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Enhancing **Public Sector Demand for** & **Scaling of** Health Innovation

A new approach to integrating innovation to strengthen public health systems

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Authors' Contribution

This report reflects contributions from a variety of individuals, including Richard Kohl (Strategy & Scale) as primary author; Nelson Gitonga, Benson Chuma, Zawadi Kirisuah and Walter Obita (Insight Health Advisors) who led in-country interviews and authored the Kenyan context analysis; Cicely Thomas (R4D) and Ian Vickers (R4D) who contributed to multiple aspects of the research design and management; and Thomas Feeny (R4D) who provided overall strategic guidance to the project, co-design of the Mountain model and support in editing the report.

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List of Acronyms

AHADI	Agile and Harmonized Assistance for Devolved Institutions
BIPP	Biotechnology Industry Partnership Program
BIRAC	Biotechnology Industry Research Assistance Council (India)
CEC	County Executive Committee (Kenya)
CEC-health	County Executive Committee member for Health (Kenya)
DBT	Department of Biotechnology (India)
GCC	Grand Challenges Canada
GOK	Government of Kenya
IHA	Insight Health Advisors
IMR	Infant Mortality Rate
KENIA	Kenya National Innovation Agency
LMICs	Low- and Middle-Income Countries
MEST	Ministry of Education, Science and Technology
MMR	Maternal Mortality Rate
MNCH	Maternal, Newborn, and Child Health
MOH	Ministry of Health
MOHFW	Ministry of Health and Family Welfare
NACOSTI	National Commission for Science, Technology and Innovation
NHI	National Health Insurance
NGO	Non-Governmental Organization
NMR	Neo-natal Mortality Rate
PHS	Public Health System (actual service delivery)
PSE	Private Sector Engagement
PSP	Public Sector Pathways
PSS	Public Sector Scaling
R4D	Results for Development
R&D	Research and Development
RFP	Request for Proposal
ROI	Return on Investment
S&T	Science and Technology
SDG	Sustainable Development Goal
SP4PHC	Strategic Purchasing for Primary Health Care
ST	Short-term
THS-UC	Transferring Health Systems for Universal Care project in Kenya
TTS	Transition to Scale
TWG	Technical Working Groups
UHC	Universal Health Coverage
UN	United Nations

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Introduction

The scaling up of promising health innovations in Low- and Middle-Income countries (LMICs) is becoming an increasingly important area of interest for actors seeking to build efficient, resilient and adaptive health systems. The challenges of meeting the health targets set out in the 2030 Sustainable Development Goals are significant — even for those countries with mature and well-resourced health systems — and this is generating increased interest among many governments in exploring how health innovations might help to accelerate their progress.

International development agencies committed to supporting SDG targets have been active for many years on the supply-side of this equation, providing funding and technical assistance to innovators with a view to building a pipeline of health innovations. While the emphasis on finding solutions has surfaced some powerful and impactful innovations proven to help improve health outcomes, the 'pipeline' has become, in reality, more of a 'pile-up' with only a tiny proportion of those innovations actually successfully going to scale. Many factors appear to be influencing this process. While innovations or programs developed in the context of donor-funded projects have largely focused on scaling up through the public sector, this has been less the case for innovations generated from Grand Challenges or other independent innovation mechanisms. A large proportion of these have focused on scaling through commercial (market-driven) pathways, with support for innovators oriented towards social enterprise / for-profit models. In contrast, case studies and best practices for scaling innovations through public sector scaling pathways remain somewhat scarce, as does support for innovators pursuing those pathways.

A key contributing factor to this is that while there are a wide range of innovations that have been developed and tested against a well-defined problem, a large proportion of these have failed to take into account whether demand or political will for uptake of those innovations within the public sector exists. Some innovations gather dust on the shelf because their requirements for sustainable implementation at scale are significantly misaligned with the realities of resource-constrained settings. Others lack clarity around which problem they are really trying to address, thereby confusing potential adopters within government as to how these innovations might be most efficiently deployed. Perhaps most significantly, the processes by which many innovations are designed and tested have typically excluded or relegated government participation until the very final stages. They have assumed that if an innovation produces promising results at a pilot / proof of concept stage, demand for and the resources required for scale-up of that product or service among governments and others will naturally materialize (or be easily generated with minimal advocacy). In reality, this is rarely the case and the few health innovations that do go to scale in this more spontaneous manner are typically those that fulfil a very unique set of characteristics.[1]

This report suggests that successful scale-up of innovations through the public sector in LMICs requires a much more sophisticated understanding of, and support for, the demand-side of the process. Innovators and their supporters need to find more ways to work collaboratively with potential government adopters or purchasers of innovations from the very beginning to support co-creation of solutions and smoother pathways to scale. In this way, donors, innovators and governments can co-create an environment that more effectively enables health system integration of innovations in the long term.

[1] Some of these characteristics that appear to support rapid, 'spontaneous' scaling include: (1) very low unit cost (a fraction of per capita health expenditures, fits within domestic fiscal constraints); (2) double- or triple-digit ROI with returns achievable in a short time horizon i.e. under a year; (3) simple and easy to adopt and use (often similar to existing technologies, i.e. plug and play); (4) tangible results that are easily observable and associated with the intervention; and (5) outcomes that create few 'losers' in terms of users, producers or challenging vested interests within the existing status quo.

What do we understand by 'demand' and 'scaling'?

In this report, we focus on demand by public sector actors at all levels (national and sub-national) for innovative policies, products, services and/or ways of working that are designed to improve population health outcomes. To this end, we define **'demand'** as *the request / articulation of interest by a government for a particular product or service*. It is important to note that 'demand' is sometimes wrongly conflated with 'need', which is better used within health to refer to the extent to which an individual or population faces an objective health challenge.[2] In fact, the failure to adequately distinguish between the health 'needs' of populations and the actual 'demand' for products or services to address those needs by governments (or the populations themselves) has arguably contributed to the current situation where only a small fraction of proven innovations actually achieve impact at scale.[3]

The concept of **'scaling'** can be similarly confusing due to its many definitions. For the purposes of this report, we define 'scale' as *the point at which an innovation has been able to achieve sustainable impact with a significant percentage of its targeted clients or users within a given geographic location, population or demographic group.* This report focuses on **public sector scaling**, understood as *the range of pathways and roles through which governments play a leading role facilitating the expansion of an innovation's impact in order to sustainably address a targeted need.*

As this report will show, the factors that influence the 'demand' for and actual 'scaling' of health innovations often overlap, to the extent that demand for an innovation will likely be highly dependent on the ability to scale it. Similarly, a lack of funding or capacity for scaling contributes to disincentives to look for innovations and limits the likelihood of clear demand being articulated.

For this reason, it is important to treat demand and scaling as points along the single continuum of an innovation's journey, rather than as issues that can be addressed in isolation from each other. This is especially important when considering the model for enhancing demand to achieve greater success in public sector scaling that is presented in the final section of this report. This approach, referred to as the 'mountain model', integrates a range of mechanisms that will interact with and influence each other to inform overall success.

Key Definitions

DEMAND — the request / articulation of interest by a government for a particular product or service

INNOVATION — a new solution (product, policy, service, partnership) with the transformative ability to accelerate impact

PUBLIC SECTOR SCALING — the range of pathways and roles through which governments play a leading role in facilitating the expansion of an innovation's impact in order to sustainably address a targeted need.

SCALE — the point at which an innovation has been able to achieve sustainable impact with a significant percentage of its targeted clients or users within a given geographic location, population or demographic group.

SUSTAINABILITY — the financial, political and institutional durability of an innovation required to ensure the continuation / expansion of its impact over time

[2] For example, an individual may 'need' access to more nutritious, affordable food in order to improve their health and wellbeing, but they may not explicitly realize or articulate a 'demand' for this.

[3] For more discussion around the concept of demand and the challenges of operationalizing continuous demand assessment, see Mbaye, S. et al (2020) 'Decolonising global health assistance through listening', Results for Development, 27 October 2020.

Understanding Scaling Pathways

Scaling innovation is a long, complex and dynamic process impacted by a wide range of influencing factors, including of course the type of innovation itself.[4] Today, innovations are often categorized into three broad types, with each of these having implications for the mix of challenges and opportunities they will face along their journey to achieving impact at scale.[5]

- **Scientific/Technological Innovation**, where engineering and other applied sciences are used to s olve the practical problems of human lives, usually through *tangible products* (e.g., solar power, a mobile phone application or a new vaccine). These can often rely on existing diffusion processes or institutions and tend to be easier to scale than social or business/ financial innovations.

- **Social/Process Innovation**, where new practices or *ways of working* are introduced that lead to improved social outcomes. These often require the mainstreaming of new relationships into social settings and are therefore harder to scale due to resistance from pre-existing incentives, mind-sets and cultural practices or habits.

- **Business/Financial Innovation**, where the aim is to improve the *efficiency* of how products or services are offered to and utilized by the market (e.g., innovations that increase the affordability, accessibility or demand for a product). The level of difficulty in scaling will typically depend on the complexity and scope of the change, and the level of demand among those it targets.

We recognize that the scaling journey of a scientific innovation (such as a vaccine for COVID-19) will look very different to that of a new process innovation to improve the efficiency and efficacy of community health workers, or implementation of a new digital medical records system.

We recognize that scaling pathways today tend to be far more complex than the 'public vs. private' distinction suggests, and that innovations are increasingly following 'hybrid' pathways in which both government and market actors will play a role in helping them achieve impact at scale.

However, analyzing the differences in demand and scaling for all of these types of innovation is beyond the scope of this research, which is focused more on discerning common challenges and insights around government engagement.[6] Similarly, we recognize that scaling pathways today tend to be far more complex than the 'public vs. private' distinction suggests, and that innovations are increasingly following 'hybrid' pathways in which both government and market actors will play a role in helping them achieve impact at scale. This is especially true in the context of health where is has been suggested that relying on either the public health system or commercialized service delivery alone is insufficient for achieving Universal Health Coverage.[7]

While there are no pre-determined blueprints for success, the interviews and literature that have informed this research suggest that within the health sector, innovations tend to follow three broad scaling pathways in which governments play a leading role, as summarized in Box One on the next page.

[4] For a comprehensive analysis of factors influencing the scaling process, see IDIA (2017) Insights on Scaling Innovation, available to download here.

[5] This categorisation is adapted from IDIA (2017) Scaling Innovation: A Good Practice Guide for Funders, International Development Innovation Alliance, p13.

[6] In particular, we do not address the pathways specific to the demand and scaling of new vaccines, drugs and other pharmaceuticals in LMICs, which have been assessed through separate initiatives such as the International Decision Support Initiative (iDSI) based at the Center for Global Development.

[7] See, for example, "Commercialization and Globalization of Health Care: Lessons from UNRISD Research" UNRISD Research and Policy Brief 7.

BOX ONE
Indicative Pathways for Scaling through the Public Sector

Approval and Accreditation

- This pathway is when a government provides approval for a product or service to be implemented within the public health system. Approval covers a wide variety of activities, ranging from granting informal permission to a private health actor to operate, to formally certifying a product or service against an agreed metric or standard of accreditation. An example of the former can be found in the case of many local NGOs that deliver health services to marginalized populations by mobilizing community resources. They do not formally use any public resources nor are they regulated, but they do need local government permission to operate effectively. Approval is particularly relevant for innovative service delivery models that do not rely on public financing for either the demand or supply side of health.

- More formal accreditation is becoming increasingly important for those innovations that do rely on public financing indirectly, i.e., to either supply services to the public sector or to be eligible for national health insurance reimbursement (where these schemes exist). For many innovations, reimbursement under such schemes can be critical to their long-term financial viability and sustainability at scale.

Purchasing, Procurement and Public-Private Partnerships

- This pathway is where the public sector purchases goods and services as inputs into its own delivery (procurement) or contracts out or outsources service provision (usually through Public Private Partnerships (PPPs)). Typically, to be eligible for procurement or PPP requires formal approval or accreditation through the first scaling pathway as well. This mechanism is largely relevant for acquisition of goods and services, especially on the supply side of health.

An example of an innovation going to scale through this pathway is Hew Tele (supported by Grand Challenges Canada), which is providing innovative, low-costs ways of producing oxygen.

Adoption and Integration

- This pathway is where the public sector adopts and takes ownership of and responsibility for integrating the innovations within the public health system. This pathway is particularly appropriate for process innovations and innovations that improve administrative or service efficiency, e.g., new protocols, digitization of health systems.

