

# Strategic Partnerships in e-Health in Low and Lower Middle-Income Countries in Africa

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**Abstract:** Strategic partnerships are very important for the successful deployment of e-health as they play a crucial role in achieving common goals and creating an added value for the involved partners. In this paper, we will provide relevant information about strategic partnerships in e-health deployment in four African countries, namely Ethiopia, Ghana, Malawi, and Tunisia. A Partnership Assessment Tool is developed to analyze different aspects of partnerships and classify them. According to the analysis, 11 partnerships were strategic amongst the 15 identified. Findings analysis also shows that certain aspects, mainly sustainability, have to be enhanced to guarantee the impact of partnerships after the ending of its actions. Increased governmental support is required in addition to international funding resources to the successful deployment of e-health in the participating countries.

**Keywords:** e-health, strategic partnerships, international cooperation, Partnership Assessment Tool

## 1. Introduction

The use of e-health is increasing in applied research especially after the COVID-19 pandemic, where the exploitation of ICTs in the health and care services is needed more than ever [1-3]. As e-health is an interdisciplinary area, collaboration and partnerships at local and international levels are crucial. Furthermore, partnerships are highly recommended for the success of the organization's goals and initiatives [4]. Particularly, in Low and Lower Middle-Income Countries (LLMICs), partnerships with international funding bodies or cooperation organizations can provide financial resources, technical expertise, and networking. To make sure that partnerships create added value for the involved parties, it is important that they are formed strategically based on strategic objectives and working program.

The term partnership and related terms such as collaboration, coalition, network, task group, work group, cooperation, and others, are used to describe a wide variety of relationships and structures. For the purposes of this study, partnership refers to *a group of organizations with a common interest that agree to work together toward a common goal*. A successful partnership should be able to bring together different actors who share a common vision and pursue compatible targets to effect change in collaborative actions [5]. The combination of the terms "partnership" and "strategic" introduces a question of priorities in the implementation of joint actions. For instance, Health Systems Global, which is a global membership organization

for researchers, decision-makers, and implementers, supports R&D activities and knowledge transfer at the international level [6]. This also places emphasis on long-term relationships and their stability [7].

The present study is designed under the BETTEReHEALTH (BeH) project, which studies the human, technical and political factors for better coordination and support of e-health in LLMICs in Africa. Evidence and mapping of existing resources was undertaken to inform the successful deployment of e-health. Starting with identifying and analyzing the lacking aspects that need to be enhanced, strategic partnerships in e-health in Ethiopia, Ghana, Malawi and Tunisia will be involved in the next BeH project actions to achieve three main goals:

- Building the basis for cooperation and deployment of e-health in LLMICs in Africa, in particular the partner countries of the project,
- Coordinating and supporting the effective use and further development of existing strategic partnerships on e-health deployment at national and international levels,
- and developing and enhancing existing strategic partnerships on e-health.

Identified strategic partnerships will be involved in designing the e-health policy roadmap with the other stakeholders through subsequent planned activities.

In this paper, the evaluation of identified partnerships results of 11 strategic partnerships involving Ministries of Health (MoH), international funding organizations, universities, and companies are presented. Although these partnerships present many strengths, they are still lacking in some aspects, namely, sustainability and ability to growth according to the findings analysis.

The remainder of this paper is structured as follows; section 2 explains the study methodology, including the identification and contact activities and the developed tool to assess partnerships. Section 3 presents the findings, i.e., the identified strategic partnerships in the four African countries. Results analysis is performed in section 4, in particular, the lacking aspects of partnerships were analyzed. Finally, section 5 presents the conclusion of the study.

## 2. Methodology

Identifying partnerships in LLMICs in Africa is a fundamental and primary step to build the basis for cooperation and deployment of e-health. To do so, four regional hubs covering the different regions of the African continent are established; Tunisia represents North Africa, Ghana represents East Africa, the Central-Western Africa hub is based in Ethiopia and the Southern Africa hub is based in Malawi. Data collection has been performed in the four participating countries to identify existing partnerships in e-health at the national and international levels. A tailored assessment tool has been developed to enable the evaluation of different aspects of partnerships and classify them to focus on strategic ones. As assessment will provide an insight into the partnership's strengths and weaknesses, partners can work together to improve them.

