealth adoption. The focus lies on proposing a sector-specific strategy that incorporates regulatory clarity, equitable infrastructure development, and governance models for AI use in healthcare, particularly relevant for a country grappling with systemic health disparities and digital exclusion.

The article specifically examines how AI can operationally enable and scale telehealth services in SA, including virtual triage, remote diagnostics, AI-assisted consultations, and digitally mediated continuity of care in resource-constrained health systems.

The current state of telehealth in SA

SA's telehealth sector operates within a fragmented regulatory framework rather than an absence of regulation. A range of statutory and professional instruments, some binding and others advisory, collectively govern aspects of telehealth practice, data management, and digital health service delivery. These include the National Health Act 61 of 2003, the Electronic Communications and Transactions Act 25 of 2002, the Protection of Personal Information Act 4 of 2013 (POPIA), the Promotion of Access to Information Act 2 of 2000, the Medicines and Related Substances Act 101 of 1965, and multiple HPCSA ethical guidelines. Furthermore, if a telehealth platform, AI diagnostic tool, remote monitoring device or health-related software meets the definition of a medical device, it falls under the South African Health Products Regulatory Authority (SAHPRA)'s regulatory framework. While these instruments regulate healthcare delivery, electronic communication and health data processing, both directly and indirectly, they do not constitute a unified or telehealth-specific governance framework. As a result, regulatory oversight remains dispersed across legal domains, creating uncertainty for practitioners, technology developers and investors. The General Ethical Guidelines for Good Practice in Telemedicine (Telemedicine Guidelines) were first issued by the HPCSA in 2014;[3] however, this authority only governs its members who are registered healthcare professionals, and not the telehealth industry at large.

Generally, in unregulated environments, companies and investors are reluctant to invest in growth where there is unpredictability. Where there is investment by private industry, this funding leads to innovation and problem solving at scale. However, the private SA telehealth operators that have entered this space have typically been small-scale and niche businesses or heavily subsidised entities, contributing minimal value in terms of broader access to healthcare, positive economic growth, and technological advancement within the industry.

Before 2020, telehealth in SA faced significant barriers to growth, primarily owing to restrictions imposed by healthcare practitioners' regulatory authority, the HPCSA. The HPCSA mandated in-person consultations prior to any virtual engagement with patients, which significantly limited both access to and the widespread adoption of telehealth services. The HPCSA had legitimate concerns about patient safety, legal liability and ethical compliance, particularly around cross-border care, which made them cautious and resolute. This self-regulating authority ensured compliance via its members.

For example, an inquiry instituted in 2013 against Prof. Tim Noakes, a specialist in exercise science, sports medicine and nutrition, involving alleged 'medical advice' shared via a popular social media platform, forced the discussion into the public space, specifically around how practitioners should communicate with the public.[7] The inquiry cleared Prof. Noakes of misconduct; however, during the period of the inquiry, the HPCSA published the first Telemedicine Guidelines.[3]

At around the same time, the HPCSA issued a stern communication to its members cautioning against the use of telehealth platforms such as Hello Doctor. This warning attracted significant industry media attention and further discouraged the widespread adoption of telehealth practices among its members.

These regulatory constraints provide important context for understanding why telehealth expansion in SA has remained uneven, and why subsequent technological developments, including AI-enabled systems, must be evaluated within existing institutional limitations. In practice, SA law frequently requires the use of data transfer agreements to govern the lawful sharing and processing of health information across institutions and digital platforms, further illustrating the layered regulatory environment within which telehealth operates. In addition to this, the Medicines and Related Substances Amendment Act 14 of 2015 was signed and published in January 2016 in order to bring about a comprehensive regulatory framework for medical devices; however, the mandatory registration of medical devices under that Act is still being phased in and has not yet been universally enforced.[8]

Pandemic-driven acceleration

The COVID-19 pandemic, which led to global lockdowns in March 2020, prompted an urgent shift towards telehealth worldwide. The ubiquitous adoption of telehealth by practitioners in the absence of face-to-face consultations with patients was nearly immediate. However, it was only in 2021 that the HPCSA revised the Telemedicine Guidelines by publishing the General Ethical Guidelines for Good Practice in Telehealth (Telehealth Guidelines).[9] Furthermore, they renamed the practice 'telehealth' in order to encompass a wider range of digital health services. One of the biggest reforms to the guidelines was the relaxation of the requirement for first-time virtual consultations, under specific conditions. The new guidelines also expanded their scope to include allied health professionals and diverse telehealth services, as well as expanding consent to include electronic formats and verbal agreements in emergencies. Despite these reforms, elements of the updated guidelines remained restrictive, particularly regarding the use of social media platforms for telehealth services, and to date, no further updates have been made to these specific guidelines. A separate guideline called Ethical Guidelines on Social Media was published in 2019 to help health practitioners understand their obligations when using social media.[10]