It is important to note that these three pathways are not mutually exclusive, and sometimes different component parts of an innovations can actually follow one or more of these approaches at the same time. For example, the Aga Khan Foundation's Madrasa program provides curricula and technical assistance on early childhood development (ECD) to county governments in East Africa. While their curriculum is one of two that has been approved by the Kenyan government (pathway one); they also sell consulting services on ECD directly to the public services while the government has also integrated Madrasa's curricula and assistance into their ECD service delivery.

About this Report

This report represents the first output in a new initiative funded by Grand Challenges Canada. It is designed to better understand public sector demand for, and engagement in, the innovation and scaling process, with a view to designing and testing a range of mechanisms to support the more efficient and effective scale-up of health innovations by public sector actors. To this end, it is intended to complement the broader growing literature on the public-private collaboration within health systems,[8] focusing specifically on government engagement with innovations as a component of strengthening those systems.

The audience for this work is intentionally broad and includes international innovation funders, country governments, academics, innovators and civil society, reflecting our belief that all of these actors have a role to play in integrating innovation within public health systems. This report focuses in particular on country government perspectives around innovation, prioritizing insights from interviews with those who have direct 'lived' experience of innovation and scaling processes (whether successful or unsuccessful), and contextualizing these within a light-touch landscape scan of available global literature on this topic. As such, this report is designed to reflect the insights and opinions surfaced through key informant interviews we conducted with over 35 international and LMIC-based actors (see Appendix B for details), using Kenya as a case study to provide concrete analysis of how these factors are playing out within a specific country.

We are aware that some of the opinions shared in this report may differ from the 'accepted' views and conclusions of the wider academic literature around health system strengthening, but our intention is to enrich this discussion and give voice to the changing realities of in-country stakeholders as far as possible. The funder of this work, Grand Challenges Canada, has also intentionally avoided setting rigid directions or outcomes for this initiative, and like us is truly committed to following the opportunities that are surfacing and experimenting in partnership with our LMIC public sector colleagues. That said, we have used the findings from this report to develop a demand-driven and locally-led 'Mountain model' (see Part Three) that we believe could be an effective approach for international funders of innovation and others to collaboratively build sustainable capacity in government uptake and scaling of innovations. In 2021, we will be testing this model in Kenya under Phase 2 of this initiative and invite other actors who are interested in supporting public sector scaling of innovation to join us on this exciting journey.

This report is divided into three parts:

- **PART ONE:** Factors Influencing Public Sector Demand for, and Scaling of, Health Innovations. This provides a summary of relevant insights and lessons learned around the factors influencing public sector demand and scaling of health innovation at national and local levels of government.
- **PART TWO:** Characteristics of the Public Health System in Kenya. This section looks at the particular characteristics of the health system in Kenya, and how these influence the demand / scaling-related factors noted in Part One.
- **PART THREE:** A Mountain Model to Enhance Public Sector Demand and Scaling. The final part of this report proposes a facilitated model through which cohorts of government actors work through a sequence of six stages to support innovation uptake and scaling.

[8] See for example the recent R4D blog on '4 opportunities to enrich guidance for public-private engagement in health', Dec 2020.

PART ONE:
Factors Influencing Public Sector Demand for, and Scaling of, Health Innovations

Since 2015, countries around the world have been working towards achieving the Sustainable Development Goals (SDGs) and, in the context of health, towards the target of Universal Health Coverage (UHC) established under SDG 3. For most governments, this has been accompanied by the growing realization that they will not be able to achieve these goals through standard public sector healthcare delivery alone. Instead, countries recognize that the public health sector must provide strong stewardship of health systems including mobilizing, engaging, incentivizing, regulating and monitoring different system actors and assets (public and private) to optimize collective performance in delivering on population health goals. However, despite growing consensus around the need to work together, these relationships remain complicated. For example, there are often high levels of mistrust between public and private actors, and a lack of collaboration platforms supporting meaningful shared assessment / prioritization of demand.[9] These and other challenges hindering the creation of strong, trusting relationships between public and private actors remain a major factor influencing how receptive governments are to health innovations developed by the private sector.

Even where the "readiness" and political will of public health leaders at national or local levels to embrace external innovations exists, it does not always easily translate to changes in actual practice or productive engagement with those innovators. This is reflected in our research and particularly the key informant interviews, who helped us identify six key factors that appear to influence the demand for, and scaling of, health innovations as follows:

These are discussed in more detail in the pages that follow.

[2] Dominic Montagu and Catherine Goodman, (2016) "Prohibit, constrain, encourage, or purchase: how should we engage with the private health-care sector?" *The Lancet*, 2016 Aug 6;388(10044):613-21.

1. Public Sector Articulation of Demand

The current global emphasis on universal health coverage (UHC) has created a supportive environment for health innovation and private sector engagement — but policy goals, objectives and strategies lack specificity around innovation 'entry points'

In September 2019, world leaders adopted a high-level United Nations Political Declaration on universal health coverage (UHC), the most comprehensive set of health commitments ever adopted at this level. The declaration builds on SDG target 3.8 on universal health coverage (UHC) and the World Health Organization's (WHO's) 'triple billion goals', which include extending UHC to one billion more people by 2023. This Declaration is a major opportunity for scaling and provides a greater incentive for governments to engage and collaborate with private providers. It also specifies a wide range of priority areas where new approaches, products and services will be required and where governments should prioritize the scale up of innovation to address these.[10] This is creating a policy environment that is increasingly more open to seeing innovation as a key driver in health system strengthening, and one which reinforces political incentives for improved health outcomes. As one Kenyan interviewee observed:

> *"Politicians ride a lot on issues to do with health even in their campaigns for political office. For now, therefore, innovations that promote the UHC agenda, and line up with it, are the most likely to be implemented."*

Alongside other global agreements and frameworks (such as the Sustainable Development Goals), the UHC Declaration has continued to be a tool for countries to further clarify their policy priorities with increasing depth and sophistication. For example, in Kenya, UHC is now one of President Uhuru Kenyatta's "Big 4 Agenda", leading to its reflection and embodiment within the Government of Kenya's Medium Term Plan III, the Kenya Health Policy 2014-2030, Vision 2030 and international agreements such as the GOK-UN Development Assistance Framework 2018-2022, and the Africa Union Agenda 2063.

The larger challenge lies in translating these high-level agreements, visions and plans into sufficiently granular priorities and opportunities on the ground that can be easily matched or aligned with specific innovations. Specifically, this means being able to identify demand-driven 'entry-points' where innovations can contribute to achieving these goals. The challenge is compounded by the fact that in many countries, the involvement of community members or public health system (PHS) managers in health planning and budgeting is at best uneven.[11] This means that often if a hospital doctor (for example) is acutely aware of a specific innovation need — and even knows of a solution that s/he believes could address that need — they may have no clear mechanism of communicating so that it can be translated into public sector demand. This is true in many Kenyan counties, where policymaking is often limited to the CEC-health, directors of health and governors.

Public Sector Articulation of Demand — Summary		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
SDG 3.8, the 2019 Declaration on UHC and other high-level agreements and frameworks are creating a supportive environment for greater public-private collaboration and promotion of innovation in achieving Universal Health Coverage.	'Frontline' health staff with greater knowledge of problems and needs are not sufficiently involved in health planning and budgeting.	Development of internal government communication and prioritization strategies that engage sub-national health staff to support the "bottom-up" translation of high-level policy priorities into specific innovation entry-points.
	High-level policy objectives are rarely translated into detailed demands that can be easily matched with specific innovations.	

[10] Political Declaration of the High-level Meeting on Universal Health Coverage "Universal health coverage: moving together to build a healthier world"; Paragraph 58. Available here: https://www.un.org/pga/73/wp-content/uploads/sites/53/2019/07/FINAL-draft-UHC-Political-Declaration.pdf

[11] This is almost universally acknowledged as a best practice in the emerging literature on scaling health innovations, as they are the ones with first-hand knowledge of challenges and needs at the most granular level.

2. Public Sector Incentives to Look for Innovations

Innovation is an inherently political process. This is especially the case in the context of public sector scaling where decision makers are politicians, the electorate has direct or indirect input into the political process, and scaling has the potential to reconfigure roles, structures and resourcing at numerous levels. As ExpandNet notes, *"Innovations that aim to improve equitable access to good-quality health care often imply a great deal of change in the user organization: changes not only in technical and managerial procedures, but also in organizational culture, established norms and values and power dynamics."*[12] To this end, effective change strategies enhancing government demand for innovations must go beyond a purely technical analysis of how a specific innovation might help and should be contextualized within a strong understanding of the political economy in which the interests, values and influence of key public sector actors and relevant stakeholders exist.

Over the last decade or so, the importance of integrating political economy analyses within development has grown.[13] Tools such as the 'Advancing Policy and Institutional Change' (APIC) framework, developed by Management Systems International, have seen political economy analyses applied across a range of sectors in more than 40 countries, and have become a more commonplace component in achieving sustainable policy and institutional change.[14] These approaches have highlighted the importance of identifying formal and informal decision-making processes and power structures within governments, and have emphasized the different incentives operating among actors within and outside governments that can constrain, influence, facilitate or drive decisions around innovation investment.

Incentive structures also feature prominently in the 'spaces and drivers' approach developed by Hartmann and Linn[15] and the 'influencing factors' component of the scaling framework co-created by members of the International Development Innovation Alliance (IDIA).[16] Both of these point to the necessity for scaling efforts to identify, mitigate or work around vested interests that can hinder uptake and scaling of innovations, while also supporting efforts to recruit 'champions' who can help steer incentive structures towards more positive scaling outcomes. Significantly, both approaches also underscore the importance of conducting these political economy analyses on a continuous basis through the scaling process, recognizing that incentive structures will perpetually evolve in line with changing individual and institutional circumstances.

Village Reach's interactive resource "The Journey to Scale with Government" also focuses on the various mindset shifts required for public and private actors to understand each other better and work more effectively together. This framework emphasizes what has become best practice in public sector scaling: the importance of early and sustained government engagement, ownership and leadership of the innovation and scaling processes. This includes involving public actors in co-designing and testing the innovation from the very start (as opposed to seeing them only as a customer to engage when the innovation is ready to scale). The importance of this early engagement was a common element in our research and interviews to put public sector actors in the driving seat of both innovation design

[12] ExpandNet/WHO (2008) Practical Guidance for Scaling Up Health Service Innovations, p14, available here: https://expandnet.net/PDFs/WHO_ExpandNet_Practical_Guide_published.pdf.

[13] For a helpful summary of political economy analysis approaches within development, see DFAT (2016) Political Economy Analysis – Guidance Note, available here: https://www.dfat.gov.au/sites/default/files/political-economy-analysis-guidance-note.pdf.

[14] The Advancing Policy and Institutional Change (APIC) Framework can be found at https://msiworldwide.com/sites/default/files/additional-resources/2018-12/apic_long_final.pdf. Many of its tools and approaches are drawn from or shared with MSI's scaling up framework, "Scaling Up – From Vision to Large-Scale Change".

[15] Arntraud Hartmann and Johannes Linn (2008) Scaling Up: A Framework and Lessons for Development Effectiveness from Literature and Practice. Washington DC: Wolfensohn Center for Development at Brookings. Available at https://www.researchgate.net/publication/228270152_Scaling_Up_A_Framework_and_Lessons_for_Development_Effectiveness_from_Literature_and_Practice.

[16] IDIA (2017) Insights on Scaling Innovation, International Development Innovation Alliance, available here: https://static1.squarespace.com/static/5b156e3bf2e6b10bb0788609/t/5b1717eb8a922da5042cd0bc/1528240110897/Insights+on+Scaling+Innovation.pdf.

[16] VillageReach (2020) The Journey to Scale with Government. Available at: https://www.villagereach.org/wp-content/uploads/2020/10/The-Journey-to-Scale-with-Government-Interactive-Tool_Final-2.pdf.

and evidence generation mechanisms to produce the information needed for funding and scaling decisions.[17]

Another key factor emerging from the literature that appears to strongly influence government incentives for innovation is risk appetite. Although taking risks is an essential part of innovation and scaling, a highly risk-averse culture is often found within government bureaucracies that can work to hinder or even prevent successful scaling processes in different ways, leading to what Seelos & Mair call 'innovation pathologies'.[18] These include inefficient / misaligned habits and practices around innovation that lead to (a) never getting started; (b) stopping too early; (c) stopping too late; (d) innovating again too soon; (e) pursuing too many bad ideas; and (f) scaling too little.

