

**PUBLIC eHEALTH INNOVATION AND EQUITY IN
LATIN AMERICA AND THE CARIBBEAN (eSAC)**

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and

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TABLE OF CONTENTS

A Overview	p. 4
A.1 Abstract	p. 4
A.2 Abbreviations and acronyms.....	p. 4
A.3 Key definitions.....	p. 4
B Introduction and Justification	p. 6
C Theoretical Framework.....	p. 7
C.1 Definition of terms	p. 7
C.2 Hypotheses and intervention model	p. 8
C.3 Research questions	p. 9
D Methods.....	p. 10
D.1 Goal.....	p. 10
D.2 Objectives.....	p. 10
D.3 Project activities	p. 10
D.4 Results	p. 17
D.5 Project evaluation.....	p. 19
D.6 Dissemination strategy and long-term sustainability of the project.....	p. 19
E Ethical Considerations	p. 21
F Gender Considerations.....	p. 22
G Risk Mitigation Strategy	p. 22
G.1 Focus on equity	p. 22
G.2 Regional heterogeneity	p. 22
G.3 Challenges related to the CfP.....	p. 23
G.4 Promoting a virtual community of practice	p. 23
G.5 Remote mentorship	p. 23
G.6 Developmental evaluation.....	p. 24
H References.....	p. 24

A OVERVIEW

A.1 Abstract

eSAC aims at improving the health of disadvantaged groups and contributing to the advancement of equity in health in Latin America and the Caribbean (LAC), by nurturing and promoting Public eHealth innovation. The project will create a fertile environment for innovation by using an integrated approach that will: introduce various types of incentives; support communication and networking activities; offer capacity development opportunities; assess the applied value of solutions based on information and communication technologies (ICTs) addressing priority public health challenges in the region; and inform and sensitize policy makers. The development of eSAC's integrated approach has been informed by three fundamental hypotheses, notably that in the LAC region: 1) most stakeholders in the field of public health do not understand well enough the potential of new ICTs to be able to envision and conceptualize innovative and appropriate applications; 2) the lack of a supportive environment to promote interactions among stakeholders results in limited opportunities to stimulate creative competition; and 3) the lack of clear and meaningful incentives to promote intellectual investment results in little attention being given to the role of ICTs in public health. eSAC's integrated approach will offer the opportunity to explore these hypotheses while contributing to breaking down the silos that often exist in interventions aimed at promoting eHealth. Central to eSAC's model will be the work of a small network of highly educated and motivated young professionals who will be supported to catalyze the development of a regional community of practice and to provide necessary assistance to most project activities.

A.2 Abbreviations and Acronyms

CfP	=	Call for Proposal
DE	=	Developmental Evaluation
eSAC	=	Public eHealth Innovation and Equity In Latin America and the Caribbean
GOe	=	Global Observatory for eHealth
ICTs	=	Information and Communication Technologies
IDRC	=	International Development Research Centre
LAC	=	Latin America and the Caribbean
LMICs	=	Low- and Middle-Income Countries
PAHO	=	Pan-American Health Organization
PWR	=	PAHO/WHO Representative
UofT	=	University of Toronto
YP	=	Young professional

A.3 Key Definitions

Community of practice: network of people sharing interest and professional responsibilities in public health who interact to exchange ideas, learn from each other, professionally develop

themselves, come together to challenge specific problems, and spearhead innovation.

Developmental evaluation: a methodological approach to evaluating an innovative initiative that develops through continuous adaptation and unfolds in a largely changing and unpredictable environment.

eHealth: eHealth is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology (Eysenbach, 2001, p. e20).

Equity: the absence of systematic disparities in health (or in the major social determinants of health) between groups with different levels of underlying social advantage/disadvantage - that is, wealth, power, or prestige (Braveman & Gruskin, 2003, p. 254).

Incentive: a factor that enables or motivates a particular course of action, or counts as a reason for preferring one choice to the alternatives.

Innovation: the process of transforming or translating the knowledge produced through research, as well as other types of knowledge, into social value.

Public eHealth: ICT-based applications related to all different aspects of public health and other disciplines that are strictly related to public health, including epidemiological surveillance, health promotion, disease prevention, environmental health, social epidemiology, behavioural health, occupational health, human resources training, research and development activities.

Young professional: in the context of the proposed initiative, highly educated and motivated young professionals who will work as a regional network to catalyze the development of a Public eHealth and equity in health regional community of practice and to support most project activities.

B INTRODUCTION AND JUSTIFICATION

Latin America and the Caribbean (LAC) is a region of significant historical, ethno-cultural, linguistic, and socio-economic variations. In addition, while over the past several decades important results have been achieved in the region, several major challenges persist that are common in areas going through an epidemiological transition and experiencing what is known as the ‘double burden of disease.’ On the one hand, an ‘unfinished agenda’ with respect to the realization of primary health care results in the persistence of problems including: extreme poverty and hunger; discouraging maternal health indicators; high under-five mortality; limited access to essential drugs; and the inadequate prevention and control of HIV/AIDS, tuberculosis, malaria, and other communicable diseases. On the other hand, these problems coexist with others that are typical of high-income countries, such as obesity, hypertension, cardiovascular diseases, diabetes, and cancer, which are related to population ageing, changes in diet and levels of physical activity, and other demographic and socio-economic shifts (Pan-American Health Organization, 2007).

The above-described challenges and tensions are reflected in the dramatic differences that exist in the region, among as well as within countries, with respect to: health and human development indicators; specific disease conditions and risk factors; and the evolution of health systems and services. To address these differences and promote equity in health in the region, the XXXVII General Assembly of the Organization of American States, held in Panama City on the 3rd of June 2007, launched a “Health Agenda for the Americas, 2008-2017.” The Agenda sets as a fundamental priority the elimination of all health inequalities among population or groups that are avoidable, unjust, and remediable, with a particular emphasis on the tackling of the social determinants of health, the promotion of gender equity and a focus on the most vulnerable population groups.