The data collection and analysis consisted of four main activities. The first activity was the identification and mapping of the existing partnerships on E-health in each African country at the national, regional, and African/International levels. The following activity was to contact existing partnerships and collect data directly from them. The final activity consisted of evaluating and classifying partnerships.

### 2.1. Mapping of existing partnerships

The study was led by the HealthTECH Cluster (Tunisia) and a working team from each partner organization was responsible for the data search in its own country: Ghana Health Services from Ghana, Jimma University and the University of Gondar from Ethiopia and HISP from Malawi. The identification and mapping actions were performed at the national, African/African/International, and African/International levels. In the first place, baseline

characteristics, which represent general and primary information regarding existing partnerships have been required. They represent key information about the partnership scope and objectives, countries/regions involved, partners, solution/service produced, target group, and type of transactions. The data collection procedure for this activity consisted of a desk/web search including reports, press articles and other grey literature sources, such as government documents, and funding organizations reports.

## 2.2. Contact with existing partnerships

Following the primary data collection and mapping of existing partnerships, further information regarding well-established partnerships is required. The working groups contacted the identified partners to collect relevant information related to well-established partnerships. Interviews and online forms were used as qualitative data collection tools. The first part of the form focused on baseline characteristics, while the second part seeks criteria evaluation based on questions and guiding notes from the developed partnership assessment tool. The PAT was developed to evaluate different aspects of the partnership, i.e. partners ownership, management procedure, equity issues, responsibilities of each partner and aimed goals.

## 2.3. Partnerships' evaluation

The final step consisted of evaluating the aggregated total scores attributed to each partnership using the PAT that will be explained in the next paragraph. Assessment criteria were set to study different aspects of partnerships and were basically categorized under '*successful partnerships criteria*' and '*strategic partnerships criteria*'. According to their scores, partnerships will be classified under three categories: developing, successful and strategic.

## 2.4. Data collection: Partnership Assessment Tool

### 2.4.1. Description

The PAT is a form that partners can complete to examine the strengths and weakness of their partnership. In relation to the BeH framework, the tool is tailored to measure key performance indicators of e-health partnerships. The developed PAT was inspired by previously developed works [7-9] and comprises four main elements (see Table 1): **criteria, guiding notes assessment questions and evaluation**. For the scope of the present study, criteria were defined to assess '*successful*' and '*strategic*' aspects of partnerships. Guiding notes that provide explanations of each criterion are also provided in the PAT. Answers to the assessment questions can help diagnose and fix certain gaps at the organizational or work program levels of partnerships [7]. If corrective measures are taken, the partnership will be increasingly successful. The evaluation also helps partnerships that are experiencing difficulties to identify areas that need improvement and to move towards a remedial action plan.

Table 1: PAT template

Criteria	Guiding notes	Assessment questions	Evaluation
Evaluation criteria	Guiding notes provide explanations of each criterion	Key assessment questions enable data collectors to evaluate the extent to which the partnership meets the considered criterion	Assessment and grading: Very low = 1 point Low = 2 points Average = 3 points High = 4 points Very high = 5 points

### 2.4.2. Successful partnerships criteria

The adopted criteria to assess whether a partnership is successful or not are: 1) Ownership, 2) Inclusive approach, 3) Clearly agreed responsibilities and a strong commitment, 4) Sufficient

and shared resources and exchanged information, 5) Equity, 6) Good practice in management and Transparency of decision making, 7) Clearly defined working program, 8) Good relationship and efficient communication, 9) Planned and leveraged external relations and 10) Monitoring and evaluation [7-9].

#### 2.4.3. *Strategic partnerships criteria*

Similar to successful partnerships criteria, strategic partnerships criteria are also defined. The adopted criteria are: 1) Clearly formulated strategic objectives, 2) Sustainability, 3) Resilience, 4) Ability for growth, 5) Support of innovation and 6) Support of exchanging best practices [7-9].