The incentives for government actors to actively search for innovations can therefore pose a major obstacle to demand and scaling, even when they acknowledge that current policies and/or practices may be inadequate in addressing a problem. Simply put, public sector decision makers involved in simply improving health outcomes have other incentives than scaling health innovations. This section of the report looks at what those broader incentive structures might be.

(A) Government officials have limited incentives, time and resources to search for innovative solutions without the existence of mandated departments or positions

As noted in the 'Public Sector Articulation of Demand' section above, the various high-level agreements and declarations around universal health coverage are creating a more supportive environment for governments to consider engaging innovators as a key partner in accelerating and achieving these goals. However, as our key informant interviews suggest, most health ministries are understaffed and simply overwhelmed with the daily tasks and processes of government. They frequently lack the time , resources or mandate to either search for innovative solutions to health problems or engage with innovators to understand how their product / service might work in the context of their health system. The problem is exacerbated because in most health ministries, and at the state, county or district levels, there is typically no position or division with formal responsibility for innovation, let alone scaling. These factors often work in combination to make health ministry staff less receptive to proactive outreach from innovators seeking to share their solutions. Without bureaucratic institutionalization, incentives to engage are often largely confined to more ad hoc initiatives created by Presidents or the executive to address specific issues.

Although a systematic review of government institutionalization of innovation and scaling was beyond the scope of this report, there are some good examples of mandated innovation capacity within governments. Several South and South-East Asian countries have created formal institutions involved in scanning and scaling health innovations, and Box Two below provides two examples from India. However, it remains the case that few African countries appear to have any formal institutions or mechanisms devoted to either supporting or scanning for health innovations,[19] let alone scaling them.[20]

(B) Governments are more likely to seek solutions from well-known actors with whom they have long-term relationships and who are already established within their country

The finding that Ministry of Health staff are less open to outreach by innovators has important exceptions. These are notably either innovations that have emerged within the public sector itself, or those from innovators who enjoy a strong organizational reputation or track record either in the form of long-term relationships with the Ministry or who are affiliated with prestigious international institutions and universities. Some of the key informants for this research were examples of such 'front runners', including country-based foundations that do their own health research and scaling, and often have their own health facilities. These stakeholders emphasized that the willingness of public health officials to engage with them or their innovations was predicated upon their long-term relationships, reputation for quality and on-the-ground presence.

[18] Seelos, C. & J. Mair (2016) 'When Innovation Goes Wrong', Stanford Social Innovation Review, Fall 2016. Available at https://ssir.org/articles/entry/when_innovation_goes_wrong.

[19] Ethiopia is a possible exception worth exploring.

[20] In most African countries, even an institutional and financial commitment to innovation has largely become established only in the past decade in most places. In terms of departments financing and supporting innovation, these tend to be located in the ministries of science and technology (S&T), either as standalone departments or combined with Industry or Education. In Kenya it is the Ministry of Education, Science and Technology (MEST) that has this capacity separate from the Ministry of Health Services; notably this structural separation is replicated in Kenya at the county level as well.

BOX TWO

Sourcing and Scaling Innovation in India through BIRAC and the NHInP

India is a good example of a low middle income country (the same status as Kenya and Senegal) with institutions that support health innovation and scaling of those innovations. Innovations in biotechnology are supported by the Dept of Biotechnology, part of the Ministry of Science and Technology, through its Biotechnology Industry Research Assistance Council (BIRAC). BIRAC offers significant funding for Ideation, Early Stage and Late-Stage development, and conversion of academic research into commercial enterprises. It claims it supports scaling under its late-stage funding vehicle, Biotechnology Industry Partnership Program (BIPP); Category IV of BIPP grants are "for validation and scale up of Innovative Indigenous Products". BIRAC also managed Grand Challenges India, which had a primary focus on supporting scientific research and innovation in Maternal and Child Health (MCH), nutrition, sanitation and hygiene, etc.[21]

India does have a facility for scanning, curating and disseminating innovations. It is located within the Ministry of Health and Family Welfare (MOHFW), under its national capacity building institution the National Health Systems Resource Centre (NHSRC), called the National HealthCare Innovation Portal (NHInP).[22] It solicits submissions of health innovations in both programs and products nationally, requesting a description, inputs (especially HR required), internal and independent evaluations of effectiveness, data on cost effectiveness, and potential for scale. Innovations that pass a basic set of criteria are referred to independent, expert assessment committees. The NHSCR conducts field assessments of innovations that lack sufficient documentation or formal evaluation evidence but show great potential. While not formal criteria, *de facto* **the NHIP will not review submissions for innovations, and especially not process innovations, that have not been formally tested within the PHS itself.** This reinforces the inference made above, that public health authorities are more likely to scan for and engage with innovations within their field of administrative or financial influence, and preferably both.

The committees evaluate based on technical effectiveness, affordability and potential for cost savings, impact on accessibility, quality, and evidence of scalability into large-scale health systems'.[23] Those innovations that passed muster are presented at an annual National Best Practices Summit which includes state health officials, innovators, and the private sector, and are included in an innovations database and a coffee table book which is widely available to the public.[24]

[21] Unlike GCC, to the best of our knowledge it does not fund Transition to Scale or support scaling in any way https://www.birac.nic.in/grandchallengesindia/program.php?pid=6.

[22] https://www.nhinp.org/.

[23] Other criteria include: Relevant to existing healthcare needs of the population specially for those who are disadvantaged and marginalized and Bridge a crucial specialized skill gap required in delivery of health services. A fuller description of the Indian program are found in "Assessment of Health Product Innovation Under National Healthcare Innovations Portal", available at https://www.nhinp.org/index.php/program-database/institutional-framework-for-assessment-of-health-product-innovation.

[24] EAs noted in one of the footnotes to the Public Sector Capacity to Engage, the Kenyan MOH does in fact produce a similar publication that apparently also only focuses on innovations from within the public health sector. It does not appear to be widely read or known of.

An additional disincentive to scanning for interventions, especially those developed by small innovators, is high transaction costs. Meeting with dozens of small innovators each year, each one touting their product or service, is time intensive. This consideration is reinforced by a desire to avoid an appearance of lack of transparency and potential favoritism, especially when innovators are part of the for-profit private sector. This, along with persistent mistrust of the motivations of the private sector among public health professionals, act as barriers to engaging in contracting out, outsourcing and PPPs.

(C) Governments are less incentivized to seek solutions that are too costly or that may be disruptive to vested interests

With ensuing national fiscal space in the country being significantly limited, whereby the health sector budget has not been spared, and the ongoing COVID-19 pandemic putting further strain on existing health services, country governments are under greater pressure than ever to think carefully about where they will focus their efforts to get the most return on their investments. Innovations that carry a high up-front or ongoing operational cost are deprioritized in an environment where, as one key informant put it: "Most of the public sector is more interested in how affordable technologies are, rather than how effective in improving healthcare they are." Put simply, with tight budget constraints and few discretionary resources, purchasing or adopting new innovations is a zero-sum game, unless the innovation is cost saving.

As noted earlier, officials may be concerned about adopting and scaling innovations that will devalue or displace existing purchases or investments or antagonize important actors and interest groups. This consideration is reinforced by the fact that new innovations often require substantial behavior change from staff (often generating active or passive resistance in the process), and can also risk being perceived as undermining the status and prerogatives of professional staff, e.g. when tasks are shifted from doctors to nurses or to community health workers. The likelihood of innovations meeting resistance is further increased in the absence of adequate training or sensitization of professional staff and health workers to the potential benefits of innovation (see section 4 below on 'Public Sector Ability to Engage effectively with Innovations and Solution Providers').

(D) Governments may be more incentivized to adopt solutions that are presented by donors or their partners in Technical Working Groups, especially when scaling comes with external funding

Given resource-constrained environments, one of the major positive incentives for public sector scaling is when an innovation is either presented in the context of Technical Working Groups (discussed in the next section), comes with its own scaling funds, or both. Funding can take the form of either covering the initial, one-off costs of scaling, especially in case of integration into the public health system, funds for several years of operating costs, or both. By and large the presence of such funding is limited to innovations tested in the form of, or as a part of, large donor funded projects. Since most independently funded innovations don't come with scaling funding, there is less incentive for the public sector to scale them.

Public Sector Incentives to Look for Innovations — Summary		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
Formal ministry departments, positions or affiliated institutions with a mandate and resources to support health innovation and scaling	Understaffing of innovation among health ministries and especially departments at the sub-national level; lack of explicit mandates and expectations to scan and scale innovations	Advocate for the establishment of positions within ministries and departments with the mandate and resources to scan and scale health innovations, using examples from other countries as evidence of their worth

TABLE CONTINUED

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Public Sector Incentives to Look for Innovations — Summary		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
PHOs are willing to look at innovations that have been tested and developed within the PHS or by organizations with whom they have long-term relationships	PHOs don't have the time or incentive to engage with individual small innovators who are less established	Reduce engagement transaction costs for small innovators and their innovations by creating a centralized collection mechanism
Public health officials have a strong understanding of how and why looking for innovation is an essential part of their role	Innovations that are completely new, that compete for scarce resources or that may lead to extensive system wide disruptions	Include internal actors from within the PHS in processes and decisions relating to scanning, adopting and scaling new health innovations Prioritize innovations that either imply cost savings, are cost-neutral compared with existing practice, or small cost increases
PHOs have greater incentives to scale innovations that come with their own funding for scaling, either one-off or several years of operational funding	Most innovations that do not originate within large donor-funded projects do not come with such funding, so that most scaling is limited to innovations aligned with donor preferences	Provide a pool of funds that governments can use to scale innovations of their choosing, in the process mitigating perverse incentives

3. Public Sector Awareness of Potential Innovations

(A) Public health officials' awareness of health innovations is largely limited to those that are brought to their attention, particularly through Technical Working Groups composed of donors and large INGOs

Key informant interviews conducted for this report suggest that government awareness of innovations is typically higher where there are more formal mechanisms that collect, organize and promote innovations (or innovators themselves). Such mechanisms particularly exist in countries which have made major progress in achieving national health insurance and/or have longstanding national health insurance systems, e.g. South East Asia. In other countries, especially in Latin America, universities and policy research institutes have often taken the lead in this regard alongside innovation incubators and accelerators.[25] While international funders of innovation have supported synthesizing platforms and databases such as the Global Innovation Exchange, the anecdotal information provided by the key informants interviewed repeatedly found these to be not widely used or helpful because they are not easily attuned to the specific needs of policymakers.

While innovation platforms are now proliferating across Africa, government awareness of, or engagement with these platforms is less than optimal as a result of the incentives and capacity constraints discussed earlier.

[25] Particularly helpful in this regard is the relatively widespread presence of non-profit think tanks and other policy research institutions who scan for policy-relevant institutions and bring them to the attention of public sector actors.

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However, our research identified three active channels that appear to be effective in terms of being a source of information about health innovations for public health officials:

- **Government participation in multi-country and individual country Technical Working Groups** (TWGs) set up to coordinate donor support in the health sector.[26] TWGs provide a platform for donors to promote health product, process and service innovations that they are supporting in some way, and a target audience to pitch to for scaling support when projects progress from pilot stage onwards. Unfortunately, small innovators, academics, domestic NGOs and the private sector rarely have access to (or membership of) TWGs and are infrequently invited to present their work. Therefore, most of the solutions that the public sector is aware of are those embedded in donor projects, and these innovations often have the additional advantage of often coming with dedicated funding for "scaling" from the same donors (as discussed in the previous section).[27]
- **Prestigious academics and workshops organized by professional associations and donors.** These platforms provide frequent opportunities for the promotion of innovations to governments, often in partnership with local NGOs or universities. Examples of these include networks like the Abdul Latif Jameel Poverty Action Lab (J-PAL), Innovations for Poverty Action (IPA)[28] as well as major local universities like the various Indian Institutes of Management (IIMs), the University of Nairobi or Cape Town. These networks provide opportunities for innovators to bypass gatekeepers and present their results directly to policymakers. However, our interviews with the latter suggest that there is some wariness of the results of academic researchers, and the prioritization of evidence from Randomized Controlled Trials, where the information presented may not be well aligned with the actual needs that governments have when assessing innovations.[29]
- **Innovations that have been created within the public health system and that 'bubble up' or are presented at industry or donor-sponsored workshops.** Although growing in number, Africa still has far fewer industry forums where governments and innovators come together than exist in OECD countries. The few that do take place are expensive and cater to either medical professionals or large corporate producers of medical inputs and devices. In Kenya, annual meetings of professional associations (e.g. the Kenya Medical Association) often do serve to update health professionals on the latest innovations and technologies, though the extent to which such association meetings are attended by key public health officials with significant decision making authority appears inconsistent.[30]

International donors also frequently organize one-off workshops or 'pitch sessions' where innovations are presented. These are often attended by public officials, especially when transportation, per diem and in-kind benefits are offered, and many interviewees sited them as quite useful. Their main drawback is that they are single efforts, have little continuity or follow-up, and participation is usually limited to those grantees or NGOs involved in the project.

