DISSERTATION REPORT

at

PATH, South Asia

(April 5th to October 4th 2024)

PRIVATE SECTOR ENGAGEMENT IN DIGITAL HEALTHCARE ACROSS LMIC'S IN SOUTH ASIA USING THE DIGITAL HEALTH MATURITY SCALE

A REPORT

By

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2022-2024

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ravit Samanta student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at PATH, Southasia from 5/4/24 to 4/10/24

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his/her future endeavors.

Dr. Sumesh Kumar
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CERTIFICATE OF APPROVAL

The following dissertation titled **"To access Digital health maturity of South east Asian countries"** at **"PATH"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Health IT** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Dr. Nishant Bala

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Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Ranit P. Samanta,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation title "Increasing Private Sector Engagement in Digital Healthcare across LMIC's in South Asia" at "**PATH, Soth Asia**" in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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..... Enrollment No. .....PGP/22/088.....
under the supervision of .....Dr. Ratika Samtani.....

for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from ....5th April 2024 to ...4th October 2024..

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Area of Dissertation: Digital Health

Attendance: 95%

Objectives achieved: → Research around Private Sector Provider
→ Multi country Research

Deliverables: ① LANDSCAPING Document - EGYPT, TUVALU.
② PPT decks → PARTNER PRESENTATION
③ PROPOSAL DEVELOPMENT

Strengths:
↳ RESEARCH, WRITING, ANALYSIS & PRESENTATIONS

Suggestions for Improvement: - Better Client Relationship Management
- Improve INTERPERSONAL Communication (Professional Communication)

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

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Place: DELHI

(Completion of Dissertation from respective organization)

The certificate is awarded to

Dr. Ranit P. Samanta

in recognition of having successfully completed his/her internship in the department of

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and has successfully completed his/her Project on

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Date: 4th October 2024

Organization: PATH, South Asia

He/She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish him/her all the best for future endeavors.

3rd Oct 2024

Training & Development

Zonal Head-Human Resources

Date – 28th Oct 2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ranit Samanta has successfully completed his internship with us at PATH India Country Program (Digital Health) from **05-Apr-24** to **04-Oct-24** under the guidance of Aishwarya Rohatgi.

We wish him all the very best for his future endeavors.

Sincerely,

For, **PATH India**

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In conclusion, my dissertation experience at PATH, South Asia has been a remarkable journey, and I am honored tohave been a part of such a dynamic and innovative organization. This experience has equipped me with valuable skills and knowledge that will undoubtedly shape my future endeavors in the field of public health.

Sincerely,

Dr. Ranit Samanta

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LIST OF ABBREVIATIONS

IoT	Internet of Things
AI	Artificial Intelligence
COVID-19	Coronavirus Disease
LMIC	Lower- and Middle-Income countries
ABDM	Ayushmann Bharat Digital mission
PATH	Program for appropriate technology of Health
EHR	Electronic Health Record
EMR	Electronic Medical Record
HFR	Health facility registry
HIS	Health Information System
HMIS	Health Management Information System
PHC	Primary Health Systems
GDP	Gross domestic product
HIE	Health Information exchange
OOP	Out-Of-Pocket
DPI	Digital Public Infrastructure
PSE	Private sector engagement
SDGs	Sustainable Development Goals
PPP	Public-private partnerships
UHC	Universal Health Coverage
NGO	Non-governmental organizations
m-Health	Mobile health
INGO	International non-governmental organizations

ECOSYSTEM FOR DIGITAL HEALTH

A digital health ecosystem combines state-of-the-art technology, extensive data systems, and networked infrastructure to provide a revolutionary approach to healthcare. Creating a smooth and comprehensive environment that allows patients, insurers, healthcare providers, and other stakeholders to work together efficiently is its main goal. In order to facilitate safe data interchange, real-time communication, and the provision of individualized treatment, this ecosystem makes use of advancements such as blockchain, telemedicine, artificial intelligence (AI), and the Internet of Things (IoT).[iii]

Through the use of wearable technology and smartphone applications, patients can receive services ranging from remote consultations to chronic illness management, empowering them as active participants in their healthcare journey. While insurers and regulators gain transparency and better risk management, healthcare providers get streamlined operations and data-driven insights for better decision-making. By combining preventative care and health equality initiatives, the digital health ecosystem functions as a cohesive system that not only treats current health issues but also prioritizes long-term population health.[iii]

By filling in the holes in traditional healthcare delivery and bringing it into line with the demands of contemporary, tech-savvy people, such a system would ultimately make healthcare accessible, effective, and sustainable.[ivv]

Key components of Digital Health ecosystem include:

1. Data Integration and Interoperability
   Real-time data sharing and analytics are made possible by secure platforms that guarantee the interchange of Electronic Health Records (EHRs) across providers.[vi]

2. Digital Tools and Platforms
   It comprises wearable technology, telemedicine solutions, smartphone apps, and remote monitoring tools to improve patient involvement and health monitoring.

3. Artificial Intelligence and Machine Learning
   Personalized medicine, risk assessment, diagnostics, and decision-making are all aided by AI-powered algorithms.

4. Healthcare Infrastructure
   IoT-enabled gadgets that optimize processes, cloud computing, and blockchain for safe patient data management.[vii]

5. Consumer-centric Services
   Virtual care models and personal health management tools enable patients to take an active role in their health journey.

Innovations in healthcare delivery have improved outcomes, efficiency, and accessibility. Patients, especially those in rural places, can obtain timely care while minimizing the need for in-person visits because to teleconsultations, remote patient monitoring, and virtual intensive care units. Health applications and wearable technology have also revolutionized preventive healthcare by enabling people to make healthier lifestyle choices and identify possible health problems early. AI-driven technologies offer individualized insights for the management of chronic conditions like diabetes and hypertension, assisting patients and healthcare professionals in taking preventative measures. By automating administrative processes, like as insurance claims and billing, operational efficiency is increased, errors are decreased, and resources for patient care are freed up. In this way, Digital health continues to pave the way for a future where healthcare is more patient-centered, accessible, and sustainable.[viii]

PRIVATE SECTOR ENGAGEMENT IN DIGITAL HEALTH

The term "private sector engagement in digital health" describes how private businesses, associations, and stakeholders actively contribute to the development of digital healthcare solutions. In order to increase the scope, effectiveness, and creativity of healthcare systems, this involvement is essential. Private organizations make contributions by creating wearable technology, telehealth platforms, data analytics tools, and health applications that enable people to take charge of their health and improve patient outcomes.[ix]

Public-private partnerships have been effectively used by a number of nations to enhance healthcare delivery:[xxi]

A. **India**: To encourage the use of telemedicine and electronic health records, programs like the Ayushman Bharat Digital Mission (ABDM) provide cash incentives through programs like the Digital Health Incentive Scheme. Only around 30% of Health Facility Registry (HFR) registrations are made by private parties, indicating that private sector involvement is still quite low.

B. **Kenya**: In an effort to improve mobile health (mHealth) solutions and close service gaps in distant areas, telecom firms like Safaricom have teamed up with hardware developers like Huawei.

C. **Rwanda**: By supporting the public system with telemedicine and other digital health tools during the COVID-19 pandemic, the private sector ensured ongoing access to healthcare even during lockdowns.

D. **Uganda**: Telemedicine and mobile health clinics are part of the e-health initiative that Uganda has put in place. In order to increase access to healthcare, notably in rural areas with limited medical resources, the nation has collaborated with both domestic and foreign private sector organizations.

E. **Philippines**: In order to improve medical access during catastrophes like the COVID-19 epidemic, the Philippine government has teamed up with tech companies to implement digital health systems. This would allow rural patients to receive vital healthcare services through telehealth platforms.

These illustrations show how the private sector's contributions to digital health are becoming increasingly significant in a variety of healthcare systems. In order to provide greater health equity, partnerships between the public and commercial sectors can develop sustainable healthcare models, expand access to remote treatment, and encourage the uptake of cutting-edge technologies.

This organization ought to enforce open practices for doctors, physician license, and private provider accreditation. putting in place structures that, via clear contracts, guarantee a robust private-public partnership (PPP) in the health sector. Autonomous management of healthcare facilities should also guarantee quality-based procurement. The best approach for the South Caucasus to interact with the private sector would be through PPPs. The expansion of PPPs requires a number of crucial factors, including political will, regulatory and legislative frameworks, openness, public sector capability, comprehensive and flexible contracts, and widespread stakeholder engagement. To improve the quality, equity, and efficiency of health systems as nations strive for universal health coverage, it is also crucial to learn from best practices around the world and conduct more study on how these systems design and oversee mixed public-private services.[xii]

The private sector, which includes the portion of the economy that is not under state control and is operated for profit by individuals and businesses, is vast and varied. The private sector plays an increasingly significant role in the variety of connections that PSE encompasses. This range includes both donor- or public-funded initiatives, Engagement c-creation and Private sector led engagement.[xiii]

ABOUT PATH

INTRODUCTION OF ORGANIZATION

PATH is a global nonprofit organization committed to advancing health equity and improving lives worldwide through innovative, sustainable, and scalable solutions. Founded in 1977 by three researchers, Gordon Perkin, Richard Mahoney, and Gordon Duncan, as the Program for the Introduction and Adaptation of Contraceptive Technology (PIACT), which is now changed to Program for appropriate Health Technology its initial purpose was to improve access to family planning tools and reproductive health technologies.