During the lockdown period, many practitioners adopted telehealth through various digital tools, including video conferencing platforms such as Zoom and messaging applications such as WhatsApp. At the same time, AI-driven diagnostic tools and remote patient monitoring systems continued to emerge as viable healthcare innovations, demonstrating the increasing demand for accessible and efficient digital healthcare services.

The pandemic-driven acceleration of telehealth therefore exposed both the potential of digitally mediated care and the structural governance gaps that now shape discussions on AI integration within SA's telehealth ecosystem.

Post-pandemic challenges

Building on this rapid expansion, post-pandemic policy debates increasingly shifted towards how emerging AI technologies could be governed within telehealth environments already operating under regulatory uncertainty.

In 2025, the HPCSA published its Guidance on the Ethical Use of AI in Social Media, where considerations for ethical use of AI and data-driven decision-making were introduced for the first time.[11] General-purpose AI has become an additional layer of concern, especially since chatbots and other automated services such as AI agents or 'agentic AI', which are becoming popular practices across all industries, will probably fall outside the authority of the HPCSA. AI agents can cover a wide range

of functions such as decision-making, problem-solving, engaging with external environments, and performing certain actions.

The relevance of these guidelines becomes increasingly significant in the context of telehealth, where social media and messaging platforms are frequently used by members for patient interaction, health communication and digital consultation. However, when it comes to AI-driven chatbots, automated triage tools and algorithmically generated health information, which may operate through platforms such as WhatsApp or other social media environments that fall outside traditional clinical settings, this becomes a grey area. This convergence blurs distinctions between professional medical advice, digital health services, and automated information dissemination, raising important questions regarding ethical oversight and regulatory jurisdiction within AI-mediated telehealth practices. Since medical device registration is still in progress, the regulatory oversight of these human-to-machine interfaces via social media falls outside any health regulatory oversight.

The integration of AI into telehealth is inevitable owing to the many constraints already on the current public healthcare system, including shortages of doctors and a lack of adequate primary care facilities. The National Health Insurance Act 20, published in 2023 (NHI Act), does not explicitly mention 'digital health' or 'telehealth' within its text.[12] However, it outlines the creation of a national health information system to manage and process health-related data. This implies a governance structure around digital health, but it is unclear who will develop and govern this technology. These and other developments make it essential to establish an overarching authority outside the HPCSA, one that is competent and dedicated to implementing an AI strategy for SA, and one that prioritises and understands digital health as a service. Furthermore, SAHPRA, as the statutory authority responsible for regulating all medical devices, currently faces limitations in terms of the technical expertise and capacity required to effectively oversee complex software and hardware systems such as AI-driven diagnostics, remote patient monitoring devices, and integrated telehealth platforms. This lack of technical expertise will result in gaps in risk assessment and compliance, and could possibly fail to provide assurance of safety and efficacy standards that are there to protect the patient.

While the risks associated with general purpose AI are still not wholly defined globally, a regulatory framework that integrates AI capabilities as part of the ethical oversight of telehealth will enhance patient safety and is essential for balancing innovations, especially when it comes to SA's digital health landscape. There is no sense in developing these in isolation; many countries have already started the process, and even a small country such as Malta, with a population of just over half a million people, has a dedicated authority called the Malta Digital Innovation Authority that will be responsible for the oversight and governance of its AI strategy.[13]

Lessons from the WEF Report on AI in healthcare

International policy frameworks provide a comparative lens through which SA's telehealth governance challenges, and opportunities for AI-enabled service delivery, can be more clearly understood.

The WEF Report provides important guidance for understanding how AI can strengthen telehealth systems through automated clinical support, remote monitoring, and digitally mediated patient interaction. On 21 January 2025, the WEF published its White Paper on The Future of AI-enabled Health: Leading the Way.[5] While the WEF does not constitute a binding international regulatory authority, its policy frameworks provide influential multi-stakeholder guidance reflecting emerging global industry and governance practices. These insights are considered alongside broader international health governance principles advanced by organisations such as the World Health Organization (WHO) and the World Medical Association.