[26] The UHC2030 working group on sustainability and transition from external funding

[27] The type of scaling that donor projects undertake as part of either exit strategies or follow-on projects often doesn't reflect current best practices in scaling. In particular, they focus on short-term goals like getting formal regulatory and other approvals and providing training and capacity building - but not large scale change management efforts necessary, ensuring the quality and fidelity necessary to retain impact, nor on activities to ensure political, financial or institutional sustainability. They do this because they are paid to achieve certain immediate outcomes but none which are measured years after project end. Thus whatever 'scale' is achieved usually decays over time as political support disappears with changes in policymakers, implementation capacity declines with turnover in the workforce and lack of any internal training capacity, and funding disappears without an ongoing active constituency advocating for the program.

[28] JPAL has 227 affiliated faculty from 74 top universities, IPA has worked with over 600 leading academics to conduct over 830 evaluations in 51 countries. Researchers are mostly located in North America and UK, from institutions like Harvard, Oxford, Stanford, University of Chicago, UC Berkeley, University of Toronto, Yale, and LSE..

[29] See Table 1 in Section 4 below for the characteristics of an innovation that appear to make them more attractive to governments.

[30] Three of the four sub-themes of the 2020 Kenya Medical Association meetings were on Innovation: "Innovation and Access to Health Technologies", "Health Care Innovations Strategies and Development Programs, and "Digital Health". Sponsors included UNFPA, Sanofi Aventis and GlaxoSmithKline. See http://kma.co.ke/kma-conference/register.

Public Sector Awareness of Potential Innovations — Summary		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
Technical working groups on specific health issues enhance government awareness of innovations in donor projects and/or the activities of large INGOs	Small innovators and local NGOs and social entrepreneurs are largely excluded from Technical Working Groups, and government participation remains largely passive	Increase the participation of small and local innovators in Technical Working Groups. Create or strengthen locally-managed 'Innovation Hubs' or platforms that collect and disseminates policy- relevant innovations
Innovators from prestigious universities and NGOs are able to meet with public health officials and create awareness	Public health officials don't have the capacity to assess different innovations and the data used to present evidence of effectiveness is misaligned to government needs	Support government officials to better articulate their information needs when assessing innovations, and build their capacity to assess the comparative cost-effectiveness, scalability and policy alignment
Donors organize one-off dissemination workshops and support the attendance of public health officials, which they find helpful	Workshops are often one-off and limited to the focus / duration of the project	Embed/connect donor projects to existing, more sustainable structures such as industry platforms and convenings to enable longer-term government-innovator engagement
Health professional associations and industry meetings	Policy relevance of innovations presented, and government attendance is inconsistent	Integrate engagement with innovators through professional associations and industry platforms into the core responsibilities of selected public health officials

4. Public Sector Ability to Engage Effectively with Solutions and Solution Providers

Our research suggests that there are several obstacles hindering the ability of government officials to engage effectively. Innovators, especially those with a science or technical, community health, or business background, often speak a different 'language' than policymakers and use different jargon, typologies and frameworks to those in government circles. This is particularly true of norms or standards used when applied to accreditation or procurements. For example, innovative health delivery mechanisms that leverage community resources and less-skilled health workers often find it challenging to get accreditation because the criteria established by the government are designed around urban, well-funded facilities. A related challenge of procurement platforms is that they are typically designed more to source and review products as opposed to process or service innovations.

As noted in Section 2(A) above, the majority of African countries do not have parts of their government administration mandated to engage with innovators. This often reflects a lack of policies in place regarding how and which innovations to adopt, and a lack of capacity and technical expertise among individual public health officials to assess the scalability of different innovations or set standards appropriate for new technologies. In regard to

this latter point, one Kenyan key informant was quite blunt:

> *"There is no way for government to assess innovations except the procurement-based platform that exists [i.e. putting explicit technical specifications into a procurement]."*[31]

Also, those government personnel who may be assigned to review and assess innovations coming through these channels are often drawn exclusively from Science and Technology (S&T) ministries and have more of a focus on ICT and biotechnology that bias them to favor innovations in (for example) digital health and telemedicine.

In fact, keeping pace with the rapid technological advances presents its own challenge for resource-constrained governments where expenditure on internal capacity development and continuous learning is often minimal. Often officials issuing procurements have not received recent training on the latest technologies, while the technical specifications used in procurements for medical equipment or devices are often outdated and not reflective of current best practice. More broadly, the research highlighted a widespread lack of formal training among public health officials in techniques such as scalability assessment, change management, implementation science and comparative cost effectiveness.

Similar obstacles (especially a lack of training) emerge when moving to the actual implementation of innovations by health staff that the public sector has decided to scale. As one interviewee noted:

> *"The end user (the healthcare worker) is usually without an in-depth understanding of the innovation, its need, and at times sees it as cumbersome to use, and therefore defeating the purpose of innovations to make work easier."*

These barriers on the public sector side are aggravated by challenges in capacity on the part of the innovators, who often don't have the information or political engagement skills to present their innovation in an appealing or appropriate form that carries legitimacy. This is especially common with regard to data on the comparative cost-effectiveness of their innovations, the costs of adoption and/or the system changes that might be involved in innovations — all of which are important criteria for assessment by PHOs.

The various frameworks developed over the years to assess the 'scalability' of different innovations also provide insights as to the particular characteristics of innovations that might be especially attractive to government actors. For example, the Scalability Assessment Tool first developed in MSI's scaling up management framework[32] highlights that the innovation should have evidence that it is more effective than existing or competing solutions AND less costly; that it should be relatively simple and easy to implement; and that it should not require a large change either in adopting systems processes, procedures, norms and incentives nor in the behavior and practices of users within those systems. Most of these attributes are shared by the ExpandNet/WHO framework (developed contemporaneously), which suggests innovations should align with the "CORRECT" qualities of being Credible; Observable; Relevant; have a Relative advantage over existing practices; are Easy to install and understand; Compatible with the potential users' established values, norms and facilities; and Testable without committing the potential user to complete adoption when results have not yet been seen.[33]

When combining these findings from the literature with the lived experience of our interviewees, we found that the ability of public sector officials to engage with innovations and innovators is influenced by how far they reflect the

[31] Interestingly enough, this is not quite true. The Ministry of Health's Health Sector Monitoring and Evaluation Unit does in fact scan for Best Practices and publishes a report called "The Best Practices in Health Sector. Open the Door to Innovative Practices." These are selected using criteria of efficiency, cost- effectiveness, community involvement, sustainability and possibility of duplication. However, it appears (as is true in the Indian case) that these are confined to innovations found only within the public health sector. The fact that the only person of all those we interviewed who mentioned it was from this unit may suggest that the public is not aware of this publication and/or it is not widely read. One explanation for this is the most recent issue, just published, is for 2014/2015. Another issue is that stakeholders may use the term 'innovation' differently, some think of products and devices, others processes and practices, and others service delivery models. See https://www.health.go.ke/wp-content/uploads/2017/06/REPORT-BEST-PRACTICES_fin-as-of-20170531.pdf.

[32] See Larry Cooley with Richard Kohl and Rajani Ved, (2016) Scaling Up- From Vision to Large Scale Change. A Management Framework for Practitioners. Third edition. Arlington, VA: Management Systems International. https://msiworldwide.com/additional-resources/msi-scaling-framework.

[33] ExpandNet/WHO (2008) Practical Guidance for Scaling Up Health Service Innovations, p11, available here: https://expandnet.net/PDFs/WHO_ExpandNet_Practical_Guide_published.pdf.

different characteristics set out in Table 1 below. It is not possible to determine the different levels of influence each characteristic has relative to each other, in large part because these will vary by individual innovations and the scaling context. Nonetheless, it is likely that the more boxes that the innovation or innovator ticks below, the more receptive government officials become to potential partnership. To this end, including these characteristics within their selection and evaluation criteria will likely lead innovation funders and innovators themselves to achieve greater success in terms of their uptake among governments.

TABLE 1

Characteristics of Innovations and Innovators that are likely to enhance government engagement	
INNOVATION CHARACTERISTIC	**INNOVATOR CHARACTERISTIC**
Low unit purchasing and operating costs	Able to communicate a clear vision of success and a defined scaling pathway
Ease of use of the innovation by government	Able to involve the public sector early in the process
Greater cost-effectiveness compared to existing technologies / approaches	Locally recognized, with long-term presence and established relationships on the ground
Ability to provide evidence of positive impact within the timeframe of a political cycle	Ability to understand the relevance of their innovation across boundaries
Integrates the latest thinking / technology in terms of how it works	Knowledge of the factors / incentives that will influence uptake and scaling of their innovation by different actors
Is relevant to policy priorities and quickly implementable	Multilingual (in the sense of being able to understand the jargon and incentives of different government actors)
Requires relatively small changes in existing systems, behaviors, infrastructure and/or practices	Ability to integrate participatory, human-centered design techniques into the design or delivery of the innovation

Public Sector Ability to Engage Effectively with Solutions and Solution Providers		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
Public health officials with recent education in health, medicine or STEM who have a contemporary knowledge of health innovation	Outdated technical knowledge and expertise in scaling-related skills among public health officials	Support continuous education and of contemporary advances in health innovations and capacity building in scaling among public health officials
Clear alignment between government information needs / preferences and innovator presentations	Mistrust of private sector innovators and their motivation, lack of a common language	Regular innovation workshops that are professionally facilitated that build trust and a common language
Open-source/unbranded solutions that governments can freely adapt and scale	Branded solutions can be a problem preventing uptake	Trusted brokers and solutions without branding

5. Public Sector Financial Resources and Political Will to Fund Scale-Up

(A) Very little public health expenditure is discretionary and available for scaling innovations

It is widely understood that LMICs face financial constraints imposed by low-income levels, limited fiscal capacity and competing priorities with health within government budgets.[34] What is less well known is that the amount of government health spending available for innovation and scaling purposes is further constrained because very little of it is discretionary. Most key informants interviewed believe that in LMICs, 95-99% of current government health expenditures are already committed to be spent on existing human resources, equipment, drugs and other inputs, leaving little funding left over for adoption and scaling of innovations:

> *"Funding innovations in the counties is at times a challenge because though the national government recommends that counties give 30% of their budget to health issues, most of this money goes into recurring costs, that is, supporting the workforce, salaries. This therefore leaves a limited budget line for innovations."*

Table 2 below follows through the hypothesis of 5% of health expenditure being discretionary, and applies it to selected countries in East Africa, illustrating that in Kenya this translates to around USD $1.64 per capita or, multiplying by the population, USD $86 million. If we then divide this by the number of counties in Kenya (47), this line of analysis would suggest that on average a Kenyan county has less than $2 million of current expenditure to spend on implementing a new solution over and above existing expenditures, before taking into account ongoing additional operating costs. While these are only very rough estimates that do not reflect the nuancing of health financing in these countries, it does help to communicate how challenging it may be to support the scale up of innovations in these contexts. At the same time, recent experience in Kenya and elsewhere suggests that some domestic funding for scaling is available, especially for innovations that address urgent issues like COVID-19 or innovations that are clearly aligned with major government priorities like UHC.

In the Kenyan context, the fiscal constraint is aggravated by devolution and the fact that while the counties deliver health services almost all of the funding comes from transfers from the central government.[35] Health financing at county and facility level therefore remains a challenge both in terms of their overall size and timing, and is subject to multiple administrative and procedural obstacles

TABLE 2

Hypothetical estimates of Total and Per Capita scale-up funding: Kenya, Rwanda & Uganda

	USD (MILLIONS)		USD (MILLIONS)		Population 2019 (millions)
	Govt. health exp. per capita	Assume 5% Discretion. Exp.	Total Govt Health Exp.	Assume 5% Discretion. Exp.	
Kenya	$ 32.7	$1.64	$1,721	$86.05	52.5
Rwanda	$ 16.9	$0.85	$ 213	$10.65	12.6
Uganda	$ 6.0	$0.30	$ 267	$13.35	44.3

[34] According to the World Bank, current health expenditures per capita and as a share of GDP are US$ 80.5 and 4.0% respectively, for low middle countries. By comparison, the comparable data for OECD countries is $4,675 and 12.5%, respectively. World Bank. World Development Indicators. Data is for 2017, the latest year widely available. For Kenya the figures are $76.6 and 3.9%, very close to the low middle income averages.