The proposed intervention, “Public eHealth Innovation and Equity in Latin America and the Caribbean” (eSAC), intends to contribute to the “Health Agenda for the Americas” and improve the health and well-being of vulnerable and disadvantaged population groups in the region. eSAC focuses on advancing equity in health by nurturing and promoting innovation in the field of Public eHealth. The initiative addresses public health challenges of special relevance to the region and emphasizes Information and Communication Technology-based (ICT-based) solutions that are highly innovative, effective, and low cost.

In 2005, a report presented by the Global Observatory for eHealth (GOe) at the World Assembly defined eHealth as "the cost-effective and secure use of ICTs in support of health and health-related fields, including health care services, health surveillance, health literature, and health education, knowledge and research" (WHO, 2005). ICTs, when appropriately designed, deployed and used, have the potential to support interventions focusing both on individual and collective/public health. Also, ICT-based interventions can ameliorate the social determinants of health through different means including, among several others: improving access to health information; promoting capacity building; sharing knowledge; and translating knowledge into policy and action.

In the Americas, the fundamental role ICTs can play in support of health-related interventions has been clearly understood and strongly emphasized by several organizations, including the Pan-American Health Organization (PAHO). In her 2003 inauguration speech as PAHO Director, Dr. Mirta Roses Periago said: “This will be the century of networks, connectivity and interdependency, which will allow us to overcome barriers of space and time and will open possibilities that were unimaginable to humankind. If we encourage those networks to exponentially multiply the available share capital in order to link people and institutions within a large supportive and inclusive mesh of all the inhabitants of the continent, we will have taken a fundamental step towards eliciting knowledge and experience in new ways of exchanging technical cooperation for sustainable human development”.

eSAC will examine how appropriate incentives and a supportive environment can promote the development and adoption of innovative, ICT-based solutions applied in the context of public health interventions. Indeed, there is evidence that, so far, Public eHealth’s potential has not been fully exploited, particularly in low- and middle-income countries (LMICs). A recent review of the literature and environmental scan (see Appendix 1) found very few peer-reviewed papers reporting on the evaluation of ICT-based interventions in public health in LMICs. The publications identified are not only limited in number but also in focus. Most of the papers, in fact, report on a handful of different types of interventions and fail to examine the role newer ICTs play in shaping public health outcomes. The environmental scan, aimed at furthering the exploration beyond what has been reported in peer-reviewed publications, expanded only marginally the range of applications supported by ICTs.

eSAC intends to create a fertile environment for innovation in Public eHealth, in the region, by using an integrated approach. The approach, described more in depth in the following sections of the proposal, will:

- introduce various types of incentives to innovation;
- support communication and networking activities among different categories of stakeholder;
- offer capacity development opportunities;
- inform and sensitize policy makers;
- assess the applied value of Public eHealth solutions that address some of the priority public health challenges in LAC; and
- address innovation in Public eHealth within the context of integrated health systems.

eSAC is the result of the ongoing, collaborative work developed by two partners: PAHO and the University of Toronto Dalla Lana School of Public Health (UofT). Over a period of more than one year, the two partners have worked together, both remotely and through a series of face-to-face meetings, to develop the intervention model presented in this proposal. All along, the process has been actively supported by the International Development Research Centre (IDRC). eSAC will be implemented by a management team including both UofT and PAHO experts.

C THEORETICAL FRAMEWORK

C.1 Definition of Terms

eSAC's ultimate goal is to contribute to the advancement of equity in health in the LAC region through the application of innovative Public eHealth solutions. The following paragraphs define the key terms around which the theoretical framework revolves.

The term equity has been effectively defined by Braveman and Gruskin (2003):

"Equity in health is the absence of systematic disparities in health (or in the major social determinants of health) between groups with different levels of underlying social advantage/disadvantage—that is, wealth, power, or prestige." (p. 254)

Inequities in health systematically put groups of people who are already socially disadvantaged at further disadvantage with respect to their health. They are the product of the action of societal risk factors known as the social determinants of health, which include: poverty and marginalization; residing in rural vs. urban areas; education, employment, and other expressions of social status; gender; ethnicity; and the social context and social policies, including the health and medical care system (Evans et al., 2001).

At the centre of eSAC's intervention model is the concept of innovation. While this term has been defined in a variety of ways, eSAC adopts a definition that emphasizes the distinction between doing research and innovating. Research activities aim to produce knowledge. Innovative enterprises aim to transform or translate the knowledge produced through research, as well as other types of knowledge, into social value. Innovative solutions can be simple, elegant, low-cost ways of developing new tools and processes, taking advantage of the accumulated knowledge, or of adding value to existing tools and processes by using them in new, different ways.

As explained in Appendix 1, the term Public eHealth, as used in this proposal, does not identify a new academic discipline or field of study. Instead, it is intended as an inclusive term that encompasses all of the possible applications of ICTs to public health, from the traditional ones, such as management information systems, databases, and data sharing networks, which are usually classified under the term public health informatics, to more recent and innovative applications supported by Web 2.0 solutions. Public eHealth includes ICT-based solutions related to all different aspects of public health and other disciplines that are strictly related to public health, including:

- epidemiological surveillance;
- health promotion and disease prevention;
- environmental health;
- social epidemiology;
- behavioural health;
- occupational health;
- disaster preparedness and relief;
- quality assurance;

- the support of intersectoral partnerships for health;
- human resources training and management; and
- research and development activities.

C.2 Hypotheses and Intervention Model

eSAC's intervention model is a contribution to the exploration of three central hypotheses that are put forward, on the basis of common knowledge and the project leaders' personal experience, to explain the results of the previously mentioned review of the literature.

