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MULTILATERAL INVESTMENT FUND

COLOMBIA

**ANTIOQUIA INNOVATES IN HEALTHTECH FOR THE
LOW-INCOME POPULATION**

(CO-T1483)

DONORS MEMORANDUM

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PROJECT SUMMARY
ANTIOQUIA INNOVATES IN HEALTHTECH FOR THE LOW-INCOME POPULATION
(CO-T1483)

The project proposes to develop and introduce health technology or eHealth¹ solutions in the telehealth area through a leading organization in the field, the University of Antioquia School of Medicine (FMUA), in alignment with Colombia's public health policies and with scale potential in the country and the region. Using information and communication technologies (ICTs), the health ecosystem actors working with FMUA will develop their eHealth capacity for an efficient flow of information and specialized care in the Department of Antioquia.

The eHealth solution will address three main areas: (1) telemedicine,² (2) teleeducation,³ and (3) teleassistance.⁴ Under the **telemedicine** component, a network of health services will be established with distance medical care and data capture targeted to patients in three priority risk groups: pregnant women, people with mental health issues, and people with cardio-cerebrovascular disease. Under the **teleeducation** component, technological tools and digital content will be generated for health education targeted to communities and health professionals relating to 16 risk groups identified by the Ministry of Health and Social Protection (MSPS, 2016).⁵ The prehospital and home **teleassistance** component seeks to optimize care for patients in the three priority risk groups through telephone and ICT tool support for patients needing assistance with common conditions in the three risk groups, such as diabetes, hypertension, complications during pregnancy, dementia, general ill health, and depression.

The project is expected to have a dual outcome. From the standpoint of eHealth innovation, it will develop a comprehensive care model in telehealth that includes telemedicine, teleeducation, and teleassistance care pathways for the three priority risk groups. From the standpoint of the use of eHealth tools, the project will enable 2.2 million people to benefit from telemedicine, teleeducation, and teleassistance tools in the department of Antioquia.

¹ "EHealth" is understood as the series of technological tools used in the health environment for disease prevention, diagnosis, treatment, follow-up, and general health management.

² "Telemedicine" is distance medical care using audiovisual tools such as videoconferencing.

³ "Teleeducation" is distance education in health for patients and health professionals.

⁴ "Teleassistance" is distance support for patients in the form of information, guidance, answers to questions, and basic advice by health professionals who are not necessarily physicians.

⁵ According to the MSPS, these are groups of people at risk of or suffering from: (1) obvious cardio-cerebral-vascular-metabolic symptoms, (2) chronic respiratory diseases (3) nutritional problems, (4) mental and behavioral disorders owing to the use of psychoactive substances or addictions, (5) psychosocial and behavioral disorders, (6) dental health problems, (7) cancer, (8) maternal-perinatal conditions, (9) infectious diseases, (10) zoonosis and animal attacks, (11) labor accidents, (12) violence, accidents, and trauma, (13) environmental diseases and accidents, (14) orphan (rare) diseases, (15) visual and hearing problems, and (16) degenerative, neuropathic, and autoimmune diseases.

ANNEXES

Annex I	Results Matrix
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INFORMATION AVAILABLE IN THE TECHNICAL DOCUMENTS SECTION OF THE MIF PROJECT INFORMATION SYSTEM

Annex III	Background on telemedicine in Colombia and around the world
Annex IV	Table of project milestones

ABBREVIATIONS

EPS	Entidad promotora de salud [health care outreach agency]
FMUA	Facultad de Medicina de la Universidad de Antioquia [University of Antioquia School of Medicine]
ICTs	Information and communication technologies
IPS	Institución prestadora de salud [health care institution]
MIAS	Modelo Integral de Atención en Salud [Comprehensive Health Care Model]
MIF	Multilateral Investment Fund
MSPS	Ministry of Health and Social Protection
MinTIC	Ministry of Information and Communication Technologies
PDSP	Plan Decenal de Salud Pública [Ten-year Public Health Plan]
RIPS	Registro de Información de Prestaciones en Salud [Health Services Information Registry]
SGSSS	Sistema General de Seguridad Social en Salud [General System for Social Security in Health]