The WEF Report provides a comprehensive analysis of AI's transformative potential in healthcare, identifies adoption challenges, and outlines six transitional shifts necessary for healthcare leaders to drive value creation and achieve transformative change through AI integration. This report follows on the heels of the SA Framework that was published in August 2024 and provides a broad and strategic vision for the development and deployment of AI across multiple sectors, including healthcare.[6] While this framework establishes important principles related to AI governance, digital infrastructure and ethical considerations, it lacks specific implementation strategies for AI in healthcare. By comparing the SA Framework with the insights from the WEF Report, several areas for improvement emerge, as discussed below. International organisations such as the WHO have similarly emphasised the importance of digital health governance, interoperability, ethical oversight and workforce preparedness in the responsible deployment of AI within healthcare systems. These principles reinforce the relevance of adapting global guidance to national telehealth implementation contexts such as SA.

The SA Framework lays a strong foundation for AI governance and development. One of its key strengths is its commitment to ethical AI, with a strong emphasis on privacy, security, transparency and fairness. These principles ensure that AI systems align with human rights and societal values. Additionally, the framework prioritises AI talent development, proposing the integration of AI education into school and university curricula, as well as the expansion of research and training programmes. Another important aspect is its investment in digital infrastructure, recognising that AI requires robust computing power and internet connectivity to function effectively, highlighting the need to develop supercomputing capabilities and improve digital connectivity, which are crucial for supporting AI-driven innovations in healthcare and other industries. Furthermore, the SA Framework acknowledges the sectoral applications of AI, stating that AI should be leveraged to drive economic and societal benefits in healthcare, education and public administration. The framework also recognises the importance of regulatory and governance structures to ensure that AI deployment is safe and ethical. By establishing guidelines for privacy protection, cybersecurity and bias mitigation, the framework provides a strong starting point for responsible AI governance.

A roadmap for AI-enabled telehealth implementation

Although the SA Framework recognises healthcare as a priority sector, it does not provide a sector-specific roadmap for integrating AI into telehealth service delivery. In contrast, the WEF Report adopts a phased implementation model that illustrates how AI can progressively strengthen telehealth systems when aligned with service delivery needs.

In the short term, AI-enabled virtual triage systems and chatbot technologies demonstrate how telehealth platforms may support preliminary symptom assessment, patient routing, and digital

appointment management. Such applications illustrate the potential for improving patient flow while optimising limited clinical resources within remote consultation environments.

Over the medium term, AI-assisted remote diagnostics and intelligent monitoring systems expand telehealth functionality by enabling clinicians to manage chronic conditions and detect early clinical deterioration through virtual engagement. These developments are particularly relevant in contexts where continuity of care is disrupted by geographical and infrastructural constraints.

In the longer term, emerging AI capabilities point towards integrated home-based care ecosystems supported by continuous monitoring, automated alerts, and digitally co-ordinated treatment pathways. Within telehealth environments, these applications reduce clinician workload while expanding access to geographically remote populations. Collectively, these findings highlight the importance of phased AI integration as a mechanism for transitioning telehealth from episodic virtual consultation towards sustained models of distributed care. Accordingly, the present study proposes a context-sensitive conceptual roadmap for AI-enabled telehealth implementation in SA, translating international policy principles into an operational framework across short-, medium- and long-term horizons.

Public-private collaboration for AI-enabled telehealth

Analysis of international AI adoption models demonstrates that public-private collaboration plays a central role in scaling telehealth innovation. In SA, the expansion of telehealth services requires co-ordination between technological development, healthcare governance and clinical implementation environments.

Existing policy frameworks recognise collaboration in principle but provide limited operational pathways linking AI innovation to telehealth delivery. Evidence from comparable jurisdictions indicates that partnerships between public health institutions, research organisations and private technology developers enable the testing and deployment of AI-supported teleconsultation platforms, remote referral systems, and digitally integrated care networks. Furthermore, industry groups such as the South African Medical Technology Industry Association can contribute industry expertise to assist regulators with understanding technical and operational realities as well as supporting capacity building and setting up best practice standards.

These observations underscore the importance of collaborative innovation environments capable of aligning technological development with national healthcare priorities and population-level access objectives.