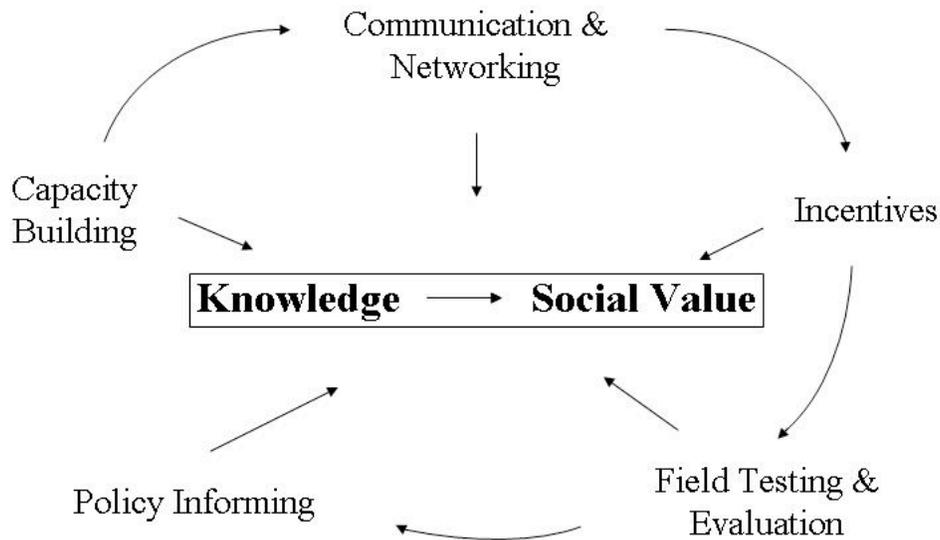
- i) Most public health practitioners, researchers, funders, and policy makers ***do not understand well enough*** the potential of appropriately designed and deployed new technologies to be able to envision and conceptualize applications that are innovative and appropriate.
- ii) The ***lack of a supportive environment*** to promote interactions within and among these categories of stakeholders results in limited opportunities to share ideas and challenges, build on each other's experiences, favour synergies, and stimulate creative competition.
- iii) In the ***resource-constrained settings*** typical of LMICs, the lack of clear and meaningful incentives to promote intellectual investment and innovation in Public eHealth results in little attention being given to the potential role of ICTs.

To explore these hypotheses, eSAC proposes the implementation of an integrated model, presented in Figure 1, which includes:

- capacity building;
- the development of a virtual regional community of practice that would promote communication and networking, and, potentially, create opportunities for distributed problem solving of Public eHealth-related challenges;
- incentives to innovation;
- the field testing and evaluation of Public eHealth solutions, in terms of their applicability, cost-effectiveness, and potential for uptake;
- policy-informing activities aimed to promote the use, at the appropriate levels, of solutions whose value has been proven through sound field evaluation; and
- a research component aimed at assessing the overall effectiveness of eSAC's integrated model.

While offering an opportunity to explore the above-listed hypotheses, this intervention model contributes to breaking down the silos that often exist in interventions aimed at promoting innovative eHealth solutions. Frequently, these intervention focus on specific social or technical aspects of the process - implementation, the promotion of supportive environments, knowledge management, evaluation, incentives, or capacity building – instead of aiming to impact the process as a whole by implementing an integrated strategy to simultaneously influence all the elements.

Figure 1: eSAC's Intervention Model



C.3 Research Questions

eSAC's main research question is: what social and technical arrangements are most conducive to promoting equity-oriented public health outcomes through the development and application of innovative, effective, and low-cost ICT-based solutions?

In addition, several other questions, specifically related to the three research hypotheses, will be explored.

i) Lack of awareness

- How can capacity building and knowledge management techniques be used to address the knowledge gaps existing between public health practitioners, researchers, founders, and policy makers, on the one side, and technologists, on the other?

ii) Lack of a supportive environment

- How effectively can regional Public eHealth champions (Young Professionals – see next section) catalyze and sustain the dialogue and relationships among key actors (policy makers, public health practitioners, other decision makers) needed to develop a supportive environment?
- How and in which context can the creation of a supportive environment enable collaboration, diffuse a culture of innovation, and stimulate creativity?

iii) Lack of incentives

- Under which circumstances would an incentive system that includes the opportunity to make a contribution to improving equity in health in the region, professional credit, opportunities for learning and career development, and financial enticements motivate people to develop innovative Public eHealth solutions?

- What types of barriers and facilitators are at work when promoting the innovative use of ICTs in public health?
- Which support mechanisms have to be put in place, and in which context, to ensure that sound, innovative Public eHealth solutions are adopted and used in the field?

D METHODS

D.1 Goal

The goal of eSAC is to contribute to the improvement of the health and well-being of marginalized population groups in the LAC region, and to advance equity in health, through the application of Public eHealth solutions.

D.2 Objectives

D.2.1 General Objective

The general objective of this initiative is to nurture and promote innovation in the field of Public eHealth to enhance equity in health.

D.2.2 Specific Objectives

eSAC specific objectives are to:

1. support the development of a regional virtual community of practice, comprised of innovators, entrepreneurs, researchers, policy makers, the media and the general public, to increase awareness and capacity around Public eHealth and equity in health;
2. foster the conceptualization, design, field testing, optimization, evaluation, and dissemination of highly innovative, effective, and low-cost Public eHealth solutions in the region to enrich the range of solutions available today;
3. support the use, at the appropriate level, of successfully developed Public eHealth solutions to maximize eSAC's impact; and
4. to assess the overall effectiveness of eSAC's integrated approach.

D.3 Project Activities

To achieve the above-listed objectives eSAC will include a set of interrelated activities.

D.3.1 Objective 1 – Supporting a Regional Virtual Community of Practice

A regional virtual community of practice will be nurtured and supported to create the substrate for Public eHealth and equity in health-related knowledge management and capacity building activities in the region. The aim of the community of practice is to:

- raise awareness about Public eHealth and health equity;
- promote information dissemination and educational activities;
- facilitate communication and networking within and between the various categories of stakeholders listed in Objective 1; and

- prepare the ground to maximize the impact of eSAC's other strategic components.