COLOMBIA
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EXECUTIVE SUMMARY

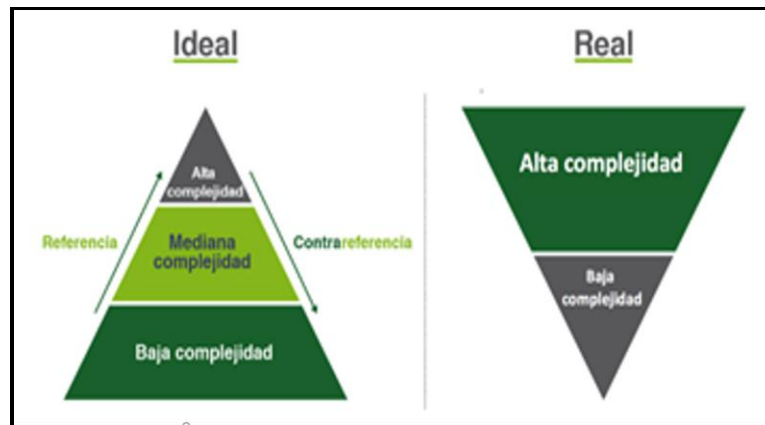
Country and geographic location:	58 municipios in the Department of Antioquia, Colombia.		
Executing agency:	University of Antioquia, acting through its School of Medicine's LivingLab		
Focus area:	Knowledge Economy		
Coordination with other donors/Bank operations:	The project has been coordinated with specialists from the Bank's Social Protection and Health Division (SCL/SPH). The lessons learned from this project can be replicated in other departments/regions of Colombia and in other countries.		
Project beneficiaries:	The project will benefit some 2.2 million people who will gain access to technological applications and telemedicine, teleeducation, and teleassistance services.		
Financing:	MIF nonreimbursable technical cooperation:	US\$1,000,000	29%
	Counterpart:	US\$2,500,000	71%
	Total budget:	US\$3,500,000	100%
Execution and disbursement period:	36 months execution, and 42 months disbursement.		
Special contractual conditions:	Establishment of the project steering committee to the Bank's satisfaction will be a condition precedent to the first disbursement.		
Environmental and social impact review:	This operation has been prescreened and classified in accordance with the IDB's Environment and Safeguards Compliance Policy (Operational Policy OP-703). Since the impacts and risks are limited, the proposed category for the project is "C."		

I. THE PROBLEM

A. Description

- 1.1 Frequently, the root of public health problems is the absence of disease prevention, early detection, and frequent care adapted to the needs and circumstances of the population. One effect of this in Colombia is high public spending on high-complexity services such as surgery and hospitalization and insufficient emphasis on prevention and cost-effective assistance for patients, for example, through health education and monitoring, and home care to catch health problems in time. The state of affairs is reflected in an inverted health pyramid in Colombia, where a small percentage of cases absorb most of the resources, and also holds true for the Department of Antioquia.

Table 1. Resource allocation in the public health system in Colombia⁶



- 1.2 **Health ecosystem and vulnerable population in Antioquia.** In Colombia, enrolment in the General System for Social Security in Health (SGSSS) is handled by a health care outreach agency (EPS) that manages the benefits plan of its members, assuring their access to a health care institution (IPS) and to medicines. Most of the population lacking the ability to pay is enrolled in the “subsidized health system.” In Antioquia, EPS Savia Salud, a mixed public-private institution, manages health services for the vulnerable population of about 1.7 million in the subsidized system. In addition, close to half a million people in extreme poverty have access to health care through government agreements with IPSs and other health ecosystem operators such as the University of Antioquia School of Medicine (FMUA).
- 1.3 **Health challenges in Antioquia.** The Department of Antioquia in Colombia has a population of 6.6 million, with 22% in rural areas. The department’s main health challenges include prevention and basic care of chronic noncommunicable diseases and maternal health. The mortality rate per 100,000 population in the department includes cardiovascular diseases, with 112.9 deaths, cancer 66.8, chronic respiratory illnesses 33.6, and diabetes 11.5. Although maternal mortality has been falling (30.4), its geographic distribution is very uneven. In rural areas such as

⁶ <https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/modelo-pais-2016.pdf>.

Magdalena Medio (78.3) or Urabá (81.5), the rate is far higher than in Medellín (14.1). The mortality rate is the visible part of public health problems. Another growing problem in Antioquia is mental illness; although no statistics are available on mental illness, an increase has been observed in the suicide rate,⁷ particularly among 15- to 19-year-olds, in levels of physical, sexual, and psychological violence,⁸ and in the consumption of psychoactive substances. Furthermore, according to data from the Antioquia Mental Hospital, most psychological and psychiatric service providers are concentrated in metropolitan Medellín, making them difficult to access for people with mental disorders living in remote areas.

