INFORMATION PAPER
on
Main eHealth activities outside of the EU

Annex 7
Main Senegal eHealth policies and activities

LIST OF ABBREVIATIONS

ACRONYM	DEFINITION
AMREF	African Medical and Research Foundation
AU	African Union
ECOWAS	Economic Community of West African States
K4Health	Knowledge for Health
PNDS	Plan National de Développement Sanitaire - National health strategy Plan
PRECIS	Programme de REnforcement des Capacités des Infirmiers et des sages-femmes - Nurses and midwives capacity strengthening program
RAFT	Réseau en Afrique Francophone pour la Télémédecine Network in French-speaking Africa for telemedicine
WAHO	West African Health Organisation

TABLE OF CONTENTS

Preamble

Object

The present document is an Annex to Joint Action to support of the eHealth Network (JAseHN) Deliverable 8.1.4 in WP8 "Report on main eHealth activities outside of the EU". It has been prepared by Norbert Paquel (external, director of Canope cabinet – France) under the control of Michèle Thonnet (Work Package leader-FRNA), then corrected and approved by the sPSC.

The objective of D8.1.4 is to observe the situation in various countries in order to better understand the development factors and main trends in the worldwide movement towards a tighter integration of ICT tools in healthcare but also to be able to initiate cooperation when advisable and possible. To that end, concrete projects have been identified as potentially interesting for eHN Member States (MS) exchanges or cooperation. These opportunities would need deeper analysis, through direct contact with experts, notably local representatives of the concerned MS or participants in EU projects.

Methodology

As explained in the main D8.1.4 document, the research was based on a desk study carried out between 2017/02 and 2017/08. It is important to note that time runs often very fast in the eHealth and mHealth domains. Accordingly, contrary to healthcare organizations and fundamental policies trends, concrete programmes and projects can change rapidly. However, if they correspond to clear needs and sustainable methods, they should not disappear. Moreover, when possible, some of the main important developments that have occurred since August 2018 have been taken into account.

Senegal: basic information on the country

Senegal is one of the most politically stable and economically dynamic African country with a GDP growth rate of 6,5% in 2015 and 6,6% in 2016. The population is 15,3 million (2016), half of which is under 18, 25% of which reside in the Dakar area.

It is a member of all main international organisations and belongs to the African Union (AU) and the Economic Community of West African States (ECOWAS).

In 2014, the country launched the ambitious "Plan Sénégal Emergeant" (developing Senegal roadmap) aiming at transforming Senegal into an "emerged country by 2035 with a supportive society and rule of law" thanks to structural economic and institutional reforms.

- I -
Health and Healthcare background

1. Elements on health situation

Senegal compares favourably to other sub-Saharan African countries as far as health and nutrition are concerned although, as in most developing countries, healthcare access remains an important issue, especially for impoverished populations or people living in remote rural areas. For every 100 000 inhabitants, there are 7 doctors and 35 nurses; for every 400 000 inhabitants, there is 1 midwife.

Poverty, lack of clean water and proper living conditions as well as illiteracy are as many obstacles to the improvement of the general health situation.

In the past decade, Senegal reached significant improvements where infectious diseases are concerned. However, the healthcare system seems ill-equipped to deal with the rise of non-communicable diseases, so called "onerous care diseases" (e.g. various cancers, mental illness, renal or heart diseases).

2. Healthcare system

The public health system is organized in a pyramidal way. Health policies are decided at the central level, which contains the minister's office and related services. The regional level or medical region implements these policies and acts as coordinator between regional healthcare structures. The peripheral level, or health district, composed of various types of healthcare centres, is the operational level.

Parallel to the public sector, many structures such as schools or big companies contribute to the country's health coverage. However, the private sector doesn't partake in public health policies and there is no official collaboration between the public and private components of the healthcare system.

The 2009-2018 Plan National de Développement Sanitaire (national health strategy, PNDS) sought to ensure universal access to quality healthcare. However, as the plan deadline approaches, the lack of pertinent data makes it difficult to evaluate its success. Critics cite lack of respect of financial and accounting procedures and of technical standards.

3. Motivations for selecting Senegal for eHealth study

A factor of stability in West Africa by its democratic tradition as well as economy, Senegal aims to be a bridge of the Western world to the countries of West Africa.

Due to its colonial past, close ties to France.

Many eHealth projects have been developed with the involvement of foreign stakeholders.

- II -
Telemedicine and eHealth development

4. Telemedicine and eHealth beginnings

Senegal has no national eHealth or telemedicine plans. Because of the nature or the healthcare system and the systemic problems it faces, telemedicine and eHealth projects are implemented directly by health actors without coordination. Most of these projects are conducted via outside cooperation by NGOs, international organizations or foreign countries.