While its early focus was on family planning and reproductive health, PATH quickly broadened its scope to address pressing global health challenges across multiple domains. The organization has since become a leader in global health innovation, working across infectious diseases, maternal and child health, non-communicable diseases, and health systems strengthening.

Operating in 70+ countries across Africa, Asia, Latin America, and beyond, PATH has a global workforce of over 1,600 employees, including scientists, public health experts, researchers, and technologists. The organization combines science, technology, and collaborative partnerships to design, develop, and scale equitable healthcare interventions that serve underserved populations and drive long-term impact.

The primary areas of the business's attention are:

1. **Health Innovation and Technology Development:** PATH develops, adapts, and delivers breakthrough innovations such as vaccines, diagnostics, medical devices, and digital health tools. Their work includes improving supply chain systems, advancing next-generation vaccines, and introducing affordable and accessible health technologies.
2. **Infectious Disease Control:** PATH is at the forefront of combating diseases like malaria, tuberculosis, HIV/AIDS, and COVID-19 through prevention, treatment, and surveillance programs. Notable initiatives include malaria vaccine distribution and disease-tracking systems.
3. **Maternal, Newborn, and Child Health (MNCH):** PATH works to reduce maternal and child mortality rates by improving access to essential health services, nutrition programs, immunizations, and community-based healthcare.
4. **Health Systems Strengthening:** PATH collaborates with governments to enhance health systems, ensuring they are resilient, sustainable, and inclusive. This involves training health workers, improving policies, and strengthening healthcare delivery infrastructure.
5. **Collaborative Partnerships:** PATH brings together stakeholders, including governments, nonprofits, social enterprises, and the private sector, to co-design solutions that drive sustainable impact.

ACHIVEMENTS AND IMPACT

- PATH has successfully introduced affordable diagnostics for malaria and tuberculosis, distributed millions of vaccines worldwide, and pioneered digital health innovations to improve healthcare delivery.
- Their initiatives prioritize underserved and marginalized communities, ensuring equitable access to healthcare services.

With its holistic, data-driven approach and focus on scalability, PATH empowers communities, strengthens healthcare systems, and drives sustainable change globally. Through its innovative solutions and strategic collaborations, PATH continues to make significant strides toward creating a healthier and more equitable world.

SPECIFIC OBJECTIVES:

VISION OF THE ORGANIZATION: PATH envisions a world where health equity is achieved through innovation and global partnerships. Their focus is on addressing health challenges through creative solutions, particularly in underserved regions. PATH's vision is to ensure that everyone, especially vulnerable populations, has access to essential health interventions and that healthcare systems are resilient, equitable, and sustainable. By working closely with local communities, governments, and other organizations, PATH strives to transform healthcare delivery, improve health outcomes, and safeguard against future global health threats, fostering a healthier world for all.

MISSION OF THE ORGANIZATION: PATH's mission is to advance health equity through innovation and partnerships. As a global health organization, PATH focuses on developing and delivering transformative solutions to address pressing health challenges, especially in underserved populations. Their work spans across multiple areas, including improving access to healthcare, advancing health technologies, and supporting health systems in low-resource settings. PATH aims to create lasting improvements in health outcomes, particularly for women and children, and to build sustainable, resilient healthcare systems globally through collaborative partnerships

MODE OF DATA COLLECTION:

- Observational findings
- Survey reports

FOCUS AREAS:

- Vaccine
- Drugs and Medications
- Diagnostics
- Medical Devices
- Diseases and Conditions
- System Innovations
- Service Innovations

GENERAL FINDINGS:

During my project on Private Sector Engagement in Digital Healthcare across LMICs in South Asia, I had the opportunity to explore how PATH, a global health organization, collaborates with various stakeholders to improve healthcare systems in low and middle-income countries (LMICs). PATH works on enhancing health equity by leveraging digital health technologies and creating scalable solutions to address pressing health challenges. One of the key focus areas of my project was the Digital Health Maturity Scale, which helps assess the readiness of health systems to integrate and scale digital health solutions. PATH actively engages with private sector partners to advance digital health initiatives, especially in countries like India, by building partnerships, providing technical assistance, and ensuring the sustainability of innovations.

PATH's work in this area aligns with its mission to drive innovation and improve healthcare access through the use of technology. By engaging with private sector players, PATH ensures that the digital health interventions are effectively tailored to the local context, thus enhancing their success in reaching underserved populations in South Asia and other regions.

The project focused on evaluating how PATH uses the Digital Health Maturity Scale to foster private sector engagement in improving healthcare across LMICs in South Asia. By promoting digital health solutions, PATH strives to overcome barriers and enhance the scalability of health interventions in resource-constrained settings.

FUTURE PROSPECTS:

PATH's future prospects are focused on leveraging innovation and collaboration to address global health challenges. Their Strategy 2025 emphasizes harnessing data and digital tools to strengthen health systems and improve access to life-saving interventions, particularly in underserved communities. PATH plans to continue building strategic partnerships across borders and sectors, which will enhance their ability to combat pressing health issues, including infectious diseases, maternal and child health, and the equitable distribution of vaccines and treatments. By empowering local health systems and embracing new technologies, PATH aims to create lasting, positive change in global health outcomes and reduce disparities across regions.

DEPARTMENTS IN THE ORGANISATION:

Clinical Research & Development: PATH provides global health solutions aimed at accelerating the development and implementation of innovative health technologies, including vaccines, diagnostics, and treatments. They focus on strengthening healthcare systems, enhancing access to care, and improving global health outcomes. Their work is designed to promote equity, reduce disease burdens, and drive innovation in global health solutions.

Data Analytics & Technology Solutions: PATH utilizes technology and advanced analytics to support data collection, analysis, and insights to improve healthcare decisions and speed up treatment delivery.

Patient Recruitment & Engagement: PATH handles the process of identifying, recruiting, and maintaining participants in clinical trials, ensuring efficient patient recruitment strategies.

Regulatory Affairs & Compliance: PATH ensures that all trials, treatments, and services comply with industry regulations and standards.

Market Access & Commercial Strategy: PATH works on strategies to ensure that products and therapies are accessible to the right markets, focusing on financial and healthcare policies.

Consulting Services: PATH provides expert advice to healthcare organizations on market strategy, technology implementation, and optimizing operations.

ROLE OF PATH IN DIGITAL HEALTH:

PATH plays a crucial role in digital health by leveraging technology to improve healthcare delivery, especially in underserved regions. Their digital health initiatives focus on integrating and scaling digital technologies to enhance health systems and make data-driven decisions. Some key aspects of PATH's involvement in digital health include:

Digital Transformation: PATH helps countries deploy digital technologies to strengthen health systems, ensuring that health workers have access to critical information to make informed decisions.

Data Utilization: PATH emphasizes the importance of better data utilization to improve healthcare outcomes. This includes making data more accessible and actionable for health professionals.

Global Health Solutions: Through initiatives like Digital Square, PATH works with ministries of health to develop adaptable, interoperable digital technologies tailored to local health needs.

Centers of Excellence: PATH is focused on creating Centers of Excellence for digital health. These centers serve as hubs for innovation, knowledge sharing, and capacity building, fostering expertise in the integration and scaling of digital health solutions.

Capacity Building: PATH provides training to health leaders, equipping them with the necessary skills to lead digital health transformations and ensuring that countries are prepared to manage and sustain digital innovations.

CONCLUSIVE LEARNING:

With its extensive knowledge of healthcare and dedication to fair health systems, PATH offers valuable data and assistance for international public health campaigns. PATH supports evidence-based health policy, improves data accessibility, and makes use of digital technology to strengthen public health initiatives. By analyzing real-world data, evaluating health outcomes, and identifying disease trends, its work eventually aids in the planning of health interventions. In order to improve disease detection and response activities, PATH supports the implementation of flexible, interoperable digital solutions that are suited to regional health requirements through programs like Digital Square.

Better utilization of resources, improved healthcare delivery, and equal access to care are all made possible by PATH's emphasis on bolstering health systems. Its capacity-building programs also give health professionals the tools they need to spearhead digital health changes, guaranteeing long-lasting gains in health outcomes. PATH's contributions are especially important during emergencies, when public health plans and quick response operations are informed by real-time data analysis and predictive modeling. PATH promotes solutions that address health disparities and enhance global health security by working with policymakers and health ministries.

LIMITATIONS:

There are no such limitations observed in the Organisation.

PROJECT - PRIVATE SECTOR ENGAGEMENT IN DIGITAL HEALTHCARE ACROSS LMIC'S IN SOUTH ASIA USING THE DIGITAL HEALTH MATURITY SCALE

BACKGROUND:

1. **Increasing Health Inequities in LMICs:**

   Several nations in the South Asian region bear a disproportionate share of the world's illness burden in addition to being impoverished.