- 1.4 **High cost of health services for the vulnerable population.** On average, an estimated 3.1% of Colombian household expenditures are on payments for health care. The households in the worst economic circumstances shoulder the greatest burden of health care expenditure, averaging 6.7% of total expenditure, compared to 2.7% for households in the highest quintile.⁹ In rural areas, health expenditures for the vulnerable population in the subsidized health system are not associated so much with the cost of care, which is free of charge, as with the cost of transportation to medical facilities, work time lost, and medicines.
- 1.5 **Vulnerable population in Antioquia and health tech.** The departmental government and FMUA, through LivingLab, are working to reach the most vulnerable population in the department with health tech or eHealth to improve access and timeliness of care. The departmental government's target is for 70% of that population to have access to eHealth, for two reasons: first, eHealth can improve the efficiency of care, particularly for people in risk groups, such as people with mental health issues, people at risk of cardio-cerebrovascular diseases, and pregnant women who require special and frequent care. The effectiveness gains stem from the fact that eHealth facilitates data capture and smart management of patient information, increasing access and promptness of care without collapsing the health system. The second reason is cost: remote care strategies such as telemedicine and teleassistance can reduce costs for users and for IPSs, as explained below.
- 1.6 Health teleeducation can also increase access to basic and preventive health information targeted to the vulnerable population, since it has been documented that prevention and healthy habits are the most effective way of improving health indicators of a population group. Teleeducation also provides tools to train health professionals who work with vulnerable at-risk groups and reduce professional turnover in rural areas, which is often caused by lack of professional development opportunities. Both the 'effectiveness' and 'cost' variables are essential for improving health care for the vulnerable, rural population in Antioquia.

⁷ National Institute of Health data.

⁸ Departmental vital statistics.

⁹ Pérez, G., A. Silva (2015). Una Mirada a los gastos de bolsillo en salud para Colombia [A look at out-of-pocket spending on health care in Colombia]. Documentos de Trabajo sobre Economía Regional [Working Papers on the Regional Economy]. Banco de la República de Colombia.

- 1.7 **FMUA's LivingLab¹⁰ as a pioneering eHealth experience.** The University of Antioquia School of Medicine (FMUA) established LivingLab in 2010, which has enabled it to introduce several telehealth initiatives, such as an online platform to answer consultations from the municipios of the department, improving the timeliness of care. LivingLab has also developed teleeducation applications and digital content for health professionals and the general public, and operates the School of Medicine's Moodle platform,¹¹ through which it offers a master's degree, as well as seminars and courses, in telehealth. LivingLab has also created a free virtual platform with content developed for programs to support pregnant women and their families and babies. These experiments in telehealth have been in response to community needs, to create synergies among academia, government, and business.
- 1.8 **Beneficiaries.** The project's strategy is to reach the 1.7 million people enrolled in EPS Savia Salud with eHealth. All of these people are vulnerable since they are enrolled in the subsidized health system, which is the mechanism that provides access to health services through government subsidies for those unable to pay.¹² The project also seeks to reach about 500,000 people without health insurance,¹³ whose medical costs are paid by the government of Antioquia. Taken together, these figures raise the number of potential project beneficiaries to 2.2 million. Beneficiaries will include all of the 1.4 million people in the department living below the monetary poverty line (about US\$87 a month)¹⁴ and about 513,000 people living in extreme poverty (unable to afford the basic food basket). One out of every four of them lives in rural areas,¹⁵ where the incidence of extreme poverty is higher.
- 1.9 The project is expected to serve 58 municipios in the department and their rural areas, where inhabitants present obstetrical or cardio-cerebrovascular risk or mental health problems and are unable to access specialized health services on account of their socioeconomic or geographic circumstances. The project will also benefit some 1,500 health care professionals, who will participate in training and refresher activities through teleeducation.

II. THE SOLUTION

B. Project description

- 2.1 The project objective is to improve quality of life as it relates to health among the population of Antioquia by facilitating access with new eHealth models. The project

¹⁰ <http://parquedelavida.co/index.php/living-lab-telesalud>.

¹¹ www.teleduccion.medicinaudea.co.

¹² <https://www.minsalud.gov.co/salud/Paginas/R%C3%A9gimenSubsidiado.aspx>.

¹³ Coverage of the SGSSS in the department is 92.6%, which means that about 500,000 people are not covered and use IPSs that have agreements with the departmental government.

¹⁴ Canavire, G., and L. C. Carvajal (undated). Medellín y Antioquia: las cifras y las políticas [Medellín and Antioquia: Figures and policies]. Accessed on 14 June 2018 at <https://razonpublica.com/index.php/econom-y-sociedad-temas-29/10683-medellin-y-antioquia-las-cifras-y-las-politicas.html>.

