



NATIONAL HEALTH INNOVATION GUIDE



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Table of Contents

Contents

Table of Contents	ii
Forwards	iv
List of Acronyms	vi
Acknowledgments from LEO	7
List of Figures	9
1. Introduction	10
1.1. Background.....	10
1.2. Introduction to Health Innovation Landscape in Ethiopia	11
2. Definitions and Types of Health Innovations	13
2.1. Definition of Health Innovation.....	13
2.2. Types of Health Innovation	13
3. Goal and Objectives of the Guide	16
3.1. Rationale.....	16
3.2. Scope of the Guide	17
3.3. Goal	17
3.4. Objectives	17
3.5. Guiding principles	17
4. Health Care Innovation Processes and Framework	20
5. Implementation Arrangement	26
5.1. Innovation Governance.....	26
5.2. Innovation Planning and Management	27
5.3. Financing Health Innovation	28
5.4. Stakeholder Engagement	28
5.5. Program Communication	29
5.6. Monitoring and Evaluation	29
5.7. Knowledge Management	29
5.8. Roles and Responsibilities of Stakeholders	29
6. References	30
7. Annexes	32
Annex 1: National Focus Areas for Health System Innovation.....	32

Annex 2. Innovation Lab Protocol.....	36
Annex 3: Terms of Reference (TOR) for Innovation Think Tank Group.....	38
Annex 4: 72 Change Concepts for Health Innovation.....	42
Annex 5: Health System Innovation Appraisal Process	XLV
Annex 6: Roles and Responsibility of Stakeholders.....	XLVIII

Forwards



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State Minister, Ministry of
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Innovation lies at the heart of Ethiopia's commitment to strengthening its national health system and improving population health. Over the past two decades, the Ministry of Health has implemented various innovative approaches, ranging from the Health Extension Program to digital health solutions, to address the prominent health challenges. Despite these efforts, the rise of multiple health burdens, limited access to quality care, and resource constraints continue to pose significant threats.

Ethiopia must rethink its approach to health system innovation to address these challenges and achieve universal health coverage and the Sustainable Development Goals. This requires a context-specific and participatory process that leverages the country's unique opportunities and assets, such as diverse contexts, local knowledge, community engagement, and entrepreneurial spirit.

The National Health System Innovation Guide presented here is a vital resource to navigate Ethiopia's complex landscape of healthcare innovation. It provides principles, a framework, and guidance to foster a culture of innovation, effectively manage innovation processes from ideation to implementation, and facilitate the diffusion and scale-up of innovations in the health system. By following this guide, key stakeholders, including innovators, adopters, policymakers, researchers, entrepreneurs, and health managers, can contribute to improving the accessibility, quality, affordability, and equity of healthcare services. The guide envisions facilitating the development of new products, system/process improvements, and technology innovations that address the population's evolving health needs and expectations and strengthen health system resilience.

Furthermore, the guide emphasizes creating new solutions and transforming the health system and cultures underpinning health improvement. It underscores the importance of collaboration, public-private partnerships, adaptation, and co-creation in the innovation process to respond to local needs and positively impact population health. Health innovations must also target improving the health of vulnerable and marginalized populations and support the realization of Ethiopia's commitment to leaving no one behind.

The National Health System Innovation Guide aligns with Ethiopia's commitment to enhancing informed decision-making and fostering health innovation. It offers a roadmap for developing and effectively managing the innovation process, building a culture of innovation, and facilitating the diffusion of impactful solutions across the Ethiopian health system.

As Ethiopia faces unprecedented health challenges and opportunities in the 21st century, health system innovation is critical for achieving universal health coverage. This guide aims to empower stakeholders to navigate the dynamic and complex landscape of healthcare innovation and contribute to improving the health and well-being of all Ethiopians.

Together, we can drive positive changes and shape a future where quality healthcare is accessible.

A handwritten signature in blue ink, appearing to be 'Ayele Teshome', is positioned above the name and title.

Ayele Teshome, (MD, OBGY, IA)

State Minister, Ministry of Health, Ethiopia

List of Acronyms

AI	Artificial Intelligence		M & E	Monitoring and Evaluation
EIPA	Ethiopian Intellectual Property Authority		NCBI	National Center for Biotechnology Information
EHR	Electronic Health Records		NCD	Non-Communicable Diseases
EPSS	Ethiopian Pharmaceutical Supply Service		NGO	Non-Governmental Organizations
HSIQI	Health Systems Innovation and Quality		RHBs	Regional Health Bureaus
HSDIP	Ethiopia's Health Sector Medium Term Development and Investment Plan		SIB	Social Impact Bonds
HSTP	Health Sector Transformation Plan		SOP	Standard Operating Procedure
IBM	International Business Machines Corporation		TWG	Technical Working Group
KPI	Key Performance Indicators		TOR	Term Of Reference
LEO	Lead Executive Office		TTG	Think Tank Group
LMIC	Low- and Middle-Income Countries		TQIM-H	Total Quality and Innovation Management in Healthcare
mRNA	Messenger Ribonucleic Acid		WHO	World Health Organization
MiNT	Ministry of Innovation and Technology			
MoH	Ministry of Health			

Acknowledgments from LEO



The Ministry of Health (MOH) of Ethiopia is dedicated to continuous improvement in healthcare quality and innovation. Over the past few years, we have actively pursued this goal by developing and implementing national healthcare quality management strategies. This has involved providing quality improvement capacity and capability building interventions for health workers, leaders, and staff across all levels of the system.

Dr. Abas Hassen Yesuf

Lead Executive Officer,

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Health facilities have been actively designing and executing quality improvement (QI) projects focused on improving key dimensions of healthcare quality. MOH, in collaboration with valued partners including Regional Health Bureaus (RHBs) and key stakeholders, has been working diligently to create a district based and national level learning system/platform for health system quality improvement, such as National and Regional Quality Summit, program based learning collaboratives and quality and safety hubs, just to mention few.

Recognizing the need to accelerate QI efforts, the MOH has developed a comprehensive National Health Innovation Guide. This guide serves as a valuable resource for healthcare professionals and institutions throughout Ethiopia as we strive for excellence in healthcare delivery.

The development of the National Health Innovation Guide would not have been possible without the dedicated efforts and expertise of a remarkable group of individuals and organizations. We sincerely acknowledge the technical contributions of the following individuals and their affiliated organizations including Jhpiego, Fenot/Harvard University, Institute for Healthcare Improvement (IHI) and USAID Quality Healthcare Activity who tirelessly drafted, revised, and convened discussions to refine the National Health Innovation Guide. Their commitment and expertise were essential in shaping this valuable resource:

H.E Dr. Ayele Teshome	MoH
Dr. Abas Hassen	MoH
Mr. Deneke Ayele	MoH
Mr. Gemu Tiru	MoH
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Habtamu Milkiyas	MoH
Dr. Bereket Yakob Yota	MoH/Fenot-Harvard University
Prof. Mirkuzie Woldie	MoH/Fenot-Harvard University

I believe the National Health Innovation Guide will serve as a powerful tool for accelerating process, system and products and technology innovations that will support quality and safety improvement efforts across the Ethiopian healthcare system. I look forward to its **exerted execution** and its impact in bringing **positive change** to healthcare delivery for all Ethiopians.



Abas Hassen Yesuf(PhD)

**Health System Innovation and Quality
LEO, Ministry of Health**

List of Figures

Figure 1. Health Innovation Model for Ethiopia (Adapted from the Model for Improvement and the Mountain Model).....	20
Figure 2 Health Innovation and Quality Organizational Structure	27
Figure 3 Health system appraisal process.....	39

1. Introduction

1.1. Background

Ethiopia has steadfastly committed to bolstering its health system by enhancing primary healthcare services. Over the past 20 years, the Ministry of Health (MOH) has introduced several innovations to improve its healthcare system and health-related results. One of the several improvements Ethiopia has put into place over the past 20 years to enhance its health system and health outcomes is the Health Extension Program. Additional innovations introduced in the country include creating and implementing digital health technologies and solutions, improving the availability and affordability of essential medications and medical supplies, and fortifying the management and governance of public hospitals^{1,2}.

Ethiopia's healthcare system is at a critical juncture, necessitating innovative approaches to overcome its challenges. The country's rapidly growing population and diverse healthcare needs demand creative and transformative solutions. In addition, the rise of the triple burden of communicable and non-communicable diseases and injuries places a tremendous strain on healthcare resources and infrastructure. Furthermore, climate change and conflict exacerbate these challenges, further jeopardizing the health system's capacity to provide essential care³.

System and resource-related gaps commonly hinder the quality of health service delivery in Ethiopia. As they pose significant challenges that must be addressed to improve healthcare outcomes for the population, managing them through innovative approaches is crucial. Thus, it requires a comprehensive approach that focuses on strengthening the healthcare system, enhancing infrastructure, investing in human resources, ensuring the availability of essential supplies, using salient technologies, and increasing financial resources allocated to healthcare. Hence, planning, implementing, learning, institutionalizing, and scaling up innovation are critical and must be embraced in all health programs and healthcare administration⁴.