   Poor people in LMICs get sick because they don't have enough access to basic essentials like food, water, and sanitation, which increases their risk of contracting diseases and restricts access to healthcare. This susceptible group is also disproportionately affected by noncommunicable diseases.

2. **Moving towards Sustainable healthcare:**

   These South Asian nations are developing their healthcare systems and encouraging expansion in the primary health care (PHC) systems, eHealth innovations, pharmaceutical industry, and rural medical manpower supply.

   LMICs are making notable progress toward sustainable healthcare in the ever-changing South Asian scenario. The achievement of the SDGs and Universal Health Coverage (UHC) are the two main pillars around which their efforts are focused.

3. **Digital revolution in healthcare:**

   Digital technologies are driving a significant revolution in the healthcare industry. EHR, wearable technology, health information exchange, telemedicine and remote consultations, big data, artificial intelligence, and blockchain are some of the major facets of this revolution.

   South Asian LMICs' healthcare systems are growing quickly thanks to new technologies, producing an unprecedented amount of data on health. In clinical decision-making, this important data is essential since it enables medical practitioners to make well-informed decisions.

4. **Why Private sector involvement has become a necessity:**

   Organizations in the private sector support the digital transformation of health in a number of ways, such as by promoting creativity, improving productivity, and expanding on effective solutions.

   the significant private sector investments in digital healthcare technologies in South Asian LMICs.

5. **Significant Contributions of the Private Sector to Digital health in LMICs:**

   Comparing a number of factors, including connectivity, digital health policies and regulations, digital public health infrastructure, digital person identification, digital health tactics, and private sector involvement.

   The current state of these factors is examined, along with pertinent instances of public-private partnerships and how they have improved the situation.

Given the rapid technological advancements and the growing role of the private sector in transforming healthcare in South Asian LMICs, it is essential to understand how these efforts align with global health goals. The paper "Private Sector Engagement in Digital Healthcare across LMICs in South Asia using the Digital Health Maturity Scale" is necessary to assess the maturity of digital health systems in these countries. By utilizing the Digital Health Maturity Scale, this paper will provide a comprehensive framework to measure the current state of digital health, identify gaps in infrastructure and policies, and highlight areas where private sector contributions can lead to more sustainable and equitable healthcare solutions across the region. This will help guide future investments and partnerships, ultimately fostering a more robust healthcare ecosystem in South Asia.

INTRODUCTION:

The term "private sector engagement" describes the strategic cooperation between public and private organizations to accomplish shared objectives, especially in fields like infrastructure, education, and health. The private sector, which is broad and varied, includes the portion of the economy that is not under state control and is operated for profit by people and businesses. PSE encompasses a wide range of partnerships, with the private sector playing an ever-more-important role.

The three types of private sector engagement, which are Donor Led Engagement, Engagement Co-creation, and Private Sector Led Engagement and can be elaborated as follows:

1. **Donor Led Engagement**

   In this model, private sector engagement is managed by non-profit or for-profit partners under the oversight of donors or government entities.
   It focuses on philanthropic contributions and innovations aimed at solving societal problems.
   This type of engagement aligns private efforts with social good and ensures resources are directed toward critical development needs.

   Example: A government program managed by NGOs that encourages private companies to fund healthcare initiatives.

2. **Engagement Co-creation**

   Engagement Co-creation involves public-private partnerships (PPPs) where private sector actors integrate their expertise into national or development programs.
   While integrated into government programs, these partnerships are usually managed by external partners or facilitators.
   This approach emphasizes shared goals and leverages the strengths of both sectors to solve development challenges.

   Example: Infrastructure development projects where private sector expertise combines with government initiatives.

3. **Private Sector Led Engagement**

   Here, the government enables and supports private sector-led initiatives through strategic policies, regulatory frameworks, or incentives.
   The private sector plays a leading role in driving market-based solutions and attracting sustainable investments.
   The focus is on fostering economic growth and addressing development needs through commercially viable solutions.

   Example: Renewable energy investments where government policies attract private sector participation.

In order to meet development priorities, capitalize on expertise, and promote sustainable economic growth, the public and private sectors can work together efficiently thanks to this structured engagement strategy. These examples demonstrate how the private sector is playing a bigger role in digital health across a range of healthcare systems. Public-private partnerships can build sustainable healthcare models, provide access to distant treatment, and promote the adoption of innovative technology to promote better health fairness.[xivxv]

NEED FOR PRIVATE SECTOR ENGAGEMENT IN DIGITAL HEALTH DOMAIN:

1. **Innovation and Technology:** Private sector involvement drives innovation by introducing new technologies such as AI, big data analytics, and wearable devices, which can enhance the efficiency and quality of healthcare delivery.
2. **Investment:** Private companies can provide the capital necessary for the development and scaling of digital health solutions, helping to bridge the funding gap in public health initiatives.
3. **Access to Resources:** The private sector can offer valuable resources, including advanced healthcare technologies and infrastructure, that may be lacking in public systems, particularly in underserved regions.
4. **Capacity Building:** Through partnerships, the private sector can contribute to training healthcare professionals in digital health tools and foster the development of local talent.
5. **Cost-Effectiveness:** Private sector investments can reduce costs by optimizing healthcare processes, leading to more affordable healthcare services and making them accessible to a larger population.
6. **Data and Analytics:** Private companies can help improve health data management, offering platforms that allow for better integration, security, and analysis of patient health records.
7. **Market Expansion:** Private sector engagement enables the expansion of digital health markets, bringing innovative solutions to more regions and ensuring that digital health solutions are widely available.
8. **Public-Private Partnerships:** Collaborations between the private sector and government can create effective frameworks to implement digital health strategies, improve healthcare delivery, and enhance public health outcomes.
9. **Regulatory Support:** Private sector engagement can also support the development of regulations and policies to standardize digital health practices and ensure that solutions meet quality and safety standards.

BUILDING BLOCKS FOR PRIVATE SECTOR ENGAGEMENT IN DIGITAL HEALTH:

Building blocks are the essential components that facilitate effective collaboration between the public and private sectors. These building blocks ensure that partnerships are strategic, sustainable, and impactful.

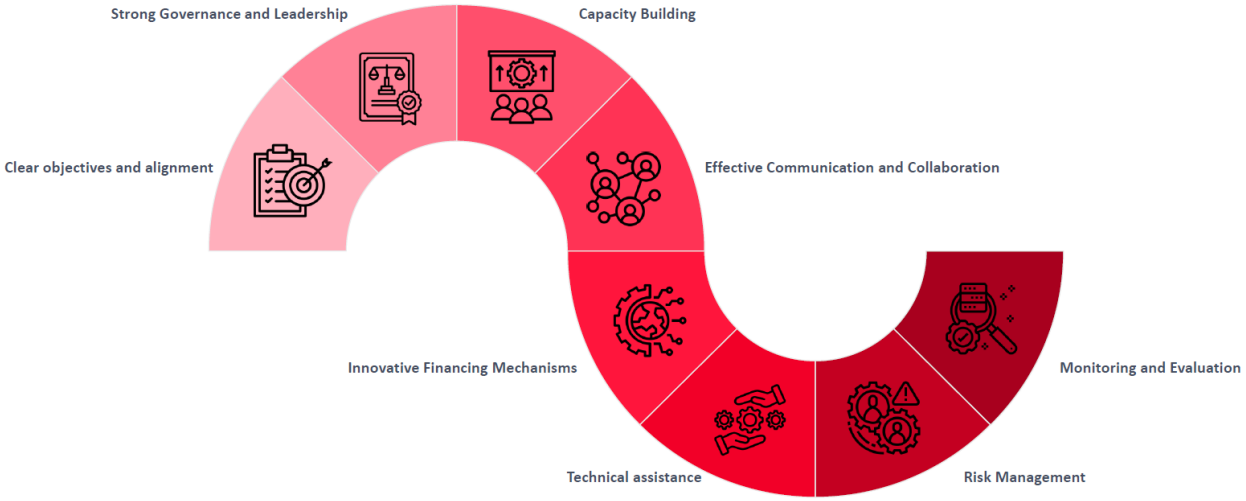


Figure 1 : Building blocks of PPE

Clear Objectives and Alignment: Coherent private sector involvement in digital health is hampered by a lack of clearly defined objectives and strategic alignment.

Robust Governance and Leadership: Ineffective governance and leadership frameworks make it difficult to engage effectively with the private sector.

Building Capacity: The private sector's potential to make a significant contribution to digital health is diminished by a lack of initiatives to improve infrastructure and skills.

Effective Collaboration and Communication: Fragmented efforts result from inadequate coordination and communication among stakeholders.

Innovative Financing: Private investments in scalable digital health solutions are limited by inadequate finance models.

Monitoring and assessment mechanisms: Inadequate procedures for tracking and assessing digital health projects hinder impact measurement and accountability.

Technical assistance: The adoption of sustainable and successful digital health solutions is hampered by a lack of technical support.

Risk management: Private sector contributions are hampered by a lack of effective risk mitigation techniques, such as those pertaining to data privacy and system dependability.