¹⁵ According to the National Department of Statistics (DANE), 78% of the department is urban. Yet in urban areas poverty affects 20.6% of the population, while the figure rises to 26.8% in rural areas. Extreme poverty in urban areas is 5.7%, compared to 10.3% in rural areas, practically double the urban figure.

- will thus support the introduction of new eHealth solutions in telehealth and digital health, to build action capacity and improve the accessibility and timeliness of care¹⁶ for vulnerable and last-mile populations.
- 2.2 The main element of the **proposed model/solution** is the use of digital health and telehealth strategies and tools to improve access, timeliness, and cost-effectiveness in health care management in the Department of Antioquia. With the project, FMUA will be able to develop a comprehensive eHealth model based on the lessons generated by LivingLab through pilots, while creating integrated care pathways for three risk groups: people with cardiovascular diseases, pregnant women, and people with mental illnesses. To develop the model, the University of Antioquia will consult with local attorneys and the relevant health authorities to ensure that it has any necessary licenses and permits under local legislation for the activities in each of the three components.
- 2.3 Two options will be used for people with no Internet connection: the first is access from a municipal health center,¹⁷ at WiFi points, or mobile phone calls and text messages for the home teleassistance process, which does not require a smartphone or Internet connection. Second, the Ministry of Information and Communication Technologies (MinTIC) has installed “Vive Digital” [“Live Digital”] points and kiosks in urban and rural areas, where beneficiaries can access teleeducation programs. A possible agreement with MinTIC will be explored, to facilitate access in zones where beneficiaries encounter difficulties. In Colombia, Facebook and WhatsApp are currently offered at no cost for smartphone users with a basic prepaid plan, even if they have no data plan.
- 2.4 **Innovation.** The project is innovative because the eHealth actions will be implemented by a leading health management organization in Colombia that can influence the country’s public policies and health ecosystem, allowing for the possibility of scaling up the project to reach beneficiaries in other departments with which agreements could be reached in future. It is also innovative because it will use remote communication strategies with the beneficiaries (teleeducation, teleassistance, and telemedicine) and incorporate data analytics throughout the process of introducing the eHealth tools. This initiative differs from others in the country¹⁸ because it seeks to establish a platform of tools, content, and algorithms that will allow for thousands of interactions with vulnerable beneficiaries in the areas of telemedicine, teleassistance, and teleeducation.
- 2.5 The project is part of a nascent MIF framework and differs from its venture capital fund investments in small businesses that supply digital health tools. A recent external review of investment opportunities in this area notes that “The IDB’s innovation lab, MIF, represents an under-explored opportunity for healthcare

¹⁶ Timeliness means that patients receive care when their specific situation requires, not necessarily immediate care.

¹⁷ The primary health care centers in 123 of the 125 municipios already have Internet service from the company Une–Edatei.

¹⁸ Specifically, the projects of the University of Caldas in the use of diagnostic techniques and the Fundación Cardiovascular de Colombia [Cardiovascular Foundation of Colombia] for high-complexity health services.

companies wishing to pilot new business models, distribution partnerships, or capacity-building models.”¹⁹

- 2.6 **Component I: Telemedicine.** The objective of this component is to implement a telemedicine care model to improve access, timeliness, and cost-effectiveness in the delivery of medical services. The component will focus on populations in three risk groups: pregnant women, mental health, and people with cardio-cerebrovascular disease, which include a large percentage of the vulnerable population of Antioquia, are associated with common conditions (diabetes, hypertension, complications during pregnancy, dementia, general ill health, and depression), and can benefit from telemedicine using remote medical consultations and seeking to reduce hospital admissions and complex procedures.
- 2.7 The main activities of this component are to: (i) develop integrated care pathways²⁰ or protocols mediated by eHealth solutions for the three identified risk groups: pregnant women, people with mental health issues, and people with cardio-cerebrovascular disease; (ii) link the different telemedicine technological tools developed by LivingLab²¹ in a single platform,²² for at least one of the identified risk groups;²³ and (iii) evaluate the cost-effectiveness of telemedicine interventions in at least one of the risk groups.
- 2.8 The expected outcomes of this component are to: (i) reach 75 communities in Antioquia with telemedicine services; (ii) provide 120,000 telemedicine services to vulnerable people in the three risk groups; (iii) provide 36,000 telemedicine services to high-cost patients²⁴ with chronic renal disease, tuberculosis, HIV, and cancer, and screening tests for HIV infection in pregnancy; and (iv) ensure that at least 90% of patients who received telemedicine services are express satisfaction with the service.
- 2.9 **Component II: Teleeducation.** The objective of this component is to implement virtual education strategies for better training for students, university teachers, and health professionals, and the community at large.
- 2.10 To attain this objective, a virtual education platform will be developed and implemented for health professionals to improve patient management and control in the 16 risk groups prioritized by the government, mentioned earlier. The main activities of this component are to: (i) select the specific thematic areas to be developed around obstetrical, cardio-cerebral vascular, and mental health risk; (ii) design and develop 15 educational contents related to the three risk groups,