¹ Fortin D. Ethiopia Launches Digital Health Innovation and Learning Center [Internet]. JSI. 2020 [cited 2023 Jun 23]. Available from: <https://www.jsi.com/ethiopia-launches-digital-health-innovation-and-learning-center/>

² Science, Technology and Innovation Policy Review of Ethiopia [Internet]. 2020 [cited 2023 Jun 23]. (Science, Technology and Innovation Policy Reviews). Available from: https://unctad.org/system/files/official-document/dtlstict2020d3_en.pdf

³ Jung, M., Jembere, G.B., Park, Y.S. et al. The triple burden of communicable and non-communicable diseases and injuries on sex differences in life expectancy in Ethiopia. *Int J Equity Health* 20, 180 (2021). <https://doi.org/10.1186/s12939-021-01516-0>

⁴ Manyazewal T, Woldeamanuel Y, Blumberg HM, Fekadu A, Marconi VC. The potential use of digital health technologies in the African context: a systematic review of evidence from Ethiopia. *npj Digit Med* [Internet]. 2021 Aug 17 [cited 2023 Jun 23];4(1):1–13. Available from: <https://www.nature.com/articles/s41746-021-00487-4>

1.2. Introduction to Health Innovation Landscape in Ethiopia

By establishing structures, developing policies, and initiating partnerships, Ethiopia is working towards institutionalizing health innovation and ensuring its integration into the broader health system, focusing on long-term sustainability and impact. Some of the enabling environments for health innovation in Ethiopia include the following:

Innovation Policy: The Ethiopian government has recognized the importance of innovation in enhancing economic development. It formulated a national policy that supports and promotes innovation. This policy provides a framework for innovation initiatives and a foundation for integrating innovation within the health sector.

Innovation and Research Structures: The Ministry of Innovation and Technology is a government structure recently established to oversee and coordinate innovation efforts in the country. It has a national steering committee comprising representatives from various ministries, including the Ministry of Health. The Ministry of Health, in turn, has established agencies dedicated to health innovation, such as:

- The Armauer Hansen Research Institute (AHRI), which conducts clinical and biomedical research and product innovations
- The Ethiopian Public Health Institute (EPHI), which oversees research and innovation in public health
- The Health System Innovation and Quality Improvement Lead Executive Office (HSIQI), which coordinates and scales health system innovations
- The Digital Health Lead Executive Office (DH), which oversees digital health innovation
- The Policy, Strategy, and Research Lead Executive Office (PSR), which conducts research and develops strategies and policy recommendations for health innovation research.

These institutions play a crucial role in advancing health innovation in Ethiopia, bringing together expertise and resources to support research and innovation activities.

Incubators and Innovation Hubs: The HSIQI LEO of the MOH supports the development, scaling, and coordination of national innovation hubs to bolster Ethiopia's health innovation ecosystem. The innovation hubs will serve as centers for collaboration, knowledge exchange, and support to innovators. In addition, HSIQI will create, nurture, and use the hubs as communities of innovation practices (or learning sites) to promote and foster a culture of innovation and provide practical training and mentorship for innovators.

Investment and Funding: The Ethiopian government allocates budgetary resources to fund innovation structures and initiatives to ensure sustainable funding and support for health innovation in the country. Additionally, finance mobilization efforts will be essential to secure funding and resources from local and international partners, enabling further investment in health innovation.

Regulatory Support: Existing research review boards and relevant proclamations provide regulatory support for health innovation initiatives in Ethiopia. This ensures adherence to ethical

guidelines and standards for research and innovation.

Collaboration and Partnership: The Ministry of Health, specifically through the HSIQI office, coordinates health innovation activities at the national level. A national health innovation steering committee led by the State Minister of Health supports, coordinates, and monitors innovation efforts in the health sector. The steering committee engages key stakeholders and defines the terms of reference for their roles and responsibilities in advancing health innovation. Collaboration and partnership across institutions, organizations, researchers, and innovators will be encouraged to foster innovation, knowledge sharing, and collective efforts in achieving health system improvements in the country.

2. Definitions and Types of Health Innovations

2.1. Definition of Health Innovation

There is no one definition of innovation. It has been defined in different ways based on purpose and context. However, all definitions of innovation in the health sector have emphasized the importance of creating and implementing solutions that can improve the health of individuals and populations. Health innovation has been defined from various institutional perspectives. For instance:

World Health Organization (WHO) defines health innovation as “the development and application of new concepts, products, processes, and systems that improve health outcomes, increase efficiency, and enhance the delivery of healthcare services.” This definition emphasizes creating and utilizing novel ideas, technologies, and interventions to address health challenges and improve the overall health system.

The United States National Institutes of Health (NIH) define health innovation as “transforming ideas and discoveries into novel products, services, and approaches that prevent, diagnose, or treat disease and improve healthcare delivery.” This definition emphasizes the translation of scientific discoveries and research findings into practical solutions that have a direct impact on public health.

The implementation of new or altered products, services, processes, and organizational structures that create value and improve healthcare quality, safety, and efficiency.” This definition highlights the holistic nature of health innovation.

Overall, health innovation can be seen as a multifaceted concept that involves developing and applying new ideas, technologies, products, processes, and systems to enhance healthcare quality, efficiency, and effectiveness and improve health outcomes. It encompasses various approaches and interventions, from scientific discoveries and medical advancements to organizational and system-level changes aimed at transforming and advancing the healthcare sector to benefit individuals and populations.

2.2. Types of Health Innovation

Health system innovations can take different forms and be classified into various types based on their nature, mission, and scope. Some of the common types of health innovation include:

Product Innovations: This involves the development of new or improved devices, tools, designs, or materials that have high value in improving healthcare and its management. The products may be new, modified, or recreated to meet customers’ or system’s changing needs and preferences. It may include developing new drugs, vaccines, medical devices, or diagnostics that improve health outcomes or reduce costs. Product innovation maximizes product quality, adds value, increases

cost-effectiveness, improves efficacy, and results in high-value returns.

Technology Innovation: This involves creating new or modifying existing technology to cutting-edge digital information and communications technologies to improve access to information, increase efficiency and interoperability, promote transparency, and ultimately improve access to healthcare. This may include digital health solutions, telemedicine services, electronic health records (EHRs), and artificial intelligence (AI) in healthcare.

System Innovation: This involves changing health services' structure, organization, management, governance, processes, and delivery to improve access, quality, equity, efficiency, and effectiveness. It may also include creating new or modifying existing business models or reforming the fundamental value proposition of the current organizational setup. Health system innovation is a broad category that encompasses various subcategories aimed at transforming the healthcare sector. These include:

Process Innovation: This involves improving the efficiency, effectiveness, and quality of healthcare processes. It may include reengineering workflows, streamlining administrative processes, implementing standardized protocols and guidelines, and introducing continuous quality improvement methodologies.

Service Delivery Innovation: It focuses on transforming healthcare delivery models to enhance accessibility, streamline care processes, and improve patient experience and outcomes. Examples include redesigning care delivery systems, introducing integrated care models, implementing community health worker programs, home-based care services, and innovations in primary care, mental health, and preventive care.

Organizational and Management Innovation: This encompasses new approaches to organizational structures, governance, leadership, and management practices in healthcare. It may involve innovations in healthcare financing and payment models, accountable care organizations, value-based care models, improving competitiveness, managing complexities, collaborative care structures, performance management systems, and learning and adapting to the changing healthcare and management environments.

Social and Behavioral Innovation: This category aims to address social determinants of health and promote healthy behaviors among individuals and society. It includes initiatives for community engagement, social transformation, patient empowerment, health education campaigns, social marketing, and interventions to address health disparities.

Policy and Regulatory Innovation: This involves developing new policies, regulations, and frameworks to adapt to evolving healthcare challenges and to foster innovation. It may include establishing regulatory sandboxes, policy reforms to encourage innovation, and creating incentives for research and development in healthcare. Policy innovations can aim to address the structural determinants of health, ensure the introduction and inclusion of health in all policies, and address health inequities.

It is important to note that the different types of health innovation described above often overlap and can complement each other. Multiple innovations may be required to address complex healthcare challenges comprehensively. In addition, these categories are not exhaustive, and

healthcare innovation is an evolving field, with new types of innovation emerging as technology advances and the healthcare landscape changes.

3. Goal and Objectives of the Guide

3.1. Rationale

The world is facing unprecedented health challenges and opportunities in the 21st century. The COVID-19 pandemic has exposed the fragility and inequity of many health systems and the need for timely, resilient, and effective responses to emerging threats. At the same time, the global burden of non-communicable diseases is rising, especially in LMICs. Moreover, people's health needs and expectations are changing as they demand more personalized, convenient, and affordable care.

Embracing health innovation in a national health system can lead to improved health outcomes, increased access and equity, enhanced efficiency, sustainable healthcare systems, economic growth, better response to emerging health challenges, and collaborative partnerships. Against this backdrop, countries are highly recommended to recognize and prioritize health innovation as a critical driver for achieving their healthcare goals and creating a healthier future for their populations. For the same reason, Ethiopia's Health Sector Development and Investment Plan (HSDIP) and National Quality and Safety Strategy (NQSS) emphasize fostering health innovation through institutional knowledge translations and collaborative learning practices. Promoting and prioritizing health innovation in Ethiopia can lead to:

Improved Health Outcomes: Health innovation can significantly improve health outcomes for individuals and populations. By embracing innovation, countries can enhance disease prevention, diagnosis, treatment, and management, leading to better health outcomes and a higher quality of life for citizens.

Increased Access and Equity: Health innovation can bridge gaps in access to healthcare services, particularly in underserved areas and marginalized populations. Innovative approaches like telemedicine, mobile health, and community-based care can improve access to healthcare, reducing geographical, financial, and social barriers.