#### 2.4.4. *Assessment and grading*

In order to extract strategic partnerships, the following scores were calculated: ‘successful criteria’ average score, ‘strategic criteria’ average score and total average score. Partnerships’ classification is done according to the following threshold:

The partnership is *developing* if its total average score is less than 2.5,

The partnership is *successful* if its total average score is included in the interval 2.5 - 3.5,

The partnership is *strategic* if its total average score is equal to or greater than 3.5.

### 3. Findings

Following the data collection activities, 15 mature partnerships have been identified and assessed in the partner African countries, and distributed as follows: 3 from Ethiopia, 5 from Ghana, 4 from Malawi and 3 from Tunisia. Each criterion was assigned a score based on its assessment (very low-very high) and the average total scores were calculated. The assessment and grading of these partnerships were performed to select the strategic ones that have a total score equal to or greater than 3.5. Amongst the identified partnerships, 11 of them were strategic: 3 from Ethiopia, 3 from Ghana, 3 from Malawi and 2 from Tunisia.

The purpose of this study is to focus on the strategic partnerships. Therefore, only the baseline characteristics of strategic partnerships are presented in this paper (see Tables 3-6).

### 4. Results analysis

Based on the developed PAT, criteria assessment relative to each partnership is performed. Figures 1 and 2 present successful and strategic partnerships criteria scores of the best partnership in each country: partnership ET2 in Ethiopia with a total score equal to 4.14, partnership GH3 in Ghana with a total score equal to 4.6, partnership MW3 in Malawi with a total score equal 4.34 to and partnership TN1 in Tunisia with a total score equal to 3.66.

In Ethiopia, partnership ET1 supports digital health access initiatives. Among the evaluated strategic criteria, support of innovation has been assigned the least score that is equal to 3 (Figure 2). For partnership ET2 resilience and ability for growth is evaluated the lowest with a score equal to 3.5. Finally, within strategic partnership ET3 that supports excellence in eHealth, ability for growth has achieved the least score (equal to 3).

In Ghana, all the strategic criteria of partnerships GH1 and GH3 involving international organizations have achieved a score equal or superior to 4. For partnership GH2 involving national actors, all the evaluated strategic criteria achieved a score equal or superior to 4 except for sustainability that was assigned a grade equal to 3.25.

In Malawi, support of innovation has been rated as low (assessment equal to 2) followed by sustainability with a grade equal to 2.5 for partnership MW1. For partnership MW2, sustainability had the lowest assessment with a grade equal to 3.

Table 2 Partnerships in Ethiopia: Baseline characteristics

Part. ID	Name of partnership	Partners	Countries /regions	Year of establishment / duration	Output	Target group	Type of transaction
ET1	Digital Health access initiatives	State Ministers: policy and planning directorate Information communication and Technology directorate Digital Health Access /John Snow, Inc (USA)	Ethiopia /USA	2018-2024	Formulate Policy, strategy and directives for the application of eHealth solutions in the health system Support for the design and implementation of priority e-health projects like eMR, DHIS2, eCHIS, Telemedicine and Teleradiology	Health professionals, technical and administrative staffs in public and private facilities	Information Know-how Financial and materiel support
ET2	Capacity Building and Mentorship Program	University of Gondar, Jimma University, Addis Ababa University, Mekele Universities, Hawasa University, Harramaya University John Snow, Inc	Ethiopia /USA	2017-2021	Create connected facilities and districts Support the implementation DHIS2 and eCHIS	The MoH - Public and private facilities -Health extension workers -Communities	Experience, knowledge share support
ET3	Striving for excellence in eHealth through DHIS2 academy	University of Gondar University of Oslo University of South Eastern Norway	Ethiopia /Norway	2019	Provide technical support Train health workforce on eHealth solutions	The MoH Regional Health Bureau Collaborator/consortium universities Health workers in public facilities	Experience, knowledge share