4.1 A focus on eLearning and tele-assistance

As communication technologies became more mainstream in the late 1990s and early 2000s, telemedicine was regarded as an adequate answer to some of the specific challenges faced by African countries, mainly the lack of trained health professionals and the difficulties in accessing remote areas. As hospitals and health centres were equipped with adequate internet access, tele-assistance and eLearning thus became the focus of most of the telemedicine projects launched in Senegal at the time.

4.2 Lack of continuity of early projects

Telemedicine projects started being implemented in hospitals and district health centres in the 1990s. A 2015 Montréal University study showed occurrences of telemedicine projects in documents published between 1990 and 2013. The study counted 19 projects in the timeframe, varying vastly in scope and areas and involving a wide array of stakeholders, from foreign hospitals and universities to big corporations. The majority of these projects seems to have yielded no lasting results. This can be mainly attributed to lack of involvement of stakeholders, low funding and general lack of common national goals.

4.3 Lasting success stories

Out of these first projects, two stand out as successes still going strong: the Pan African e-network and the Réseau en Afrique francophone pour la télémédecine (RAFT - network in French-speaking Africa for telemedicine). They bear remarkable similarities: they are both the results of an international partnership (with India in one case, Geneva University in the other), they both operate on a continental level, they both focus on eLearning for health professionals, mainly via conferences provided by doctors from India and Geneva, and they are both organized around specialized local health centres. Since their beginnings in the 2000s, the two projects haven't changed much in goals or methods.

5. Second era of telemedicine in Senegal

5.1 Enduring domination of tele-assistance and eLearning

Tellingly, while they benefit from evolution in technology, most of the projects launched in the 2010s are quite similar to the Pan African e-network and RAFT. They are managed by foreign organizations, have an international reach and focus on tele-assistance and eLearning for health professionals. For instance, the African Medical and Research Foundation (AMREF)-Flying doctors eLearning PRECIS program (programme de renforcement des capacités des infirmiers et de sages-femmes - nurses and midwives capacity strengthening program) was tested in Senegal in 2014 after a request by the West African Health Organisation (WAHO). Directed towards nurses and midwives, the program aims at unifying their formation through the sub-region. Another

pan-African example and success is Médecins Sans Frontière's (MSF) telemedicine service launched in 2010 which allows field doctors to seek specialists' help on specific cases.

At the same time, the growing penetration of smart phones and tablets in the general population allowed for the development of many mobile applications. However, if some of them have found a stable economic model, like "Doctor Gratis", created by a French doctor, which operates in countries all around the globe and provides free consults for users, it is less often the case for more localized initiatives.

5.2 Enduring difficulties

Telemedicine and eHealth projects in Senegal, as in many developing countries, face two kinds of difficulties.

The first set of difficulties is specific to this kind of projects: after being internationally funded for a couple of years, the lack of renewed funding makes it impossible to yield lasting results. In most cases, no viable economic model has been found which would in return justify the continued involvement of foreign stakeholders. As part of funding difficulties, there is often no remuneration planned for health professionals involved in organizing telemedicine projects.

The other set of problems blocking the advancement of telemedicine in Senegal are the general condition of infrastructures in the country. Telemedicine and eHealth require high-speed data networks; the remote rural areas which could potentially benefit the most from this kind of practices are also usually devoid of these kinds of connections. At a more basic level, they often also lack a stable electricity supply. Another underlying factor, this time more specifically related to mHealth, is the low level of alphabetization of the population (57,7% in 2015).

6. Beginning of government involvement

6.1 Development of a national strategy

A constant obstacle to the diffusion of telemedicine in Senegal has been from the start the lack of coordination at any level, leading to a general waste of resources: similar projects unable to share resources and results, no interoperability between eHealth systems. Recognizing the need for coordination, a multi-sectorial steering committee for telemedicine and eHealth was created by a 2010 decree and effectively installed in 2012. It was supposed to organize and coordinate eHealth at the national level.

In 2014, a subcommittee, the eGovernance commission, was installed to develop a national eHealth strategy. A 2016 report commissioned by the Knowledge for Health (K4Health) Project through IntraHealth International, and supported by funding from USAID documented the development process of the national eHealth strategy. In 2015, the K4Health Project was commissioned to provide financial and technical support.

According to the K4Health report, the Senegal eHealth Strategy development process included:

- The formation of a temporary technical committee (with representatives from government and key implementing partners and donors) to coordinate the process via regular meetings;
- A desktop review of other country-level eHealth strategies and the processes through which they were developed;
- A situational analysis via key informant interviews involving government bodies, partners, and the private sector; and
- Working with stakeholders via an inclusive and participatory approach.

