The MAPS Toolkit

mHealth Assessment and Planning for Scale

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Cover photo: Nurse using D-tree International eNutrition application attending to a malnourished child in Zanzibar.
Credit: HRP/Mark Leong

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Foreword

We are proud to present this mHealth Assessment and Planning for Scale (MAPS) Toolkit to help advance discussions on how to scale up mobile health (mHealth) innovations and maximize their impact on outcomes for women's, children's and adolescents' health.

To mobilize global commitment and spur progress towards the Millennium Development Goals, the United Nations Secretary General Ban Ki-moon launched the Global Strategy for Women's and Children's Health in 2010. The Strategy called all partners to action, resulting in the unprecedented movement *Every Woman Every Child* (EWEC), which generated hundreds of financial, policy and service delivery commitments from governments, civil society, donors, and the private sector. Innovation was among the key areas highlighted in the Strategy where action was urgently required. The EWEC Innovation Working Group (IWG) has been instrumental in taking this agenda forward, not least by supporting the adoption and scaling up of mHealth solutions that strengthen the availability of essential health interventions that save women and children's lives.

The ubiquity of mobile technology in low- and middle-income countries has triggered an unprecedented investment in mHealth tools that are designed to enhance clinical decision support, measurement and accountability, and strengthen the coverage and quality of life-saving interventions. Established by the Government of Norway in 2011, the IWG Catalytic mHealth Grant Mechanism has played an instrumental role in supporting such mHealth innovations. Through a collaboration between the United Nations Foundation and the World Health Organization, the grant mechanism has offered both financial resources and technical assistance to support the scaling up of these innovations across 15 countries.These grantees should be proud of the contributions they have made to building an evidence base, expanding the dynamics of partnerships with both governments and the private sector, and delivering impact.

Over the past four years, this Toolkit has benefited from the insights gathered through these pioneering mHealth projects. The Toolkit harnesses the learnings that the IWG Catalytic mHealth Grant Mechanism has contributed to scaling up mHealth innovations and maximizing their impact on women's, children's and adolescents' health.

The Toolkit arrives at a critical juncture, coinciding with the launch of the renewed Global Strategy for Women's, Children's, and Adolescents' Health. As we transition from the Millennium Development Goals to the Sustainable Development Goals, digital innovations will need to play an even greater role in meeting the commitments to improve the well-being of women, children and adolescents globally.

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The MAPS Toolkit was developed by Jessica Rothstein and Tigest Tamrat, with guidance from Garrett Mehl, WHO, and Alain Labrique, Johns Hopkins University Global mHealth Initiative (JHU-GmI), with technical input from Patricia Mechael, UNF; Francis Gonzales, UNF; Carolyn Florey, UNF; Marion McNabb, Pathfinder International; Barbara Birch Lamphere, John Snow, Inc. (JSI); Nicki Ashcroft, Institute of Reproductive Health (IRH); Amnesty LeFevre, Johns Hopkins School of Public Health (JHSPH); Courtney Chang, JHSPH; and James Bon Tempo, Johns Hopkins University Center for Communication Programs (JHUCCP).

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Executive summary

The mHealth Assessment and Planning for Scale (MAPS) Toolkit is a comprehensive self-assessment and planning guide designed to improve the capacity of projects to pursue strategies that increase their potential for scaling up and achieving long-term sustainability. MAPS is designed specifically for project managers and project teams who are already deploying an mHealth product, and who are aiming to increase the scale of impact. External parties seeking to understand the maturity and value of mHealth projects may also find value in using the Toolkit jointly with projects.

The Toolkit covers six major areas (referred to as the "axes of scale") that influence the scaling up of mHealth: Groundwork, Partnerships, Financial health, Technology & architecture, Operations, and Monitoring & evaluation. The axes of scale reflect the key concerns, activities and decisions that relate to these six areas.

MAPS allows users to assess where projects stand in relation to each of the axes of scale, and to track progress as activities evolve and progress. The Toolkit will help project teams to identify areas that require further attention, and then to devise strategies to overcome any challenges or obstacles to progress. MAPS is designed to be used periodically at several time points throughout a project's trajectory, guiding projects through an iterative process of thorough assessment, careful planning and targeted improvements. These steps facilitate successful scaling up of mHealth products.