STRENGHTS AND CONSIDERATIONS OF VARIOUS TYPES OF PRIVATE SECTOR ENGAGEMENTS:

Donor – Led engagement:

Workflow: Support from donors for private sector involvement through for-profit or non-profit partners with the necessary skills and expertise.

Strengths:

1. Leverages donor procurement & management expertise for optimal value
2. Leverages implementer expertise for optimal private sector coverage and results
3. Quality, equity & impact potential high if resourced properly and done well
4. Does not divert government attention/resources

Considerations:

1. High cost
2. Risk of independent programming – insufficient coordination with other players or government ownership.
3. Less likely to be sustained without continued external funding and Limited scalability.

Engagement Co-creation:

Workflow: Through public-private partnerships, which can involve or not involve outside funding, the government encourages private sector involvement through non-profit or for-profit partners with the necessary expertise and capability.

Strengths:

1. Optimal for integration with national programming and coordination and scalable in nature.
2. Leverages implementer expertise for optimal private sector coverage and results, while not diverting government efforts

Considerations:

1. High cost
2. Procurement & sub-award management support may be needed to ensure transparent selection and oversight of qualified partners
3. Moderately likely to be sustained without continued external funding.

Private sector led engagement:

Workflow: Government independently manages private sector engagement strategies.

Strengths:

1. Lowest cost
2. Optimal for integration with national programming
3. Strengthen partnership between public and private health providers for malaria and beyond

Considerations:

1. Risk of limited quality, equity, coverage, and impact given the limited experience governments have managing vs stewarding private sector engagement.
2. Risk of diverting limited government personnel and resources away from other priorities.

RATIONALE:

The aim of exploring Private Sector Engagement in Digital Healthcare across Low- and Middle-Income Countries (LMICs) in South Asia, particularly through the lens of the Digital Health Maturity Scale, is to comprehensively assess the opportunities for the private sector to address the key challenges in these healthcare systems. As digital health adoption increases, the private sector can play a crucial role in expanding the scope of digital interventions, which include critical areas such as:

1. **Teleconsultations**: The rise of telemedicine has revolutionized healthcare delivery, particularly in remote areas. By facilitating virtual consultations, the private sector can bridge gaps in access to specialists, especially where healthcare facilities are sparse or where there is a shortage of skilled professionals.
2. **Health Information Exchange (HIE)**: The need for robust and efficient HIE systems is becoming more critical. Private sector innovations in cloud computing, data security, and interoperability can streamline the flow of information across health systems, allowing for better coordination of care and reducing duplication of services.
3. **Data-driven Decision-making**: Utilizing big data and artificial intelligence (AI) for healthcare decision-making can dramatically improve the quality of care. By leveraging data analytics, private companies can assist in predictive diagnostics, personalized treatment plans, and outcomes-based healthcare delivery.
4. **Strategic Market Development**: The private sector's expertise in market analysis and business development can help optimize healthcare services, target underserved populations, and create tailored solutions for local needs, thus driving the growth of digital health ecosystems.
5. **Personalized Care**: The increasing shift toward personalized healthcare requires advanced technologies that analyze patient data to customize care plans. Private entities can provide innovative digital tools that enable providers to offer more individualized treatment, resulting in improved patient outcomes.

The provisions for growth in the digital healthcare landscape include several challenges that the private sector can help address:

1. **Weak Healthcare Infrastructure**: Many LMICs face infrastructural challenges, such as inadequate healthcare facilities and poorly equipped hospitals. The private sector, with its capacity for investment and innovation, can contribute significantly to upgrading healthcare infrastructure through telemedicine platforms, electronic health records (EHR) systems, and mobile health solutions.
2. **Limited Healthcare Workforce**: With a shortage of healthcare professionals in many LMICs, private companies can play a pivotal role in training healthcare workers through online platforms, artificial intelligence-based tools for medical education, and remote diagnostic technologies.
3. **Financial Resource Constraints**: Many governments in LMICs struggle to allocate sufficient funds for healthcare digitalization. The private sector can help fill the funding gap by introducing affordable digital health products, facilitating cost-effective health financing solutions, and establishing public-private partnerships to finance large-scale health digitization projects.
4. **Lack of Health Literacy**: The private sector can assist in health education through digital platforms that provide information on disease prevention, healthy living, and the benefits of digital health tools. By improving health literacy, they can empower populations to make informed health decisions.

5. **Weak or Insufficient Regulations**: LMICs often lack robust regulatory frameworks for digital health technologies. The private sector can contribute by advocating for the creation of clear policies and regulations that ensure data privacy, technology standardization, and quality assurance in digital health solutions.

When private sector engagement is aligned with these growth provisions, it can lead to:

1. **Rapid Growth and Potential**: The integration of digital health technologies can accelerate the growth of healthcare systems, overcoming resource limitations and improving efficiency.
2. **Leapfrogging Opportunities**: In many instances, LMICs can leapfrog traditional stages of healthcare development by adopting digital solutions, bypassing outdated systems and directly implementing advanced technologies that improve healthcare delivery.
3. **Enhanced Resource Efficiency**: Digital tools can enhance resource utilization by automating processes, reducing overheads, and optimizing supply chains, leading to cost-effective healthcare solutions.
4. **Improved Healthcare Quality and Accessibility**: With increased digital adoption, healthcare services can become more accessible to remote and underserved populations, while the quality of care improves through better data management, telemedicine, and tailored interventions.
5. **SDG Alignment**: By improving healthcare accessibility, quality, and efficiency, private sector contributions to digital health directly support the achievement of Sustainable Development Goal (SDG) 3, ensuring good health and well-being for all.

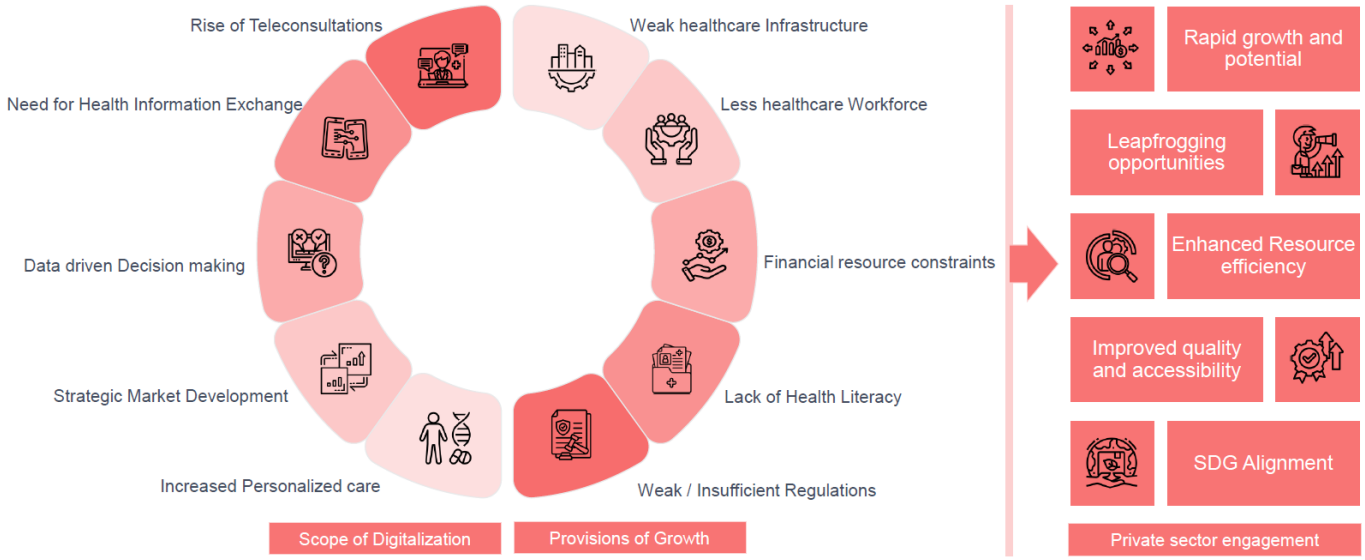


Figure 2: Rationale of the project

PROJECT AIM:

To assess the growth and challenges of private sector engagement in digital health domain in LMIC's of South Asia using the Digital health maturity scale.

PROJECT OBJECTIVES:

1. To investigate the implementation of private sector engagements in digital healthcare in LMICs of South Asia.
2. To identify the challenges faced by the private sector in engaging in digital healthcare in LMICs of South Asia.
3. To explore the opportunities of private sector engagements in digital healthcare in LMICs of South Asia.

METHODOLOGY:

The Digital health maturity scoring tool:

1) A set of quantitative indicators including basic sociodemographic information, Information & Communication Technologies coverage, type of digital health interventions and quantitative information on exposure of digital health within workforce, which is divided into 7 main thematic areas those including Leadership and Governance, Strategy and Investment, Legislation, Policy and Compliance, Workforce, Standards and Interoperability, Infrastructure, and Services and Applications.