Enhanced Efficiency and Cost-effectiveness: Health innovation offers opportunities for improving the efficiency and cost-effectiveness of healthcare systems. Innovations such as electronic health records, health information exchange platforms, and data analytics can streamline administrative processes, reduce medical errors, and optimize resource allocation, leading to cost savings and better resource utilization.

Sustainable Healthcare Systems: In the face of growing healthcare demands and limited resources, health innovation can contribute to creating sustainable healthcare systems. Innovations focusing on preventive care, early detection, and chronic disease management can reduce the burden on hospitals and emergency departments, promoting long-term cost savings and improved population health.

Economic Growth and Competitiveness: Health innovation fosters economic growth by driving research and development, attracting investments, and creating new job opportunities in

the healthcare sector. It helps to attract medical tourism, foster innovation ecosystems, and stimulate economic prosperity.

Response to Emerging Health Challenges: Health innovation is crucial for responding effectively to emerging health challenges, such as pandemics, infectious diseases, antimicrobial resistance, climate change, and changing demographics. It allows for rapid development and deployment of diagnostics, treatments, vaccines, and technologies to address these evolving threats proactively.

Collaborative Partnerships and Knowledge Exchange: Promoting health innovation encourages collaboration between stakeholders, including government, healthcare providers, researchers, industry, and patients. Collaborative partnerships foster knowledge exchange, information sharing, and mutual learning, leading to best practices, evidence-based decision-making, and accelerated innovation cycles.

3.2. Scope of the Guide

The guide applies to process, system, product, social, management, leadership, and technology innovations in and for the health sector of Ethiopia. It also provides a framework and principles to be followed by the MOH, regional health bureaus, health facilities, and key stakeholders, including innovators, policymakers, researchers, entrepreneurs, development partners, regulators, and health managers involved in developing, implementing, or evaluating health innovations in Ethiopia.

3.3. Goal

The goal of the Health System Innovation Guide is to provide guiding principles and a framework for health innovation in Ethiopia that facilitate the development, planning, implementation, evaluation, spreading, and scaling of evidence-based, locally appropriate, acceptable, and effective innovations in the Ethiopian health sector; and through those innovations, to improve health outcomes, improve client and health workforce experience, lower financial burden for all Ethiopians, and build a more resilient and sustainable health system.

3.4. Objectives

The objectives of the guide are to:

- Provide guiding principles to foster health innovation.
- Support and guide the management of health innovation from idea creation to implementation.
- Provide a framework and support system for the diffusion of innovation and scale-up.
- Delineate the duties and responsibilities of health innovation stakeholders.

3.5. Guiding principles

The fundamental principle of health innovation is that innovation efforts should lead to meaningful and impactful transformations within the healthcare sector that create positive change and improve health outcomes for individuals and communities. By adhering to the guiding principles below,

health innovators can navigate ethical, mission-driven, social, and practical considerations in their efforts to achieve that goal.

The guiding principles for Health Inclusion innovation include:

- a) Mission-driven:** Health innovations should bring a meaningful contribution to addressing existing or future health needs, such as improving health outcomes, patient and health workforce experiences, governance, leadership, competitiveness, and financial fairness.
- b) Demand-driven:** Although all innovations have some utility, given resource scarcity and absorption capacity, health innovations that promise to offer or demonstrate effective and salient solutions to pressing health system challenges should be prioritized and embraced.
- c) People-Centeredness:** Health innovation should prioritize people's needs, preferences, and experiences. Among patients, it should promote empowerment and engagement in their healthcare and improve health outcomes. Among health workers, it should promote well-being and capability to deliver the highest quality of care to every patient, every time.
- d) Equity and Access:** Health innovation should strive to reduce health disparities and ensure equitable access to healthcare for all individuals, regardless of socioeconomic status, geographic location, or other backgrounds.
- e) Collaboration and Partnership:** Health innovation should foster cooperation and partnership among all stakeholders, including healthcare providers, researchers, policymakers, innovators, entrepreneurs, and patients. Collaborative approaches can generate diverse perspectives, promote knowledge exchange, and leverage collective expertise to drive meaningful and sustainable innovation. Public-private partnerships should be strengthened to encourage learning, mobilize resources, and collaborate in developing and scaling health system innovations.
- f) Evidence-Based Practice:** Health innovation should be grounded in scientific evidence and informed by rigorous research and evaluation. It should prioritize evidence-informed interventions and methodologies, ensuring that innovations are safe, effective, and high-quality.
- g) Sustainable and Scalable Solutions:** Health innovation should aim to develop sustainable and scalable solutions in the long term. Innovations should consider healthcare delivery's economic, social, and environmental aspects and ensure their implementation and scaling are feasible and cost-effective.
- h) Ethical Considerations:** Health innovation should adhere to ethical principles, respecting people's autonomy, privacy, and confidentiality. It should prioritize informed consent, protect patient data, and uphold ethical research, development, and implementation standards.

i) Continuous Learning and Improvement: Health innovation should embrace a culture of continuous learning and improvement. It should incorporate feedback loops, monitoring, and evaluation mechanisms to assess innovations' impact, effectiveness, and efficiency. Lessons learned should be used to refine and optimize interventions over time.

j) Regulatory and Policy Support: Health innovation should operate within a supportive regulatory and policy framework. It should work towards aligning regulations and policies to encourage and enable innovations while ensuring safety, quality, and ethical standards.

k) Flexibility and Adaptability: Health innovation should be flexible and adaptable to address changing healthcare needs and challenges and be responsive to advances in science and research. Innovations should be able to respond to emerging trends, new technologies, and evolving health systems and policies.

l) Stakeholder Engagement and Empowerment: Health innovation should actively engage and empower stakeholders, including patients, communities, and healthcare providers. Their perspectives, insights, and experiences should be valued and considered throughout the innovation process to foster ownership and sustainability.

4. Health Care Innovation Processes and Framework

Ethiopia's Health Innovation Model (HIM) (Figure 1) is developed by adapting and integrating two models: The Model for Improvement and the Model for Enhancing Public Sector Demand for and Scaling Innovations, also known as the Mountain Model. Whether as-is or with further modification, HIM can be used by Ethiopia's public and private health sectors. HIM will be used as a framework for cultivating an innovation culture and promoting its scale-up in Ethiopia's public and private sectors.

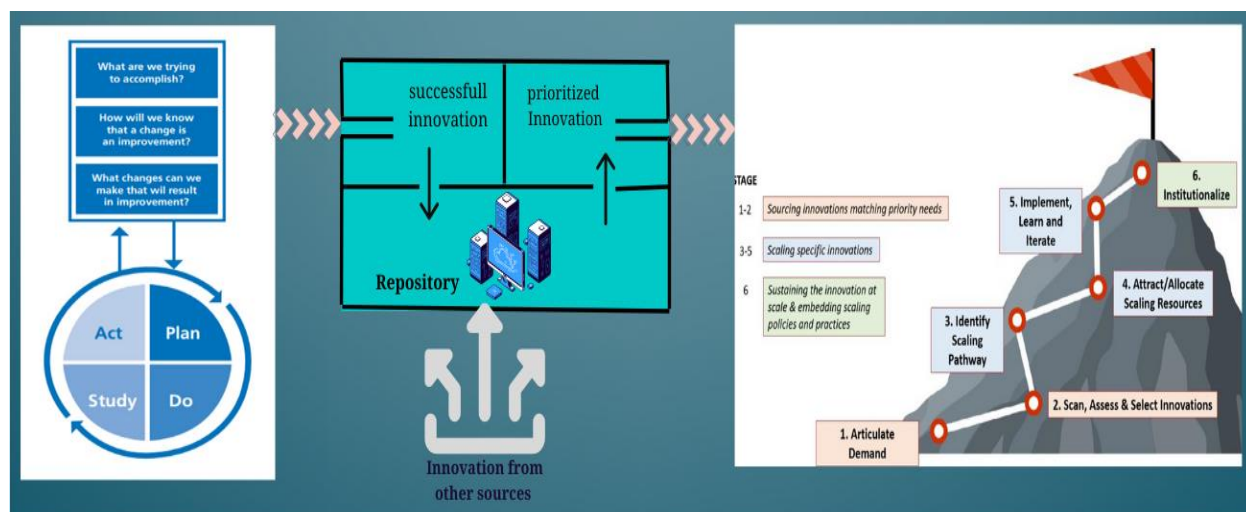


Figure 1. Health Innovation Model for Ethiopia (Adapted from the Model for Improvement and the Mountain Model)

The Model for Improvement, anchored by the Plan-Do-Study-Act (PDSA) cycle, is a robust framework for developing, testing, and validating innovation as desired changes (improvement) in health systems. Within this model, three essential questions guide the process: "What are we trying to accomplish?", "How will we know that a change is an improvement?", and "What changes can we make that will result in improvement?". These questions form a strategic foundation for innovators, enabling them to articulate clear aims, establish measurable objectives, and pinpoint areas for innovation. Innovation involves creative thinking as a primary source for generating change ideas that can significantly shift system performance and improve healthcare outcomes.

The iterative nature of the PDSA cycle facilitates systematic testing and refinement of proposed changes, fostering a continuous learning process crucial for sustained improvement in health system performance. In practical terms, the PDSA cycle involves planning a small-scale change, implementing it, studying the results, and acting on the findings. This cyclical approach enables health teams to test innovations incrementally and safely before scaling them up across the entire system. By embracing this method, innovators can proactively address challenges, leverage successes, and refine strategies to achieve desired outcomes.

