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Foreword

The remarkable proliferation of mobile technology across the world in recent years has provided the global health community with an opportunity to strengthen health systems through interventions that increase both quality and coverage. Awareness is growing of the ways in which mobile health (mHealth) innovations can catalyse the implementation of proven health interventions that target health systems, health facilities, health workers and clients.

The World Health Organization (WHO) has played a leading role in guiding the efforts to generate and document evidence in this growing field, as well as in developing resources and capacity. By serving as the Secretariat for the mHealth Technical and Evidence Review Group for Reproductive, Maternal, Newborn and Child Health, it works to identify mHealth innovations that have been shown to add value to health systems. Additionally, through its collaboration with the United Nations Foundation (UNF) on the Every Woman Every Child Innovation Working Group (IWG) catalytic mHealth grant programme for maternal, newborn and child health, WHO leads the provision of technical and research support to 26 mHealth projects in 15 countries. Through this work, WHO has come to recognize the need for a practical tool to help mHealth project implementers engage with mobile network operators (MNOs). This guide answers that need: as the product of a collaboration between WHO and the Groupe Speciale Mobile Association (GSMA), it aims to help mHealth implementers scale up their initiatives for greater impact.

Innovations in mHealth happen where the public and private sectors intersect. For many mHealth implementers, navigating engagement with MNOs is a daunting but valuable experience, and successful partnerships can contribute enormously to the long-term sustainability of an mHealth solution. This guide presents an overview of the benefits and challenges of engaging with MNOs in the context of mHealth, and describes practical strategies that mHealth implementers can use when considering this kind of partnership. A key aim of this guide is to demonstrate to mHealth implementers what the value of their mHealth solutions can be for the private sector – and how this value can be leveraged when negotiating a mutually beneficial partnership with an MNO.

This guide reflects the diversity of relationships between mHealth implementers and MNOs, while providing unique insights into the perspective of private-sector partners. Public–private partnerships are especially crucial in the health sector because the mobile infrastructure is an integral part of mHealth solutions, which have been shown to contribute greatly to improvements in community health. Therefore, organizations seeking to implement successful and sustainable mHealth initiatives must learn how to facilitate productive and lasting partnerships with MNOs. We hope that this guide will provide health partners with the insights they need to determine whether their efforts and goals can be aligned with those of MNOs, and thus help them to initiate or strengthen partnerships that can achieve a shared vision of better health.

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Acronyms and abbreviations

BBC	British Broadcasting Corporation
CHAI	Clinton Health Access Initiative
CHW	Community Health Worker
CSR	Corporate Social Responsibility
EWEC	Every Woman Every Child
GSMA	Groupe Speciale Mobile Association
ICT	information and communication technology
IWG	Innovation Working Group
MDG	Millennium Development Goal
mHealth	Mobile health
MNO	Mobile Network Operator
MTN	MTN Group is a leading emerging markets MNO, with its head office in South Africa
NGO	Nongovernmental Organization
SMS	Short Message Service
USSD	Unstructured Supplementary Service Data
WHO	World Health Organization

Executive summary

The field of mobile health (mHealth) is experiencing a real need for guidance on public–private partnerships among players as diverse as the mobile industry, technology vendors, government stakeholders and mHealth service providers. This guide provides a practical resource for mHealth service providers (e.g. developers and implementers) to partner more strategically with one of these critical players – the mobile network operators (MNOs).¹ Despite the growing literature on how to develop partnerships, there is a lack of clear, practical strategies for the health community to engage with MNOs to better scale up mHealth services.

Notable challenges to engaging with MNOs are divergent motivators, reluctance to take on risks, and availability of resources and investment opportunities. For example, while mHealth service providers focus primarily on the health system outputs of an mHealth service and lower access costs for clients, MNOs must consider financial and marketing interests common to private-sector stakeholders. In addition to creating social impact, the motivation for MNOs includes differentiating their brand from competitors, effectively using their information and communication technologies and corporate capabilities, and developing alternative revenue streams from traditional voice and data services.

For effective and sustained collaboration, MNOs and mHealth service providers need to understand the value that each party brings to the partnership. For instance, MNOs can raise critical questions regarding the magnitude and visibility of the health problem, the demographics and mobile phone usage of the MNO subscriber base, the type of technology capacity required, and the opportunities for diversifying or expanding revenue. mHealth service providers should also explore the MNO's assets, including: their connectivity capabilities (e.g. transmission of voice, text and data exchange); their support infrastructure (e.g. their ability to handle billing services, track usage and provide customer support); their business infrastructure (e.g. powerful brand and effective marketing); and funding mechanisms (e.g. corporate social responsibility to finance mHealth efforts). Lastly, mHealth service providers should consider whether direct engagement with MNOs is the most effective way to access the mobile capabilities they require, or if intermediaries such as mobile aggregators may be more appropriate.

This document distils best practices and industry-wide lessons by providing key motivators, challenges and recommendations for mHealth service providers to engage with MNOs for scaling up their initiatives.

¹ Also known as mobile, wireless or cellular service providers, carriers or companies.

1

Introduction

This guide is designed to assist the global mobile health (mHealth) community in assessing whether and how to engage with mobile network operators (MNOs) while planning for the scale up of mHealth initiatives. The widespread proliferation of mHealth services has contributed to an increasingly significant body of work describing the key enablers and barriers in relation to scaling up mHealth services, as well as the potential business models that can help to make these services sustainable at scale. One of the recurring challenges that mHealth service providers face consists of how to engage constructively with the community of MNOs, in an effort to establish partnerships of value to the different parties. This guide evaluates these factors from the point of view of the MNO, and offers insight into how an mHealth service provider should view and address these factors when negotiating a potential partnership.

1.1 Intended audience

The intended audience for this resource is mHealth service providers, defined as innovators who have developed mHealth technologies or strategies, and who are considering engagement with the MNOs as a mechanism for achieving scale and financial sustainability, in complement to partnerships with government. The guide aims to assist mHealth service providers who face challenges in presenting their mHealth innovations to MNOs and in fostering buy-in for sustaining their mHealth service.

1.2 Methods

The engagement process presented in this document draws largely from examples relating to maternal, newborn and child health, recognizing the fact that this has been a priority health domain for both mHealth service providers and global health initiatives such as the Millennium Development Goals (MDGs)² and Every Woman Every Child (EWEC)³. Experts representing the organizations below contributed to the development of this guide through a combination of structured interviews and informal conversations facilitated by the Groupe Speciale Mobile Association (GSMA). In these conversations, MNOs and stakeholders in the health community reflected on their experiences of engaging in partnerships with each other. Representatives of these organizations also assisted with the validation of findings and provided illustrative examples. Table 1 lists some of the organizations in each of the stakeholder communities.