Governance and data sharing for AI-enabled telehealth

Effective telehealth delivery depends on interoperable and securely governed health data systems capable of supporting real-time remote clinical decision-making. While the SA Framework emphasises privacy and cybersecurity, limited attention is given to the data governance requirements of AI-enabled telehealth ecosystems.

Telehealth services rely on continuous data exchange to enable virtual consultations, remote diagnostics, and longitudinal patient monitoring. Fragmented health information systems may therefore constrain clinical effectiveness by limiting access to accurate patient records during remote care interactions.

These findings indicate the importance of interoperable data-sharing infrastructures capable of supporting telehealth delivery while maintaining compliance with national data protection legislation. Robust governance arrangements enable AI systems to enhance remote risk assessment, continuity of care, and system-wide co-ordination across dispersed healthcare settings.

The NHI Act further envisages the development of a national electronic health record system intended to support integrated healthcare delivery across the public and private sectors. However, the institutional design, technical architecture and implementation pathway of this system remain uncertain. This situation has significant implications for AI-enabled telehealth, as the effectiveness of algorithm-assisted diagnostics, remote monitoring, and clinical decision support tools depends on reliable and interoperable health data infrastructures. These uncertainties also raise practical questions regarding workforce readiness and AI literacy, particularly where healthcare and allied professionals may be required to engage with AI-supported systems before foundational digital health infrastructure is fully operationalised.

AI upskilling for telehealth practice

The adoption of AI-enabled telehealth services is closely linked to healthcare workforce readiness. Evidence suggests that limited AI literacy among healthcare professionals remains a significant barrier to effective implementation, particularly within digitally mediated clinical environments.[14]

Telehealth consultations increasingly involve algorithm-supported tools assisting with symptom analysis, documentation and decision support. These developments highlight the evolving competencies required for clinicians operating within virtual care systems. Furthermore, awareness around data encryption protocols and other safeguards, as well as understanding of the regulatory status of connected medical devices, is essential to ensure patient safety, maintain confidentiality, and comply with both SAHPRA medical device requirements and HPCSA telehealth guidelines.

These findings indicate the value of targeted professional training that supports responsible interaction with AI technologies while maintaining clinical judgement and professional accountability. Strengthening practitioner confidence and digital competence is therefore closely associated with improved quality and safety in telehealth service delivery.

AI equity through AI-enabled telehealth

AI has significant potential to address structural healthcare inequalities when deployed through telehealth delivery models. In SA, disparities in geographical access to healthcare services position telehealth as an important mechanism for extending specialist care beyond urban centres.

AI-supported virtual consultations, mobile diagnostic tools, and automated triage systems demonstrate how telehealth platforms may expand access to screening, early detection and preventive care in underserved communities. These technologies enable healthcare delivery to move beyond facility-based models towards distributed and community-level care.

The analysis highlights how AI-enabled telehealth functions not only as a technological innovation but also as a mechanism for advancing equity within healthcare systems. When embedded

within inclusive implementation strategies, telehealth expansion may contribute to improved access, efficiency and health outcomes across historically marginalised populations.

Notwithstanding the potential of AI-enabled telehealth to expand healthcare access, its implementation in SA remains shaped by persistent digital inequalities. Variations in broadband connectivity, device access, digital literacy and electricity reliability continue to influence the extent to which telehealth services can be equitably deployed across rural and low-income communities. These structural constraints highlight that AI integration alone cannot resolve access disparities without parallel investment in digital infrastructure and inclusion strategies. The effectiveness of AI-enabled telehealth therefore depends not only on technological innovation but also on addressing the broader digital divide that characterises SA's health and information ecosystems. In addition, the high level of maladministration and corruption in the state sector continues to dampen any ambitions of a unified and equal access-based healthcare system, let alone a cohesive and efficiently regulated telehealth ecosystem, where safe, effective and technologically advanced services can be deployed equitably across public and private sectors.

Consolidated policy recommendations for AI-enabled telehealth in SA

Drawing on the preceding policy analysis, in Table 1 we present key recommendations for SA's AI telehealth future, to serve as a structured roadmap for implementing AI-enabled telehealth in SA. Presenting these recommendations in a unified framework strengthens their practical relevance for policy-makers, regulators, and healthcare stakeholders.