2) These 7 Thematic indicators namely Leadership and Governance, Strategy and Investment, Legislation, Policy and Compliance, Workforce, Standards and Interoperability, Infrastructure, and Services and Applications. divided into 24 Sub-questions to access the whole scenario of the given Thematic area.

Leadership and Governance:

a. National priorities for digital health are established through specialized groups and governance systems.
b. Digital health is given national priority through planning
c. Preparedness to adopt and control emerging technologies
d. National digital health strategies and plans incorporate analysis, planning, and monitoring related to diversity, equity, and human rights.

Strategy and Investment:

a. National eHealth/Digital Health Framework or Strategy
b. National Digital Strategy in Line with Universal Health Coverage (UHC) Core Elements
c. National eHealth/Digital Health Framework.
d. The involvement and investments of the private sector in digital health
e. Public financing for digital health

Legislation, Policy and Compliance:

a. Legal Framework for Data Protection (Security/ Cybersecurity)
b. Laws or Regulations for privacy, consent, confidentiality and access to health information (Privacy)
c. Protocol for regulating and certifying AI within health services
d. Cross-border data security and sharing

Workforce:

a. Incorporating digital health into pre-service training for health and allied professionals (before deployment)
b. Incorporating digital health into health and related professional in-service training (post-deployment)
c. Training of Digital health workforce
d. Maturity of public sector digital health professional jobs.

Standards and Interoperability:

a. Health information sharing and/or national digital health architecture
b. Standards for health information

Digital health Infrastructure:

a. Network readiness
b. Planning and assisting with continuing maintenance of digital health infrastructure

Services availed and applications used:

a. Digital health systems at the national level
b. Digital health's contribution to population health management
c. Digital health's role in managing people's health identities
d. Digital health's role in managing service providers, administrators, and facilities, including location data for GIS mapping

These Sub-questions were given ratings of 5 starting from 1 (very low performer) to 5 (highest performer). The Ratings from these Sub-questions are used to calculate the overall country average. This Country average is used to access a Scale from 1-5, which is called as the Digital Health Maturity Scale and the whole index used in the process id called as Digital Health Maturity Index.

Ratings across these 24 sub-questions:

1. Nonexistent
2. First Initial steps taken
3. Existing but not in working order
4. Existing in working order but not implemented at organizational level, or scaled at development level.
5. Fully developed, implemented, and is scalable.

Leadership and Governance	Rating	Strategy and Investment	Rating	Legislation, Policy and Compliance	Rating	Workforce	Rating	Standards and Interoperability	Rating	Infrastructure	Rating	Services and Applications	Rating
Digital health prioritized at the	1. No coordinating body exist	National eHealth/ Digital	1. There is no digital healt	Legal Framework for Data Protectio	There is no law on data security (ac	Digital health integrated in healt	There is no digital health curric	National digital health architect	There is no national digital healt	Network readinessExtract the P	0	Nationally scaled digital healt	National priority areas are not s
	2. Governance structure is fo	rmally constituted though	2. National digital health	strategy or framework approved.	There is a law on data security (across the full data lifecycle e.g. colle	Digital health curriculum propose	sed and under review as part of	A national digital health archite	cture and/or health information	<25			Few national priority areas are s
	3. Governance structure and	any related working group	3. National digital health	costed plan developed and approve	There is a law on data security (across the full data lifecycle e.g. colle	Digital health curriculum implemen	tation underway covering a	The national digital health archite	cture and/or health informatio	26-50			Some national priority areas sup
	4. Governance structure is fu	lly-functional, government	4. National digital health	strategy and costed plan partially im	There is a law on data security (across the full data lifecycle e.g. colle	Digital health taught in relevant	institutions with an estimated	The government leads, manages,	and enforces implementation c	51-75			The majority, but not all nationa
	5. The digital health and data	governance structure is in	5. National digital health	strategy and costed plan fully implen	There is a law on data security (across the full data lifecycle e.g. colle	Digital health taught in relevant	institutions with >75% of healt	The national digital health archite	cture and/or health informatio	>75			All nationally prioritized areas su
Digital Health prioritized at the nationa	1. Digital health is not include	National digital strategy a	1. Digital health strategy	Laws or Regulations for privacy, con	There is no law to protect individual	Digital health integrated in healt	There is no digital health curric	Health information standardsAr	There are no digital health / hea	Planning and support for ongoin	There is no articulated plan	Population health manageme	No contribution from any digita
	2. There is some discussion of	inclusion of digital health	2. Digital health strategy	exists and is partly aligned to UHC, a	There is a law to protect individual	privacy, governing ownership, con	Digital health curriculum propose	sed and under review as part of	There are some digital health /	health information standards for	A plan for supporting digital	health infrastructure (including	Digital systems used at district/s
	3. Digital health is included in	national health or relevar	3. Digital health strategy	exists and is partly aligned to UHC, a	There is a law to protect individual	privacy, governing ownership, con	Digital health curriculum is	implemented as part of in-service (	Digital health / health information	standards for data exchange,	A plan for supporting digital	health infrastructure (including	Digital systems are used at facili
	4. Digital health is being	implemented as part of nation	4. Digital health strategy	exists and is fully aligned to country's	There is a law to protect individual	privacy, governing ownership, acc	Digital health curriculum is	implemented as part of in-service (	Digital health / health information	industry-based technical stan	A plan for supporting digital	health infrastructure (including	Digital systems are used at facili
	5. Digital health is implemente	ed and periodically evalua	5. Digital health strategy	is fully aligned to the country's UHC	There is a law to protect individual	privacy, governing ownership, acc	Digital health curriculum is	implemented as part of in-service (	Data standards are routinely up	dated and data is actively used f	Digital health infrastructure	including equipment- comput	Digital systems used at all levels,
Readiness for emerging technologies a	1. There is no emerging tech	Public funding for digital h	No budget line item for d	Protocol for regulating and certifyin	There are no protocols, policies, fra	Training of digital health workfor	There is no training available	for digital health workforce in the country.				Digital identity management	No secure registry or master pat
	2. A plan was developed for at	least one emerging tech	Non-systematic budget a	located for digital health exists or ar	Protocols, policies, frameworks, or a	ccepted processes governing AI	Digital health workforce needs	assessed, gaps identified and training options under development.					A secure registry exists, but is inc
	3. A plan exists for at least one	emerging technology (e	A structured and systematic	budget line item for digital health	Protocols, policies, frameworks, or a	ccepted processes governing AI	Professional training is available,	but graduates are not yet deployed.					A secure registry exists, is availal
	4. A plan for one or more	emerging technology (e.g., AI	A structured and systematic	budget line item for digital health	Protocols, policies, frameworks or a	ccepted processes governing AI	Trained digital health professionals	available and deployed, but essential personnel gaps remain.					A secure registry exists, is availal
	5. A plan for one or more	emerging technology (e.g., AI	Structure and systematic	budget line exists for digital health a	Protocols, policies, frameworks, or a	ccepted processes governing AI	Sufficient numbers of trained	digital health professionals available to support national digital health needs.					A secure registry exists, is availal
Diversity, Equity, and human rights ana	1. Digital health strategies an	Private sector participatio	The private sector do not	Cross-border data security and shar	There are no protocols, policies, fra	Maturity of public sector digital	No workforce strategy, policy,	or guide that recognizes digital health is in place. Distribution of digital health workforce is ad hoc.				Digital identity management	Health system registries of uniq
	2. Digital health strategies and	programs are developed	The private sector partici	pation and investment in the country	Protocols, policies, frameworks or a	ccepted processes for cross bord	A national needs assessment	shows the number and types of skills needed to support digital health with an explicit focus on training cadres of female health workers.					Health system registries of uniq
	3. Digital health strategies and	programs are developed	The private sector partici	pation and investment in the country	Protocols, policies, frameworks or a	ccepted processes for cross bord	Digital health staff roles and	responsibilities are mapped to the government's workforce and career schemes and 25-50% of needed public sector digital health workforce in place.					Health system registries of uniq
	4. Digital health strategies and	programs are developed	The private sector partici	pation and investment in the country	Protocols, policies, frameworks or a	ccepted processes for cross bord	An HR policy and strategic plan	exists that identifies skills and functions needed to support digital health with an explicit focus on training cadres of female health workers and an estimate					Health system registries of uniq
	5. The country is implementing	and evaluating the effe	The private sector partici	pates and invests in the country's dig	Protocols, policies, frameworks or a	ccepted processes for cross bord	A long-term plan is in place to	grow and sustain staff with the skills needed to sustain digital health at national and subnational levels with an explicit focus on training cadres of female he					Geotagged Health system regist

ANALYSIS:

In South Asia's low- and middle-income (LMIC) nations, digital health presents a revolutionary solution to tackle enduring healthcare issues like unequal access, limited resources, and a lack of workers. Leading the way in using digital solutions to improve healthcare delivery, increase access, and boost health outcomes are nations like Bangladesh, Sri Lanka, India, and Nepal. By eliminating the need for in-person travel and addressing provider shortages, telemedicine platforms are making remote consultations possible, particularly in distant and difficult-to-reach places. Applications for mobile health (mHealth) are being utilized for public health campaigns, maternity and child health information, and chronic disease monitoring. Health management information systems (HMIS) and electronic health records (EHRs) are boosting diagnosis, expediting data collecting, and strengthening policy decision-making.[xvixvii]