Table 1. Mobile health stakeholders

Category	Organizations
Mobile network operator community	AirTel, Etisalat, Orange, MTN, SafariCom, Vodacom, Vodafone
Health community	BBC Media Action, Cell-Life, CHAI Malawi, Changamka, D-Tree, DiMagi, Episurveyor, Grameen Foundation, Hello Doctor, Johnson & Johnson, Praekelt, Rockefeller Foundation, SMS for Life, Sproxil, Switchboard, Text2Change, United Nations Foundation, VillageReach, World Health Organization

1.3 Scope

The document is divided into six sections. Section 1 describes the methods used to compile this resource. Section 2 summarizes the opportunities and challenges within mHealth, including the landscape of global mobile phone penetration and the potential barriers in establishing partnerships between mHealth service providers and MNOs.

Section 3 presents a practical guide and engagement framework to help mHealth service providers align themselves with the broader business objectives of MNOs. This section will focus on three key questions that an mHealth service provider needs to address when considering how to approach and partner with an MNO.

Section 4 provides a summary of the MNO engagement framework, while Section 5 lists various proof points for mHealth service providers to consider when presenting and discussing the proposed service and partnership with MNOs. Section 6 provides information about other relevant tools, and Section 7 offers observations and conclusions.

² MDG 4 is to reduce child mortality; MDG 5 is to improve maternal health (www.unmillenniumproject.org/goals/gti.htm).

³ For more information, see www.everywomaneverychild.org.

2

Mobile for development: opportunities and challenges

The ubiquity of mobile phones worldwide offers compelling opportunities for engaging in mHealth, but it also brings challenges to partnering with MNOs. This section briefly contextualizes the expanding and constantly evolving mobile industry, providing a backdrop for the motivations for – and challenges to – engaging with the mobile community. It also outlines some of the considerations for assessing the strengths and assets of various MNOs.

2.1 Global growth of the mobile industry

As of 2014, approximately half the global population uses mobile communications. Current analysis shows that there are 3.6 billion unique mobile subscribers – and 1 billion of these have been added since 2008 (1). Given the strong growth trajectory and fast pace of innovation, the GSMA estimates that within the next six years (2014–2020) a further 1 billion unique subscribers will be added, surpassing the 4 billion threshold. This growth in the number of mobile users is mirrored by an increase in the number of mobile connections, which reached over 7 billion in the third quarter of 2014 (2).

Underpinning this growth is a diverse set of market conditions. Emerging markets are the major engines of mobile connectivity and subscriber growth. These markets will account for 94% of the unique subscribers who will be added over the next six years until 2020, or approximately 880 million subscribers versus 56 million in developed markets. Mobile data continues to drive rapid growth in traffic for MNOs, with data volume in 2012 alone exceeding the volume in all previous years combined. Globally, it is projected that there will be almost 6 billion broadband connections by 2020, an increase of approximately 4 billion connections during the next six years (3).

As MNOs continue to deliver new services for users, mobile communication is an ever-evolving industry and is part of everyday life for a growing proportion of the world's population. As technology continues to evolve, so too does the mobile ecosystem, with innovative business models emerging to connect users with information and services in areas such as health, agriculture, education, finance, retail and other sectors.

2.2 Challenges to engaging with MNOs

The expanding mobile penetration has brought with it a significant opportunity for increasing access to health information and generating demand for health services, while facilitating communication between health workers

and managers, clients and health workers, as well as throughout the health system.

Despite these opportunities, it is important to understand the unique set of challenges that MNOs must overcome to secure internal support for investing in mHealth services. The sustainability and scaling of mHealth services in partnership with MNOs continues to be a challenge that stems from a host of factors, which include MNOs' financial constraints, slower adoption of new business models and misaligned investment strategies with mHealth implementers. Addressing these challenges is critical to catalysing partnerships across MNO and health stakeholder groups.

Financial constraints

In the majority of the 50 priority countries identified by the EWEC initiative, the commercial focus of MNOs is to get more customers connected and to increase the volume of business in voice and data communications. Although mobile penetration may exceed the level of health access in the vast majority of low- and middle-income countries, nearly half of these countries have mobile penetration rates of less than 60% (1). In addition, recent market dynamics have made voice and text (short message service [SMS] or unstructured supplementary service data [USSD]) services far more competitive. Consequently, the industry has seen consumer prices fall by as much as 70% between 2010 and 2012 (4). In summary, tighter margins mean that MNOs have less budget to adequately invest in areas outside of their core business.

New business models

The learning curve that an MNO has to embark on to successfully offer mHealth services is particularly steep, since the capabilities required for launching and managing these services are different from those that the MNO already possesses for its core business. mHealth project sustainability models are vastly different from traditional MNO business models – which are based on predictable revenue-generation schemes – and may incur costs for the client. Presenting and deploying mHealth activities require risk mitigation through the development of strategic partnerships, and this can often be a hindrance for MNOs looking to embrace new mHealth services.

Long-term versus short-term investment strategies

MNOs generally work with shorter product lifecycles (i.e. a few months) than are required by mHealth service providers (i.e. usually longer than a year), so investing in long-term research and development is challenging for MNOs. mHealth services may work on longer cycles, as integration into the health system requires an intimate knowledge of end-user needs, which may not apply for the MNO's product life cycle.

2.3 Enabling environment

Similar to the needs of other innovations, the enabling environment, which involves the regulatory, fiscal, cultural and political dynamics, plays a key role in contextualizing the partnership (5, 6). In the case of partnerships with MNOs, this enabling environment should be assessed for potential opportunities and challenges that need to be considered and planned for. Technology approaches that are based on legacy systems tend to create long-term, high-risk disincentives for investment as they have external dependencies that falter and an expiring life span. Securing political support within the MNO is time consuming and requires significant investment from multiple parties, but it comes with considerable benefits. Other significant challenges include the need for risk-sharing, co-investment and governance – all of which require adequate, upfront facilitated negotiation and agreement. Additionally, competitive markets are another difficult hurdle that must be negotiated in order to establish a successful partnership: not only are MNOs and mHealth service providers in competition for market shares, they also compete for grant allocations.

3

Engaging with the mobile community

This section presents practical guidance to help mHealth service providers understand the above-mentioned challenges, determine whether their goals align with MNOs' broader business objectives, and initiate or strengthen partnerships towards common goals. The first-order questions that need to be asked by mHealth service providers before approaching an MNO are:

1. What value does the proposed mHealth service offer to the MNO?
2. In a partnership, what value does the mHealth service provider offer?
3. Is there a compelling case for working directly with the MNO?

See Box 3.1 for more information on assessing readiness for partnership.

Section 3.1 addresses the motivating factors of MNOs when assessing the value of the mHealth service. These include considerations of the magnitude of health impact, the extent to which the mHealth service can differentiate itself from its competitors in the marketplace, the ICT capabilities required or that can be leveraged, and the opportunity the service provides for developing alternative revenue streams.