¹⁹ [Business leadership for an inclusive economy, 2017, Innovative finance to expand access to healthcare.](#)

²⁰ Integrated care pathways are defined as the necessary conditions and sequences of actions by medical personnel to guarantee the quality of care offered by the different agents in the health system. The project will focus on developing integrated care pathways for the three risk groups: pregnant women, mental health, or cardio-cerebrovascular disease.

²¹ For the integrated care pathways to include medical, assistance, and health education activities and be scaled up, the different technological platforms must be integrated and be managed efficiently by the IPSs.

²² A platform is a set of tools, applications, and functions that can be managed by the user in an integrated manner.

²³ Initially, pregnant women, mental health, and cardio-cerebrovascular disease.

²⁴ These services will represent an economic incentive for the insurer and the IPS.

- targeted to professionals and community members; and (iii) design and implement the teleeducation pedagogical strategy.
- 2.11 The expected outcomes of this component are to: (i) train 1,000 health care professionals; and (ii) generate 30,000 interactions on the teleeducation platform to access its content.
- 2.12 **Component III: Teleassistance.** The objective of this component is to monitor and support persons at high obstetrical, cardio-cerebral vascular, or mental health risk by integrating technological tools, specialized professional tools, and personalized care, with cost-effective strategies targeted to health promotion and self-care.
- 2.13 To achieve this objective, cost-effective action protocols will be developed and implemented²⁵ for teleassistance in the home. The main activities of this component are to: (i) design and develop algorithms for teleassistance in the home; (ii) integrate the algorithms developed into the automated call process; (iii) respond to medical alerts; (iv) monitor the cost-effectiveness of teleassistance in at least one of the identified risk groups.
- 2.14 The expected outcomes of this component are to: (i) generate 8 new algorithms for monitoring chronic patients; (ii) link 1,500 patients to the home teleassistance program; and (iii) process 50,000 calls using the home teleassistance model.
- 2.15 **Component IV: Sustainability, scale, and coordination.** The objective of this component is to develop sustainability and scaling models through strategic partnerships and launch new businesses or spinoffs based on the project outcomes. The main activities of this component are to: (i) identify strategic partners, such as technology and health tech firms, to provide telehealth services jointly or in partnerships, in order to transfer the project learnings to the health ecosystem; (ii) establish sustainability models for the delivery of telemedicine services in other parts of Colombia and the region; and (iii) strengthen and create businesses and institutions to sustainably promote telehealth as spinoffs of FMUA.
- 2.16 The expected outcomes of this component are to: (i) work with at least three health institutions (public or private sector) on the design and incorporation of integrated care pathways mediated by ICTs; (ii) support at least 60 existing or new firms in the health, technology, and education sectors, based on project developments; and (iii) spin off at least one new business initiative based on the project developments and outcomes.

C. Project outcomes, impact, monitoring and evaluation

- 2.17 **Outcomes.** The project's main output will be an integrated care model for telehealth that includes care pathways mediated by telemedicine, platforms, and educational content for the continuing education of health professionals and the community at large, and teleassistance strategies to facilitate monitoring of chronic and emergency patients in the three priority risk groups.
- 2.18 **Impact.** The project will provide coverage for some 2.2 million vulnerable people to access telemedicine, teleeducation, and teleassistance services in the department of Antioquia through health care outreach agencies (EPSs) and health care institutions (IPSs) working with the University of Antioquia. In addition, the project

²⁵ Action protocols understood as algorithms.

will have a positive impact on the cost-effectiveness of the health services offered with eHealth tools, which incorporate patient data analytics in all interactions without increasing the cost of care, while reducing the number of higher-cost interactions such as hospitalization and complex care. Cost-effectiveness will be evaluated by FMUA.