Despite these developments, LMICs still have a long way to go before they can effectively utilize digital health. Among the main obstacles are disjointed policy frameworks, insufficient physical and digital infrastructure, restricted high-speed internet access, and low levels of digital literacy among patients and healthcare professionals. Furthermore, a lack of cross-sector collaboration, inadequate finance, and weak governance systems make it difficult for many programs to scale up. Governments, businesses, non-governmental groups, and international organizations must work together in concert to tackle these challenges. These collaborations can guarantee fair access, standardize digital health procedures, and increase capacity. For digital health solutions to be successful and long-lasting throughout South Asia, it will be essential to prioritize scalability, sustainability, and inclusivity in addition to utilizing cutting-edge technologies like blockchain and artificial intelligence.[xviii] [xix]

Afghanistan

Socio Demographic Data

Total Area - 652,230 sq. km
Total Population – 40.12 million (Male – 20.3 million, Female – 19.82 million)
Urban Population – 7.6 million
Literacy rate, adult total (% of people ages 15 and above) - 92.49%
Age Dependency Ratio (% working age group) – 52.27%
Total unemployment (% of total labor force) - 4.528%

Health Finance Data

GDP - 14502158192.0904 USD
GDP Growth (annual %) - -2.29%
Current health expenditure (% of GDP) – 4.07%
Domestic private health expenditure per capita (current US$) – 62.9 USD
Domestic general government health expenditure per capita (current US$) – 2.68 USD
External health expenditure per capita (current US$) – 15.73 USD
Out-of-pocket expenditure per capita (current US$) – 62.79 USD

Information, Communication and Technology Data

Mobile cellular subscriptions – 31.2 million
Individuals using the Internet (% of population) – 44.45%

Universal Health Coverage

UHC service coverage index - 67

Leadership and Governance	Rating	Score	Strategy a	Rating	Score	Legislatior	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital health prioritized at the national lev	1	2	National e	1	1	Legal Fram	1	1	Digital hea	1	1	National d	1	2	Network r	3	2	Nationally	2	2	2
Digital Health prioritized at the national lev	4		National d	1		Laws or Re	1		Digital hea	1		Health infc	2		Planning a	1		Populatior	2		
Readiness for emerging technologies adopt	1		Public func	1		Protocol fc	1		Training of	1								Digital ider	2		
Diversity, Equity, and human rights analysis,	3		Private sec	1		Cross-borc	1		Maturity o	1								Digital ider	2		

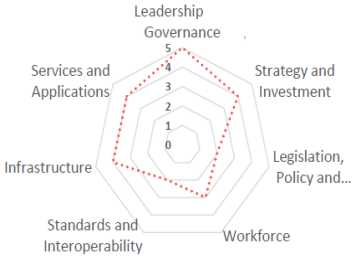
Bangladesh

Socio Demographic Data

Total Area - 148,460 sq. km
Total Population – 168.6 million (Male – 82.70 million, Female – 85.98 million)
Urban Population – 68.2 million
Literacy rate, adult total (% of people ages 15 and above) – 76.36%
Age Dependency Ratio (% working age group) – 46.61%
Total unemployment (% of total labor force) - 5.27%

Health Finance Data

GDP - 437415331040.994 USD
GDP Growth (annual %) – 5.77%
Current health expenditure (% of GDP) – 2.36%
Domestic private health expenditure per capita (current US$) – 43.73 USD
Domestic general government health expenditure per capita (current US$) – 9.7 USD
External health expenditure per capita (current US$) – 4.42 USD
Out-of-pocket expenditure per capita (current US$) – 42.28 USD



Information, Communication and Technology Data

Mobile cellular subscriptions – 1801 million
Individuals using the Internet (% of population) – 38.91%

Universal Health Coverage

UHC service coverage index – 52

Leadership	Rating	Score	Strategy a	Rating	Score	Legislation	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	5	5	National e	2	4	Legal Fram	1	2	Digital hea	1	3	National d	1	2	Network r	3	4	Nationally	5	4	4
Digital Hea	5		National d	4		Laws or Re	1		Digital hea	4		Health infc	2		Planning a	5		Population	5		
Readiness	4		Public func	4		Protocol fo	3		Training of	4								Digital ider	1		
Diversity, E	5		Private sec	3		Cross-borc	2		Maturity o	2								Digital ider	5		

Bhutan

Socio Demographic Data

Total Area - 38,394 sq. km
Total Population – 884,546 (Male – 457,665, Female – 426,881)
Urban Population – 392297
Literacy rate, adult total (% of people ages 15 and above) – 72.1%
Age Dependency Ratio (% working age group) – 38.72%
Total unemployment (% of total labor force) - 3.126%

Health Finance Data

GDP - 2898227713.2 USD
GDP Growth (annual %) – 5.21%
Current health expenditure (% of GDP) – 3.84%
Domestic private health expenditure per capita (current US$) – 24.71 USD
Domestic general government health expenditure per capita (current US$) – 69.16 USD
External health expenditure per capita (current US$) – 26.55 USD
Out-of-pocket expenditure per capita (current US$) – 22.63 USD

Information, Communication and Technology Data

Mobile cellular subscriptions – 742493
Individuals using the Internet (% of population) – 85.6%

Universal Health Coverage
UHC service coverage index – 60

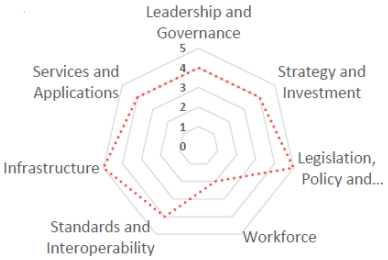
Leadership	Rating	Score	Strategy a	Rating	Score	Legislatior	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	3	3	National e	3	3	Legal Fram	1	2	Digital hea	2	2	National d	2	3	Network r	4	4	Nationally	2	2	3
Digital Hea	3		National d	3		Laws or Re	2		Digital hea	2		Health infc	3		Planning a	4		Populatior	2		
Readiness	2		Public func	3		Protocol fo	2		Training of	2								Digital ider	2		
Diversity, E	2		Private sec	2		Cross-borc	1		Maturity o	2								Digital ider	2		

India

Socio Demographic Data
Total Area - 3,287,263 sq. km
Total Population – 1,409,128,296 (Male – 725,784,825, Female – 683,343,471)
Urban Population – 570,316,495
Literacy rate, adult total (% of people ages 15 and above) – 76.36%
Age Dependency Ratio (% working age group) – 46.61%
Total unemployment (% of total labor force) - 5.248%

Health Finance Data
GDP - 437415331040.9 USD
GDP Growth (annual %) – 5.77%
Current health expenditure (% of GDP) – 2.36%
Domestic private health expenditure per capita (current US$) – 43.73 USD
Domestic general government health expenditure per capita (current US$) – 9.78 USD
External health expenditure per capita (current US$) – 4.42 USD
Out-of-pocket expenditure per capita (current US$) – 42.28 USD

Information, Communication and Technology Data
Mobile cellular subscriptions – 180198049
Individuals using the Internet (% of population) – 38.91%



Universal Health Coverage
UHC service coverage index – 52

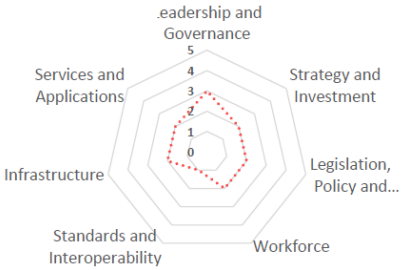
Leadership	Rating	Score	Strategy a	Rating	Score	Legislatior	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	5	4	National e	5	4	Legal Fram	5	5	Digital hea	1	2	National d	5	4	Network r	5	5	Nationally	3	4	4
Digital Hea	4		National d	4		Laws or Re	5		Digital hea	1		Health infc	3		Planning a	4		Populatior	3		
Readiness	3		Public func	4		Protocol fo	4		Training of	3								Digital ider	4		
Diversity, E	4		Private sec	3		Cross-borc	3		Maturity o	3								Digital ider	3		

Maldives

Socio Demographic Data
Total Area - 298 sq. km
Total Population – 388,858 (Male – 197,739, Female – 191,119)
Urban Population – 163203.7
Literacy rate, adult total (% of people ages 15 and above) – 97.86%
Age Dependency Ratio (% working age group) – 36.65%
Total unemployment (% of total labor force) - 2.31%

Health Finance Data
GDP - 6600000000 USD
GDP Growth (annual %) – 3.97 %
Current health expenditure (% of GDP) – 10.03%
Domestic private health expenditure per capita (current US$) – 161 USD

Domestic general government health expenditure per capita (current US$) – 744 USD
External health expenditure per capita (current US$) – 134 USD
Out-of-pocket expenditure per capita (current US$) – 149 USD