Section 3.2 examines the motivators involved in determining if the partnership appeals to the MNO. These include an assessment of whether the parties bring complementary capabilities to the service and of the potential implementation and financial risks in the partnership.

Section 3.3 discusses the last step in determining whether a direct partnership with an MNO will meet the objectives of the mHealth service provider and if alternative approaches and partners should be considered. One increasingly common approach is to partner with a commercial organization such as an aggregator that has done the work of combining a variety of assets from different MNOs. This comes at a cost, which needs to be balanced against the potential difficulties of negotiating common tariffs and "short codes" (see Box 3.2) with individual MNOs in a particular country or region.

Details of these fundamental considerations are included in Section 5 as "proof points"; these are lists of questions for mHealth service providers that can form the basis of a concise and comprehensive partnership document. The list of answered proof points provides the MNOs with the information they need to gauge the inherent value of the service as well as the potential synergy to be gained through partnership.

3.1 Value drivers – does the service appeal to the MNO?

Through its work with MNOs to develop internal business plans for service evaluation, the GSMA has identified four major drivers of value:



Box 3.1: Are you ready for partnership?

The following tools can help mHealth service providers make the critical decisions needed before entering into a partnership.

From the MNO perspective: Service Maturity Tool (SMT) for evaluating the maturity of mhealth products & services www.gsma.com/mobilefordevelopment/the-service-maturity-tool-evaluating-the-maturity-of-mhealth-products-services

From the mHealth service provider perspective: mHealth Assessment and Planning for Scale (M.A.P.S.) tool www.who.int/reproductivehealth/topics/mhealth/maps/en/

From the government perspective: Information and communication technologies (ICTs) for women’s and children’s health: a planning workbook for multi-stakeholder action www.who.int/pmnch/knowledge/publications/ict_mhealth.pdf

1. to impact health outcomes;
2. to achieve competitive differentiation (i.e. to stand apart from competitors);
3. to leverage the broader ICT and corporate capabilities; and/or
4. to develop alternative revenue streams to traditional voice and data services.

These drivers are not mutually exclusive, and mHealth services will typically contribute to one or more of these drivers, to varying degrees. The relative importance of these value drivers will depend on individual MNO organizations and the priorities of different business units within those organizations. For details on the proof points for presenting these value drivers, see Section 5.

Typical points of interest when examining health content include:

- the degree of localization to specific target groups (adapting the content for specific language requirements, cultural sensitivities, or even regional accents for voice-enabled services);
- the extent to which the health content has been validated, both clinically (in terms of alignment with global or national health standards) and culturally (field-testing of content on particular subjects);
- the degree to which the health content can be adapted for other markets in which the MNO is located; and
- the health partner’s capability to keep the content up to date and/or relevant.

Table 2 presents an overview of these common value drivers, and also includes the linked points which the MNO and/or mHealth service provider will need in order to demonstrate the value of implementing the service.

Table 2: Summary of value drivers for MNOs

Value driver	How the MNO benefits	Proof points to demonstrate
<i>Impact on health outcomes</i>	Enhanced consumer brand Improved government/regulatory relations Improved employee satisfaction	Scale of the health problem Burden of disease Visibility of the health problem Directness of the service’s impact
<i>Competitive differentiation</i>	A unique value proposition created for the customer Being selected (or retained) as the mobile provider of choice Reduced “customer churn” (see Box 3.2) Improved usage of current or traditional operator services	Scope for competitive differentiation for the MNO: <ul style="list-style-type: none"> • Competitive landscape • Impact on core MNO’s customer metrics: market share, subscriber base, customer churn
<i>Effective use of existing MNO capabilities</i>	Improved returns on existing investments	Potential to effectively use existing ICT capability
<i>Diversification of revenue streams</i>	New sources of revenue outside the traditional MNO business models	Potential for generating new business Re-usability of existing technology or service Source of innovation/capability

3.1.1 Impact on health outcomes

The most basic requirement of an mHealth service is that it should have a positive impact on health outcomes. The degree to which the mHealth service meets a clear and present health need will translate into value for MNOs, by helping them with the following:

Enhanced consumer brand



Mobile services rely on having strong consumer brands. Being able to publicly demonstrate services that address health and social needs plays an important part in brand-building strategies. Some MNOs have indicated that being able to demonstrate that they offer *pro bono* mHealth services as a “value-added service” (see Box 3.2) to customers is in itself a useful and viable (albeit short-term) strategy for gaining brand awareness.

Improved government/regulatory relations



In areas where government engagement in the health sector is strong, mHealth services have been used by MNOs as part of an overall strategy to engage with government and demonstrate corporate social responsibility (CSR). In many countries, MNOs have service obligations requiring them to demonstrate good corporate governance and alignment with national policy. These obligations can be leveraged by mHealth service providers as one of the value drivers for establishing the partnership. While difficult to quantify in terms of impact, healthy government relations

can benefit the MNO’s business more broadly; for example, by empowering them in future negotiations on telecommunications policy and regulations.

Improved employee satisfaction



The internal company impact on employees who participate in mHealth programmes can also be of great value to MNOs. MNOs report that employees working on health and other related services that deliver socioeconomic benefits feel a greater sense of work satisfaction and loyalty to the company.

3.1.2 Competitive differentiation

The MNO is also interested in the ability of the mHealth service to help it differentiate itself from its competitors in the marketplace (or to not fall behind competitors that have already launched the same or similar services). This competitive differentiation allows the MNO to achieve four objectives:

1. **A unique value proposition created for the customer:** To differentiate itself, the MNO must demonstrate that the mHealth service targets a specific health problem that is best addressed with that service.
2. **Being selected (or retained) as the mobile provider of choice:** By distinguishing itself in the market, the MNO puts itself in a better position to be chosen by either consumers or corporate customers as their provider of choice.
3. **Reduced “customer churn”:** The mHealth service can help the MNO retain customers – both consumer and



Example: Mobile services for maternal and child health

Mobile messaging services represent one category of mHealth services that illustrates these health outcome proof points. These services generally aim to promote behaviour that can reduce maternal and child mortality. In countries where these services are provided, they typically reach a significant proportion of the target population, and they exert influence by addressing an emotive issue that draws much public attention. These services also tend to be aligned to a priority programme of the government and/or international agencies (e.g. they may directly address one or more of the MDGs). A few services that exemplify this principle of alignment with national priorities include the South African National Department of Health’s MomConnect, which includes a messaging component for antenatal care reminders; text message programmes by the Kenyan Institute of Medical Research Institute; and the Clinton Health Access Initiative (CHAI) Malawi for prevention of mother-to-child transmission of HIV and retention of HIV-positive mother and infant pairs.

These mobile messaging mHealth services are therefore in proportion to and in alignment with:

- the scale of the health problem
- the perceived severity of the health problem
- the visibility of the health problem.