In the middle of the HIM is a repository of proven, appraised, and ready-to-scale (groomed) innovations from the health sector and other sources. The health system must develop the capacity to store and spread groomed innovations from all sources. A platform for disseminating innovations is equally important as developing them because unknown innovations are unlikely to create demand and scale. This step of the HIM should be strengthened by developing a strong knowledge management and translation system in the health system.

The Mountain Model aspect of the HIM aims to strengthen the integration of, enhance demand for, and scale-up health innovations. It offers a systematic approach to articulating demand; selecting innovations; choosing scaling pathways; mobilizing resources; implementing innovations; ensuring monitoring, evaluation, and learning; and fostering institutionalization of health innovations to attain desired health outcomes. Further details of the steps to be followed in enhancing the demand for and scale of health innovations are provided below:

Step 1: Demand Articulation

Demand articulation is a crucial part of the mountain model for institutionalizing innovation. It involves defining and expressing the specific healthcare challenges or needs that require innovative solutions. Engaging and involving various stakeholders, such as healthcare providers, policymakers, innovators, adopters, and beneficiaries, is essential to articulate demand effectively. Their input and insights are valuable in understanding and defining the problems that must be addressed. Listening to their perspectives and priorities can help create a shared understanding of the challenges and demand for innovation.

Demand articulation aims to show a comprehensive picture of the challenges by considering factors such as the magnitude and urgency of the problem, the potential impact on health outcomes, and the existing gaps in healthcare services, management, governance, and health needs. It involves conducting needs assessments, gathering data, and researching to support identifying and articulating the demand. In doing so, organizations can communicate the need for innovation to internal and external stakeholders and attract resources to develop and implement innovative solutions.

Step 2: Scan, Assess, and Select Innovations

The second step in the mountain model for scaling and institutionalizing innovation is to scan, assess, and select innovations. This step explores a range of proven, appraised, and groomed innovations from the repository to identify potential solutions to address the articulated demand. The process may involve scanning and researching various sources of innovations, including academic literature, industry reports, conferences, and innovation databases. This allows organizations to gather adequate information about innovative products, technologies, and practices that can help address demands.

Once a pool of potential innovations is identified, the next step is to assess their feasibility and potential impact. This involves thoroughly evaluating each innovation based on effectiveness, scalability, cost, regulatory compliance, and compatibility with existing healthcare systems and

processes. Organizations may also consider safety, people-centeredness, and sustainability factors. Through careful assessment, it is possible to shortlist innovations that align most closely with the demand articulated in Step 1. This includes evaluating whether the innovations have the potential to address the specific challenges, meet the desired outcomes, and deliver value to stakeholders.

The final stage of step 2 is selecting the most promising innovations that will be further developed and implemented. This decision may involve rigorous decision-making, including consultations with key stakeholders, evaluation committees, and expert opinions. The selected innovations should align with the organizational goals, resources, and capabilities. Through these efforts, teams will select innovations with the highest potential for success.

Step 3: Identify Scaling Pathway

The third step of the mountain model for institutionalizing innovation is identifying the scaling pathway. Once promising innovations have been selected in step 2, this step focuses on developing a plan to scale and spread these innovations effectively across the healthcare system. The scaling pathway involves identifying the resources, partnerships, and actions required to implement and sustain the selected innovations on a larger scale. To identify the scaling pathway, organizations need to consider various aspects:

- **Infrastructure and Resources:** Assessing the existing infrastructure and resources within the healthcare system is essential to determine whether they are sufficient to support the scaling process. This includes clinical facilities, technology systems, human resources, payment and reimbursement structures, and funding.
- **Regulatory and Policy Considerations:** Understanding the regulatory and policy landscape is crucial to developing strategies for navigating potential barriers and leveraging enablers for scaling. Organizations must identify regulatory requirements or policy constraints that may impact the scaling process.
- **Stakeholder Engagement:** Engaging key stakeholders, including healthcare providers, policymakers, payers, and patients, is essential to align their perspectives and gain support for scaling the innovations. It may take time and effort to gain the support of some stakeholders, but their collaboration and buy-in can help overcome resistance and increase adoption rates.
- **Implementation Planning:** A comprehensive implementation plan is necessary to guide the scaling process. This includes creating a timeline, setting clear goals and milestones, and defining the roles and responsibilities of all involved parties. Implementation strategies may consist of piloting the innovation in different settings, refining processes based on feedback, and conducting training programs to ensure successful adoption.
- **Monitoring and Evaluation:** Establishing mechanisms for monitoring and evaluating the impacts of scaling is crucial to measuring the success and effectiveness of the innovations. Collecting data, conducting regular assessments, and incorporating feedback loops can help identify areas for improvement and ensure ongoing optimization.

By carefully identifying the scaling pathway, organizations can increase the chances of successful

adoption and spread of innovations throughout the healthcare system.

Step 4: Identify and Allocate Scaling Resources:

Scaling an innovation requires adequate resources, both human and financial, to support its widespread implementation. Below are the key considerations for identifying and allocating resources during the scaling phase.

- **Financial Resources:** Financial resources are essential to support training, infrastructure development, technology investments, evaluation efforts, and other scaling activities. Organizations must secure funding and budget strategically for every activity to ensure a smooth scaling process.
- **Human Resources:** Human resources include personnel to manage the implementation process, train healthcare providers, monitor progress, address barriers, and provide ongoing support. A dedicated team with the necessary skills and expertise is crucial for successfully deploying and adopting the innovation.
- **Technology and Infrastructure:** Technology plays a big role in many innovation efforts. Allocating resources for acquiring and maintaining the necessary hardware, software, and networks is essential to ensure a robust technological foundation for innovation.
- **Training and Capacity Building:** Training and capacity building are essential to ensure that healthcare providers and other stakeholders have the knowledge and skills to use and support the innovation effectively. Adequate training programs and resources must be developed and delivered to enable successful adoption and implementation.
- **Monitoring and Evaluation:** Monitoring and evaluation are essential to assess the impact and effectiveness of the scaled innovation and may require all of the resource types mentioned above to be implemented successfully.

While the specific resource allocation process may vary depending on the context and nature of the innovation, ensuring sufficient resources are allocated and managed effectively is crucial for successful scaling. Proper resource allocation helps mitigate potential barriers, enhances sustainability, and maximizes the potential impact of the scaled innovation.

Step 5: Implement, Learn, and Iterate:

Step 5 of the mountain model focuses on providing ongoing support, learning, and optimization during and after the implementation of the innovation. This step ensures that the innovation is effectively integrated into the healthcare system and continuously improved for maximum impact. The key aspects of this stage of health innovation include:

- **Support:** Providing ongoing support is essential to assist healthcare providers and other stakeholders in using and implementing the innovation. Support can include technical assistance, training programs, access to helpdesk or support teams, and regular communication channels for addressing questions, issues, and challenges that may arise during the implementation process.

- **Continuous Learning:** Organizations should continuously collect and analyze data, gather feedback from stakeholders, evaluate the performance and impact of the innovation, and identify facilitators and barriers. This learning process helps identify areas of success and areas that require improvement, enabling organizations to make informed decisions for further refinement.
- **Optimization:** Building on the learnings, the team optimizes the innovation by making necessary adjustments and refinements to improve the innovation design and its implementation process. This may involve modifying workflows, addressing usability issues, improving training programs, fine-tuning technology components, or incorporating stakeholder feedback. Optimization activities aim to enhance the innovation's effectiveness, adoption, and outcomes.
- **Collaboration and Feedback:** Engaging stakeholders in the optimization process is crucial. Collaboration with healthcare providers, patients, policymakers, and other relevant parties can provide valuable insights, ideas, and perspectives for optimizing innovation. Regular feedback loops ensure that the innovation is responsive to the needs and demands of the healthcare environment.
- **Scaling and Sustainability:** Step 5 also involves considering strategies for scaling and sustaining the innovation beyond the initial implementation. This may include developing plans for expanding the adoption of the innovation to additional healthcare settings, securing long-term funding, integrating the innovation into policies and regulations, and fostering a culture of innovation and continuous improvement within the organization.

By focusing on support, learning, and optimization, organizations can ensure the success and long-term impact of the implemented innovation. This ongoing process allows for adaptation to changing needs, continuous improvement, and optimization of outcomes to achieve the desired goals and outcomes of the innovation.

Step 6: Institutionalize Health Innovation

The sixth step in the mountain model is institutionalizing the health innovation. This step focuses on integrating the innovation into the core operations and culture of the organization, ensuring its long-term sustainability and impact. By institutionalizing an innovation, organizations ensure its longevity, scalability, and integration into the core fabric of the healthcare system. This allows the innovation to become a sustainable solution that positively impacts health outcomes, improves processes, and supports the ongoing evolution of healthcare practices. Some of the key aspects of the institutionalization phase include:

- **Integration into Policies and Processes:** This includes updating guidelines, protocols, and workflows to reflect the use and benefits of the innovation. By embedding the innovation into the formal frameworks of the organization, it becomes a standard part of practice.
- **Training and Capacity Building:** This includes training new employees and providing regular refreshers to existing staff to ensure the innovation is implemented consistently and correctly. Encouraging continuous learning and skill development helps sustain

innovation.