- 2.19 **Monitoring.** FMUA will be responsible for monitoring and evaluation of the project results, as presented in the Results Matrix, and will develop information technology tools for that purpose, integrating data from the project's various applications and interactions with the beneficiary population and with health professionals, so that the entire telemedicine services model can be evaluated, not just the Results Matrix indicators. Additionally, the project results will be reviewed on a six-monthly basis using leading-edge technology tools,²⁶ to obtain independent statistics on the platforms.²⁷
- 2.20 **Evaluation.** The project will include a midterm and a final evaluation to be commissioned by the executing agency with the MIF's concurrence. The evaluations will examine completion of the project objectives and indicators described in the Results Matrix. To facilitate these evaluations, during the project the executing agency will: (a) develop information technology tools to measure the number of patients treated through the telemedicine modality, the number of health care professionals trained through teleeducation, the number of interactions generated with the content developed for the teleeducation strategy, and the number of patients monitored through home teleassistance; and (b) design instruments to measure the cost of the interactions, beneficiary satisfaction, and indicators for improvement of the quality of life of the targeted population.

III. PROJECT ALIGNMENT WITH THE BANK, SCALABILITY, AND RISKS

A. Alignment

- 3.1 **With the Bank and the MIF.** The project is aligned with the Update to the Institutional Strategy (document AB-3008), particularly the challenges of productivity and innovation and social inclusion and equality, by proposing an innovation based on the use of technology to facilitate access to health care services for last-mile populations. The project is also consistent with the Bank's country strategy with Colombia, particularly the objective of consolidating a sustainable health care system, seeking to build institutional capacity and increase investment to improve access and equity, enhancing treatment capacity at the first level of care with a model based on primary care, infrastructure, and human talent; building capacity of subnational entities to better manage the health of their populations; and expanding the supply of infrastructure, human resources, and equipment in rural and remote areas through public-private partnerships (cost of travel to distant health care facilities); and enhancing the treatment capacity of local services. Lastly, the project is aligned with the Sustainable Development Objective 3, "Ensure healthy lives and promote well-being."

²⁶ Google Analytics offers such tools.

²⁷ For example, teleeducation tools for patients or videoconferencing tools for telemedicine.

- 3.2 The project is also aligned with the MIF's strategic objective of promoting entrepreneurial growth and job creation driven by technology, since it will promote spinoffs of the model, leading to the creation of more technology firms to provide those services and, hence, higher employment in this segment.
- 3.3 **With the country.** The project's telehealth strategies are aligned with the Colombian governments' Comprehensive Health Care Model (MIAS), since they offer an alternative for closing gaps in inequitable access to health services in the country. The proposed telehealth actions support the model's first level of care, providing quality and timeliness in services, and keeping patients from going to high-complexity levels, entailing serious health consequences and high costs for the system. Furthermore, the strategy offers an opportunity to strengthen and support the MIAS's integrated care pathways, which focus on recovery, rehabilitation, and palliative care for risk groups. The project is aligned with Colombia's Ten-year Public Health Plan (PDSP), a strategic objective of which is to eliminate access barriers to obstetrical care under the project for comprehensive, integrated networks, which include telemedicine and health teleeducation, particularly for areas far from medical facilities.

B. Scalability

- 3.4 **Path to scalability.** The main path to scalability will be cooperation with the project partners to make more people aware of the model and increase its competitive advantages. LivingLab will act as a hub for integrating the scaling strategies. Specifically, cooperation will take place through the project partners, which are committed to the project and focused on extending the benefits of health tech solutions to vulnerable and underserved populations. The partners include:
- 3.5 *Private and public stakeholders in the health sector.* The project initially includes IPS Universitaria, a health care institution associated with the university with four offices in Antioquia, which will increase the number of patients treated through telehealth technologies by extending care to other specialized clinics. EPS Savia Salud (currently public-private but in the process of full privatization) will also participate in the project, and is already working with FMUA.
- 3.6 *Technology sector.* The project will involve intensive use of digital technologies and health tech and will incorporate the knowledge of experts through partnerships with tech firms. When the project was being designed, a cooperative partnership was established with Microsoft Colombia, and more companies are expected to become involved, to scale up the project's solutions, for example through partnerships and/or investments in spinoffs established as part of the project.
- 3.7 *Innovation and entrepreneurship sector.* One of the project's strategic partners is Corporación Ruta N, a public institution whose objective is to consolidate a knowledge economy in the city and create conditions to favor businesses and entrepreneurship. Ruta N will support the project with resources to promote the sustainability and scaling of the model. A relationship has also been developed with the Aló Partners Venture Capital Fund, which may also invest in tech spinoffs.
- 3.8 *Government.* The Ministry of Health, the government of Antioquia, and FMUA will work together to introduce telehealth tools to serve the population not enrolled in a health care outreach agency (EPS). Additionally, agreements are expected to be reached with the national Ministry of Health and other public and private regional

institutions by the end of the project to replicate and scale the project up in other departments and parts of the country. At the time the project was being designed, FMUA was implementing an agreement with Guaviare department to assess whether to introduce telehealth tools and has been in talks on replicating the experience in Nariño department.²⁸