Example: MNOs gain customer loyalty through Switchboard

Switchboard is a service that enables health workers to communicate with each other more easily. It provides free closed calling networks for health professionals (i.e. calls made within this network are free, and individuals are charged for external calls only). This provides MNOs with a means of securing loyalty from potentially high-value customers. These customers then have a higher propensity to use the same mobile provider to make chargeable personal calls outside of the closed network. This facilitates avenues for revenue sharing, which also contributes to the success of Switchboard. The service also creates a useful instant network and message delivery platform among health workers. Switchboard has service roll-outs ranging from small networks in Liberia with MTN (reaching 181 doctors) to large networks with Vodafone in Ghana (where they have connected all 2200 doctors) and Vodacom in the United Republic of Tanzania (where they serve 9000 doctors). By December 2012, 4 million calls had been made through the free network service.

In each of the countries where it is deployed, Switchboard's mHealth service has allowed its MNO partners to differentiate themselves from the competition. Switchboard thus is strongly conducive to:

- competitive differentiation for lead MNOs
- attracting desirable customers
- creating loyalty among customers
- driving usage of voice calls among those customers.

corporate – who would otherwise have left for other MNOs due to lower pricing (see Box 3.2).

- Improved usage of current or traditional operator services:** Depending on the scope and nature of the differentiation, the mHealth service may also increase the revenue generated by the MNO's traditional services, by encouraging more usage of basic services (calls and/or texts) or premium services.

3.1.3 Effective use of existing MNO capabilities

MNOs have also focused on adapting and packaging their ICT capabilities for the public and private health sector. Examples include video conferencing services packaged into telemedicine, collaboration packages for hospitals, and data centre and cloud service packages, which have been adapted for storage of electronic medical records and picture archiving and communication system images. This has been a core strategy for MNOs in the developed world where there is a more mature eHealth services market.

Apart from technology capabilities in delivering voice, text and data, which are at the core of any MNO's business, many have also invested significantly in broader mobile technology services aimed at either consumers (e.g. mobile money) or institutions (e.g. video conferencing, call centres and cloud services). The extent to which a new service can increase the demand for these existing capabilities will also increase the return on those large infrastructural investments.

3.1.4 Diversification of revenue streams

For many operators, the ultimate measure of commercial success of mHealth is the extent to which the service creates new revenue streams and customer segments. The underlying motivation for MNOs to participate in mHealth is to reduce reliance on traditional voice and data services, which are becoming increasingly competitive and commodified around the world, resulting in reduced profits. It is important to note that while creating new revenue streams through new business models is the ultimate goal for many MNOs, incorporating it may involve new ideas, technologies, skill sets and operational strategies beyond those needed for the basic voice and text services that they are used to providing. Therefore, diversifying revenue streams will require buy-in at the highest levels as well as external support from the mHealth service provider. The appetite for jointly developing and using new business models will vary across MNOs. For example, something that is new to one MNO – such as offering managed services for health-care insurers to provide follow-up medical support to clients – may not be so novel for another, which may already have experience structuring such services for corporate customers.

For this value driver, the central concern of the MNO is the potential level of return on their investment in the new technology, as well as securing new sources of revenue outside the traditional MNO business model.



Example: Changamka adds value for both SafariCom and M-Pesa

Changamka Micro-Insurance Limited helps poor people in Kenya gain better access to health-care facilities by issuing them with “smartcards”, which allow them to slowly but steadily save money for visits to the doctor, medicines, and more. Changamka bases this service on the evidence that while most Kenyans can afford to pay for health care, many of them lack the proper mechanisms for saving money. With their personalized smartcards, clients can add money whenever and in whatever increments they want, allowing them to save at their own pace. Money is added either at a general packet radio service terminal or through a mobile phone. An unlimited amount of money can be added to the card and there is no expiration date. While this adds a useful value-added service to SafariCom’s portfolio, this service is also an excellent example of the company’s success in leveraging their M-Pesa mobile money platform.

In this example, the mHealth service:

- makes effective use of an existing platform or capability that the MNO has invested in;
- drives usage of that capability; and
- generates revenue from that capability.

3.1.5 Application of the value drivers

mHealth services typically contribute to some or all of the four value drivers discussed in Section 3.1, but to different degrees. The heat map in Figure 1 reflects an extract of opinions from structured interviews with MNOs to illustrate how three categories of mHealth services are currently perceived in terms of the four value drivers. Service solutions that are dark orange (high alignment) across all value drivers offer the most enticing prospects of engagement between MNOs and mHealth service providers. Conversely, yellow (low alignment) indicates areas where there is potential to improve engagement or to re-package combinations of services to create more compelling bundles for MNOs.

It is important to note that the comparison in Figure 1 reflects the potential attractiveness of various categories

of mHealth services based only on the four value drivers. Whether the MNO will actually participate in the roll-out of the service will also depend on operational feasibility and the practical considerations of working with a partner. These concerns are covered in Section 3.2.

3.2 Operational drivers – does the partnership appeal to the MNO?

After an MNO has evaluated the attractiveness and value of an mHealth service, their next step is to assess the value of the partnership with the specific mHealth service provider and determine how to operationalize the partnership and roll-out the mHealth service. Like most large companies seeking partnerships, MNOs are ideally looking for arrangements where the whole is greater than the sum



Example: Bringing new customers and revenue to Vodacom in South Africa

Vodacom worked with Mezzanine, an mHealth technology solutions provider, to offer a hosted development platform for mHealth services in South Africa. These services range from messaging and data collection to health risk assessment, workforce management and supply chain management. Rather than being limited to use cases focusing on a single health issue, these services can be adapted to the needs of a range of health problems, and can be customized to different workflow requirements in different countries. This creates new revenue opportunities in terms of platform licensing (through flat-rate subscription or per-seat charging), application development (through charging for customization of the platform to specific use cases and workflows), and training (to equip client ICT teams with the skills to develop and maintain the applications). In addition, the service also makes effective use of Vodacom’s core ICT assets, such as third-party hosting and data centre services.

In this example, the service:

- created new customer segments (public health departments, nongovernmental organizations (NGOs), health implementers);
- created new revenue opportunities; and
- developed capability that can be re-used in other countries and for other health issues.