- **Governance and Leadership Support:** This involves creating dedicated oversight structures, providing clear roles and responsibilities, and ensuring leaders actively champion and support the innovation. Institutionalizing innovation requires a commitment from leadership at all levels of the organization.
- **Continuous Improvement:** Institutionalization is an iterative and continuous process. Organizations should continuously seek opportunities to improve and refine innovation to align with evolving needs and emerging practices. Monitoring and evaluation should be ongoing to identify improvement areas and inform iterative optimization cycles.
- **Communication and Change Management:** Clear and consistent communication helps ensure understanding and support, create enthusiasm, address concerns, and foster a culture of innovation and continuous improvement.
- **Knowledge Sharing and Collaboration:** Sharing successes, challenges, and learnings both within and between organizations can help accelerate the adoption and impact of innovation across the healthcare ecosystem. Collaboration and partnerships can also lead to further advancements and optimization.

5. Implementation Arrangement

The implementation arrangement for a national health innovation program typically involves several key components. By incorporating these key components into the implementation arrangement, the federal health innovation program can effectively facilitate integration, collaboration, and sustainability, resulting in a program that contributes to positive health outcomes and advances healthcare practices in the country. It is important to note that these components in the implementation arrangement work together to ensure effective planning, execution, and monitoring of the program.

5.1. Innovation Governance

This entails establishing a governance structure that oversees the program's implementation, coordination, and decision-making. It includes defining roles and responsibilities, appointing committees or working groups, identifying key stakeholders involved in decision-making, and providing guidance throughout the program's life cycle. In Ethiopia, the program governance for health innovation involves several key stakeholders (see Figure 2).

The Ministry of Innovation and Technology (MiNT) takes the lead in overseeing and coordinating all innovation efforts at the national level. MiNT established a steering committee for innovation with representatives from various ministries, including the Ministry of Health.

The Ministry of Health plays a significant role in the program governance for health innovation. It has established institutions dedicated to health innovation (described in [Section 1.2](#)) that bring together expertise and resources to support research and innovation activities.

Regional Health Bureaus (RHBs) work in coordination with HSIQI to plan, implement, and monitor health innovations in their respective regions. Some innovations may be applicable to and implemented at the RHB level, while others may be cascaded to the zonal, woreda, and facility level.

Quality units or departments at the zonal, woreda, or facility level will lead and coordinate health innovation activities in their jurisdictions. These units or departments will collaborate with their RHB, national-level institutions, and other stakeholders to implement health innovation programs nationwide.

See Annex 6 for a more detailed description of roles and responsibilities of the MOH, RHBs, and lower-level stakeholders.

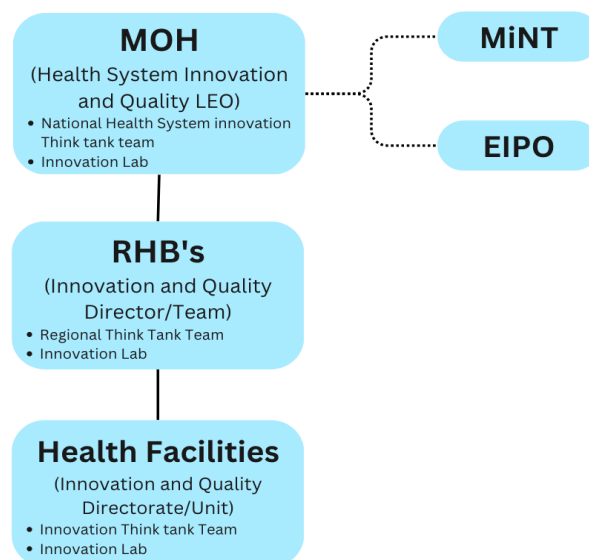


Figure 2 Health Innovation and Quality Organizational Structure

Overall, the program governance for health innovation in Ethiopia involves a coordinated effort between the Ministry of Innovation and Technology, the Ministry of Health, national-level institutions, and regional-level units/departments to facilitate research, innovation, and implementation of health innovations in the country. HSIQI assumes the overall coordination and governance of health innovations, while its Innovation, Quality, and Equity Steering Committee oversees the development, scaling, and institutionalization of health innovation in Ethiopia.

5.2. Innovation Planning and Management

Professional management plays a crucial role in implementing a national health innovation program successfully. It involves planning, adequate resource allocation, stakeholder engagement, risk management, monitoring and evaluation, collaboration and partnership, and capacity building. These activities ensure the efficient and effective implementation of the health innovation program, fostering a culture of innovation in the healthcare sector and driving positive health outcomes.

Under the leadership and participation of the HSIQI LEO, dedicated health innovation structures:

- Develop a comprehensive health innovation plan tailored to their specific mandate. This includes defining program goals, objectives, and key performance indicators to serve as a roadmap for the program's activities and guide decision-making throughout its implementation.
- Allocate adequate resources, including financial resources, human resources, infrastructure, and technological tools required for the program. This helps to ensure that resources are utilized optimally to meet the program's objectives and deliver desired outcomes.
- Engage stakeholders – including government agencies, healthcare providers, researchers, innovators, and community representatives – to facilitate effective communication, collaboration, and coordination, ensure their active involvement, and build their support of

the program.

- Identify potential risks, establish risk management protocols, monitor and evaluate risks throughout the program's lifespan, and take necessary measures to address emerging challenges. This helps minimize disruptions and ensure smooth program implementation.
- Establish robust monitoring and evaluation mechanisms, including collecting relevant data, analyzing program performance, and measuring progress toward set goals. This information enables program managers to make informed decisions, identify facilitators and barriers to implementation, and demonstrate the impact of the health innovation program.
- Establish partnerships with national and international organizations, academic institutions, research bodies, and private sector entities to bring invaluable expertise, resources, and solutions to support the program's objectives and enhance its impact.
- Build stakeholders' capacity in the health innovation program, including providing training, workshops, and educational opportunities to enhance skills and knowledge related to research, innovation, and implementation.

5.3. Financing Health Innovation

Securing funding and allocating resources are critical components of implementation arrangements for health innovation. It involves identifying and securing financial help from various sources, such as government budgets, public-private partnerships, grants, angel investors, or equity investments. Resource allocation also includes deploying human resources, technology infrastructure, and other necessary resources for implementing innovations. A dedicated budget should be allocated at all levels for the innovation process. A dedicated staff with time assigned for innovation must focus on creating and testing innovation, scaling, and institutionalizing it in the system.

For instance, adequate finance is essential to develop and strengthen health innovation labs, such as dedicated spaces within healthcare organizations that incubate new ideas, technologies, and processes. Innovation labs foster collaboration, experimentation, and the development of innovative solutions to address the challenges faced by healthcare providers, patients, and the industry.

5.4. Stakeholder Engagement

Engaging relevant stakeholders plays a crucial role in the success of a national health innovation program. It involves identifying and involving stakeholders such as government agencies, health ministries, healthcare providers, academia, industry partners, patient advocacy groups, and regulatory bodies. Effective stakeholder engagement helps to get buy-in, gather diverse perspectives, and ensure collaboration and cooperation. Key stakeholders should be identified and engaged from inception to scale-up of health innovations. Each of them will have a different level of engagement and contribution to the success of the innovations based on their expertise and the resources they have for it. The Ministry of Health will coordinate and guide health innovations and engage them in the best phases and activities that fit them well.

Key stakeholders can be identified during health innovation ecosystem mapping, and their list can

be further enriched later. The stakeholder identification process can be substantiated by conducting a stakeholder analysis using the power (influence) – interest matrix and stakeholder engagement approaches.

5.5. Program Communication

Communication is also an essential component of the program, which helps to create awareness, build support, and disseminate information about innovation. It involves developing a communication plan, establishing communication channels, and conducting regular updates and outreach activities to inform stakeholders, gain public support, and leverage media opportunities to create visibility.

5.6. Monitoring and Evaluation

Evaluation and monitoring are critical for assessing the innovation's effectiveness and impact. This involves setting up evaluation frameworks, determining paths to outcomes, defining key performance indicators (KPIs), collecting and analyzing data, and conducting regular program assessments. Evaluation findings provide insights into the program's progress, identify areas for improvement, and help inform policy decisions and future program planning. Innovators, adopters, program staff, and researchers must document all processes, decisions, changes, and achievements to foster learning and continuous improvement. This is also critical to ensure transparency and accountability in health innovations.

5.7. Knowledge Management

This focuses on capturing, documenting, and sharing the knowledge and learning's gained from the program. It involves establishing mechanisms to disseminate and exchange best practices, lessons learned, and research findings. Effective knowledge management promotes continuous learning, supports evidence-informed decision-making, and encourages innovation.

5.8. Roles and Responsibilities of Stakeholders

Health system innovations should be encouraged and supported by the involvement of key stakeholders from their inception to their scale-up. Each of them will have a different level of engagement and contribution to the success of the innovations. The Ministry of Health will coordinate and guide health system innovations and collaborate with stakeholders. The health innovations stakeholders, their responsibilities, and engagement strategies are listed below in *Annex 7*.

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7. Annexes

Annex 1: National Focus Areas for Health System Innovation

A) Service Delivery

Innovation in healthcare service delivery refers to the development of new and improved methods, technologies, and approaches to delivering healthcare services that improve the quality, efficiency, and accessibility of care for patients. These include:

- **Workflow Optimization:** Innovation can help streamline healthcare workflows, reduce the administrative burden on healthcare professionals, and improve patient care.
- **Universal Health Coverage:** Health system strengthening innovations can work toward removal of systemic barriers that undermine core service coverage.
- **Primary Healthcare:** Innovation in this area could include improving the training and capacity of community health workers, increasing access to essential health services, and using digital health technologies to support remote consultation and monitoring.
- **Non-Communicable Diseases (NCDs):** Innovations could include developing new screening and diagnostic tools, improving access to affordable medications, and using digital health technologies to support self-management and prevention.
- **Maternal and Child Health:** Innovative efforts could include developing new technologies and interventions, such as mobile health applications for maternal and child health education and monitoring.
- **Infectious Diseases:** Efforts could include developing new diagnostic and treatment tools, improving access to preventive interventions, and using digital health technologies to support disease surveillance and response.