The central 'meeting point' for this community will be a project web site. The web site will look like a web application hybrid, or "mashup", including data and functionalities useful to support the activities of the community. The site will be organized in separate areas open to different categories of users: the project management team; the network of Young Professionals (YPs – see next sub-section); participants in eSAC's innovation competition; and the general public. eSAC's web site will be used to: disseminate information on the project; include links to external resources related to Public eHealth and equity in health; present training materials developed in the context of the proposed initiative, as well as pre-existing training resources, such as PAHO's Virtual Campus in Public Health and Virtual Health Library; and exchange ideas and opportunities related to specific public health challenges in the region.

In addition to the web site, the eSAC's community, or at least parts of it, will come together face-to-face at meetings and workshops that will be organized in occasion of regional conferences and forums. The community of practice is expected to represent both fertile soil for the seeds of innovation to germinate and a responsive environment ready to welcome and employ successfully developed innovative solutions.

The Young Professionals (YPs)

The promotion of this community represents an ideal opportunity to assess the importance of human resources development. In fact, the fundamental engine behind it will be the work of a small group of highly educated and motivated YPs who will operate at the regional level, both individually and as a team, to catalyze the development of such community. YPs will be selected, trained, and continuously supported by the project partners. UofT and PAHO have ideal complementary expertise and experience to invest in eSAC. In particular, PAHO's massive regional network and the organization's many decades of experience working with policy makers, researchers, practitioners, and the media, represent essential assets for this component of the project.

Selecting the YPs

Five to seven YPs will be selected by a committee including representatives from the two institutions and external members who are public health and/or eHealth experts, or who have an in-depth understanding of the LAC region. Selection committee members will be identified at an early stage of eSAC's implementation phase and will support the project management team in working out all the essential aspects of the selection process.

Ideal candidates to the YP positions will be young (25-35 year old), university-trained individuals from the LAC region with a proven record of practical interest in areas including, among others:

- the application of ICTs to health and development;
- equity in health;
- social media;
- social entrepreneurship; and
- various forms of social and organizational innovation.

Among other criteria, the team of YPs will be selected to ensure that they:

- represent all major LAC sub-regions;
- collectively, speak all major Western languages used in the region;
- are able to actively participate in the project for its whole duration;
- are independent and creative thinkers, can act at the same time as leaders and team players, and demonstrate strong skills as communicators and knowledge brokers.

Multiple channels, including institutional ones, the Internet, and traditional printed media will be used to advertise these positions in the region, making an effort to reach every LAC country. To attract high quality candidates, advertisements will emphasize, beyond financial remuneration, the unique nature of this initiative and the obvious opportunities YPs would have to boost their careers by accessing cutting-edge knowledge, developing new skills, and exponentially expanding their professional networks.

While the details of the selection process will be defined at a later time, the process as a whole will be transparent and highly competitive. It will be designed to ensure that candidates are assessed by an independent panel through various means, including opportunities for members of the selection committee and the project management team to interact with the candidates. For a small group of 15-20 pre-selected candidates, the final selection step will be a workshop organized with at least three objectives in mind:

- a) to familiarize participants with eSAC's approach, objectives, and methods;
- b) to kick start the process to develop a detailed work plan for the YPs; and
- c) to create an opportunity for project management team and selection committee members to work directly with the candidates and better assess their effectiveness, attitudes, and interaction styles.

Considering the central role YPs play in the proposed initiative, the investment of significant resources in the selection process is justifiable. Candidates who are not selected will become potential replacements for the selected ones and could also be involved in the project in various ways.

YPs as Promoters of the Virtual Community of Practice

YPs will spearhead the development of the regional virtual community of practice already described. To achieve this goal they will start identifying 'champions' and pre-existing local and virtual communities of interest working, in LAC, on issues related to the proposed initiative. They will also help develop, from a content perspective, an online collaborative environment that will be created to support the project. Through such environment, they will work to disseminate information on Public eHealth and equity in health to promote and sustain a lively debate on related themes. Beyond the project virtual space, YPs will also actively participate in other existing online forums and, budgetary limitations permitting, will attend conferences and other forums to present the project, expand their network of contacts, and explore opportunities for partnerships and synergistic actions with other actors in the region.

Supporting YPs' Work

At all stages of the project, YPs will work as a cohesive, interdependent team using both the online tools that will be developed to support eSAC and the opportunities for face-to-face interactions created by important forums in the region. They will also help organize project workshops, at least once a year, to take a pulse of the initiative, evaluate the results already achieved and plan for future steps.

YPs will be supported in various ways by the eSAC's management team and, more in general, by the two institutions promoting the initiative. First, they will receive administrative and logistical assistance. While each YP will be responsible for a whole LAC sub-region, s/he will be based at one of the PAHO Country Offices or Specialized Centers in that sub-region. The exact locations will be pre-selected by the management team according to criteria such as the level of interest in the initiative expressed by the local PAHO/WHO Representatives (PWRs), the political stability of the country, and logistical aspects. YPs will have access to office space, computational and communication tools, and pre-existing tools and knowledge resources such as, for example, PAHO's Public Health Virtual Campus and its Virtual Health Library.

Second, they will rely on a centralized eSAC administrative/coordination support unit according to specific guidelines that will be developed early in the project execution phase. In particular, a coordinator will facilitate and support YPs' day-to-day activities, acting as a bridge between the team of YPs and various institutional resources and working to help remove the impediments YPs might encounter from time to time.

Third, YPs will receive training in content areas related to eSAC as well as support with tools and methods they will use during the project. Capacity building activities are further described below.