Information, Communication and Technology Data
Mobile cellular subscriptions – 715188
Individuals using the Internet (% of population) – 85.76%

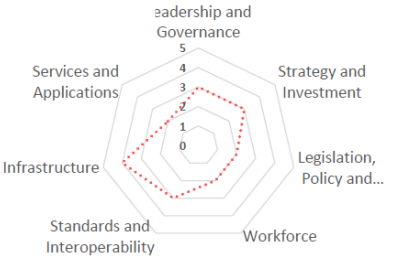
Universal Health Coverage
UHC service coverage index – 61

Leadershi	Rating	Score	Strategy a	Rating	Score	Legislatior	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	4	3	National e	1	2	Legal Fram	1	2	Digital hea	3	2	National d	1	1	Network r	2	2	Nationally	2	2	2
Digital Hea	3		National d	2		Laws or Re	1		Digital hea	1		Health info	1		Planning a	1		Population	3		
Readiness	1		Public func	3		Protocol fo	2		Training of	1								Digital ider	1		
Diversity, E	2		Private sec	2		Cross-borc	1		Maturity o	1								Digital ider	2		

Myanmar

Socio Demographic Data
Total Area - 652,230 sq. km
Total Population – 40.12 million (Male – 20.3 million, Female – 19.82 million)
Urban Population – 7.6 million
Literacy rate, adult total (% of people ages 15 and above) - 92.49%
Age Dependency Ratio (% working age group) – 52.27%
Total unemployment (% of total labor force) - 4.528%

Health Finance Data
GDP - 84356860421.13 USD
GDP Growth (annual %) - -2.29%
Current health expenditure (% of GDP) – 4.07%
Domestic private health expenditure per capita (current US$) – 82 USD
Domestic general government health expenditure per capita (current US$) – 77 USD
External health expenditure per capita (current US$) – 7 USD
Out-of-pocket expenditure per capita (current US$) – 73 USD



Information, Communication and Technology Data
Mobile cellular subscriptions – 31.2 million
Individuals using the Internet (% of population) – 44.45%

Universal Health Coverage
UHC service coverage index – 67

Leadershi	Rating	Score	Strategy a	Rating	Score	Legislatior	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	2	3	National e	3	3	Legal Fram	3	3	Digital hea	2	3	National d	2	2	Network r	3	3	Nationally	3	3	3
Digital Hea	3		National d	4		Laws or Re	3		Digital hea	2		Health info	2		Planning a	3		Population	3		
Readiness	2		Public func	2		Protocol fo	2		Training of	3								Digital ider	4		
Diversity, E	2		Private sec	1		Cross-borc	2		Maturity o	2								Digital ider	2		

Nepal

Socio Demographic Data
Total Area - 147,181 sq. km
Total Population – 31,122,387 (Male – 15,240,643, Female – 15,881,744)
Urban Population – 6818915

Literacy rate, adult total (% of people ages 15 and above) – 71.15%
Age Dependency Ratio (% working age group) – 53.87%
Total unemployment (% of total labor force) - 5.38%

Health Finance Data
GDP - 40908073366.8 USD
GDP Growth (annual %) – 1.95%
Current health expenditure (% of GDP) – 5.42%
Domestic private health expenditure per capita (current US$) – 35 USD
Domestic general government health expenditure per capita (current US$) – 22 USD
External health expenditure per capita (current US$) – 8 USD
Out-of-pocket expenditure per capita (current US$) – 33 USD

Information, Communication and Technology Data
Mobile cellular subscriptions – 38213000
Individuals using the Internet (% of population) – 51.63%

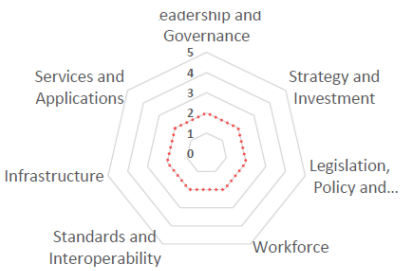
Universal Health Coverage
UHC service coverage index – 54

Leadership	Rating	Score	Strategy a	Rating	Score	Legislation	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	2	2	National e	2	2	Legal Fram	2	2	Digital hea	2	3	National d	1	2	Network r	3	3	Nationally	3	3	3
Digital Hea	3		National d	2		Laws or Re	2		Digital hea	2		Health info	2		Planning a	3		Population	3		
Readiness	2		Public func	2		Protocol fo	1		Training of	3								Digital ider	2		
Diversity, E	1		Private sec	2		Cross-borc	1		Maturity o	2								Digital ider	2		

Pakistan

Socio Demographic Data
Total Area - 796,095 sq. km
Total Population – 252,363,571 (Male – 128,387,797, Female – 123,975,774)
Urban Population – 95999102.5
Literacy rate, adult total (% of people ages 15 and above) - 92.49%
Age Dependency Ratio (% working age group) – 68.2%
Total unemployment (% of total labor force) - 4.528%

Health Finance Data
GDP - 338368455317.8 USD
DP Growth (annual %) - -0.0045%
Current health expenditure (% of GDP) – 2.91%
Domestic private health expenditure per capita (current US$) – 26.13 USD
Domestic general government health expenditure per capita (current US$) – 12.50 USD
External health expenditure per capita (current US$) – 4.45 USD
Out-of-pocket expenditure per capita (current US$) – 24.77 USD



Information, Communication and Technology Data
Mobile cellular subscriptions – 192779544
Individuals using the Internet (% of population) – 21.03%

Universal Health Coverage
UHC service coverage index – 45

Leadership	Rating	Score	Strategy a	Rating	Score	Legislation	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	1	2	National e	1	2	Legal Fram	2	2	Digital hea	2	2	National d	1	2	Network r	2	2	Nationally	2	2	2
Digital Hea	3		National d	1		Laws or Re	1		Digital hea	2		Health info	2		Planning a	2		Population	2		
Readiness	1		Public func	2		Protocol fo	1		Training of	3								Digital ider	1		
Diversity, E	1		Private sec	1		Cross-borc	2		Maturity o	1								Digital ider	2		

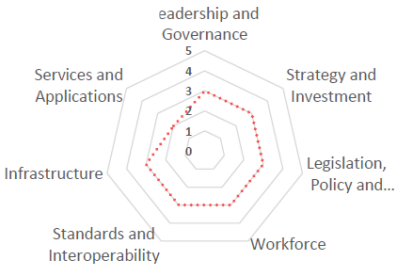
Sri Lanka

Socio Demographic Data
Total Area - 65,610 sq. km
Total Population – 21,982,608 (Male – 10,642,043, Female – 11,340,565)
Urban Population – 4223078.8
Literacy rate, adult total (% of people ages 15 and above) - 92.49%
Age Dependency Ratio (% working age group) – 52.27%
Total unemployment (% of total labor force) - 4.528%

Health Finance Data
GDP - 84356860421.13 USD
GDP Growth (annual %) - -2.29%
Current health expenditure (% of GDP) – 4.07%
Domestic private health expenditure per capita (current US$) – 82 USD
Domestic general government health expenditure per capita (current US$) – 77 USD
External health expenditure per capita (current US$) – 7 USD
Out-of-pocket expenditure per capita (current US$) – 73 USD

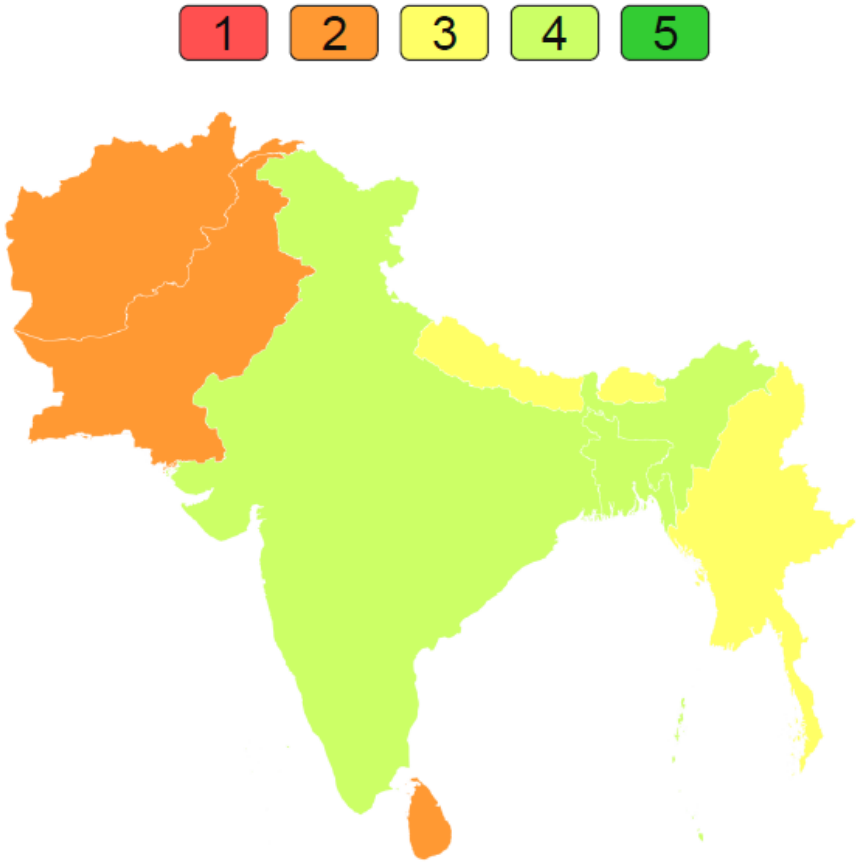
Information, Communication and Technology Data
Mobile cellular subscriptions – 31237303
Individuals using the Internet (% of population) – 44.45%