Figure 1: Heat map of the four value drivers for three sample mHealth services

Service solution	Value drivers			
	Impact on health outcomes	Competitive differentiation	Effective use of existing MNO capabilities	Diversification of revenue streams
Mobile messaging service aimed at reducing maternal and child mortality	Medium – in terms of the scale and visibility of the need	Low – the service is typically offered to all MNOs in order to cover the largest population base	Low – only requires connectivity assets	Low – assuming low willingness among MNOs to pay for base-of-pyramid subscribers (majority of subscribers)
Mobile health insurance linked to mobile payments	High – directly increases health insurance coverage for subscribers	Medium – assuming that this service can be linked to any operator who has a mobile money platform	Medium – uses the operator’s mobile money platform	High – if there is enough demand for an mHealth insurance product
Mobile health platform that can be used for delivering multiple mHealth services	Medium – this is a supporting system enabling different mHealth systems and not a service in itself	High – there are very few service providers with a track record of delivering this mHealth solution	High – the delivery and support of this platform will require a number of core operator assets including hosting, application development and managed services	High – potentially significant increase in customer base over many countries/ locations, depending on the flexibility of the platform and its ability to meet the needs of multiple customer types and use cases

of the parts – that is, where both parties can contribute something that brings unique value to the collaboration. This also elevates the conversation from being a negotiation about bulk volume of connectivity assets to one that creates long-term, strategic value for both parties. It is also worth mentioning that health is only one of the many sectors that MNOs are hoping to target with these assets, and they may have to make trade-offs in order to pursue an opportunity in one sector (e.g. agriculture) as opposed to another.

3.2.1 Assets brought to the partnership by MNOs

When assessing the value of the partnership, the mHealth service providers should consider MNOs’ significant strengths to identify areas that can be used to strategically capitalize on the investments of the MNO and generate further demand. These assets can include:

- core connectivity in the form of mobile services, which are increasingly ubiquitous, reaching into rural areas and populations;
- core support infrastructure in the form of related ICT capabilities, e.g. call centres, data management and cloud services; and
- business infrastructure, including a brand that is well known to consumers, capacity to handle a

high volume of services, and geographic reach of operations.

Funding, which includes the ability to provide CSR remit or contribute to the financing or subsidization of the service.

Core connectivity



An MNO’s most visible asset is its connectivity capability – its ability to connect subscribers with each other or with services through the transmission of voice, text (SMS or USSD) and data, through mobile networks.

Core support infrastructure



Core support infrastructure refers to the infrastructure MNOs have built up to service customers in their core business. This includes consumer-oriented systems developed for billing, tracking volume of usage, and quality of service, as well as systems for customer relationship management and support. In addition, MNOs have systems to support corporate clients, including call centres and data centres. These systems are designed for high volume and availability, and are well suited

to helping mHealth partners scale up their services regionally and nationally.

Business infrastructure



Being large organizations, MNOs also have a number of other business assets that may be valuable to health implementers. As the holder of a powerful consumer brand, the MNO may be interested in co-branding the product to ensure greater acceptance and adoption. The MNO has access to marketing capabilities ranging from telemarketing agents to advertising campaigns. The operator also possesses powerful distribution capabilities and agent networks, which are useful if physical presence or intervention is required as part of the service (e.g. if an agent's presence or skills can be used to further market the service or to participate in service delivery).

Funding



MNOs regularly fund health projects as part of their CSR remit, which promotes their brand and strengthens relationships with stakeholders, such as the government. However, these projects are typically funded on a small scale and on a one-off basis. For funding on an ongoing basis, MNOs will be keen to invest and gain equity in projects and organizations that can help them develop an asset that brings competitive differentiation.

3.2.2 Assets brought to the partnership by mHealth service providers

In measuring the value of the proposed opportunity for collaboration, MNOs will also assess the health partner's assets in order to reduce risks associated with the implementation of the service and optimize the value of the partnership. This includes understanding the content of the implementation package to be delivered by the health partner, the complexity and customization of the technology platform being offered, the credibility and relationships the health partner brings, and the technical capacity and financial support of the mHealth service implementer.

Content

This can take the form of actual content to be delivered to end-users (e.g. text or rich media developed to educate mothers about ways to improve maternal and child health), or processes that are based on clinical and operational protocols (e.g. validated algorithmic clinical protocols, or ways to collect information about pregnant mothers that can be used by health systems).

Technology

Technology can range from software platforms that the mHealth service provider has developed to offer a certain service (either on the server or on the mobile handset), to devices that have been adapted for health use (e.g. mobile devices that offer diagnostic capability).

Typical points of interest include:

- the degree to which the health technology can be applied to different use cases and regions;
- the potential ease of customizing this technology for different use cases and regions;
- the ease of integration with the MNO's current core technology or partner systems;
- the extent to which the technology has been tested and validated in the field;
- the potential for adaptation of the technology for use in other sectors, such as education and agriculture.

Relationships and credibility

MNOs recognize the importance of aligning their initiatives to the current policy and regulatory environment, as well as to the broader health ecosystem of a particular country. Therefore, they will seek relationships with the mHealth service providers that will support this alignment.

Typical points of interest include:

- evidence of alignment with national health policies and regulations;
- stated commitments from key public sector stakeholders in the health community.

Implementation experience

While MNOs have extensive project management and technical capability to contribute to the service development and roll-out, they recognize the value of the mHealth service providers' experience with implementation in the field (e.g. experience working with community health workers, and understanding how health information and practices are transmitted in communities).

Support capability

For mHealth service providers who are offering content-based technology solutions, MNOs will also be looking for ongoing technical support capabilities as well as the ability to keep the technology current in terms of software updates and releases.

Regional coverage

For MNOs that have a presence in multiple countries, a key decision point will be the potential for structuring a partnership that can be extended across these countries.



Box 3.2: Key concepts

Customer churn: A key customer indicator used by MNOs; it refers to the number of customers who leave the operator or otherwise become inactive over a specified period of time.

Market rate norm: The norm for revenue sharing for value-added services is 70%/30% in favour of the operator, but exact terms will depend on the value the health partner brings to the partnership.

Short codes: Abbreviated forms of phone numbers to use for SMS only.

Value-added service: Any service that does not fall within the traditional MNO services in voice, data and text (i.e. any non-core service) is considered a value-added service.

Funding

MNOs look for mHealth service providers that can bring in financial support from the donor community. Typically, this will be in the form of seed funding or cost sharing, which will help the MNO mitigate the risks and justify the partnership financially while the service is being tested for long-term commercial sustainability.

3.2.3 Assessment of external factors

Beyond what the MNO and the mHealth service provider bring to the partnership, mHealth services are subject to a number of external implementation conditions that need to be considered. The general factors impacting the success of mHealth services have been discussed at length in other publications and are thus only briefly outlined here. These include infrastructural capacity; the policies and regulations governing information exchange through mobile platforms, including e/mHealth strategies; and the health system capacity, including availability of centralized information systems and involvement of government stakeholders.

Regulatory environment

The regulatory environment is important for understanding the legal implications and national strategies in which the mHealth service is situated. This includes restrictions around consumer privacy and exchange of data in order to ensure the service complies with regulations such as the process of obtaining client consent, the level of security involved, the location for storage of client data, the ownership of medical data, etc. The delivery of health content and information provided in the services could subject mHealth partners to new or unfamiliar regulations. Recognizing these policies (or lack thereof) will allow both parties to enter a mutual understanding of the restrictions involved in the deployment of the mHealth service. Examples of regulatory policies include:

- the existence (or lack) of national regulations governing the nature of the content that is being distributed through mobile means;

- the existence (of lack) of restrictions governing the collection and/or storage of client data;

- the existence (or lack) of restrictions governing the dispensing of medical advice via remote means; and

- the level of legal liability an mHealth service provider takes on by participating in the above processes.