Finally, YPs will receive institutional and political support, directly by PWRs and other members of the PAHO Country Offices, and indirectly by all eSAC partners, to ensure they have access to national policy makers. Importantly, they will have to be perceived by ministries of health and other relevant ministries as resources able to provide independent and expert advice on issues related to ICTs and health. This will be essential for YPs to be able to support and facilitate eSAC's implementation process, particularly the final innovation uptake phase.

D.3.2 Objective 2 – Fostering Innovation in Public eHealth

To achieve Objective 2, eSAC will launch a call for proposals (CfP) inviting the submission of proposals for the development of highly innovative, effective, and low-cost Public eHealth interventions aimed at promoting equity in health in the region. The call will create the opportunity to test the third hypothesis by introducing incentives to stimulate creativity and intellectual cooperation. Appendix 4 presents an early draft of the CfP.

The CfP will be open to individual (or teams of) researchers, innovators, and entrepreneurs, as well as universities and other institutions in the LAC region. Direct

applications from established private sector companies will not be accepted but private sector entities could represent minority partners in proposals presented by applicants belonging to the above-listed categories.

A panel of experts, including PAHO and UofT representatives and representatives of the international scientific community, will develop a set of selection criteria useful to rank the submitted proposals.

Among them, proposals will have to:

- address public health challenges that represent priorities in the region and that disproportionately affect marginalized population groups;
- have the potential to improve equity in health;
- focus on novel and elegant approaches to the solution of a problem;
- promote the use of standards-based open source, non-proprietary, free or quasi-free tools;
- be affordable in the contextual reality in which they are going to be implemented; and
- whenever possible, include a well-thought strategy aimed at harnessing extra resources and securing sustainability over the long term.

In the early stages of development of the proposed project, additional criteria will be discussed for inclusion. For example, the model developed by Richard Heeks to assess the chances of success of eGovernment initiatives (www.egov4dev.org/success) could be adapted to eSAC to measure along multiple dimensions the design-reality gaps, that is, the distance between what is proposed and what exists, and assess the chances of adoption of each proposed solution.

Seven to ten proposals will be shortlisted and accepted into the second phase of the competition. During this phase, seed money and technical support by the project management team and the YPs will be offered to the shortlisted participants to further develop and pilot test the proposed solutions. During this phase, pre-selected solutions will be field tested and evaluated in terms of their applicability, cost-effectiveness, and potential for uptake.

At the end of the second phase, a panel of experts including representatives of the organizations promoting eSAC, of the mentoring team described later in the proposal, and of the international scientific community will select three winning proposals. The three top-ranking proposals will receive innovation prizes of \$50K, \$30k, and \$20K respectively. The criteria for selecting the winning proposals will be similar to those used to select the initially shortlisted ones. In this case, however, the selection process will be both more thorough and comprehensive, will make reference to the results of the work done during Phase II, and will take into consideration the potential for scaling up of each solution. Intellectual property issues will be taken into careful consideration and advice from IDRC's legal department will be very important in this regard.

The CfP will be advertised through multiple channels including: IDRC's; PAHO's; all relevant contacts of members of the eSAC team; selected bulletin boards, mailing lists,

and web sites; and the most important newspapers in each country of the region. All ideas submitted in response to the CfP will populate an area of eSAC's web site.

The YPs will play an important role creating expectation around the initiative and advertising it online and at the conferences and forums they will attend. They will also support participants during both phases of the competition by answering questions, facilitating the CfP application process, and offering general support. Finally, they will help to stimulate a broad discussion around the submitted ideas. eSAC will set aside a small amount of funds to be invested in smaller and parallel competitions that will be organized around specific questions/challenges identified by participants in the online discussion forums. Also, YPs will help to identify additional funding institutions in the region that might be interested in building on top of the eSAC intervention to promote innovation in more specific Public eHealth areas.

D.3.3 Objective 3 – Supporting the Use of Innovative Public eHealth Solutions

The last component of eSAC's integrated innovation support model will be to facilitate the use of locally-developed solutions at the appropriate level. Depending on the nature of the innovation, and of the type of problem it contributes to solve, uptake will be promoted at either the local, sub-national, national, sub-regional, or regional level.

In this phase of the project, YPs will once again play a central role. Building on the educational, networking, and sensitization work previously developed, they will promote and support the connections between eSAC partners and contribute to facilitating the process of development of a full-fledged uptake plan by involving IDRC, PAHO, and UoT representatives, PWRs, relevant national ministries, individual policy makers, and innovators. Such plan would include, among other elements: the identification of human, financial, and technical resources; a timetable with clearly identified deadlines; institutional and individual responsibilities; and a plan for monitoring and evaluation activities.

D.3.4 Objective 4 – Research Component

At the beginning of the project implementation phase, a plan will be put in place to monitor all eSACs' activities and evaluate the extent to which expected results will have been produced, objectives achieved, and research questions answered. The plan will be developed by the project management team. Whenever needed, additional support will be sought from evaluation specialists working for the two partners and/or for the funding agency.

The assessment will aim to answer the research questions previously listed. The focus will be on measuring how effective eSAC is in: improving major regional stakeholders' awareness of the potential of eHealth and Public eHealth; promoting the creation of a supportive environment able to facilitate collaboration and stimulate creativity; and offering incentives to motivate the development and adoption of Public eHealth solutions.

Both quantitative and qualitative methods will be used to assess the project's effectiveness. 100Baseline and post-intervention data will be compared to understand

which aspects of the intervention have worked, whom has been impacted by the project and how, and the significance of observed changes. All opportunities will be used to collect data directly in the field and to interview participants face to face. Given the size and the geographic characteristics of the LAC region, however, additional data collection tools and strategies will be used, including online questionnaires, email communication, Skype calls, and online chatting. Also, YPs will play an important role in supporting several aspects of the project research component.

D.3.5 Capacity Building

eSAC is fundamentally a capacity building intervention. Capacity building activities permeate all components of eSAC's integrated model, unifying and strengthening it.