[35] Budgeting and spending are complicated by the fact that these transfers come from multiple sources i.e. the annual transfers from the Treasury, the NHIF, and special donor funds channeled through the Treasury. The NHIF provides reimbursements for services rendered to its members (around 20-25% of the population) through county owned facilities.

that reinforce delays[36] and require counties to identify additional sources of funding every fiscal year.[37]

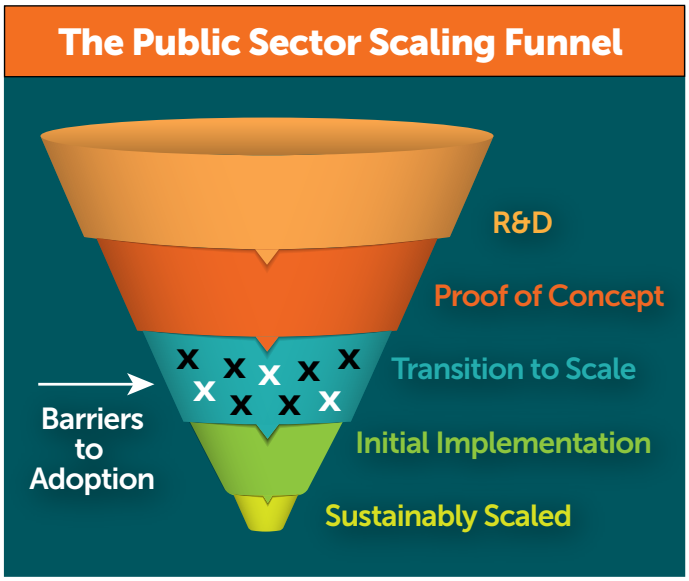
If we can safely assume that discretionary funding for innovation scale up is scarce (even to support one innovation, let alone multiple), the implications of this are significant in terms of requiring innovation champions within governments to either work out how to integrate innovation scale-up within existing committed activities, or advocate for the reallocation of funds from elsewhere to top up their discretionary budget. As this Kenyan Key Informant notes, political will is the key to unlocking resources:

> *"Remember we were part of the Abuja declaration to allocate 15% of our budget to health but we are still way below 5%. With devolution the counties each need political will. In our county we are trying to get the political will to affect health positively. The challenge however is the burden of recurring costs, salaries that take up most of the budget. We therefore remain with very little margin for much else in health, and this is one of the counties that allocate the most money to health."*

One potential source of additional scale-up funding are the separate capital budgets that many countries maintain. In Kenya, this is referred to as the "development budget" and is a primary source of funding for initiatives that engage the private sector in the delivery of services. An example of such a public-private partnership model supported under this budget is the Kenyan Managed Equipment Services arrangement which, although its implementation has not been without controversies, is modelled around providing public hospitals with access to modern health infrastructure, equipment and/or services over an agreed period, with the government making regular, pre-arranged payments based on agreed performance parameters. Instead of huge capital outlays that would otherwise be required for building or equipping hospitals, MES arrangements have provided the Government of Kenya with an opportunity to spread costs over the contract period.[38]

PPP arrangements like the MES example can also help mitigate the often-significant upfront costs of making the transition from old to new technologies, processes, and practices. Within the scaling pathway, these costs are typically greater in the initial implementation and roll-out stages as they are usually larger than any additional longer-term operating costs. This can be a major bottleneck in the Public Sector Scaling Funnel[39] (see Figure 1 below) there is an argument for mobilizing donor funding to cover these costs to increase successful adoption and scaling through the public sector.[40]

FIGURE 1



[36] Counties have been experiencing cash flow problems due to multiple sources of delays in disbursement of funds by central government. In addition, facilities have had challenges with the reimbursement of free maternity care when this shifted to reimbursement to county treasuries rather than to facilities and, in many cases, funds did not reach facilities. As one report noted, "A range of different issues have led to delays in disbursements from national government to counties every year. This includes protracted electioneering period which held up appointments of county officials, delayed approval of county annual work plans, national level protocols that can be time-consuming, and delays in submission of expenditure statements by counties. Delayed or irregular disbursements lead to carry forwards as well as reduced absorption capacity given the short implementation period, which in turn perpetuates the cycle of delays of subsequent disbursements and reduced implementation periods." https://maarifa.cog.go.ke/assets/file/589dea14-transforming-health-systems-for-univ.pdf.

[37] Management of reimbursement has now moved to the National Hospital Insurance Fund and in principle should mean a reversion to direct reimbursement of facilities.

[38] See http://publications.universalhealth2030.org/uploads/MES-BROCHURE.pdf.

[39] We can use the metaphor of public sector scaling as a funnel, which gets narrower as we move from R&D, proof of concept, transition to scale, and adoption and scaling.

[40] See the discussion in D'Arcy (2020) who argues that the principal barrier to GCC-funded innovations going to scale is the lack of this type of financing.

At the same time, a major financial constraint may be the presence of diseconomies of scale, which occur when the cost of health innovations actually increases when programs are extended from urban into rural areas due to higher transportation costs, lower population density and lower-quality infrastructure; and the same is often true for marginalized populations. This means that while – as some have argued – innovations can encourage health systems to include underserved segments of the population,[41] fiscal and infrastructure constraints during scale-up can equally lead to a neglect or reinforcement of existing inequalities.[42]

In sum, while it appears that in principle capital or development budgets could be a source of funding for scaling some forms of innovation, other innovations that are less related to tangible products / infrastructure (such as scale up of a new process or way of working) may be less successful in receiving fiscal support. This is partly due to a range of disincentives that undermine the political will for scaling certain kinds of innovations, with elected policy makers tending to be drawn towards low-risk initiatives that provide quick returns, high visibility and immediate relevance to voters. Many health innovations simply do not fit into these criteria, not least because of the elevated risk in trying something new, and the length of time it can take to generate meaningful impact at scale. As already discussed, tangible investments that can quickly expand access to or improve service quality, such as building new infrastructure or buying more equipment, are often the preferred innovations in this context. As one key informant from Kenya reflected:

> *"Before devolution one could go over 6 Km without getting to a health facility, but this has changed in recent years. …. Our major accomplishment has been infrastructure that is modern. The governor realized when he came into office that most health facilities in the county were former military barracks and so he prioritized changing these structures to improve service delivery and service flow at the facilities."*

The bottom line is that we don't precisely know how much domestic funding is available for scaling, how hard/soft that constraint is in terms of political will, and therefore how many or which innovations might be scaled within that constraint. What is clear is that better data is needed on fiscal constraints and particularly on the scaling costs of innovations, both in one-off adoption costs and long-term operating costs, and in absolute terms relative to the costs of existing practices.

Public Sector Financial Resources and Political Will to Fund Scale-Up		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
Donor or external financing is often available to support one-off adoption and implementation costs	Very little discretionary funding for innovation exists within government health budgets	Leverage donor funding to cover initial adoption and large-scale implementation costs
The public sector can and does use PPP and outsourcing to leverage private sector capital investment and economize on expenditures	In devolved or Federal countries sub-national health spending is often very limited, and challenged by cash flow problems from the center	Empower sub-national governments to work more closely with the private sector in co-designing solutions / partnership that achieve public policy goals within capital means
Elected policy makers have strong political motivations for quick returns, low risk, high visibility and relevancy to voters	Innovations that are deemed by policy makers to be less 'voter-friendly' (for various reasons) are often deprioritized	Extend availability of donor financing to support / incentivize a wider range of innovation types, and identify ways for governments to communicate their benefits to voters

[41] African Collaborative for Health Financing Solutions (forthcoming), Innovations to Advance Universal Health Coverage in Africa, p35.

[42] Arntraud Hartmann and Johannes Linn (2008) Scaling Up: A Framework and Lessons for Development Effectiness from Literature and Practice. Washington DC: Wolfensohn Center for Development at Brookings. Available at https://www.researchgate.net/publication/228270152_Scaling_Up_A_Framework_and_Lessons_for_Development_Effectiveness_from_Literature_and_Practice.

6. Public Sector Rules, Regulations and Procedures

(A) PPP regulations may not always be suited for scaling new innovations

Both innovators and public health officials report that existing rules and regulations pose substantial barriers to scaling up. These cover pathways to scale through accreditation (whereby private providers become eligible for NHI reimbursement) and through public sector purchasing. In terms of purchasing in particular, procurement and contracting regulations are often burdensome, complex and not designed for new innovations. As one key informant in Kenya observed:

> *"It is difficult for counties to adopt innovations as they have no policies to guide procurement of the same."*

By and large procurement rules have been designed for standardized commodities and services delivered by large institutional providers. For example, it is common that a procurement requires three bids to be legal, yet new device innovations are often only available from a single source. As another interviewee in Kenya noted:

> *"Scaling Innovations in health is not difficult except when there is need for purchasing, say, equipment, then issues of procurement and resource allocation come up and this can complicate the process because of our prohibitive public procurement laws. These laws require competition, making the adoption of innovations quite hard."*

At the same time, as noted in the Section 4 above, procurement specifications are often outdated, disadvantaging innovations that incorporate groundbreaking functions and newer technology, and staff do not have the expertise to update them.

As one interviewee put it:

> *"The mechanical bit of building a ventilator is simple but when we went to KEBS [Kenya Bureau of Standards] for approval, they made the decision based on existing machines that are locked up. The big players then lock up the standards so that it favors them."*

These problems are particularly the case in Kenya,[43] where the use of PPPs has not been fully clarified in the context of devolution.To quote one of our Key Informants:

> *"Previously there has been a framework that guided public-private partnerships but with devolution this has been disrupted as the way in which counties can partner with innovators is limited, as well as political interference that makes such processes not run as smoothly as they should."*

Even if sufficient funding has been secured to support an effective procurement process, the availability of budget to support the ongoing operating costs of the innovation will naturally be a key factor in determining which innovations progress. As one Kenyan county official noted, they typically use three criteria when assessing potential solutions: *"Cost effectiveness of the innovation, ability to solve the problem it was designed to solve, and the budget line needed to sustain the innovation."*[44] Finding or creating a new budget line for ongoing costs can be very difficult both in terms of available funding (as discussed above) but also because of tight budgeting cycles and restricted windows of opportunity when budget lines can be discussed and adapted. Even when others (such as international donors) bring their own funding to the table, many countries have strict laws and regulations regarding how that foreign funding can be used. In Kenya for example, counties are prohibited from receiving funds directly from foreign donors, which represents a major barrier to scaling at the county level in Kenya. This is because of the public-private engagement policies in place, the PPP Act, the PFM Act and the need to monitor national debt levels/fiscal space.

[43] Paraphrasing one of our key informants in Kenya: "The public procurement process in Kenya is complicated, in many cases not transparent. A lot of money gets wasted that way.".

[44] This also suggests that donors, in assessing which innovation's development they wish to fund, and in advocating for scaling, need to focus more on cost effectiveness and budget alignment as opposed to the current emphasis of many donors primarily on effectiveness.

Public Sector Rules, Regulations and Procedures – Summary		
ENABLERS	**BARRIERS**	**POTENTIAL SOLUTIONS**
Many countries do have in place procurement, PPP and NHI accreditation criteria and processes	Procurement and contracting regulations are often outdated, burdensome and complex and either not designed for new innovations or favor large, existing suppliers	Provide technical training to PHOs in procurement processes and develop short-term work-arounds while advocating for long-term procurement reform
Governors do have more flexibility than most use to move money around and make changes within annual budgeting cycles	Budget lines for an innovation may not exist, are only done annually, and funds are not easily transferable over the course of the fiscal year	Work with sub-national governments, Governors and First Ladies to make use of flexibility that does exist

PART TWO:
Characteristics of the Kenyan Health System

1. Governance

National institutions relevant to scaling

Kenya has a relatively well-defined and structured health system. Compared to other African health systems it is one of the few health systems that is based on a predominantly devolved structure which operates with two levels; National and County Levels. The National level is composed primarily of the Ministry of Health (MoH) which is mandated to provide policy stewardship and oversight of all health functions in the country. There are several directorates in the MOH with the key ones in relation to health innovations primarily being the Policy and Planning Unit and the Health Financing Unit. These are frequently the locus for formulation of public private sector partnerships with the MoH.