B. Health Workforce

Like many other LMICs, Ethiopia needs more trained health workers. Innovation can play a crucial role in health workforce management by improving the efficiency and effectiveness of the healthcare system. Here are a few ways in which innovation can contribute to health workforce management:

- **Recruitment and Retention:** Innovation can help to attract and retain healthcare professionals by creating more attractive job opportunities, providing flexible work arrangements, and offering professional development opportunities.
- **Training and Education:** Innovation can enhance the quality and accessibility of training and education for healthcare professionals. For example, online learning platforms can provide healthcare professionals access to ongoing training and education, regardless of location or schedule.
- asdf

C. Health Information System (Digital Health)

Innovation in health information refers to using technology and creative thinking to improve the quality and accessibility of health information for patients, healthcare providers, and researchers. Some examples of innovation in health information include:

- **Electronic Health Records (EHRs):** EHRs are digital records of patient health information that can be accessed by healthcare providers across different settings. They help to improve patient safety, reduce errors, and enable better communication between healthcare providers.
- **Telemedicine:** Telemedicine allows patients to consult with healthcare providers remotely through video conferencing, messaging, and other forms of communication. This technology has become increasingly important during the COVID-19 pandemic, as it enables patients to receive care while minimizing the risk of exposure to the virus.
- **Mobile Apps:** Mobile apps can track and manage health conditions, provide health education and resources, and enable communication between patients and healthcare providers.
- **Artificial Intelligence (AI) and Machine Learning:** AI can analyze large amounts of health data and identify patterns that can help improve diagnoses, treatment plans, and patient outcomes.

D. Medical Products

Research and development efforts in the public and private sectors – both within and outside of Ethiopia – continually advance the capabilities of medical products to promote improve health outcomes in a number of ways:

- **Diagnostics:** Development of new tools and technologies for diagnosing diseases and conditions early, such as genetic testing, blood tests, imaging techniques, and biomarker identification.
- **Therapeutics:** Advancements in drug development, including the use of new delivery systems, targeted therapies, and gene editing.
- **Medical devices:** Design and development of new medical devices, such as wearable technology, implantable devices, and surgical robots.
- **Personalized medicine:** Customized treatments based on an individual's genetic makeup, lifestyle, and medical history.
- **Regenerative medicine:** Development of therapies that use the body's cells and tissues to repair damaged or diseased tissue.
- **Nanotechnology:** Using nanobot-scale materials and devices to improve drug delivery, imaging, and diagnostics.
- **Vaccines:** Development of new vaccines and advancements in vaccine technology, such as mRNA vaccines.
- **Biotechnology:** Biotechnology is the use of living organisms or their derivatives to develop medical products. This includes genetically modified cells or tissues, gene therapies, and protein therapeutics.

Additionally, new ways of ensuring proper pharmaceutical quantification and forecasting can reduce procurement lead-time, avoid stock-outs, and ensure timely access to essential medicines and health products. Some potential innovations in this area include:

- **Supply chain optimization:** Innovations in supply chain management, such as blockchain technology and real-time tracking, can help pharmaceutical managers ensure that medications are delivered to the right place at the right time and can improve the efficiency of the supply chain.
- **Patient-centered approaches:** Pharmaceutical managers can adopt patient-centered strategies, such as personalized medicine and value-based pricing, to ensure that medications are tailored to patients' needs and priced based on their effectiveness.
- **Regulatory Reform:** Regulations can be reformed to help new drugs be developed and brought to market safely and quickly. Regulatory bodies are exploring new approaches, such as adaptive licensing and real-world evidence, to streamline drug approval processes.
- **Data analytics:** Data analytics can help pharmaceutical managers identify patterns and trends in medication use and inform decisions about inventory management and pricing.
- **Collaborative partnerships:** Collaboration between pharmaceutical companies, healthcare providers, and patients can lead to innovative approaches to pharmaceutical management, such as the development of new medications and the sharing of best practices in medication use.

E. Health Financing

Innovation in healthcare financing refers to new and creative ways of funding healthcare services and resources that can help to improve access to quality care, reduce healthcare costs, and increase efficiency in healthcare delivery. These include:

- **Value-based care:** Value-based care is a model that rewards healthcare providers for achieving better patient outcomes at lower costs. This approach shifts the focus from fee-for-service to a more holistic approach to healthcare delivery. Value-based care can be implemented through alternative payment models such as bundled payments, shared savings programs, and pay-for-performance.
- **Social Impact Bonds:** Social impact bonds (SIBs) are a financing mechanism that leverages private capital to fund social programs that have a measurable impact. SIBs have been used in the healthcare sector to support preventive health programs to reduce hospital readmissions and emergency department visits.
- **Crowdfunding:** Crowdfunding is a relatively new approach to healthcare financing that allows individuals and organizations to raise funds from many people through online platforms. Crowdfunding has been used to fund medical treatments, research studies, and medical devices.
- **Blockchain technology:** Blockchain technology has the potential to revolutionize healthcare financing by enabling secure and transparent transactions. Blockchain can

track medical supply chains, reduce fraud and abuse, and facilitate secure transactions between healthcare providers and insurers.

- **Micro-insurance:** Micro-insurance is insurance designed to cover low-income individuals and families. Micro-insurance has been used in developing countries to provide access to healthcare services for people who would otherwise be unable to afford them.

F. Leadership and Governance

Leadership and governance are critical areas of innovation in healthcare, as they set the tone and direction for the entire system. By embracing new models and approaches to leadership and governance, healthcare systems can better meet the needs of patients, improve outcomes, and provide higher-quality care. Some areas of innovation within leadership and governance in healthcare include:

- **Policy making:** Making health policies more evidence-informed, inter-sectoral, and participatory, and transforming leadership accordingly.
- **Data-driven decision-making:** Health systems generate large amounts of data, and leaders must be able to use these data to inform decision-making. Data analytics and artificial intelligence innovations can help leaders identify trends, make predictions, and develop strategies to improve outcomes.
- **Patient-centered governance:** Patients should be at the center of healthcare decision-making. Patient-centered governance models involve patients and their families in the governance of healthcare systems, ensuring that their voices are heard and their needs are addressed.
- **Continuous quality improvement:** Healthcare systems must constantly strive to improve their care quality. Continuous quality improvement involves using data and feedback to identify areas for improvement, develop interventions, and measure outcomes.
- **Ethical leadership:** Healthcare leaders must adhere to high ethical standards and promote a culture of ethical behavior throughout their organizations. Innovations in ethical leadership involve the development of codes of conduct, training programs, and accountability mechanisms to ensure that leaders and staff act ethically at all times.
- **Collaborative leadership models:** Healthcare systems are complex and require the input and expertise of various stakeholders. Collaborative leadership models bring together stakeholders from different departments, disciplines, and organizations to achieve common goals.

Annex 2. Innovation Lab Protocol

Creating a health innovation lab/center involves several steps to ensure its successful establishment. Here are some recommended steps to follow while establishing this lab:

Step 1: Conduct a Needs Assessment

Conduct a needs assessment to identify the gaps in the healthcare system that need to be addressed through innovation. Engage stakeholders, such as healthcare professionals, policymakers, and patients, to gain insights into the healthcare sector's challenges and opportunities for innovation.

Step 2: Define the Vision and Mission

Based on the needs assessment, define the vision and mission of the Innovation Lab. The vision should be focused on creating a better healthcare system through innovation, while the method should be to provide a space for researchers, innovators, and healthcare professionals to collaborate and create new solutions for the healthcare industry.

Step 3: Develop a Strategic Plan

Develop a strategic plan that clearly defines the Innovation Lab's vision, mission, goals, and objectives. Determine the specific areas of healthcare innovation you want to focus on. Refer to the Ethiopian national health system priority areas listed in Annex 1 for inspiration. The plan should also include a timeline for implementation, budget, and resources needed for the project. The strategic plan should also identify the key stakeholders and partners in establishing and operating the Innovation Lab.

Step 4: Identify Funding Sources

Identify potential funding sources such as government grants, private sector partnerships, and donations from philanthropic organizations. Additionally, consider setting up a crowdfunding campaign to raise funds from individuals who support the project.

Step 5: Build Partnerships

Establish partnerships with relevant organizations and institutions, such as hospitals, universities, research institutions, and non-profit organizations, that can provide expertise, resources, and support to the Innovation Lab. Partnerships will also help create a network of stakeholders invested in the lab's success.

Step 6: Assemble a Think Tank Group

Assemble a skilled multidisciplinary team with expertise in healthcare innovation, research, and technology. The team should have diverse skills and experiences that complement each other and be committed to the mission of the Innovation Lab. This team will drive innovation and manage the lab's operations. Refer to the sample Terms of Reference (TOR) for this think tank group in Annex 3.

Step 7: Establish the Physical Space

The Innovation Lab should have a physical space conducive to innovation and collaboration.

Plan the lab layout to promote collaboration, creativity, and efficient workflows. Consider the needs of different teams and allocate spaces for brainstorming, prototyping, and testing. Procure the equipment and technology required for your lab's specific focus areas. This could include software, hardware, research tools, prototyping equipment, and other resources to facilitate innovation and development.