Researchers, Innovators, and Entrepreneurs

The central role played in the project by researchers, innovators and entrepreneurs in the region represents an important opportunity for them to expand their body of knowledge, get a realistic understanding of the role ICT-based solutions can play in their day-to-day professional activities, and improve their research skills according to established best practices. Participants will also increase their skills in team work, leadership, critical thinking, reflection, and analysis. Finally, with the support of YPs, training modules at the intersection of public health, equity in health, and ICTs will be developed in response to specific needs expressed by participants.

YPs

Similar advantages will be enjoyed by the YPs. For them, participating in the eSAC initiative will represent a truly unique opportunity to expand and deepen their knowledge of ICTs, public health, equity in health, the mechanisms effective in stimulating innovation, and other substantive areas. Also, similarly to other participants, YPs will improve their research, critical thinking, reflection, analytical, team work, and leadership skills. In addition, they will have a unique opportunity to become central players in a region-wide professional network including multiple communities of stakeholders, from innovators and technical cooperation experts to policy makers. Being part of such network, in itself, will represent a powerful building block in support of their careers and might be even more attractive to prospective YPs than the salary they would receive.

YPs will receive ongoing training related to both the specific features of the eSAC initiative and general content and methodological areas of relevance to the project. Training activities will start at the very beginning of the implementation phase, during the same workshop that will be used as an opportunity to select the final team of YPs, and continue over time making the most of both virtual interactions and face-to-face meetings.

Mentors

An essential role in training activities will be played by a small group of mentors who will accompany YPs for most of the project execution phase. Mentors will be identified among members of the existing professional networks of which PAHO, and UofT are part. They will be recognized international experts in areas that the YPs and the project

management team will consider as both key to the successful implementation of eSAC and particularly challenging. Through mentorship, in addition to support and advice, eSAC will offer YPs a unique opportunity for the development of important professional and interpersonal skills.

Depending on the specific needs, mentors will be available either at specific stages of the project execution or on an ongoing basis. Initially, for example, one or two mentors could be identified and invited to the first workshop to help YPs better understand the rules and mechanisms needed to effectively work as a virtual team and to make the most of technological tools for networking and other activities. Over time, various professionals will enter and exit the pool of available mentors, depending on needs that will be identified by the YPs and the project management team.

Mentors will maintain both face-to-face and virtual interactions with YPs. An important effort will be made to ensure the continuity of the mentorship effort and to optimize the use of online tools able to support it. This way, eSAC will also represent an important applied experiment in remote mentorship. Appendix 4 presents the results of a preliminary review on remote mentorship developed in preparation for this project.

Graduate Students

The project will also provide opportunities for the direct involvement of graduate students, particularly from LAC, interested in research work and practicum placements. eSAC will offer small grants to selected students and opportunities for field work, in collaboration with partners in the region. This will benefit both the project and students. On the one hand, eSAC will benefit from the extra resources represented by students, who will be able to support the work of YPs. On the other hand, the project will create professional development opportunities for students, similar to the ones offered to YPs.

These opportunities will include elements of experiential learning, skill development, mentorship, and networking. The project will promote the development of applied competencies in multiple areas, such as research methods and design, ICTs for development, eHealth innovation and applications, and knowledge management and translation, by involving YPs and graduate students in a broad variety of activities. These activities will include: research; the development of online resources; the organization of workshops and other events; and the editing of publications. Through mentorship and networking, eSAC will also offer YPs and graduate students an important opportunity for developing their own personal network of professional contacts and learning from both experts and peers.

D.4 Results

The activities described in the previous sub-section will make possible to test the project hypotheses and offer initial answers to eSAC's research questions. In addition, the project activities will result in concrete outputs and outcomes that are summarized below.

D.4.1 Outputs

Expect-to-see outputs

- Five to seven trained YPs;
- a project web site designed to support communication, at different levels, among YPs, other project participants, and the general public;
- at least one highly innovative, effective, and low-cost innovative solution soundly evaluated;
- at least four papers, preferably published in open access peer-reviewed scientific journals, focusing on:
 - the background papers prepared to support the design of eSAC;
 - the evaluation of the initiative as a whole as well as specific aspects of it;
 - the methodological and technical dimensions of the innovative, applied solutions developed through eSAC;
- eSAC-focused presentations given in at least three conferences/forums each year;
- eSAC-related workshops organized in at least one conference/forum each year;
- periodic regional Public eHealth briefs targeting different key stakeholder groups;
- a final publication, in traditional printed format as well as in multimedia format freely-available online, that would summarize the eSAC experience and present in practical, hands-on terms, the lessons learned, facilitating the replication of this approach in other areas of the world.

Like-to-see outputs

- Three highly innovative, effective, and low-cost innovative solutions soundly evaluated.

Love-to-see outputs

- Additional, innovative and soundly evaluated solutions to specific problems identified during eSAC's implementation phase.

D.4.2 Outcomes

Expect-to-see outcomes

- eSAC web site becoming a central communication hub used by YPs, other project participants, and the general public to exchange ideas and references;
- increased understanding of the potential of eHealth and Public eHealth among decisions makers in the LAC region;
- at least one highly innovative, effective, and soundly evaluated low-cost innovative solution adopted and used at the appropriate level.

Like-to-see outcomes

- A thriving virtual community of practice including participants from all over the LAC region and beyond, discussing Public eHealth and equity in health-related issues;
- recognition of the eSAC model and approach, leading to speaking invitations, invitations to submit papers, and collaborations with other researchers and practitioners in the LAC region and beyond;
- three highly innovative, effective, and soundly evaluated low-cost innovative solutions adopted and used at the appropriate level.

Love-to-see outcomes

- Additional, innovative and soundly evaluated solutions to specific problems, identified during eSAC's implementation phase, adopted and used at the appropriate level;
- other funding and technical support organizations in the region actively promoting health equity-oriented innovation.