Discussion and conclusion: The road ahead for AI-enabled telehealth in SA

The rapid expansion of telehealth during the COVID-19 pandemic demonstrated both the feasibility and necessity of digitally mediated healthcare delivery in SA. However, the analysis presented in this study shows that telehealth adoption remains constrained by regulatory fragmentation, uneven digital infrastructure, and the absence of a co-ordinated framework for integrating AI into healthcare delivery systems.[15] While national policy instruments increasingly recognise the importance of AI, their practical alignment with telehealth implementation remains limited.

Table 1. Key recommendations for SA's AI telehealth future

Recommendation	Impact
Immediate	
Regulatory authority	A dedicated authority that oversees the regulatory, development and governance of AI in SA
Digital health subcommittee	A panel of experts in digital health and healthcare governance, with input from civil society and industry reviewers, to oversee the development of digital health regulations
Regulatory clarity	Defines telehealth and AI in the context of the patient under a single governing authority, provides legal certainty for AI-assisted telehealth services, and defines the authority, licensing, liability and accountability
Investment in digital health infrastructure	Expands access to telehealth in underserved areas and encourages augmentation through innovation, thereby enhancing public healthcare services
Public-private sector collaboration	Drives innovation through partnerships, increases funding for AI-driven patient services, and transfers technology, skills and expertise into the public services sector
Privacy and data protection	Ensures compliance with POPIA and global privacy and data protection standards and safeguards patient data in AI-driven healthcare
Ethical guideline development	Establishes ethical standards for AI and technology in healthcare, prevents misuse and biases in AI models and any similar technologies of the future
Talent building and capacity development	Develops AI expertise among healthcare workers and allied professionals and enhances workforce readiness for jobs of the future
Research, development and innovation	Encourages investment in AI-driven healthcare solutions, supports the SA digital health ecosystem
Public/private sector implementation	Aligns telehealth expansion within universal healthcare goals such as NHI and facilitates adoption in both sectors
Mid-term (2 - 5 years)	
AI-powered diagnostics and decision support	Improves early disease detection, ensures ethical AI use in medical decision-making, thereby ensuring patient-driven solutions
Enhancing public trust and digital literacy	Encourages public adoption of AI in healthcare by creating a demand for these skills through training and education
AI-enabled national health record system	Strengthens data sharing across facilities, improves systems of accountability and security in digital health record keeping
Long-term (beyond 5 years)	
Fully AI-integrated healthcare model	Optimises hospital efficiency with AI-assisted procedures and automation, thereby liberating HCPs from mundane tasks in order to focus on specialised care
Global AI and telehealth leadership	Establishes SA as a key player in AI-driven healthcare in Africa, for Africans
AI-first public health strategy	Enhances disease prediction in ubiquitous as well as unique situations, improves pandemic responses, and optimises resource allocation that is specific to the region

AI = artificial intelligence; SA = South Africa; POPIA = Protection of Personal Information Act; NHI = National Health Insurance; HCP = healthcare practitioner.

AI introduces the capacity to transform telehealth from an emergency response mechanism into a sustainable and scalable model of healthcare delivery. AI-enabled virtual triage, remote diagnostics and continuous patient monitoring illustrate how digitally supported care models may alleviate workforce shortages, improve system efficiency, and expand access to healthcare services across geographically dispersed populations. At the same time, these developments raise important governance considerations relating to accountability, data protection, professional oversight and equitable access.

The successful implementation of AI-enabled telehealth in SA will depend on co-ordinated regulatory reform, correct allocation of resources, trust in leadership, institutional capacity development, and sustained investment in digital infrastructure. Equally important is the development of governance arrangements capable of balancing innovation with patient safety, ethical oversight and public trust. The consolidated policy recommendations outlined in Table 1 provide a structured framework through which these objectives may be pursued within the SA healthcare context.

Ultimately, AI-enabled telehealth represents more than a technological advancement; it signals a transition towards more distributed, patient-centred and resilient healthcare systems. By aligning emerging AI governance initiatives with telehealth service delivery, SA has the opportunity to advance equitable healthcare access while positioning itself as a regional leader in digitally enabled health innovation.

Looking ahead, the effective integration of AI into telehealth will require sustained institutional co-ordination, adaptive regulatory governance, and continued investment in digitally enabled healthcare infrastructure. Future policy development should prioritise scalable implementation pilots, regulatory experimentation within controlled environments, and ongoing evaluation of AI-assisted telehealth outcomes in underserved communities. By translating governance principles into operational practice, SA can move from policy readiness towards implementation leadership in AI-enabled healthcare across the African region.

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