Infrastructural and capacity readiness

This refers to the broader technical environment and health system in which the service operates. The infrastructure involves factors external to the MNO and mHealth service provider, such as network coverage and strength. Determining how the service aligns with the national mHealth strategy (if one exists) is also an essential consideration for integrating the service to external systems (e.g. District Health Information Systems) and could have implications on areas of development cost.

These may be dependent on the availability of national databases containing unique citizen or patient/client identity numbers, national registries that contain patient/client information, or national electronic health records. General considerations for the infrastructural readiness include:

- the degree to which the service must comply with local or international technical standards for interoperability;

- the level of dependency on external systems for the service to be effective;

- the level of complexity involved in integrating with external systems; and

- the readiness (capacity) of stakeholders in the health system who will play a role in delivering the service.

3.2.4 Optimization of commercial terms

The commercial terms to be negotiated between the mHealth service provider and the MNO should be recognized at the start to establish clear expectations of the partnership. While there are many different business models within

mHealth, they typically operate on a principle of revenue sharing between the MNO and the mHealth service provider (see Box 3.2 for market rate norm). Clauses regarding exclusivity should also be considered, as they can potentially affect MNOs' ability to temporarily differentiate themselves. Agreement on these terms is crucial for avoiding possible setbacks later on during implementation. These terms relate to:

- the principles for revenue sharing between the mHealth service provider and the MNO;
- alignment of the timing for the service launch with the product roll-out schedule of the MNO;
- exclusivity agreements between the mHealth service provider and the MNO; and
- the investment commitment both from the mHealth service provider and the MNO (whether direct or in-kind via discounts on tariffs).

3.3 Mobile network operators or mobile aggregators?

One last important point for mHealth service providers to consider is whether direct engagement with MNOs is the most effective means of accessing the mobile assets they need. Mobile aggregators – intermediaries who have made a business out of interfacing with all the MNOs in each individual country – are a feasible alternative in some cases.

Using aggregators allows the mHealth service provider to access all of the subscribers of all the MNOs in a country through a single technical interface point, without having to negotiate common short codes. These aggregators can also provide reporting across different MNOs, and have a certain amount of technical capability to provide custom solutions. However, they tend to be limited to core connectivity services and will charge a markup above operators' base tariffs.

If cost is an issue, as is often the case, the mHealth service provider may have to revert to negotiating tariffs and short codes with individual MNOs, having multiple technical interface points, and potentially being able to reach only the subscribers of the partner MNO(s). Direct relationships with MNOs may provide opportunities for broader partnerships to make effective use of other MNO assets. This may be a better option in cases where the mHealth service provider is interested in developing a strategic relationship with a dominant MNO that has a majority share of the market.



Example: Aggregator or MNO? Short codes in Malawi

A recurring question in assessing appropriate partners for mHealth projects is whether to select an MNO or aggregator; each type of partner has specific drawbacks and advantages. In Malawi for example, it is easier to get short code and setup a reverse billing mechanism (where users are not charged airtime) with an MNO because the companies have physical offices in the country, allowing for direct contact in negotiating and persistent engagement. The disadvantage, however, is that users who obtain a short code through one MNO cannot use the reverse billing feature with a different provider. This may restrict the user base, as airtime will be deducted from subscribers outside of the negotiate network every time they try to send a message to the short code. On the other hand, the advantage with aggregators is that the short code they create allows users from any MNO to send messages free of charge. However, as there are currently no aggregators based in-country, not having this physical presence can delay the time for setting up short codes and negotiated services.



Example: Operational drivers in action – Mobile Kunji in Bihar

As part of a broader programme targeted at accelerating health outcomes in maternal and child health in the state of Bihar, India, BBC Media Action has rolled out a series of mHealth education initiatives directed at mothers and families and also at community health workers (CHWs), to help them communicate with mothers and families. All of these mobile services run on a mobile technology platform owned and supported by OnMobile Global Limited, and all use an open-source software called MOTECH, which has been customized for the Bihar programme in collaboration with the Grameen Foundation and ThoughtWorks, Inc. (7). The GSMA provided guidance and support during the initial design phase.

The services for CHWs have experienced runaway success, with adoption rates exceeding initial projections. The model of collaboration with MNOs is also sustainable. Although significant discounts were negotiated on the tariffs to make one service affordable for CHWs, as well as a toll-free tariff affordable to the government for another service, the tariff still covers the MNOs' operating costs while allowing them to reap the benefits of having a long-term, regular, meaningful relationship with their rural subscribers, as well as the intangible benefits and good will arising from involvement in the programme.

Content: The content was tailored for the target market, with regard to local languages and cultural appropriateness. In addition, it was extensively field-tested to optimize effectiveness and adoption.

Technology: The mHealth software (MOTECH), which had experienced successes elsewhere in Africa and Asia, was adapted specifically to the needs of the project and also integrated with and supported by a major content aggregation partner, OnMobile, which has existing integration with all the major MNOs. This significantly reduces the integration risks for MNOs and, as a result, also reduces overall costs.

Relationships: The mHealth service is part of the larger Ananya programme, funded by the Bill & Melinda Gates Foundation, in partnership with 10 other implementing partners and the state government of Bihar. This gives the service broad credibility, which improves the viability of the service for participating MNOs.

Implementation experience: In addition to the BBC's recognized global expertise and brand in the area of content development, the BBC Media Action team involved in this service had also previously implemented BBC Janela, a successful and commercially sustainable English language course delivered using mobile phones, which was deployed in Bangladesh.

Funding: With funding for initial research and development, content development, and a portion of initial operating costs covered, the service was able to demonstrate the effectiveness of the programme to local government, paving the way for longer-term public sector financing. This reduces the time and risks involved for the MNO in bringing the service to the market, and improves the chances for overall long-term sustainability.

Infrastructural and capacity readiness: This project is a good example of how efforts can be devoted to mHealth education for beneficiaries (i.e. mothers and families) as well as building the capacity of the health system to deliver health education by including an initiative to improve the communication skills of CHWs.

Commercial terms: A market adoption model was produced during the course of engagement with MNOs. The model shows how operators will be able to cover their operating costs, based on a variety of adoption scenarios.

The combination of the above drivers enabled BBC Media Action to obtain significantly discounted tariffs on the required connectivity, while preserving the financial viability of the service for participating MNOs and thus strengthening the value proposition of the partnership for both parties.