The most important other institution relevant to scaling is the National Health Insurance Fund (NHIF).[45] It is the national public purchaser for health services and has been identified as the lead agency for implementation and achievement of UHC in the country. The NHIF purchases services from public and private providers in Kenya and is guided by the principles of strategic purchasing, such as ensuring value for money, cost effectiveness, and equity through implementation of various innovative provider payment methods. In regard to supporting public sector innovations, NHIF is limited by the NHIF Act that stipulates how NHIF purchases health services from duly registered health facilities. However, due to the growing imperative to improve efficiency, reduce fraud and contain costs, NHIF has deployed digital and mobile solutions to recruit members and to digitize the interface between its claims management systems and providers.

Kenya Medical Supplies Agency (KEMSA) is the national entity that is mandated to procure, warehouse and distribute drugs and medical supplies for prescribed public health programs. KEMSA has also deployed its own Logistics Management Information Systems (LMIS) linked to public providers to improve the efficiency and effectiveness of supply chain and commodity management.

[45] At the national level there are also other agencies such as the Kenya Medical Research Institute (KEMRI), the lead public health agency for biomedical research.

The subnational structure and institutions: County governments

Below the national level are the 47 county governments that are led by respective elected governors. Counties are primarily charged with oversight and implementation of health services delivery. The county health docket is directed by the County Executive Committee Member (CEC) for Health who is also commonly (and informally) known as Health Minister at the county levels.

One of the major mechanisms for both transmitting national priorities to counties and giving counties a collective voice is the Council of Governors (CoG). The COG was set up in 2012 and comprises all Governors. Amongst the CoG's functions include sharing of best practices across counties and promotion of inter-county consultations.[46] Sharing of best practices is done through a platform known as the Maarifa Centre which is a Knowledge Sharing and Learning Platform for counties. It's purpose is to function as a national platform to document and share experiences, innovations and solutions on Kenya's devolution journey. The centre supports face-to-face interactions among counties and provides an online platform for showcasing different best practices across various counties. Insights from our interview showed that although that this platform has the potential of playing a pivotal role in showcasing innovations across various counties, there is limited awareness about it amongst various stakeholders including donors, counties as well as the citizens. Further its financing is currently primarily donor dependent.

CoG has 17 listed working committees, the most relevant for this analysis being the health committee. This committee focusses on matters such as implementation of institutional structures and related laws, frameworks, policies and programmes/interventions in health. The health committee is quite active and has a staff that includes members paid for by the CoG as well as some seconded by various donors. It holds regular health sector meetings with CECs, Chief Officers and Directors in Charge of Health and actively participates in the quarterly Intergovernmental Forums for Health that bring together CECs and the Cabinet Secretary Ministry of Health.

Devolution of health services has meant that county governments are the primary locus to design, or adopt, and implement innovative models and interventions of care delivery. Although counties have well documented and autonomous processes for budget making that start from public participation to review and monitoring of outcomes, most of the decision-making processes is dominated by the county's political leadership. Depending on the governance and leadership approach, counties have varying levels of ensuring that citizens and healthcare workers have input into the budgeting process and allocation of resources for health.[47] However these consultative processes are primarily focused on decisions around infrastructure development or process-based improvements and rarely scan for innovations. In addition to these structures, most counties have joint planning and review meetings with implementing agencies of various donor funded projects, as well as private sector actors (in cases where the private sector is involved in a project). The main focus of these review and planning meetings are programmatic outcomes, coordination and county fundraising from various donor projects.

Despite devolution, the national government (often through donor funded vertical disease programs) continues to wield immense influence in the identification and implementation of various programs within the counties. The primary tools are policy imperatives through incorporation into MOH and national health agenda or budgetary allocations to specified programs.

Despite well documented policies across both national and county levels in health, there still exists several gaps in the funding and management of the health system across these two levels:[48]

- Counties frequently complain that although health is constitutionally a devolved function, the national government does not always consult them when initiating and rolling out national programs that are within the mandate of counties or require counties participation and resources.

[46] https://www.cog.go.ke/.

[47] Examples of these structures include public participation forums held every year and facility/health management committees that exist at the following levels: facility, sub county and county level.

[48] See: https://www.healthpolicyproject.com/pubs/719_KenyaDevolutionBrief.pdf and https://codesria.org/IMG/pdf/4-_kimathi_-_challenges_of_the_devolved_health_sector_in_kenya.pdf.

- Although the health system is fully devolved from a policy and legal perspective, not all health resources are sent as budgetary allocations to the counties (some are designated as conditional grants) and frequently there is a mismatch between county obligations/ mandates and their budgetary allocations by the national government.
- Although there have been several efforts by some donors to support capacity building of county management of health services, including through trainings on public financial management practices, there still exists capacity gaps and significant intercounty disparities on strategic and prudent decision making.
- Despite strong technical competency in the health departments of many counties, this is offset by high staff turnover (mainly transfers) and substantial political interference from elected officials. This latter problem, the politicization of health policy and implementation, was highlighted by almost all Kenya key informants.[49]

National and County budgeting processes are similar and include four main stages; Formulation, Approval, Implementation, and Audit (See Table 4) below.[50] The

2. Budgeting processes for national and county levels

Formulation stage starts with public participation and ends with presentation of the national budget by the Cabinet Secretary for Finance to the National Assembly for discussion and approval. At the county level, the health department prepares its annual budget proposals that are sent to the county finance department for consolidation with other departmental budgets. The budgets are then rationalized at the county finance and then submitted to the county assembly for review and final rationalization before approval for implementation. Although national government may provide policy advice on how to allocate budgets, county assemblies have legal autonomy to decide how much money to allocate to each sector including health.

TABLE 3

Overview of National County Budget stages and lead actors	
STAGE	**LEAD ACTORS**
Formulation	The **Executive**, through national ministries and county departments, steers this process. The national treasury and the county treasury play key roles at this stage.
Approval	The **Assembly** (national and county) reviews, amends and approves the proposed budget. The national and county Budget and Appropriations (BAC) committees play a key role here.
Implementation	The budget is returned to the **Executive** for implementation with **Assembly** oversight. The **Controller of Budget** ensures that release of funds is as per the budget, and releases the national and county governments' Budget Implementation Review Report (quarterly and annually).
Audit and Evaluation	The **Auditor General** produces an annual report and tables it to **Parliament** for review and further action. National and county Public Accounts Committees (PACs) play a key role in the oversight process.

[49] The same point was repeatedly made at the national level: " Although the MoH and its senior civil service leaders like the Cabinet Secretary are mandated to steer technical policy formulation in Kenya, national and county political figures frequently have more [undue] influence on the policy formulation processes."[47] Examples of these structures include public participation forums held every year and facility/health management committees that exist at the following levels: facility, sub county and county level.

[50] https://devolutionhub.or.ke/file/9086c8723168b3408510f81d8d17e7cd.pdf.

The national and county health services have limited fiscal space. For example, Kenya allocates approximately 9.2% of its national budget to health, which pales in comparison to the 15% target set by the Abuja Declaration. Counties allocated 27% of total county budgets to health (2018/19 financial year) as opposed to recommended proportions of 35%.[51] Human resources alone accounted for 79% of all total county health expenditure for the 2018/19 financial year. The remainder of the budget is primarily spent on drugs and other medical consumables.

3. The influence of Donors

Donors are a key player at both the national and county level, supporting both policy formulation and financing implementation and service delivery in Kenya. Some of the key issues regarding donors are: an over reliance on donor funds for essential services such as HIV/AIDS; undue influence on policy priorities; increased verticalization of programs due to huge investments in some program areas in comparison to other areas, and crowding out of private sector (and potential additional public funding) by donor funded initiatives including innovations in the health sector.

4. Policy Formulation

Policy formulation processes are also an important process that can influence outcomes of efforts to scale innovations in the public sector. For example, in Kenya today, the overarching policy in health is implementation of UHC as part of the Big Four Agenda. Interventions not aligned with UHC are not likely to be prioritized for implementation. Further there have been instances where different counties have formulated their own policy priorities or at other times their own version of their interpretation of a national policy. Although technocrats at the national and devolved levels have a say in policy implementation, their influence is frequently secondary to that of the political class.

5. Data Management

The health system in Kenya has a relatively elaborate data management process that collects and tracks indicators relevant to policy goals and priorities. The information on the District Health Information System (DHIS) is used to track progress in regard to each indicator and the information is provided to County Health Management Team (CHMT) with the goal of aiding decisions on the budget and interventions for each county.

[51] http://www.healthpolicyplus.com/ns/pubs/11306-11563_NationalandCountyBudgetAnalysis.pdf.

Conclusion – Demand and Scaling of Health Innovations in Kenya

There is a general consensus in Kenya at both the national and county level that adoption and scale up of innovations in the health sector has significant potential to improve health outcomes. Policy makers often have immense pride in implementation of *process innovations*; one reason for this is that process innovations are easier to implement compared to product-based innovations given that the former do not require significant budgetary investments or complicated procurement processes.

The public health system itself is a fertile ground for developing process innovations due to the significant potential to positively improve health outcomes by eliminating inefficiencies.

The adoption and scaling of innovations can occur at three different insertion or leverage points within the system: the national level coming from the Ministry, and usually the Minister of Health or Cabinet, the county level, and from donors. For the national level, innovations that are initiated by the executive (President) are scaled rapidly across the entire health system and are frequently funded directly by the National Treasury separately from the MOH budget.[52] Nationally initiated innovations are frequently done in collaboration with large donors like the World Bank and/or international organizations like UNFPA. Many of these take the form of a PPP- Public Private Partnership with large corporations. An example is the SDG platform supported PPP between four counties and Huawei. There are also donor funded programs that are implemented in collaboration with the national and devolved governments.

There are multiple instances where donors finance the adoption and uptake of a local or international innovation in a county. These innovations have tended to focus mainly on direct service delivery, strengthening health system blocks such as management capacity, supply chain strengthening, improving health worker skills and strengthening the DHIS. In these cases, donors sign an MOU with the county and directly fund the innovator to deliver service to the county. It is rare for donors to directly finance (give funds) to the counties. In most cases the issue of sustainability beyond the donor funding period is not addressed.

Lastly there are limited instances where a few counties (such as Bomet, Kilifi and Taita Taveta) themselves search for and finance adoption of an innovation. Most of these have been product-based innovation such as ambulances and medical devices and equipment, these fall under the development budget and are considered infrastructure.[53] There are various reasons for the skewed focus on infrastructural interventions, ranging from a need for good optics, vendor-driven procurement, as well as a genuine lack/need for basic infrastructure and medical equipment at the counties. (Additional drivers of this preference are discussed above under the sections on Public Sector Incentives and Public Sector Funding and Political Will). As such, county-driven adoption and scale up of local innovations beyond infrastructure and equipment through county budgets, i.e. not financed by donor funds, is extremely limited.

[52] An example is the Managed Equipment Scheme (MES).

[53] An exception to this is the digitization of health services and data. For example, Laikipia county entered into an MOU with AMREF and NHIF to deploy digital systems in recruiting households into NHIF coverage and collecting important community-based health and socio-economic data.

PART THREE:

A 'Mountain Model' to Enhance Public Sector Demand and Scaling

The six key factors discussed in Part One of this report offer a range of potential opportunities for innovation funders seeking to help innovations they have supported go to scale through public sector pathways. While some of these opportunities relate to optimizing different aspects of their own funding processes, selection criteria and indicators of success, there are also new avenues for funders to help in new and extended ways. These include facilitating early engagement of their innovators with governments; technical assistance / capacity building to help their grantees develop the kind of information around their solution that governments are looking for (e.g. cost-comparison data); and/or using intermediaries to affect scaling where innovators themselves lack enabling characteristics.