Acronyms and abbreviations

AeHIN	Asia eHealth Information Network
ANC	antenatal care
ANDH	African Network for Digital Health
API	application programming interface
CBO	community-based organization
CHAI	Clinton Health Access Initiative
DFID	Department for International Development (United Kingdom)
DHIS	District Health Information Software
eHealth	electronic health
eLMIS	electronic logistics management and information system
GPRS	general packet radio service
GPS	Global Positioning System
GSMA	Groupe Speciale Mobile Association
HIPAA	Health Insurance Portability and Accountability Act
HIS	health information system
HIV	human immunodeficiency virus
HL7	Health Level 7 (data standard)
HMIS	health management information system
HRIS	human resource information system
HRP	The UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction
ICD	International Classification of Diseases and Related Health Problems
ICT	information and communication technology
IICD	International Institute for Communication and Development
INN	International Nonproprietary Name
IRD	Interactive Research and Development
IRH	Institute for Reproductive Health (Georgetown University, United States of America)
ISO	International Organization for Standardization
ITU	International Telecommunication Union
IVR	interactive voice response
IWG	Innovation Working Group
JHUCCP	Johns Hopkins University Center for Communication Programs
JHU-GmI	Johns Hopkins University Global mHealth Initiative
JSI	John Snow, Inc.
KEMRI	Kenya Medical Research Institute
LMICs	low- and middle-income countries
LMIS	logistics management and information system
m4RH	Mobile for Reproductive Health
M&E	monitoring and evaluation
MAMA	Mobile Alliance for Maternal Action
MAPS	mHealth Assessment and Planning for Scale
mHealth	mobile health
MNCH	maternal, newborn and child health
mNDCC	mobile Nutrition Day Care Centre (India)
MNO	mobile network operator
MOH	Ministry of Health
MOTECH	Mobile Technology for Community Health (Ghana)
MoU	memorandum of understanding
MOHSW	Ministry of Health and Social Welfare (United Republic of Tanzania)
N/A	not applicable
NGO	nongovernmental organization
Norad	Norwegian Agency for Development Cooperation
OCL	Open Concept Lab
OpenHIE	Open Health Information Exchange
OpenSRP	Open Smart Register Platform
PMNCH	The Partnership for Maternal, Newborn & Child Health
PMP	Performance Monitoring Plan
RE-AIM	Reach Effectiveness Adoption Implementation Maintenance
RMNCH	reproductive, maternal, newborn and child health
SAQ	self-assessment question
SERP	Society for the Elimination of Rural Poverty (India)
SMS	short messaging service (also known as text messages)
SNOMED CT	Systematized Nomenclature of Medicine – Clinical Terms
SOP	standard operating procedures
TextIT	Texting to Improve Testing (KEMRI programme)
TCO	total cost of ownership
TWG	Technical Working Group (Rwanda)
UNDP	United Nations Development Programme
UNF	United Nations Foundation
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USSD	unstructured supplementary service data
WHO	World Health Organization
Wi-Fi	wireless local area network

Key terminology

Architecture: A description of how the different pieces of a technology and/or information system work together.

Champions: Charismatic opinion leaders who advocate for a particular programme, policy or technology. Champions are characterized by their "passion, persistence, and persuasiveness".[1]

Client beneficiaries: The individuals who benefit from improvements in health as a result of a given mHealth product.

Core partners: Those partners that are essential to the pursuit of the project's endgame. For example, government adoption calls for close partnering with the ministry of health or other government entities, while commercial adoption' will require projects to place a stronger emphasis on private sector partners, such as a mobile network operator (MNO) or technology vendors.

Data dashboard: A user interface that organizes and presents information and data in a way that is easy to read. User-friendly dashboards facilitate real-time system tracking and decision-making.[1]

Data dictionary: A description about a data set that details features such as meaning, relationships to other data, origin, usage, and the format of specific data elements.[2]

Data privacy: The capacity to guarantee that patients' personal data will be protected against intentional and unintentional exposure.[2]

Data quality assurance: Mechanisms for evaluating data within the mHealth system for inconsistencies, errors or missing elements.[2]

Data standards: Methods, protocols, terminologies and specifications for the collection, exchange, storage and retrieval of information associated with health-care applications.[3]

eHealth: The use of information and communication technologies in support of health and health-related fields.[4] mHealth is a sub-domain within eHealth.

Formative research: The use of primarily qualitative research methods to inform the development of effective intervention strategies. Formative research helps programme planners and researchers understand the factors that influence health outcomes, including the traits of target populations, such as their behaviours, attitudes and needs, in order to develop mHealth products that are appropriate to a particular context.

Hardware: Any physical device that people are able to touch, such as a mobile handset, tablet, sensor or computer monitor.

Health system constraints: The specific challenges and barriers that impede optimal health promotion, prevention and care.[6] Constraints take the form of failures in availability, cost, efficiency, quality, utilization, information and/or acceptability that impede optimal provision of specific health interventions.

Implementers: Individuals that are involved in the development and deployment of an mHealth product.

Information and communication technology (ICT): The integration of information systems, telecommunications systems, and components of a system related to the capture, storage, retrieval and transmission of data.[2]

Interoperability: The ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged.[7] Interoperability is enabled by the use of common data standards.

Latency: The amount of time or delay for data to travel from the source (mobile device) to the data centre. Latency, along with bandwidth, determines the speed of a network connection.

mHealth strategy: The application of a technology for a defined health purpose (e.g. text message to deliver messages for antenatal care follow-up) in order to address specific health system challenges.

Mobile aggregator: A company that serves as an intermediary

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