4

Summary of MNO engagement framework

The MNO engagement framework summarizes the key points of the engagement framework and the proof points that are required to support a partnership proposal, both in terms of evaluating the service as well as evaluating the value proposition of the mHealth service provider. It addresses two critical questions at the root of negotiating the engagement: the value the mHealth

service adds to the MNO, and the assets each party brings for the collective gains within the partnership. For each of these questions, the key motivators (drivers) are listed in Table 3, along with the ways each driver demonstrates and conveys those interests. The various proof points are detailed in Section 5.

Table 3: Summary of MNO engagement framework

Questions	Drivers	Proof points
What value does the service bring to the MNO?	Impact on health outcomes	Scale Burden of disease Visibility Directness of impact
	Competitive differentiation	Scope for differentiation Impact on core operator metrics
	Effective use of existing MNO capabilities	Relationship of operator capabilities with service
	Diversification of revenue streams	Potential for generating new business Re-usability of innovation Source of innovation
What value does the partnership bring to the service?	Assets that the MNO brings	MNO assets Core connectivity Core support infrastructure Business infrastructure Funding
	Assets that the mHealth service provider brings	mHealth service provider assets Content Technology Implementation experience Relationships and credibility Support Regional coverage Funding
	Minimization of external implementation risks	Regulatory environment Infrastructural and capacity readiness
	Alignment of commercial terms	Investment from operators / health partners Revenue share Exclusivity Alignment of launch timelines

5

Proof points

The questions raised in Section 3 are linked to “proof points”; these are lists of questions for mHealth service providers that can form the basis of a concise and comprehensive partnership document. Specific issues that highlight how an mHealth service is aligned with the objectives of MNOs are encompassed in the following proof points. Understanding these points will ensure that mHealth service providers focus on the most relevant concerns when presenting and discussing the proposed service and partnership with MNOs. A particular mHealth service may reflect any combination of these points, which are all indicators of the potential visibility of the health problem and how the service is perceived to affect it.



1. Demonstrating impact on health outcomes

Scale of the health problem:

What percentage of the country’s total population is currently directly affected or at risk of being affected by the health condition? (i.e. the target population for the service)

How large is the target population? (i.e. number of people)

At what rate is this target population growing?

Burden of disease:

How serious is the health problem for those affected?

Is it a chronic or acute health problem?

Does it lead directly to mortality?

How expensive is the disease burden in terms of cost to the health system?

What is the average amount spent on the disease by the health system, per affected person?

Visibility of the health problem:

Is the general public aware of this health problem?

Is the general public concerned about this health problem?

What level of interest is there in this health problem from the national government and the international public health community, in terms of programmes, policies and funding mechanisms?

- Is this health problem a priority for the national government?
- Which government initiatives does this service align to?
- Is there international interest in this health problem?

Directness of the service's impact:

Does the mHealth service have a direct impact on the specific health problem?

Is the service just one among many other interventions that need to be in place in order to have an impact on the health problem?

Are there other implementers working on a similar programme for potential for partnerships?



2. Scope for competitive differentiation for the MNO

What similar services currently exist in the marketplace and who operates them?

How many similar services are there?

How will this mHealth service be marketed?

- What is the proposed branding for the service (name, tagline, brand proposition)?
- How visible will the MNO's brand be in the overall branding of the service?

Will the service enable the MNO to differentiate itself or keep up with competitors? Please elaborate.

Will this service attract new customer segments that are not currently targeted by the operator?

- What primary customer segment is targeted by this service?
- What secondary customer segments are targeted by this service?

Will this service help keep customer segments from switching to other mobile networks (i.e. will it improve customer loyalty)?

What elements of the mHealth service encourage the customer to stay with the MNO?

What is the current geographical presence/reach of this service (i.e. states/districts and facilities, if applicable)?

What is the expected uptake/increase in volume of usage for current and/or new customers with the addition of this mHealth service?

What is this customer segment's⁴ willingness to pay for this service?

Will the MNO be able to charge more for this service based on the segment's willingness to pay?

Does the service offer a clause regarding exclusivity,

⁴ This may not necessarily be the end beneficiary of the service, but a third party who is willing to pay for the service (e.g. an international health NGO or the government).

which will allow the MNO to temporarily differentiate itself, thereby obtaining a first-mover advantage in the market?⁵



3. Potential to effectively use existing ICT capability

Which existing MNO capabilities (e.g. billing, call centres, customer relationship management, support systems) does the mHealth service depend on?

What would the projected usage be across each of these required capabilities?⁶



4. Potential for generating new business

What new, non-traditional customer segments⁷ (or potential payers) will be developed as part of this mHealth service?

What is the anticipated direct effect on revenue of the new customer base that will be acquired through the launch of the service (i.e. revenue per user multiplied by the number of new active users)?

Re-usability of existing innovation

- To what extent can the service be adapted to other health areas?
- What are the components of this service that would need to be adapted if the service were to be implemented in other countries?
- What are the features of this service that would need to be adapted if the service were to be replicated in other sectors (e.g. agriculture, education)?
- To what extent can the service be adapted and partnered with other mHealth services?
- What is the size of the new customer base and what are the projected new revenue streams associated with this new customer base⁸?

⁵ From the perspective of an MNO, there is inherently more value in a service that can only be offered by one operator – even if it is for only a limited period of time – because it allows the operator to acquire new customers.

⁶ There are some capabilities that are unique to operators (e.g. the provision of mobile connectivity), and others that can possibly be carried out by other players (e.g. systems integration and cloud services).

⁷ "Traditional customer segments" are defined here as individual consumers who buy voice, data and text in either the pre-paid or post-paid business model.

⁸ It is unusual for MNOs to expect a realistic full projection of new revenue streams from potential partners. However, it will help to provide realistic fact-based assumptions and use them as a basis for a joint effort to co-develop a business case.

Source of innovation/capability

What are the proprietary and unique components of the service (e.g. technology, content, process)?

Who owns the intellectual property?



5. MNO assets

Which core operator assets are required for the mHealth service (i.e. text, voice, data)?

Which portions of operator business infrastructure are required for the service (e.g. brand, marketing, distribution, business and regulatory relationships)?

What type and level of operator funding and resource commitment is requested for the service (e.g. direct investment, equity investment, and/or in-kind contributions, such as content, services, technology and discounts)?



6. mHealth service provider assets

What content will be delivered by the health partner?

To what degree has the content been adapted for specific (local) target groups?

To what extent has the health content been validated, both clinically and culturally?

To what degree can the health content be adapted for other markets in which the MNO is located?

Does the health partner have the capability to keep the content up to date and relevant (if appropriate)?

What is the technology platform being offered?

To what degree can the technology be applied to different use cases and regions?

How easy will it be to customize this technology to different use cases and regions?

What is the level of readiness and ease of integration and interoperability with the MNO's current core technology or partner system?

To what extent has the technology been tested and validated in the field?

What is the potential for adaptation of the technology for use in other sectors, such as education and agriculture?

What credibility and relationships does the health partner bring?