This final section builds on the findings from Parts One and Two and presents a six-stage model, akin to climbing a mountain, that has the following key features:

- The Mountain model reflects a **facilitated process** that can respond to the challenges and opportunities surfaced through this research. Its primary goal is to provide support to LMIC national and local governments in scaling innovations that are aligned with their health priorities. This point cannot be overemphasized — **it is not prescriptive**. In fact, the only structure it has is a set of stages, relevant stakeholders and decision points surfaced from this research that will help to guide the overall process and ensure an efficient use of everyone's time.
- The Mountain model is designed to be **demand driven** as far as possible in terms of (a) meeting the needs and priorities explicitly articulated by participating public sectors actors as they work through what their demand looks like, and (b) then what assistance they would like in identifying, assessing, adopting and scaling innovations to meet those needs.
- International funders such as Grand Challenges Canada and others who will participate in piloting this model will test a crucial new role as '**Champions'** of this process, working with high-level government actors to **create an enabling environment conducive to enhancing innovation demand and scaling**.
- While early indications of demand suggest that the initial piloting of this model will focus on scaling innovations improving maternal, newborn and child health (MNCH), it is important to note that this model **does not carry any bias towards particular subsectors or issues, nor will it promote or prioritize the specific innovations or interests of any international agency** where these do not align with those of the country government.
- The long-term, overarching goal of this model at every stage is to identify and lay the foundations for **a sustainable, locally-owned process for demand and scaling**, ideally through institutionalization of the associated roles and responsibilities within the public sector and its partners as appropriate.

The Mountain Model has also been designed to reflect the following 'critical success factors' surfaced through our interviews:

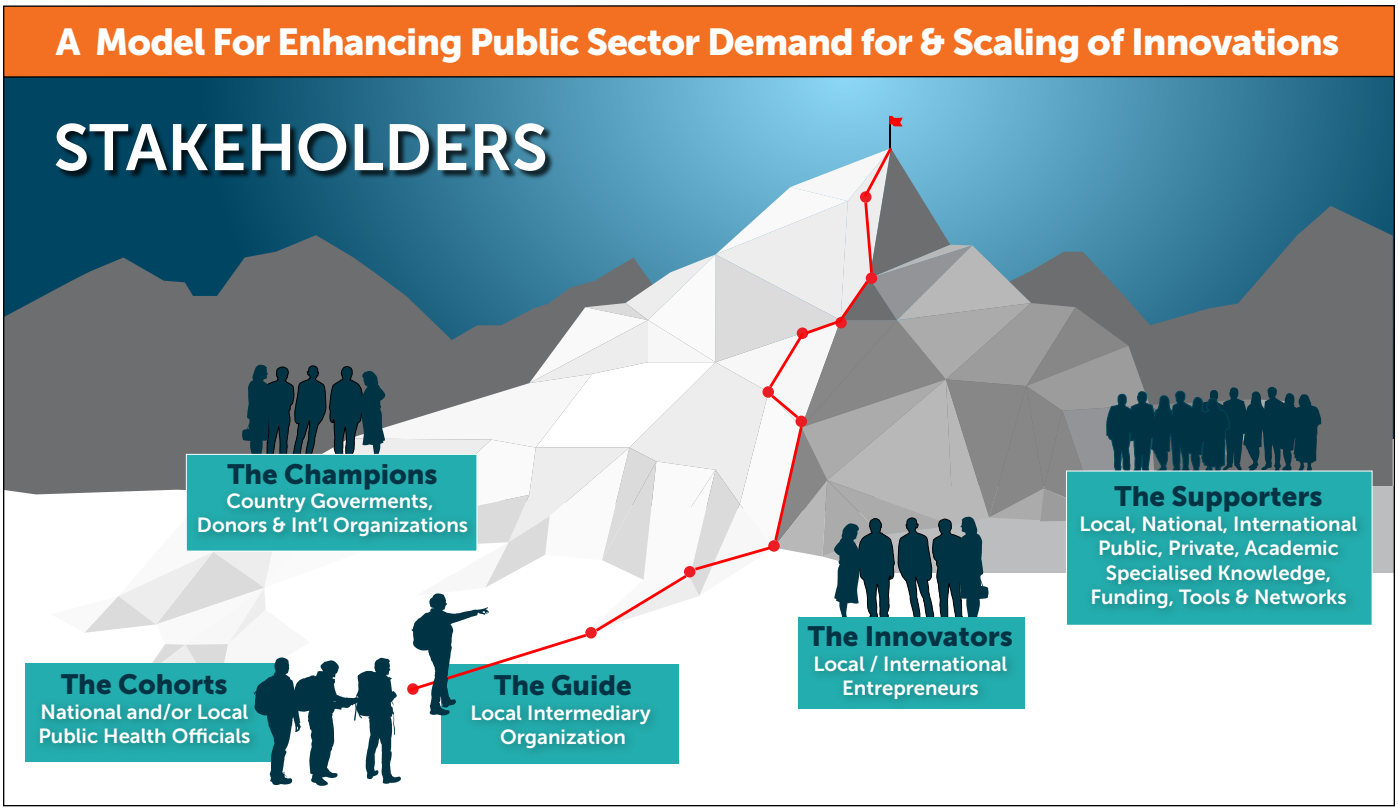
- ✔ Treat **demand and scaling as points along the continuum of an innovation's journey**, rather than as issues that can be addressed or enhanced in isolation
- ✔ **Design to the incentives** (actual and potential, professional and personal) of different actors
- ✔ Ensure **local actors lead in determining goals, pace and direction**, using Human Centered Design approaches to co-create metrics and milestones to capture engagement and sustainable capacity (rather than only those associated with the innovations being scaled)
- ✔ Facilitate **flexible access to different kinds of support** (especially from local actors) as needs emerge, rather than one-off training / capacity-building initiatives

- ✔ Enable **early engagement and relationship-building among and between supply/demand actors**, sustained by regular **cohort learning opportunities**
- ✔ Leverage / strengthen **existing local assets and networks** as the basis for sustainability

In taking these 'critical success factors' into account, we developed an integrated approach that uses the metaphor of climbing a mountain to communicate the different kinds of support and intervention that will be required at key points along the demand and scaling journey. Key to this process is establishing the following five stakeholder groups (see Figure 2 below), whose expertise and resourcing will be mobilized in a demand-driven way to help address barriers as and when they emerge:

1. **THE CHAMPIONS** — Country/county governments, innovation funders and international agencies who are interested in providing overarching resources for activities to enhance public sector demand and scaling of innovation in a particular context / sector.
2. **THE COHORT** — a discrete group of national and/or local public health officials who share a willingness and ability to embark on a process of improving their uptake and scaling of health innovations.
3. **THE GUIDE** — a local intermediary organization with deep contextual knowledge and cross-cutting networks, who will listen, learn, connect and support the Cohort to different resources and actors at key points along the scaling journey to help overcome barriers. In this way, the Guide performs the critical long-term 'hand-holding' of government actors as they encounter inevitable challenges in ascending the mountain.
4. **THE INNOVATORS** — a pool of local, national and international entrepreneurs with solutions that can be matched, adapted and mobilized to meet the specific innovation demands of governments, as and when this demand is articulated.
5. **THE SUPPORTERS** — a pool of diverse public, private and academic actors from local, national and international contexts who can be mobilized at different points in the scaling journey to provide specialized knowledge, technical expertise, funding tools and/or networks to the Cohort based on the challenges they face.

FIGURE 2



The first step in establishing these stakeholder groups is to convene one or more initial Orientation sessions, in which interested actors from all groups come together to align around a vision of success, objectives, relevant metrics and milestones of progress and a common language to ensure clarity of communication along the way. This session is also critical in ensuring government actors are able to meet and start building relationships with the wide variety of other actors who will play a critical role along the scaling journey – especially innovators – and so they can take a leading role in shaping and designing the approach.

Through the Orientation session(s), a targeted Cohort of government actors from national and local county levels (in the Kenya pilot) will then be assembled and matched with a local Guide organization who will be their principal interlocutor as they work through the different stages needed to enhance their demand for and scaling of health innovation. Every cohort will likely follow their own particular route to the summit, based on their varying levels of readiness, understanding and resources as well as the different directions that their Guide may recommend along the way.

A Six-Stage Journey through Demand and Scaling

Building on the insights from this initial research and set of key informant interviews, we have identified six broad stages that we anticipate each Cohort will need to work through in order to make sustainable progress in sourcing and scaling innovations to meet their needs.[54] Importantly, this process will be demand-led rather than imposed or prescriptive, and the Guide will be the key to ensuring successful mobilization of actors and resources to help address whatever challenges emerge along the way.

STAGE ONE – Articulate Demand

A key finding of this report is that while most LMICs have well-articulated policy goals and objectives, these are often not translated into a sufficiently granular level to provide new or existing innovations with obvious entry points to contribute to those goals. We expect that targeted technical assistance will be a key part of the solution here, working closely with national and local health officials to look at key gaps and inefficiencies hindering the achievement of policy goals and priorities and translating these into specific innovation entry points. Understanding current incentives (and disincentives) of different actors within the public system will also help to identify potential advocates and critics that will need to be navigated along the way.

STAGE TWO – Scan, Assess and Select Innovations

Thousands of innovations in health already exist. Though some of our interviews indicated that more needs to be done to ensure that there is a critical mass of health innovations ready for scaling, the focus of this second stage will be on helping government actors efficiently scan what it available, assess the pros and cons of different solutions and then make decisions around which they want to adapt/adopt going forward. This will require working in partnership with innovators and supporting institutions to (a) ensure that the necessary cost, impact and adoption information is available and comparable; (b) ensure they are able to clearly explain how their innovations work and how their impact is aligned with goals of concern to policymakers; and (c) articulate the potential of their innovation to accommodate contextual modification and adaptation. Finding an appropriate interface and facilitating efficient interactions between the Cohort and potentially relevant Innovators and their solutions will be critical here and may involve convening specific 'Solution Marketplaces' and/or 'Innovator Pitch sessions' to help match supply and demand, as well more targeted tools to help the Cohort assess the comparative implications and impacts across different solutions. Subject to need / opportunity, a national or sub-national institution(s) may be engaged to lead the collection, assessment and curation of health innovations, serving as a neutral broker and convener as necessary.

STAGE THREE – Identify the Scaling Pathway

As noted in the opening to this report, experience suggests that there are three broad pathways for innovations to reach sustainable impact at scale through the public sector: (1) Approval and Accreditation; (2) Purchasing,

[54] These stages are supported by both interviewees for this research and the literature reviewed. For example, Stages 1-3 of the Mountain model align with the three phases proposed in forthcoming research from the African Collaborative for Health Financing Solutions: (1) Demand-driven articulation of opportunities for innovation; (2) 'Solution scouting' to help source and shortlist potential matching innovations; and (3) Co-design of an implementation plan aligned with the scaling pathway.

Procurement and Public-Private Partnerships; and (3) Adoption and Integration. Based on an understanding of the problem being targeted, the specific demand articulated by the Cohort and the nature of the innovations that have been assessed as potential solutions, the Guide will work with the Cohort and other Supporters as necessary to map out the most cost-effective route to scale within their resource constrained environment. This will also likely involve assessing barriers / enablers associated with political will and identifying ways to create more enabling budgeting, procurement and regulation processes at different levels of government.

STAGE FOUR – Attract / Reallocate Scaling Resources

As noted in this report, LMIC governments have limited discretionary expenditure or resources allocated to supporting innovation, at least within the health sector, and this is even more true of countries that remain more donor dependent than Kenya. We expect this stage to be especially challenging, requiring the Cohort to undertake a range of activities with the assistance of Supporters. This will likely include internal advocacy, political negotiation and influencing to attract or secure the reallocation of the resources needed. This will very likely be an ongoing process as resourcing requirements may fluctuate and once-committed resources may be reassigned as political priorities change. However, it seems that an initial 'carrot' of catalytic, matching funding from external donors (to cover initial innovator engagement and associated change management processes to support uptake) could be helpful in unlocking additional resources to support ongoing operating costs. Working with the Cohort to mandate responsibilities associated with the sourcing and uptake of innovations to new or redefined positions within government teams could also be effective.

STAGE FIVE – Implement, Learn and Iterate

Scaling is a long and difficult process, yet it is ironically the implementation phase that often attracts the least attention and planning. In fact, this stage is fraught with pitfalls including the need to adapt the innovation to align with changing systems structures and processes, often on an ongoing basis. This is accompanied by a need to strengthen or modify the wider system to support scaling of the innovation. Critical in this stage is the need to continue the adaptive learning approach and supporting data collection tools from the previous stages. Monitoring is also essential to know whether the innovation is having the expected impact, and whether iterative changes in direction or implementation might be needed in order to improve progress along the scaling pathway. Generating this kind of data and convening actors for regular review and discussion is vital to the broader demonstration of impact, which in turn helps to establish and sustain credibility, ownership, demand, resourcing and political backing.