- 3.9 A project steering committee will be established, to ensure the commitment and involvement of the partners in designing and implementing a scalability strategy. All the above partners will be represented on the steering committee.
- 3.10 **Cost per beneficiary.** The project will enable the cost of each action per beneficiary to be calculated more precisely, based on the operating scale of the main project partners (EPSs, IPSs, and Antioquia government). A preliminary estimate of the incremental cost of using telemedicine and teleassistance tools is about US\$14 per patient per year.²⁹
- 3.11 **Ease of transfer.** Since FMUA will test the project's technology tools through at least one EPS (Savia Salud) and one IPS (IPS Universitaria), their transfer to other equivalent institutions in the rest of the country will occur naturally, since both types of actors operate with compatible incentives and rules of operation in the health sector.

C. Risks

- 3.12 The main project risk is that EPS Savia Salud, IPS Universitaria, the Antioquia government, or other key partners change their telehealth strategy and decide not to implement telehealth technology tools. This risk is mitigated by FMUA's partnering and work already done with the project partners, to firmly establish their commitment to telehealth. FMUA has also been formalizing semiannual agreements with EPS Savia Salud and has a history of cooperation with the departmental government.
- 3.13 There is also a risk that one of the project's three lines may not justify continuing to use telehealth tools from the standpoint of the quality of care. For example, technical problems during telemedicine consultation might adversely impact the quality of patient care compared to in-person consultations. This risk will be mitigated by the fact that the vast majority of the adult population has access to cellular telephone, as well as the use of proven tools and technologies as channels of care, such as WhatsApp, a social network to which nearly 90% of the 31 million Colombians connected to a social network have access (63% of the total population).³⁰ Another mitigating factor will be Internet access at departmental primary health care centers and the use of SMS. As already noted, the use of different measures and agreements with MinTIC to facilitate Internet access will be explored as part of the project.

²⁸ Nariño department has a population of 1.8 million, 40% of whom live below the poverty line. Guaviare has a population of 114,200, almost all of whom are vulnerable and rural.

²⁹ Calculation based on: (i) consultations to complete clinical history data; (ii) process to authorize and incorporate data from clinical examinations; (iii) medical assessment by the general practitioner and patient referrals to specialists.

³⁰ According to MinTIC data from 2017, 63% of the population uses social networks, with WhatsApp and Facebook being the most popular, with nearly 90%. The same source indicates that use is growing at a rate of more than 10% a year.

IV. INSTRUMENT AND PROPOSED BUDGET

- 4.1 The project has a total cost of US\$3,250,000. Of that amount, US\$1,000,000 (29%) will be contributed by the MIF as nonreimbursable technical cooperation, and the remaining US\$2,500,000 by the University of Antioquia and its main project partners, the Departmental Government of Antioquia and EPS Savia Salud.
- 4.2 Retroactive recognition of counterpart funds. Counterpart funding of up to US\$250,000 (10%) may be recognized as of 6 April 2018, the project eligibility date.

Project budget (US\$)	MIF	Counterpart	Total
Component I: Telemedicine	176,000	1,237,251	1,413,251
Component II: Teleeducation	625,000	264,845	889,845
Component III: Teleassistance	36,667	987,670	1,024,337
Component IV: Sustainability, scaling, coordination, and evaluation	162,333	10,233	172,567
<i>Midterm and final evaluations</i>	30,000	-	30,000
<i>Financial audits</i>	15,000	-	15,000
<i>Project administrative/financial management</i>	117,333	-	117,333
<i>Reports and partnership management</i>	-	10,233	10,233
TOTAL BUDGET	1,000,000	2,500,000	3,500,000