Step 8: Define Processes and Workflows

Develop standard operating procedures (SOPs) and workflows to guide the lab's operations. Clearly define how ideas are generated, evaluated, and developed into tangible solutions within a predictable time frame. Establish protocols for collaboration, experimentation, and data management.

Step 9: Establish Evaluation Metrics

Define metrics and key performance indicators (KPIs) to evaluate the success and impact of your health innovation lab. Measure outcomes such as the number of ideas generated, prototypes developed, successful innovations, or improvements in healthcare delivery.

Step 9: Develop a Program of Activities

Develop a program of activities that could include workshops, mentorship programs, and other activities that foster creativity and critical thinking and promote innovation and collaboration among the stakeholders.

Step 10: Launch and Implement the Innovation Lab

Launch and implement the Innovation Lab and regularly evaluate its progress against the goals and objectives set out in the strategic plan. Continuously engage stakeholders and adjust the program of activities as needed to ensure the Innovation Lab remains relevant and effective. Create a culture that encourages creativity, experimentation, and learning. Foster an environment where think tank groups feel empowered to share ideas, take risks, and iterate on solutions. Encourage cross-disciplinary collaboration and knowledge sharing.

Step 11. Monitor and Adapt

Continuously monitor the lab's progress, adapt processes as necessary, and stay updated on emerging trends and technologies in the healthcare industry. Regularly assess the impact of your innovation lab and make adjustments based on feedback and evaluation results.

Annex 3: Terms of Reference (TOR) for Innovation Think Tank Group

Background:

Health system innovation refers to developing and implementing new ideas, technologies, and methods that improve the quality, accessibility, and affordability of healthcare. Thus, to foster innovation in the healthcare system, the think tank will bring together diverse healthcare leaders, innovators, and policymakers to identify best practices and strategies to improve quality, increase care access, enhance patient engagement, and reduce unnecessary costs.

The Innovation Think Tank Group (TTG) will support health system innovation work undertaken by the innovation lab, whether the lab designs and undertakes independent projects in collaboration with partners or joins efforts designed and led by other stakeholders, such as the Health Systems Innovation and Quality Improvement division of the Ministry of Health.

The TTG will explore different aspects of health system innovation using resources such as published healthcare literature, grey literature, popular press, stories from the field, and interviews with topic experts and “out-of-the-box” thinkers.

Scope:

The scope of the TTG will be determined based on the vision and mission of the innovation lab in which they are practicing. As described in Annex 2, the vision and mission of the lab will be determined by the results of the needs assessment conducted before the establishment of the lab.

Objectives:

- To develop innovation expertise among the TTG members
- To foster innovation culture through experiential learning
- To conduct research and innovation
- To collaborate with healthcare and academia to create solutions addressing healthcare challenges
- To disseminate knowledge and expertise to the healthcare ecosystem
- To demonstrate world-class effectiveness

Think Tank Group Membership

The TTG shall comprise a multidisciplinary professional mix with the competency to contribute to health system innovations at the national, regional, or facility level.

Every think tank group must have a permanent chair, vice-chair, and secretary. Ad hoc senior experts will be part of the team as temporary members. Senior experts will be recruited from

different fields of study based on the innovation idea to be tested. It is recommended to have seven members or fewer.

A. Roles and Functions of the Chair:

- Provide strong leadership and guidance to the innovation lab team, inspiring and motivating them to achieve excellence in their work.
- Develop and implement the lab's strategic goals, objectives, and plans, aligning them with the overall vision and mission of the innovation lab.
- Build and manage a high-performing team, including recruiting, onboarding, and training new ad hoc members and fostering a collaborative and inclusive work environment.
- Oversee the planning, execution, and evaluation of innovation projects within the team, ensuring adherence to timelines, budget constraints, and quality standards.
- Establish and maintain relationships with internal and external stakeholders, including executives, clinicians, researchers, and industry leaders, to foster collaboration, garner support, and secure necessary resources for the innovation project.
- Ensure the innovation project complies with ethical guidelines, legal regulations, and patient data privacy requirements.

B. Roles and Functions of the Vice-chair

- Assist the team leader in daily tasks, including project management, coordination, and strategic planning.
- Collaborate closely with team members and ensure effective communication, coordination, and stakeholder collaboration.
- Support planning, executing, and monitoring the innovation project, including managing project schedules, milestones, and deliverables.
- Support the team leader in building and maintaining relationships with internal and external stakeholders, including healthcare professionals, researchers, and industry partners.
- Assist in collecting, organizing, and analyzing data related to innovation projects, ensuring data integrity and adherence to privacy regulations.
- Support the team leader in promoting knowledge sharing within the lab and across the organization, contributing to dissemination of best practices and lessons learned.
- Identify areas for process improvement and efficiency within administrative tasks, proactively suggesting and implementing solutions to streamline operations.

C. Roles and Functions of the Secretary

- Maintain accurate and up-to-date records, including project documents, meeting minutes, and other relevant files. Ensure proper organization and retrieval of information.

- Facilitate communication within the team and with external stakeholders by managing email correspondence, drafting letters, memos, and reports, and disseminating information as needed.
- Assist in organizing and coordinating meetings, including scheduling, preparing agendas, arranging meeting rooms, and recording minutes. Ensure timely distribution of meeting materials.
- Assist in maintaining accurate project documentation, including project plans, progress reports, meeting minutes, and other relevant records.
- Support the team in managing and organizing data related to the innovation project, ensuring data integrity, confidentiality, and compliance with relevant regulations and policies.
- Support the team in organizing and maintaining information resources, such as research papers, relevant reports, and innovation databases.

D. The Roles and Functions of Ad Hoc Members

- Provide deep subject matter expertise in specific areas relevant to healthcare innovation, such as medical technology, data analytics, clinical research, health policy, or patient care.
- Conduct in-depth research and analysis on emerging trends, technologies, and best practices in the healthcare industry, identifying opportunities for innovation and suggesting potential solutions.
- Collaborate with the team to design innovative solutions, products, or services that address healthcare challenges and improve patient outcomes, leveraging their expertise and subject matter knowledge.
- Serve as a thought leader in the healthcare innovation project, staying updated on the latest developments, contributing to industry discussions, and representing the lab in conferences, seminars, or expert panels.
- Evaluate the feasibility, efficacy, and potential impact of the innovative solution or technology to be tested through rigorous evaluation methods, clinical trials, or pilot studies, ensuring evidence-based decision-making.
- Collaborate with legal and intellectual property experts to protect and manage intellectual property rights associated with the innovation project, including patents, copyrights, and trade secrets.
- Stay updated on relevant healthcare regulations, policies, and ethical guidelines, ensuring compliance throughout the innovation process, especially regarding patient data privacy and security.
- Continuously expand knowledge and skills in emerging technologies, healthcare trends, and innovation methodologies, fostering a culture of learning, adaptability, and continuous improvement within the team.

Guiding Principles

The think tank group will operate based on the following principles:

- Open and inclusive collaboration among team members and stakeholders.
- Transparent and evidence-based decision-making.
- Agile project management methodologies for efficient execution.
- Continuous learning, adaptation, and improvement.
- Adherence to ethical guidelines, data privacy regulations, and patient confidentiality.

Meeting Frequency:

The members shall meet regularly and as needed. Meetings will be called by the Chair, Vice-Chair, or Secretary and will be led by the Chair or Vice-Chair.

Confidentiality:

The TTG is expected to keep confidentiality on tasks given and shall abide by directions to share or communicate findings related to health system innovation projects and specific tasks.

Communication and Reporting:

The TTG will maintain open and transparent communication and report progress to the Innovation Lab management team.

Annex 4: 72 Change Concepts for Health Innovation

1. Eliminate things that are not used
2. Eliminate multiple entries
3. Reduce or eliminate overkill
4. Reduce controls on the system
5. Recycle or reuse
6. Use substitution
7. Reduce classifications
8. Remove intermediaries
9. Match the amount to the need
10. Use sampling
11. Change targets or set points
12. Synchronize
13. Schedule into multiple processes
14. Minimize handoffs
15. Move steps in the process close together
16. Find and remove bottlenecks
17. Use automation
18. Smooth workflow
19. Do tasks in parallel
20. Consider people as being in the same system
21. Use multiple processing units
22. Adjust to peak demand
23. Match inventory to predicted demand
24. Use pull systems
25. Reduce the choice of features
26. Reduce multiple brands of the same item
27. Give people access to information
28. Use proper measurements
29. Take care of the basics
30. Reduce de-motivating aspects of the pay system
31. Conduct training
32. Implement cross-training
33. Invest more resources in improvement
34. Focus on core process and purpose
35. Share risks
36. Emphasize natural and logical consequences
37. Develop alliances and cooperative relationships
38. Listen to customers
39. Coach the customer to use a product/service
40. Focus on the outcome for a customer
41. Use a coordinator
42. Reach agreement on expectations
43. Outsource for “free”
44. Optimize the level of inspection
45. Work with suppliers
46. Reduce setup or startup time
47. Set up the timing to use discounts
48. Optimize maintenance

- 49. Extend specialists' time**
- 50. Reduce wait time**
- 51. Standardization (create a formal process)**
- 52. Stop tampering**
- 53. Develop operational definitions**
- 54. Improve predictions**

- 55. Develop contingency plans
- 56. Sort products into grades
- 57. Desensitize
- 58. Exploit variation
- 59. Use reminders
- 60. Use differentiation
- 61. Use constraints
- 62. Use affordances
- 63. Mass customize
- 64. Offer product/service anytime
- 65. Offer product/service anyplace
- 66. Emphasize intangibles
- 67. Influence or take advantage of fashion trends
- 68. Reduce the number of components
- 69. Disguise defects or problems
- 70. Differentiate product using quality dimensions
- 71. Change the order of process steps
- 72. Manage uncertainty, not task

Source: *Langley, G.J., Moen, R.D., Nolan, K.M., Nolan, T.W., Norman, C.L. and Provost, L.P., 2009. The improvement guide: a practical approach to enhancing organizational performance. John Wiley & Sons.*

Annex 5: Health System Innovation Appraisal Process

The success of a health system innovation project depends on effective management and alignment with the context in which it will be implemented. The Ministry of Health, in collaboration with the key stakeholders, will employ the following systematic process for appraising health system innovations to ensure that the innovations are effective, efficient, and appropriate for the specific health system context.