STAGE SIX – Institutionalize

The final stage of the Mountain model is actually one for which the foundations will have been laid throughout the entire process. By 'institutionalize' we are here referring to the capacity of the public sector actors (or other local institutions as appropriate) to independently implement the different stages of the Mountain model successfully such that demand and scaling responsibilities are integrated / mandated within existing roles and partnerships (or in new institutions). Following each stage of the Mountain model, participants will come together in a Learning Basecamp to discuss – among other things – what it would take for that stage to be locally-led and implemented on a sustainable basis. This final stage will then bring all of this together to understand what a sustainable, end-to-end version of the Mountain model might look like, who it would involve and how it would be resourced. This may include (for example):

- the government partnering with a local institution to collect and curate health innovations against relevant policy priorities;
- securing a space where innovators and public health officials can regularly convene to identify collaboration opportunities and needs; and/or
- an organization, such as the WHO or a local university, offering training to keep public health officials up to date on the latest developments in health technologies and other innovations.

In this way, this 'institutionalization' of roles and responsibilities would be spread not just within government but across other actors within the innovation ecosystem who play important roles in supporting successful public sector scaling of innovation.

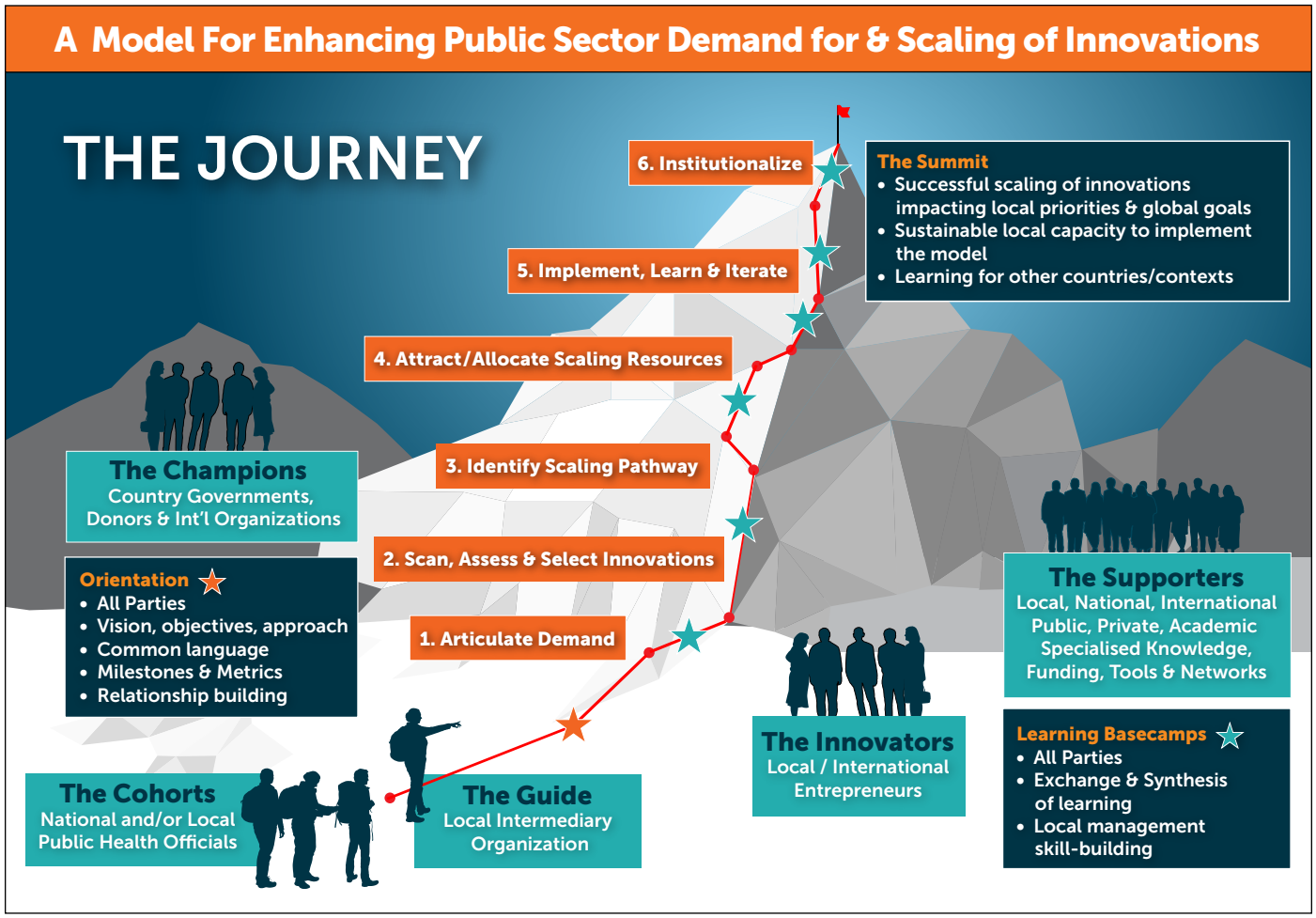
The six stages of the Mountain model are illustrated in Figure 3 on the next page.

It is impossible to say for certain how long it may take Cohorts to work through these different stages and reach the 'Summit' point, at which they have both successfully scaled one or more health innovations and/or established sustainable local capacity to oversee this process in a more systemic way. However, we are committed to using the Mountain model as a vehicle for empirical learning by introducing regular 'Learning Basecamps' during or after each of the five stages to help all of the associated stakeholders come together to reflect and exchange insights on their experience. This learning will also be used to help drive innovation and scale-enabling changes in the wider environment, targeting in particular existing institutions or departments with roles that involve providing cross-governmental learning and support.

Scaling the Mountain model

Piloting and refining the Mountain model will include laying the foundations for potential replication / scaling of the Mountain model to other counties, countries and contexts (including other sectors in addition to health). This will involve identifying additional Champions (donors and governments) and partners (both domestic and international) with a potential interest in supporting replication. To this end, the Mountain model pilot will have a Communications strategy to keep interested actors informed of progress and learning, as well as to share learning and results with the larger international development community. This could include joining the Learning Basecamps to support progress assessment and/or direct participation in key activities at different stages of the model. In this regard the pilot will ensure that monitoring and evaluation of the Mountain model will generate evidence and information to meet the decision-making needs of future participants and funders (see the discussion of 'Milestones and Metrics' below).

FIGURE 3



Milestones and Metrics of Success

In a project of this kind, where there are few successful case studies to learn from, it will be important to measure the relative effectiveness of the Mountain model against a different set of metrics to those normally associated with innovation scaling (which tend to quantify success purely in terms of people reached or impacted by the solution). Enhancing public sector demand for, and scaling of, innovation is very much a change management process, and will likely require indicators that are focused on levels of engagement and sustainability. Figure 4 below provides an early indication of what these milestones and metrics of success for the Mountain model might look like, recognizing that these will ultimately be decided in collaboration with the key stakeholder groups in the Orientation session noted above.

Before proceeding with any scaling or replication of the Mountain model, it will be advisable to conduct a comprehensive evaluation to identify areas for improvement as regards the Model's efficiency and impact. This could include adding, subtracting or modifying components and activities. While difficult to anticipate, scaling of the 'improved' Mountain model in its entirety could then include separate or parallel efforts to scale individual components or discrete stages.

FIGURE 4

Potential Milestones & Metrics of Success

INDICATOR THEME	SHORT-TERM	MIDDLE-TERM	LONG-TERM
	1-6 months	6-12 months	12 + months
Incentives & Engagement	■ Government actors and Innovators are motivated to participate in the Cohorts	■ Innovations are identified that match articulated demand ■ Cohort participants demonstrate sustained depth and duration of engagement	■ Platforms/forums are formalised to support regular and effective engagement between Govt, Innovators, funders and other partners (national and county levels)
Capacity & Skills	■ Innovation demand and associated engagement needs are articulated ■ Diverse offerings from Supporters are secured	■ Cohort participants develop and apply new knowledge and skills ■ Cohort capacity needs are effectively matched to Supporter offerings	■ Formal, sustainable capacity and mandate is established to support ongoing learning around and promotion of innovation at national and county levels
Resources & Ways of Working	■ Governments are able to define resourcing needs associated with different scaling pathways	■ Barriers and practices hindering innovation integration are identified ■ Resources for innovation scaling are attracted / reallocated	■ Enabling policies and processes supporting effective innovation procurement, resourcing and scaling are in place at national and county levels

Conclusion – A Call for Champions & Supporters to get involved

This report is but the first part of a wider initiative supported by Grand Challenges Canada to enhance public sector demand for, and scaling of, innovation. As we move closer to testing the Mountain model with a specific cohort (or cohorts) of government health officials in Kenya in 2021, we warmly invite other actors who are interested in this process to join us and contribute their learning, expertise and resources in either the Kenya pilot, or testing the Mountain model in another country context or sector.

This is an exciting and challenging initiative, but one which we hope will greatly enrich and advance the immature evidence base around public sector scaling of innovation to improve and save the lives of countless millions in need of better services and support.

If you would like to get involved, please email Tom Feeny (Senior Program Director) at tfeeny@r4d.org.

Appendix A. Key Informants Interviewed

NAME	POSITION	ORGANIZATION
Adan Halima	Director Nursing Services	Machakos County
Amit Thakker	Executive Chairman	Africa Health Business
Amy Lin	Director of Innovations	USAID Global Health
Andrew Mulwa	County Executive	Makueni County
Anurag Mairal	Professor of Medicine	Stanford University
Barbara O'Hanlon	Senior Private Sector Advisor	World Bank Global Financing Facility
Ben Kumpf	Director of Innovations	Foreign,Commonwealth & Development Office
Benedict Osore	Director of Health	Nakuru County
Carol Dahl	Executive Director	The Lemelson Foundation
Caroline Quijada	Principal Associate	ABT Associates
Cheikh Seck	Former Senegal Urban Health Initiative Project Director	IntraHealth International
Cynthia Eldridge	CEO and Founder	Impact Health
Dan Mclure	Principal Choreographer	Practical Clarity
Devora Kestel	Director, Mental Health and Substance Use	World Health Organization
Edward Owino	Health Financing Program Officer	Results for Development
Elizabeth Gitau	CEO	Kenyan Medical Association
Emmy Chirchir	Innovation Adviser	Foreign,Commonwealth & Development Office
Eunice Muthengi	Head — East Africa Research Hub	Foreign,Commonwealth & Development Office
Gerald Bloom	Research Fellow	Institute of Development Studies
Gorgui Sène Diallo	Country Director	Africare Senegal
Isabel Maina	Head of Health Financing Division	Kenyan Ministry of Health
Jim Ricca	Director / Learning & Implementation Science Team Leader	JHPIEGO
Karen Levy	Partner, Co-Founder	Fit for purpose
Laura Ghiron	President	Expandnet E2A
Louise Agersnap	Head of Innovation Team	World Health Organization
Luke Boddam-Whetham	Health Portfolio Lead	Palladium

NAME	POSITION	ORGANIZATION
Magdalena Banasiak	Senior Innovation Adviser	Foreign,Commonwealth & Development Office
Mark Hellowell	Director, Global Health Policy Unit	University of Edinburgh
Megan Majorowski	Senior Market Access Advisor	USAID
Moredreck Chibi	Technical Officer: Local production of pharmaceuticals	World Health Organization
Peris Njibu	Primary Healthcare Officer	Council of Governors
Peter Waiganjo	Professor — Health IT	University of Nairobi
Priya Balasubramaniam	Senior Public Health Scientist & Director, PHFI-RNE UHC Inititative	Public Health Foundation of India
Prof. Peter Waiganjo Wagacha	Faculty member — School of Computing and Informatics	University of Nairobi
Rajesh Ranjan Singh	CEO	Wish Foundation
Rajiv Doshi	Professor of Medicine	Stanford University
Ramanathan V	Practice Lead — Health	Villgro
Richard Ayah	Director of Science and Technology	University of Nairobi
Robert Karanja	Co-Founder	Villgro
Robin D'arcy	Economist	Alinea International
Roma Bose	Senior Vice President	Wish Foundation
Sophia Stafford	Manager of Market Strategy	Gradian Health
Stephen Karimi	Director, Research Accreditation and Quality Assurance	National Commission For Science, Technology & Innovation
Stephen Wanyee	Secretary	Kenya Health Informatics Association
Tristan Eagling	Regional Technical Adviser on Science, Technology and Innovation	Foreign,Commonwealth & De-velopment Office
Wilfred Njagi	Co-Founder and CEO	Villgro
Zoleka Ngcete	Program Manager	South African Medical Research Council

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