D.5 Project Evaluation

eSAC is a complex initiative. Also, it does not only focus on innovation but, in doing so, it promotes an integrated approach which is in itself quite innovative. Finally, it is going to be implemented in an environment that may be relatively unstable and whose characteristics, with respect to the specific focus area of the project, are largely unknown. For all of these reasons, eSAC would benefit from the support of developmental evaluation (DE) (Gamble, 2008). This methodological approach may help identify on an ongoing basis, and in almost-real time, the continuous adaptation and improvements needed to maximize eSAC's chances of success. As already discussed with IDRC representatives at some of the face-to-face meetings held to jointly work on developing the project intervention model, a DE could run in parallel to eSAC, as an independent project, and support it from start to end. The DE would be the responsibility of a separate project team and would be supported by its own budget. However, the eSAC's team and the DE's one would have to start working collaboratively and identify the best possible way of bringing together the two related initiatives, since the early steps of the process. Financial resources to support this ongoing interaction have been earmarked in the proposed budget by both PAHO and UofT.

D.6 Dissemination Strategy and Long-Term Sustainability of the Project

eSAC will include a multi-pronged dissemination strategy intended to maximize the impact of the initiative's expected outputs by reaching an audience of researchers, innovators, entrepreneurs, practitioners, community leaders, educators, policy makers, media representatives, and the general public.

The YPs will help innovators identify opportunities to present their solutions and discuss the eSAC experience, from their perspective, by preparing and submitting papers for peer-reviewed publications and abstracts for conference presentations, and by facilitating their inclusion in other appropriate events and forums. Information dissemination will help to achieve two separate objectives:

- a) to maximize eSAC's return on investment, by ensuring that the project experience is presented to as many audiences as possible, globally, and that the lessons learned in LAC can be capitalized to promote similar strategies elsewhere; and
- b) to further stimulate participants by favouring, through paper publication and participation in academic and policy-oriented forums, the expansion and strengthening of their professional network.

By publicly presenting their work with eSAC, participants might even gain access to additional opportunities for collaborative work and funding.

As eSAC is intended not only to contribute to Public eHealth related technical and scientific knowledge, but also to support policy formulation and implementation, since the early stages of the project's implementation particular attention will be given to the innovation uptake components of the initiative. Under PAHO's leadership, and with the support of technical and policy bodies in the region, the eSAC team will take advantage of as many forums as possible to reach in a highly cost-effective way a broad audience of policy makers, whom will be not only informed, but also encouraged to become part of the community the initiative plans to promote. In addition, multiple audiences will be reached by publishing on eSAC in peer-reviewed scientific journals, presenting at various conferences, and utilizing widely available online social networking tools, such as Facebook, YouTube and Twitter, to share findings and insights with wider Internet audiences.

Particular emphasis will be given to policy making forums and academic conferences in the field of public health, as they attract audiences that need the most to better understand the true potential of ICTs and look 'beyond the usual.' Some of these venues, those that are particularly appropriate due to either their focus or timing, will be used as opportunities to organize workshops that, while being part of the eSAC implementation strategy, can be of interest to the general public, too.

Finally, an agreement could be reached with the editors of 'Revista eSalud' (www.revistaesaud.com), the most important Spanish language source of scientific information on eHealth, to have an ongoing section presenting news and advances related to the project. This is a realistic opportunity as Dr. Alex Jadad is a board member and President Emeritus of the foundation that supports 'Revista eSalud'. Also, this journal acts as the official PAHO's conduit for disseminating eHealth-related information in the LAC region and includes, in each issue, a section titled "La OPS Informa" (PAHO Informs).

To ensure that the information and communication resources built up throughout the project implementation phase remain available beyond the life of the proposed initiative, a comprehensive sustainability plan will be developed with the collaboration of all partners. PAHO will play a central role in the achievement of this objective, particularly with respect to identifying the best options to maintain the unique resource that YPs will represent, at the end of the project. The Dalla Lana School of Public Health at the UofT will contribute by becoming the central hub of an international academic network focusing on Public eHealth and working to promote additional project based on the eSAC experience. Efforts will also be made to identify additional funding bodies interested in supporting these resources and to explore a business model that would see some resources, such as online training models, white papers, analytical tools, and databases of expert contacts, made available at a cost to certain categories of clients, presumably in high-income countries. A successful long-term sustainability plan will ensure that ongoing attention to the project be maintained.

E ETHICAL CONSIDERATIONS

The following categories will be considered as research participants: all researchers, innovators, and entrepreneurs who will submit proposals in response to the CfP; those who will participate in follow-up activities aimed at adopting the innovative solutions at the appropriate level; those involved in information exchanges and other activities facilitated through the project online tools; YPs; mentors; policy makers, representatives of the media, and members of the general public who are involved in any aspects of the project. Active participation in the project will be considered as inclusion criteria. With the exception of mentors and YPs, participants will be free to withdraw from the project at any time. A lack of participation in the project activities will be considered as withdrawal. An attempt to understand the reasons for withdrawal will be made. Participants will be recruited through the channels described early in the document, through referral by other participants, and through the project online component. Beyond the financial incentive created by the CfP and the innovation prizes assigned to the three winning participants, no other direct or indirect compensation will be offered to participants. Additional benefits for participants will be: a better understanding of the role ICT-based solutions can play in helping them face challenges related to their daily work; participation in an expanded network of professionals; and increased skills in team work, leadership, critical thinking, reflection, and analysis. All participants will be given an overview of the nature and aims of the proposed project. No individual informed consent form will be used, but participation in the research activities will be considered in itself consent. Acknowledgment of participants' contributions to the initiative will be given in all documents reporting on eSAC, by name whenever possible and collectively in all cases.