Table 3 Partnerships in Ghana: Baseline characteristics

Part. ID	Name of partnership	Partners	Countries /regions	Year of establishment / duration	Output	Target group	Type of transaction
GH1	eclaims	Ghana Health Services / MoH, NHIA, KOFIH	Ghana Korea	2010-now	Improve claims management, including centralizing the system and the creation of an electronic claims system.	Health managers, Health care workers NHIA	Technical assistance Financial
GH2	LWEHS	Ghana Health Services /MoH	Ghana	2016-now	Provide an electronic medical record for all citizens in the country, and develop a real-time bio-surveillance system, as well as develop a patient management system which would streamline the admission, discharge and transfer system.	Health workers (Doctors, Nurses, Programs managers, Directors of Departments) working in both public and private health facilities	Technical assistance Financial Logistics

GH3	DHIMS2	Ghana Health Services /MoH WHO Ghana, USAID, University of Oslo	Ghana USA Norway	2018-now	Health Information Systems nationwide deployment Review of country e-health implementation Technical Assistance and funding support for key eHealth initiatives (deployment of DHIS2 to all 260 districts in Ghana),	Health workers (Doctors, Nurses, Programs managers, Directors of Departments) working in both public and private health facilities	Technical assistance Financial Equipment and logistics
	DHIMS2/e- tracker Mother Child health tracker HIV and TB	Ghana Health Services /MoH WHO Ghana, USAID	Ghana USA	2012-now	Availability of standard tools and indicators across partners for country-specific adaptation	Health workers (Doctors, Nurses, Programs managers, Directors of Departments) working in both public and private health facilities	Technical assistance Financial Equipment and logistics

*Table 4 Partnerships in Malawi: Baseline characteristics*

Part. ID	Name Of partnership	Partners	Countries /regions	Year of establishment / duration	Output	Target group	Type of transaction
MW1	Cooperation in e-health	GIZ MoH	Malawi Germany	2016-2023	Support for the design and implementation of priority e-health. Electronic Medical Records, LMIS, eRegister	Health professionals and Technical Staff. Health Centers Hospitals	Information Technical know- how Financial
MW2	Education, Research and Innovation in eHealth	MoH Luke International	Malawi Norway	2012-now	Education, Research and Innovation activities	Frontline Health Workers, ICT and Healthcare professionals	Education, Research
MW3	Community Case Management	Catholic relief services Dimagi Dtree	Malawi USA	-	To improve the quality of child health care at the primary level through integrated mobile decision-support tools	Community Health Workers	Information Technical Know- how Financial

Table 5 Partnerships in Tunisia: Baseline characteristics

Part. ID	Name Of partnership	Partners	Countries /regions	Year of establishment / duration	Output	Target group	Type of transaction
TN1	Essaha Aziza	MoH EC	Tunisia EU	2019-now	Improved access, quality, management, and governance of frontline services Enhancing the involvement of civil society in improving services and governance with some pilot projects in e-health	Health professionals and Frontline health establishments Civil society	Funding, training, access, to equipment, participatory collaboration at the local level
TN2	Ehealth development program	MoH FDA	Tunisia France	2020-2023	Modernization of the HIS in 15 public hospitals, implementation of 5 telemedicine projects, creation, and animation of a network around the theme of e-health	Health professionals Health establishments	Financial support