Main key success factors for the development of the strategy were:

- Engagement at the highest level of government
- Strong technical guidance
- Sufficient financial support

At the same time, the process broadly followed the WHO/ITU eHealth guidelines. The main differences with the guidelines were:

- A limited stakeholders involvement, with no input from the private sector, especially networks operators;
- In place of a review of eHealth strategies and projects in similar country, a survey was conducted through the country, which led to the creation of a national eHealth registry; while this is also recommended in the guidelines, it was conducted much earlier in the process than they recommended.

6.2 First results

Although a first draft of the national strategy was delivered in 2015, it is still currently being revised and has yet to be approved. The main obstacles faced by the preparation of the strategy are concerns regarding the responsibility of drafting the document, insufficient subject matter expertise among some stakeholders, poor attendance at meetings, frequent change of designated members of the ad hoc committee, and the ability to manage multiple expectations.

However, the creation during the elaboration process of a national eHealth registry, to which the government has committed continued support, is in itself an important step to enhance the development of telemedicine in the country, as it may be used as a formative tool for greater coordination. The registry includes the organizations and activities involved, information on the technology used (especially software), and the data collected.

At the same time the strategy started being prepared, a nationwide effort was initiated with the launch of the mDiabetes campaign in 2014, which was a clear signal of the political well behind eHealth initiatives. mDiabetes is a project established under "Be He@lthy Be mobile", a joint global initiative by WHO and the ITU. The initiative supports countries to set up large-scale projects that use mobile technology, in particular text messaging and apps, to control, prevent and manage non-communicable diseases such as diabetes.

6.3 Expected orientations of the national-health strategy

The priorities of the national eHealth strategy should closely align to those of the PNDS, due to end in 2018. The eHealth strategic plans will last until 2025 to extend beyond the PNDS.

The plan strategic orientations are:

1. Creation of a technical structure in charge of eHealth strategy within the Directory General for health;
2. Continued support of the national eHealth registry and up-scaling of successful projects;
3. Interconnection of deconcentrated health services with the government's Intranet project;
4. eLearning development for health professionals;
5. Computerization of patients records and creation of related technical benchmarks;
6. Development of mHealth solutions to heighten specific awareness and spread health information within the population;
7. Organizing the continuous collection and transmission of health centres data ;

8. Pooling of knowledge and competencies, creation of databases for both health professionals and the general public.

At the same time, the Government is creating a national strategy for the development of digital economy, « Sénégal numérique 2025 ». The following health-related projects are included in the strategy:

1. Creation of a national patients' records registry;
2. Creation of a universal national secure health card;
3. Development of tele-assistance (e.g. tele-diagnosis, tele-consult, tele-radiology) ;
4. Creation of a control system of counterfeit medicines;
5. Creation of an emergency help system for pregnant women and patients with severe illnesses.

- III -
Main conclusions

7. Conditions for a successful implementation of eHealth in Senegal

7.1 Great ambitions that must be afforded adequate support

It the final eHealth strategy includes the draft current orientations, the necessary involvement and support by key stakeholders must be provided.

The plan is estimated to cost around 55 millions Euros (as a reference point, the 2017 country spending is set at 5,1 billions Euros). It is at the moment unclear what financial input will support it.

The obstacles faced during the preparation of the plan will also be a hindrance to its realization; overcoming them should be regarded as an important key factor to insure the success of the plan. A stronger leadership is an essential prerequisite. At the same time, continuous involvement by stakeholders should insure that they acquire the competencies they currently lack.

7.2 Importance of a coherent national strategy

Throughout the development process of the eHealth strategy, its goals and objectives were put in line with the PNDS. It is important that it continues leaning on national health policies. Furthermore, the eHealth strategy should also be complemented by an adequate digital strategy, especially in order to address the issues of internet access in remote areas and interoperability of information systems.

7.3 Inclusion of the private sector

The private sector has been left out of the preparation of the eHealth strategy. This disregards its place and input in the Senegalese health system. Neither the eHealth strategy nor the digital economy strategy mention incentives towards the development of local mHealth apps. These apps could bring answers to specific local issues while helping to strengthen the national economy, as is the as with the successful JokkoSanté application. Launched in 2016, Is was developed by a local engineer and is supported by Orange-Sonatel; it organizes the collection of unused medicines and rewards people taking part in the project with points they can latter use to buy other medicines. The project also aims at collecting and providing data pertinent to public health.

Furthermore, working with private internet operators is a key element to reach correct nation-wide internet access: there are little incentives to develop a proper network in remote areas where little financial results can be expected. The government IT agency, Agence de l'Informatique de l'Etat (ADIE) currently supports a project aiming at installing an advances optic-fibre network through the country, but it has so far yielded little results. Involving the private sector in this undertaking, as has been the case in other countries, should be considered.