In addition to quantitative and qualitative feedback on the effectiveness and efficiency of the intervention, only basic demographic information and information on the professional background and expertise of participants will be collected. YPs and mentors will represent an exception, as in their cases additional information will be needed to administrate the contractual aspects of their participation in eSAC. Otherwise, the project will not address any sensitive or highly personal areas and will not pose any 'greater than minimal risk' to participants. While information related to subject matters (the proposals and all discussions arising from them) will be obviously in the public domain and blinding and complete anonymity will not be achievable, given the scope and character of the proposed project, coding and other techniques will be used to obscuring individual data for analysis and reporting. All electronic records, written records, and audio tapes will be kept under lock and key, accessible only to the project management team, and will be safely stored for two years after the end of the project to be then destroyed.

Ethical approval for this research will be obtained through the University of Toronto Health Sciences Research Ethics Board before any research activities are initiated. Given the low research risk the project present and the characteristics of potential participants, it is expected that an abbreviated, simplified review process be sufficient.

F GENDER CONSIDERATIONS

Gender considerations are central to eSAC in more than one way. The project emphasizes the role ICT-based solutions can play in modifying the social determinants of health and it is well known that a broad spectrum of cultural, political, economic, and social determinants strongly influence the general health status of women in the region and maternal health, specifically. In addition, the project as a whole will integrate a gender-sensitive approach at all stages of development. eSAC will assure that women, particularly young, poor, and otherwise disadvantaged women from marginalized and excluded population groups, are given special consideration and are mentored to become active participants in the initiative. This will be achieved in several ways. For example, projects taking into consideration gender-related implications of the use of ICTs will be encouraged. Also, gender-specific indicators will be included in the monitoring and evaluation of the initiative. Finally, the eSAC network will ensure appropriate sensitization towards gender-specific problems and gender considerations will be central to the selection and training of the YPs.

G RISK MITIGATION STRATEGY

Undoubtedly, eSAC is a complex and highly innovative initiative. Because of its nature, it will have to face numerous challenges that should be anticipated and taken into consideration as early as possible in the design process.

G.1 Focus on Equity

Equity in health and the changes to the social determinants of health needed to increase it are political problems, as well as technical. Because of this, eSAC emphasis on technology might create some confusion and result in a lack of focus. To minimize this danger, an ongoing effort will be made to clarify the role technology can play as the 'extra ingredient' that can make possible the development of tools able to sustain broader equity-oriented strategies. Also, equity is about power and access to resources. Marginalized population groups have the least access to resources, including technology. The project will take this into careful consideration, particularly when assessing the value of initiatives based on the introduction of technology at the community level, in terms of their social and cultural feasibility and economic sustainability.

G.2 Regional Heterogeneity

All attempts to promote and support common action in a region as linguistically, culturally, socially, economically, and politically heterogeneous as LAC present serious challenges. Some of these challenges will not be overcome. Language barriers, for example, cannot be easily eliminated in the short term. The highly participatory nature of the proposed initiative, however, will translate into careful consideration given to all participants' 'voices', suggestions and attitudes, and into prompt and appropriate reactions. Opportunities to build on already existing experiences, links and networks will be taken advantage of. Also, eSAC's strong emphasis on the identification of appropriate

incentives for collaboration and its highly applied, 'hands-on' philosophy will contribute to minimize such challenges.

G.3 Challenges Related To the CfP

How the LAC community of researchers, innovators, and entrepreneurs will react to the opportunity represented by the CfP is a major question mark. Will the proposed structure of incentives work? Will the call produce no responses at all? Or hundreds of them? What will the quality of the proposed innovative solutions be? How creative will they be? What kind of effects will the invitation to focus on public health challenges and the broader social determinants of health have? Much can be done to ensure the best possible results. First of all, the review of the literature and environmental scan presented in Appendix 1 represent a good starting point to understand the setting in which the CfP is going to work. This information will also be complemented by the wealth of knowledge and applied experience of the three promoting organizations and their networks of contacts. Second, the materials supporting the CfP will have to be carefully crafted to maximize their clarity and minimize the chances of misunderstanding. Finally, and most importantly, one of the central responsibilities of the YPs will be to prepare the ground for the competition, making sure that the overall philosophy of this intervention and its objectives are well understood, raising expectations, challenging pre-existing networks of interest, clarifying any potentially unclear aspects to prospective participants, and making sure that all the answers are publicly shared through the project online tools for the benefit of all. YPs will also monitor the project development at all times and identify appropriate solutions, as quickly as possible, in the unlikely case that no proposals were received or that all received proposals were of unacceptably low quality.

G.4 Promoting a Virtual Community of Practice

The Web is full of virtual meeting points, collaborative spaces, and repositories of information and best practices that are rarely or never used. Creating a project-related online environment is, obviously, not enough to promote a virtual community of practice on Public eHealth in LAC. To ensure that a lively and truly useful community is promoted and developed, the management team will give careful consideration to the technical, social and cultural aspects involved in the development of a virtual environment specifically tailored on the characteristics of the proposed initiative. In addition, the YPs will invest significant amounts of time and energy to turn such environment into a truly useful and vibrant reference point and promote its use, particularly in the early phases of the project.

G.5 Remote Mentorship

eSAC will make use of remote mentorship to support the activities of the YPs and of the selected innovators. Each participant and each project will require different levels and styles of mentoring while the lack of face-to-face interactions will undoubtedly create significant challenges, as observed in Appendix #3. To minimize the problem, careful consideration will be given to this issue, a pre-defined schedule of mentoring activities

will be agreed upon early in the project implementation phase, and all mentorship activities will be carefully and continuously monitored.

G.6 Developmental Evaluation

The developmental evaluation project that will be developed in parallel to eSAC to support the initiative presents significant challenges, too. Developmental evaluation is a relatively new methodological approach and its application in support of a project as complex and innovative as eSAC does not come without potentially important drawbacks. Undoubtedly, it will take some time to go over a fairly steep learning curve and to fine tune the facilitative process at the core of the developmental evaluation activities.

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