What are the stated commitments from key public sector stakeholders in the health community? Who are these stakeholders?

What implementation experience (e.g. how many years) does the health partner have with this or similar mobile solutions (in the country in question, or in another country)?

What support capability does the health partner bring?

Does the partner bring in-kind support and/or external funding that will contribute to the initial start-up or the ongoing sustainability of the project?



7. Regulatory environment

What is the prevailing regulatory environment within which the project will operate?

Are national regulations governing the nature of health content distributed through mobile means?

Are there restrictions governing the collection and/or storage of client data?

Are there restrictions governing the dispensing of medical advice via remote means?

What is the level of legal liability a service provider assumes by participating in the above processes?



8. Infrastructural and capacity readiness

What are the external dependencies of the project on national infrastructure and capacity of the health workforce?

To what degree does the service comply with (or need to comply with) local or international technical standards for interoperability?

To what extent does the service depend on external systems in order to be effective?

How much complexity will be involved in integrating with those external systems, such as a national health system like the District Health Information Systems? Please specify which external systems.

What is the level of readiness (capacity) of the stakeholders in the health system who will play a role in delivering the service?

Optimization of commercial terms

What are the principles for revenue sharing between the mHealth service provider and the MNO?

Is the timing for the proposed launch of the service in alignment with the MNO's own product roll-out schedule?

6

Other relevant tools

This guide is part of a larger suite of resources that may prove helpful to the mHealth community (including MNOs, health organizations and mHealth developers) to assess mHealth opportunities in specific countries and to evaluate potential partnerships. These other resources, comprising both analytic frameworks and live databases, enable users to investigate opportunities at the global, country and/or service level. A few of the prominent resources are listed below.

mHealth repositories

There are a number of databases and online resources for curating mHealth projects globally. These repositories may be useful in identifying other implementers for potential partnerships.

mHealth deployment tracker is maintained by the GSMA and provides information related to mobile business opportunities for mHealth products and services globally.

(www.gsma.com/connectedliving/tracker)

mRegistry.org is a collaboration between WHO, the UN Foundation, the United Nations Children's Fund and Johns Hopkins University Global mHealth Initiative, and targets government decision-makers through its repository of mHealth strategies related to reproductive, maternal, newborn and child health.

(www.mregistry.org)

mHealth Database was developed by the United States Agency for International Development (USAID) and African Strategies for Health to store information on mHealth projects and facilitate searches based on geographic location, specific health areas or problems, and important results or evaluation findings.

(www.africanstrategies4health.org/mhealth-database.html)

ITU Global eHealth Projects Repository is a joint effort between the International Telecommunication Union (ITU) and WHO to collect and make available information on validated, operational eHealth projects that demonstrate the effective use of ICT for health.

(www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Pages/gehealthprojects.aspx)

Center for Health Market Innovations (CHMI) contains a database of over 1400 innovative health enterprises, non-profit organizations, public-private partnerships and policies.

(www.healthmarketinnovations.org)

Online resources

These online resources provide practical links to reports, data and implementation guidance for various types of mHealth deployments. These platforms should be consulted to obtain relevant data to inform the intervention, as well as to establish professional networks.

Mobile for Development Intelligence collects quantitative source data as well as rich deployment data from both the mobile industry and the health industry globally, which can then be compared online or extracted for further analysis.

(<https://mobiledevelopmentintelligence.com>)

mHealthKnowledge.org is the flagship programme of USAID for mHealth communication and is managed by K4Health to curate and disseminate high-quality resources for the field. The online portal includes resources related to evidence and research, capacity-building, project repositories, tools and planning guides, and blogs.

(www.mHealthKnowledge.org)

mHealth Working Group provides networking and joint learning opportunities for mHealth implementers globally. The online forum has representatives from over 80 countries and comprises a broad membership including global health practitioners, MNOs and aggregators, academia and technology vendors.

(www.mhealthworkinggroup.org)

Analytic frameworks and publications

mHealth service providers can obtain further guidance and examples of developing business models and value chain analyses for mHealth from the following publications. These resources should be explored when developing a business case or articulating the financing mechanisms for sustaining the mHealth service.

Sustainable financing for mHealth (Vital Wave Consulting/mHealth Alliance).

This publication answers the following questions: (a) Which aspects of mHealth are most likely to be taken up by commercial entities? (b) How will mHealth benefits be valued in the absence of commercial involvement? (c) How can donors complement government investment? (e) How can stakeholders overcome gaps to reach later stages of maturity for their mHealth service? and (e) What can we learn from current financial models in mHealth?

(www.vitalwaveconsulting.com/insights/articles/2013/Sustainable-mHealth.htm)

m-Enabled inclusive business model: applications for health (Monitor Group).

This publication identifies mHealth business models that enable enterprises to successfully engage with poor people in Africa, primarily in Ghana, Kenya, Senegal, South Africa and the United Republic of Tanzania. Presenting four case studies on m-enabled solutions and 10 lessons for consumer-oriented and systems-oriented mHealth projects, the primer shows that businesses targeting the poor in all sectors are still in their infancy, and that much can be learnt about how they work, why many struggle, and why so few succeed.

(www.shopsproject.org/resource-center/menabled-inclusive-business-models-applications-for-health)

7

Conclusion

The nuances of partnerships between public and private stakeholders have been tackled across numerous sectors. However, there is a continued need to explore the strategies and mechanisms for developing a shared value proposition between the mHealth service providers and MNOs. Although there are a host of opportunities for engaging with the mobile industry, mHealth service providers face many hurdles to developing fruitful engagements. Based on discussions with both global health practitioners in mHealth and the MNO community, this document has laid out various pillars fundamental to establishing these public–private partnerships. These pillars include an understanding of how to position the mHealth service in ways that can align with the MNO's interest, as well as developing a partnership in which both parties' assets can work synergistically for a greater combined output. In working through this process, this guide outlines the critical considerations that an mHealth service provider must take into account and details the related questions in a series of proof points.

This document also highlights the fact that engagement processes differ based on resources, context and capacity. Situations may arise in which the partnership may not result in the expected gains, in which case service providers may seek to collaborate with other parties such as aggregators. Additionally, the rapidly changing mobile industry ecosystem requires careful consideration of other emerging trends in the development sector. As such, it is important to view the engagement with the MNOs in the context of the rise of the mobile-for-development sector – including, among others, mobile money, mobile agriculture and mobile education – as well as the implications for new service additions in the health sector.

As the field of mHealth continues to mature with a heightened focus on scale, it is also important to note elements that may further differentiate and contribute to mHealth services' sustainability. This can include factors such as the service's adaptability to new health domains and its extension into new sectors such as mobile agriculture, mobile banking and mobile learning. As mHealth service providers cross this next frontier of the mHealth field, it will be important to reflect and adjust to the motivators, challenges and lessons that can be learnt through the continuous and tenuous process of public–private partnership for mHealth.

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