Universal Health Coverage
UHC service coverage index – 67

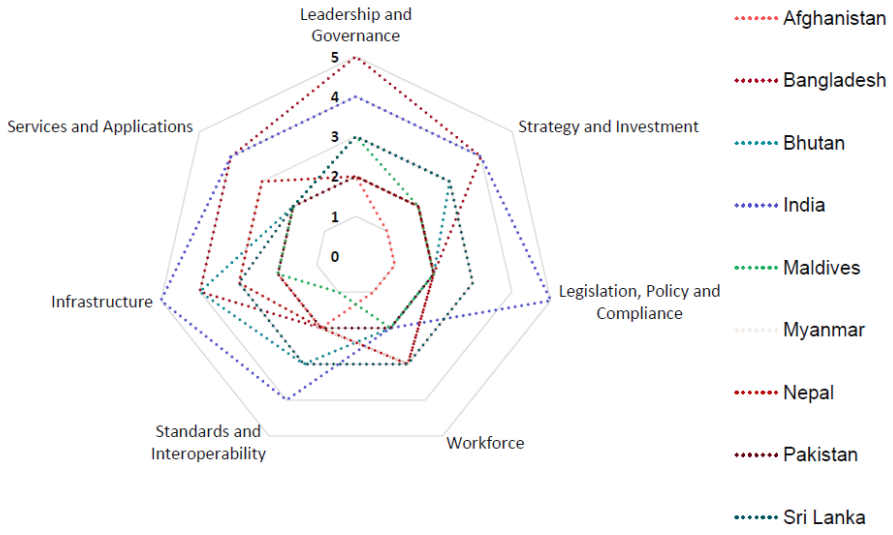


Leadership	Rating	Score	Strategy a	Rating	Score	Legislation	Rating	Score	Workforce	Rating	Score	Standards	Rating	Score	Infrastruct	Rating	Score	Services a	Rating	Score	Overall Dig
Digital hea	3	3	National e	3	3	Legal Fram	3	3	Digital hea	3	3	National di	3	3	Network r	3	3	Nationally	3	2	2
Digital Hea	4		National di	3		Laws or Re	3		Digital hea	3		Health infc	3		Planning a	3		Population	3		
Readiness	3		Public fund	2		Protocol fo	3		Training of	4								Digital iden	2		
Diversity, E	2		Private sec	3		Cross-borc	3		Maturity o	2								Digital iden	2		

RESULTS AND FINDINGS:



FINDINGS:



Resulting scores:

Afghanistan – 2

- Leadership and Governance - 2
- Strategy and Investment - 1
- Legislation, Policy and Compliance - 1
- Workforce - 1
- Standards and Interoperability - 2
- Infrastructure - 2
- Services and Applications - 2

Pakistan – 2

- Leadership and Governance - 2
- Strategy and Investment - 2
- Legislation, Policy and Compliance - 2
- Workforce - 2
- Standards and Interoperability - 2
- Infrastructure - 2
- Services and Applications - 2

India – 4

- Leadership and Governance - 4
- Strategy and Investment - 4
- Legislation, Policy and Compliance - 5
- Workforce - 2
- Standards and Interoperability - 4
- Infrastructure - 5
- Services and Applications - 4

Sri Lanka – 2

- Leadership and Governance - 3
- Strategy and Investment - 3
- Legislation, Policy and Compliance - 3
- Workforce - 3
- Standards and Interoperability - 3
- Infrastructure - 3
- Services and Applications - 2

Nepal – 3

- Leadership and Governance - 2
- Strategy and Investment - 2
- Legislation, Policy and Compliance - 2
- Workforce - 3
- Standards and Interoperability - 2
- Infrastructure - 3
- Services and Applications - 3

Bhutan – 3

- Leadership and Governance - 3
- Strategy and Investment - 3
- Legislation, Policy and Compliance - 2

- Workforce - 2
- Standards and Interoperability - 3
- Infrastructure - 4
- Services and Applications - 3

Bangladesh – 4

- Leadership and Governance - 5
- Strategy and Investment - 4
- Legislation, Policy and Compliance - 2
- Workforce - 3
- Standards and Interoperability - 2
- Infrastructure - 4
- Services and Applications - 4

Myanmar – 3

- Leadership and Governance - 3
- Strategy and Investment - 3
- Legislation, Policy and Compliance - 3
- Workforce - 3
- Standards and Interoperability - 2
- Infrastructure - 3
- Services and Applications - 3

Maldives – 3

- Leadership and Governance - 3
- Strategy and Investment - 2
- Legislation, Policy and Compliance - 2
- Workforce - 2
- Standards and Interoperability - 1
- Infrastructure - 2
- Services and Applications - 2

GAPS IDENTIFIES:

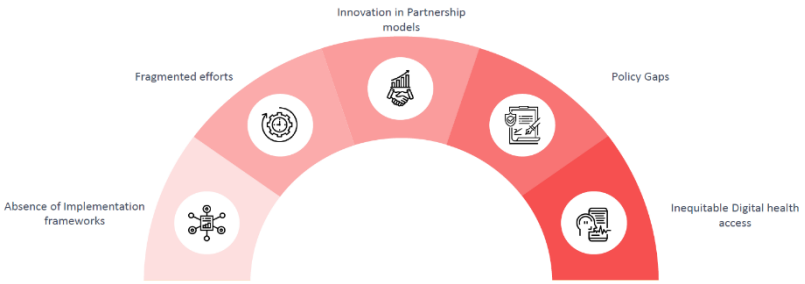


Figure 3: Identified Gaps

Absence of Frameworks: Clear implementation frameworks for digital health are missing, limiting scalability and requiring private sector input.

Fragmented Efforts: Disjointed initiatives across stakeholders highlight the need for private sector coordination.

Weak Partnerships: Existing public-private collaboration models lack innovation, creating opportunities for redefined partnerships.

Policy Gaps: Inadequate regulations and governance in digital health demand private sector advocacy for stronger policies.

Access Inequality: Marginalized groups face barriers to digital health, emphasizing the role of private initiatives in ensuring equity.

PROPOSED INTERVENTIONS AND RECOMMENDATIONS:

Harmonize Regulations: A lack of standardized regulatory frameworks hinders seamless private sector participation in digital health initiatives.

Strengthen Data Governance: Inadequate data protection and privacy policies create barriers to trust and collaboration in private sector-led health solutions.

Develop Risk Sharing Mechanisms: The absence of frameworks for equitable risk distribution between stakeholder's limits investment in digital health projects.

Innovative Financing: Insufficient financial models and incentives deter private entities from scaling digital health technologies.

Promote Interoperability: Fragmented systems and a lack of interoperability standards prevent integration of private sector tools into national health systems.

Digital Infrastructure Improvement: Weak infrastructure, including low internet penetration and technology access, limits the scalability of private sector digital health solutions.

Change Management: Limited capacity-building and resistance to change hinder the adoption of private sector innovations in health systems.

Figure 4 : Recommendations

WAY FORWARD:

Boost Public-business Partnerships: Encourage cooperation between international organizations, governments, and business sectors to share resources, exchange knowledge, and align objectives.

Adopt Harmonized Regulations: Create and put into effect unified regulatory frameworks to guarantee equitable and uniform private sector participation policies throughout the region.

Invest in Digital Infrastructure: To get around infrastructure constraints, increase connectivity, make dependable internet more accessible, and implement scalable digital health solutions.

Improve Data Governance: Create strong frameworks for data security and privacy to foster stakeholder trust and guarantee adherence to moral principles.

Encourage Interoperability: To guarantee the smooth integration of digital health solutions from the private sector with public health infrastructure, encourage the use of standardized protocols and systems.

Encourage Capacity Building: To boost digital literacy and the uptake of digital tools, give administrative and healthcare personnel training and resources.

Create Creative Financing Models: To promote private sector participation in digital healthcare, investigate outcome-based investments, blended financing, and risk-sharing arrangements.

Boost Monitoring and Evaluation: Use the Digital Health Maturity Scale to evaluate the success of private sector projects and pinpoint any shortcomings or potential areas for development.

Promote Community-Centric Solutions: Adapt digital health advancements to the requirements of marginalized groups while guaranteeing cultural sensitivity and inclusivity.

Drive Change Management Efforts: Use awareness campaigns, policy advocacy, and stakeholder engagement to overcome opposition to digital transformation.

This roadmap uses digital health to deliver sustainable and equitable healthcare results across South Asia's LMICs by coordinating private sector initiatives with public health priorities.

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