8. Good practices

Implementation of ICT in the Senegalese healthcare system, while presenting challenges and issues specific to the country, may lead to these recommendations, for cooperation with other countries and participation in Health and eHealth international programs:

- eHealth and telemedicine strategy should be considered in close relation with other national policies: especially national health policies goals and ambitions but also, in particular, with policies adopted for infrastructures and for digital economy;

- the importance of the private sector as a policy partner should not be underestimated: working with internet and communications firms is a key condition for success in installing adequate infrastructures; creating a favourable environment for the development of local mHealth projects is both a way to strengthen local economy and to bring answers to specific issues that can be difficult to identify from a national level;
- the creation and continuous maintenance of an eHealth and telemedicine projects registry is critical to allow for the diffusion of best practises and avoid loss of resources.

- IV -
Potential for cooperation

9. Main domains and axes for exchanges and cooperation

Currently, the European Union National Indicative Programme for Senegal for the 2014-20 period under the 11th European Development Fund is specifically aimed at developing regional trade through improving transport infrastructure at national and regional levels. It also promotes good governance. In addition, EU initiatives are helping to improve the supply of clean drinking water and provide project support to the sanitation sector. The Senegalese national eHealth strategy is an important first step towards more active eHealth public policies. If these show concrete results as far as public health is concerned, eHealth public programmes could be included in future cooperation.

Many mHealth apps are developed by local people responding to specific needs which may be overlooked at higher levels, like JokkoSanté *(see 7.3)*. However, other such apps have had difficulties finding a sustainable business model. Theses developpers and their apps provide a very relevant viewpoint on specific health and eHealth issues.

10. Programmes and projects

The following paragraphs use basic elements of the provisional grid described in the D8.1.4 main document (II – 12.3). There are four categories:

- Learn: the project is a rich source of information for a country confronted to similar problems or working in a similar international action
- Mutual enrichment: development of exchanges between project actors and concerned parties among eHN MS, active in similar projects in their country or abroad.
- Help and support: which can be technical, promotion, financing.
- Participation: co-construction of the project and similar ones.

10.1 Universal Access

- **AMREF PRECIS** – 2010 *(see 5.1)* - nurses and midwives' capacity strengthening program

Objective for following
Participate: depends on already existing relations with AMREF. This education and training objective is everywhere present

- **MSF** – 2010 *(see 5.1)* – Telemedicine

Objective for following
Help and support: Telemedicine is vital for developing countries aiming to a minimum universal access

- **Dr Gratis** – after 2010 *(5.1)* – mHealth Telemedicine

Objective for following
Help and support: providing support to help stabilize the financial model of the app and find a sustainable one

10.2 Education and training

- AMREF PRECIS *(see above 10.1)*

10.3 Organization

- **National eHealth registry -** 2015 *(6.2)* - Database aiming at registering all eHealth project nationwide. Includes the organizations and activities involved, information on the technology used (especially software), and the data collected.

Objective for following
Participate: the development of this type of base is envisioned in the WHO model and it includes in fact aspects that should be considered in the development of the eHN own reference platform

10.4 Products

- **JokkoSanté** – 2014 *(7.3)* – Platform for citizens based on local and circular economy, aiming at struggling against self-medication, waste of drugs and the illicit sale of drugs. *http://jokkosante.org/*

Objective for following
Help, mutual exchange and support: providing support to help start the financial model of the app and identify or develop similar tools as the problem concerns more and more critical preoccupation everywhere

10.5 International cooperation

- **Pan African Network** – 2000s (4.3)

Objective for following
Learn or Participate: depending on relations of each eHN MS with the concerned countries

- **RAFT** – 2000s *(4.3)*

Objective for following
Learn or Participate: depending on relations of each eHN MS with the concerned countries

10.6 Projects announced in the Digital Sénégal Plan 2016

Creation of a national patients' records registry;
Creation of a universal national secure health card;

Creation of a control system of counterfeit medicines;

Creation of an emergency help system for pregnant women and patients with severe illnesses.

Includes eLearning development for health professionals. Considering the success of previous similar initiatives (especially RAFT, see 4.3), this could be a key part in helping resolve the question of the shortage of qualified healthcare professionals in Senegal.

Objective for following
Help and Support.: Depending on general relation with Senegal. Differentiate programmes and projects when they are launched. Differentiate projects which correspond to known difficulties and multiple existing solutions (while innovations are possible) as Patient' record registry, Health card, eLearning and projects that confront a new threat everywhere, notably a control system for counterfeit medicine

- V -
Main sources

Judith Nguimfack Tsague, MPH
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