1. Identify and define the innovation.

The innovation must define its intended purpose, how it differs from current practices or technologies, and how it fits within the country's health system. In addition, a sufficient description of the innovations in terms of technologies employed and management methods must be provided. The appraisal of the proposed innovation must evaluate and check the following elements and descriptions.

- a) Assess the need base of the innovation
- b) Is it a solution to the resource versus flow efficiency dilemma?
- c) How does it deal with processes, coordination, control information, and quality assurance?
- d) What performance measures are used?
- e) How must offerings, resources, and patients be combined in business models and operating logic?
- f) Review the theory-backed/Conceptual framework models that explain how and why the innovation works.
- g) Any potential risks or challenges the innovation project may phase or generate.
- h) Find out if it can, or has been, repeated and transferred to different contexts.

2. Identify stakeholders for the innovation.

Identify all stakeholders involved in the innovation, including patients, healthcare providers, policymakers, and payers.

3. Assess the potential impact of the innovation.

Conduct a comprehensive assessment of the potential impact of the innovation on health outcomes, patient experience, healthcare costs, and resource utilization. This may involve reviewing existing evidence or conducting a pilot study.

4. Evaluate the evidence

Evaluate the quality and strength of the evidence supporting the innovation, including clinical studies, cost-effectiveness analyses, and real-world data.

5. Analyze implementation barriers and facilitators.

Identify potential barriers and facilitators to implementing the innovation in the real world, including organizational, financial, and regulatory factors.

6. Consider ethical and social implications.

Assess the ethical and social implications of the innovation, including issues related to privacy, equity, and access.

7. Make recommendations.

Finally, based on the appraisal process, make recommendations on the adoption, adaptation, implementation, dissemination, or rejection of the innovation.

8. Communicate and disseminate.

The results enhance mutual learning and the circulation of innovations.

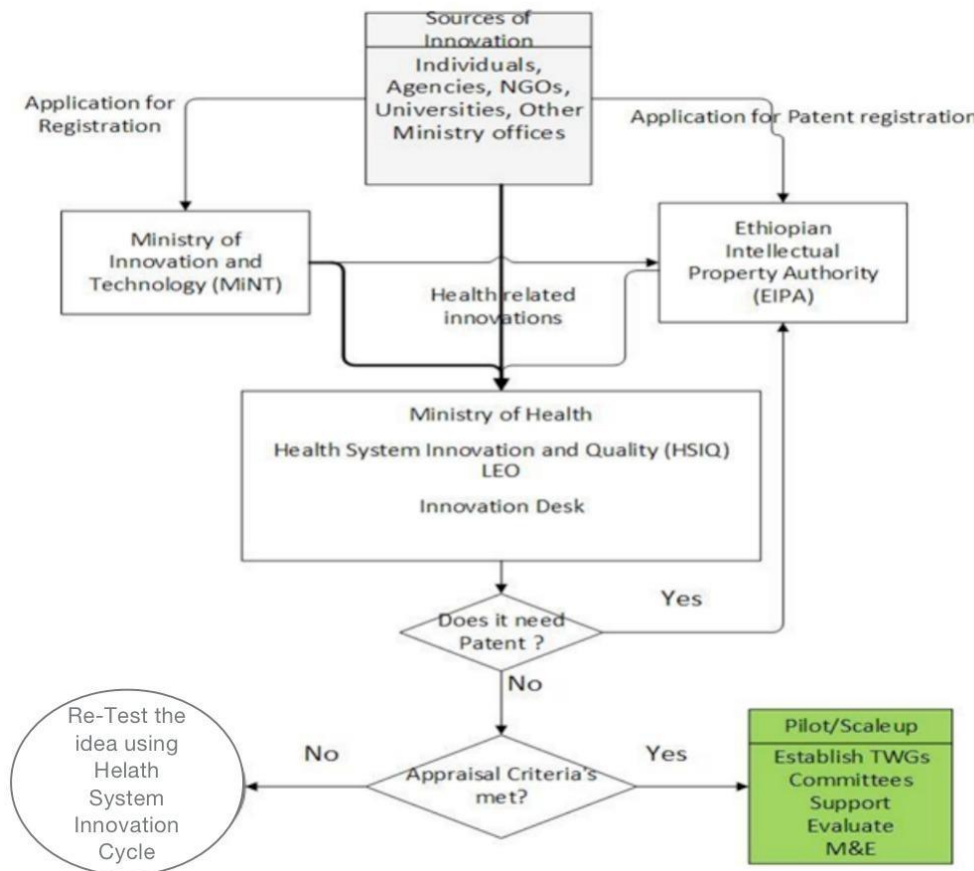


Figure 3 Health system appraisal process

Health System Innovation Appraisal Applications Contents

The contents of a health system innovation appraisal application can vary depending on the specific innovation being proposed and the requirements of the relevant regulatory authorities. However, the common elements that may be included in such an application are:

1. **Introduction:** A summary of the proposed innovation and its intended benefits that clearly explains how it addresses a specific health system need.
2. **Description of the innovation:** A detailed explanation, including its technical specifications, intended use, and associated risks or side effects. This section also includes the innovation process from concept development to test and refinement.
3. **Evidence of safety and efficacy:** Documentation and data that demonstrate the safety and effectiveness of the innovation, such as clinical trial results, case studies, and other relevant research or data analytics.
4. **Regulatory compliance:** Details on how the innovation meets the requirements of relevant regulatory authorities, including any necessary certifications or approvals.
5. **Intellectual property:** Information on any patents or other intellectual property associated with the innovation.
6. **Manufacturing and quality control:** A description of the innovation's manufacturing process and quality control procedures.
7. **Marketing and distribution:** A plan for marketing and distributing the innovation, including pricing strategies or reimbursement considerations.
8. **Stakeholder engagement:** A description of how stakeholders, such as patients, healthcare providers, and payers, were involved in the development and testing of the innovation.
9. **Implementation plan:** A plan for implementing the innovation in the health system, including training and support for healthcare providers and any necessary infrastructure changes.
10. **Financial considerations:** A description of the financial impact of the innovation on the health system, including any potential cost savings or revenue generation.

It is important to note that the specific requirements for a health system innovation appraisal application can vary widely depending on the regulatory environment and the nature of the innovation. Therefore, it is essential to consult with relevant regulatory authorities and seek expert advice when preparing such an application.

Annex 6: Roles and Responsibility of Stakeholders

Stakeholder	Expected Key Roles	Responsibilities/Engagement
MOH Leadership	Strategic Direction & Oversight Resource Mobilization & Allocation Innovation Governance Recognition & Dissemination	Initiate, prioritize, review, endorse innovations Allocate budget, support innovations Prepare governance frameworks Recognize innovators, share best practices
Regional Health Bureaus	Regional Implementation & Oversight Resource Mobilization & Allocation Innovation Governance Recognition & Dissemination	Implement innovations in regions Allocate regional budget, support innovations Prepare regional governance frameworks Recognize regional innovators, share best practices
Zonal & Woreda Health Offices	Implementation & Support Stakeholder Coordination Reporting & Documentation	Pilot and implement innovations Support health facilities, communities Document lessons learned, report progress
Services & Institutes under MoH	Innovation Development & Evaluation Technical Support & Guidance Alignment with Sector Goals Collaboration & Knowledge Sharing	Initiate, evaluate innovations in their area Provide technical support, feedback Adapt guidelines, align with MoH goals Collaborate with innovators, share knowledge
Ministry of Innovation & Technology	National Innovation Policy & Support Technical Advice & Collaboration	Provide policy frameworks, procedures Review innovations, offer advice Collaborate in implementation, share best practices

Ethiopian Intellectual Property Authority	Intellectual Property Protection Guidance & Advice Registration of Innovations	Register patents for innovations Provide technical advice on IP rights Register new innovations in health sector
Development & Implementing Partners	Financial & Technical Support Knowledge Sharing & Dissemination * Collaboration & Coordination	Identify priority innovations, provide funding Offer technical expertise, support documentation Coordinate efforts, avoid duplication
Health Facilities	Innovation Testing & Integration Service Delivery & Excellence Training & Knowledge Sharing	Test and integrate innovations in practice Implement innovations, demonstrate excellence Train staff, provide user-friendly guidelines
Academic & Research Institutions	Innovation Development & Research Evidence Generation & Evaluation Capacity Building & Partnerships	Develop new innovations, conduct research Provide evidence for innovations, evaluate impact Build capacity in public/private sectors Partner with health facilities and institutions
Private Sector	Innovation Development & Investment Piloting & Scaling Up Innovations Collaboration & Knowledge Sharing	Develop and test new innovations Invest in promising innovations, scale up Participate in PPPs, innovation platforms Share knowledge and best practices