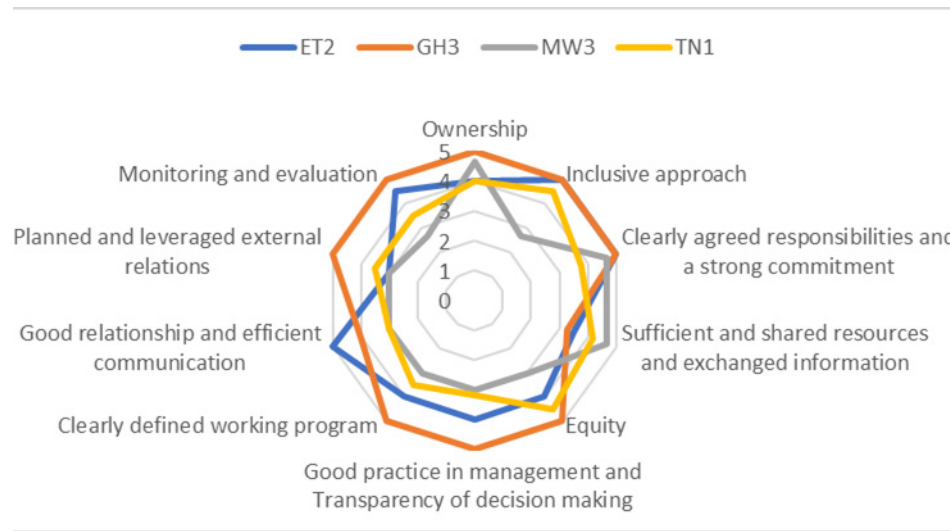


Figure 1 : Successful criteria evaluation

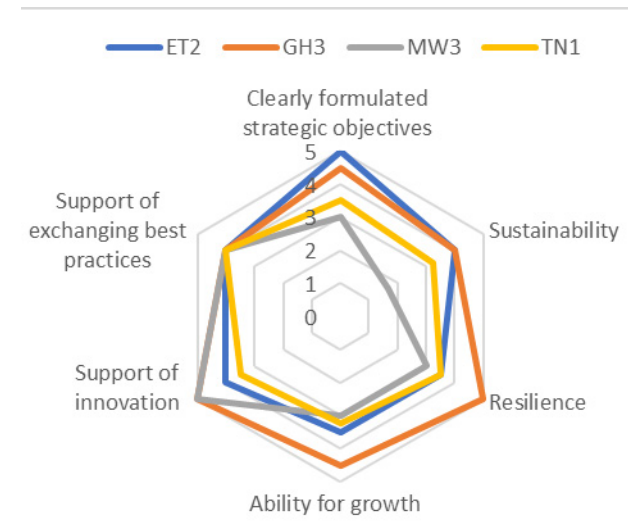


Figure 2 : Strategic criteria evaluation

For partnership MW3, all the strategic criteria achieved a high score except for sustainability which was assigned a low score (equal to 2.5) (Figure 2).

For partnership TN1 in Tunisia, among the different criteria, sustainability and ability for growth had achieved the lowest grade (Figure 3). Partnership TN2 between the MoH and the French Development Agency has achieved a score equal to 3.44 which is close to the predefined threshold and thus can be considered as a strategic partnership if certain aspects will be enhanced, in particular sustainability that was assessed the lowest (Figure 2).

Based on the performed evaluation in the four African countries, sustainability had the lowest score for 5 partnerships, ability for growth had the lowest score for 3 partnerships, followed by support of innovation that has been rated the lowest for 2 partnerships. This reflects the need of continuous funding and support of long-term impact and the setup of future plans in order to maximize the potential of these partnerships.

Furthermore, results analysis shows that almost all the strategic partnerships involve international funding organizations. It can be the WHO, a development/cooperation body (EU, FDA, GIZ, KOFIH) or an academic institution (University of Oslo, University of South Eastern Norway). Contrariwise, only partnership GH2 from Ghana represents a national partnership that is funded by the MoH amongst the strategic partnerships in the four participating countries. Also, no African/African partnership was identified. These findings show a lack of national and African cooperation in e-health deployment.

## 5. Conclusions

Through this work, we collected information about existing partnerships in e-health in the four partner countries, Ethiopia, Ghana, Malawi and Tunisia. The main objective is to enhance cooperation and support strategic partnerships in e-health deployment in LLMICs in Africa.

The analysis of the identified partnerships was followed by their classification to finally focus on strategic ones. Findings analysis shows that certain aspects, mainly sustainability have to be enhanced to guarantee the impact of partnerships after the ending of its actions. Obtained results also demonstrates the lack of national cooperation and governmental support in financing e-health projects which represent a challenge for its development in the studied countries. Thus, it is recommended that policy makers increase their support by creating fundings mechanisms and revising the regulatory framework. Based on the findings, it is also recommended that existing partnerships plan their long-term objectives and strategy to guarantee mutual benefits for both partners. The lack of funding resources in LLMICs in Africa require additional funding mechanisms to sustain partnerships.

In the upcoming BeH project activities, strategic partners along with other key actors in e-health will be involved to prepare a strategic policy roadmap for e-health development.

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