V. PROJECT PARTNERS AND IMPLEMENTATION STRUCTURE

A. Project partners

- 5.1 The University of Antioquia, acting through its School of Medicine (FMUA), will be the executing agency for this project and will sign the contract with the Bank. FMUA has a 146-year history as a leading medical institution in Colombia, and has established schools of public health, nursing, microbiology and bioanalysis, and nutrition and dietetics. Organizationally, FMUA is an academic institution of a public university, but is governed by private law.
- 5.2 The university, as a public agency at the department level, acting through its School of Medicine (FMUA), strives to strengthen its relationship and engagement with society by forging and preserving community ties in the academic, scientific, technological, artistic, and cultural fields. Its extension activities focus on the following areas: research, continuing education for graduates and health professionals, delivery of health services, specialized treatments, diagnostic testing, and outreach projects in vulnerable, low-income communities.
- 5.3 Specifically, the project will be executed through FMUA [LivingLab](#), an innovation center that has a multidisciplinary team of engineer developers, Web designers, health professionals, and others with experience in developing technological solutions. FMUA has three strengths when it comes to solving the problems discussed: (1) As a decentralized institution governed by private law, FMUA has decision-making autonomy and can deploy business solutions and implement projects with health care outreach agencies (EPSs), such as EPS Savia Salud,

- which is a public-private mixed enterprise in the process of becoming 100% private, active and interested in serving the vulnerable population in three subregions, and will be a key project partner.³¹ (2) FMUA is positioned to influence Colombia's health ecosystem, which includes public and private institutions, in a way that a private entity could not, since the lessons learned and models will be validated by one of Colombia's leading medical institutions that has been developing innovations in health care, such as automated interactive calls to treat chronic diseases,³² and has schools of public health, nursing, microbiology and bioanalysis, and nutrition and dietetics. (3) the potential for replication and scaling is high, given FMUA's association with a private network of medical centers ([IPS Universitaria](#)) and extensive experience in managing projects for outside partners, such as the Departmental Government of Antioquia, to provide care for the population not enrolled in the health system; Ecopetrol, implement a health risk management program for employees; and the labor risk insurance provider Positiva ARL, to develop emergency training for its affiliates.
- 5.4 Lastly, given its association with EPS Savia Salud and IPS Universitaria, FMUA is solidly positioned to execute this project, since it is involved in medical care for 2.2 million people in Antioquia, the vast majority of whom are vulnerable. The university's operating budget in 2016 and 2017 was US\$255 million and US\$283 million, funded in almost equal parts by transfers and sales of services, and an average annual surplus of 4.1% over the total annual operating budget.
- B. Implementation structure and mechanism**
- 5.5 FMUA will establish an execution unit and the necessary structure to execute the project activities and manage the project resources; the organizational chart is available for consultation in the project technical files. FMUA will also deliver six-monthly status reports on project implementation. The details on the structure of the execution unit and requirements for status reports are available in the technical files for this operation.
- 5.6 FMUA will name a project coordinator through LivingLab. Each of the partners will also name a representative, who will act as liaison between their institution and FMUA.
- 5.7 The project will also establish a steering committee to be chaired by the dean and assistant dean of the School of Medicine. It will initially include the project coordinator, the LivingLab coordinator, a representative of each of the participating insurers (currently EPS Savia Salud), a representative of each of the project health care providers (currently IPS Universitaria), a representative of the Departmental Government of Antioquia, a representative of Ruta N, and of other partners. This steering committee will meet at least once every six months to evaluate the project results indicators and make decisions related to the sustainability of the model, the partnerships to be established, knowledge management, and the transfer of

³¹ Talks are under way with other EPSs that may be added.

³² To track chronic diseases and generate alerts in four pathologies (chronic obstructive pulmonary disease, diabetes, cardiovascular disease, and dementia). Thus far, the program has been implemented with three insurers and one departmental hospital.

technology. Establishment of the steering committee will be a condition precedent to the first disbursement.

VI. ATTAINMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS

- 6.1 **Results-based disbursements and fiduciary arrangements.** The executing agency will commit to the MIF's standard arrangements relating to results-based disbursements, procurement, and financial management, specified in the technical files. Project disbursements will be contingent on the verification of milestones, using means of verification agreed upon by the execution unit and the MIF. Attainment of milestones does not exempt the executing agency from the responsibility to comply with the indicators established in the logical framework and reach the project objectives.
- 6.2 Under risk- and performance-based project management modality, the amount of the project disbursements will be based on the project's liquidity requirements, estimated for a period of up to six months. These requirements will be agreed upon by the MIF and the executing agency, reflecting the activities and costs programmed as part of the annual planning exercise. The first disbursement will be contingent on compliance with the conditions precedent, and the subsequent disbursements will be subject to meeting the following conditions: (i) verification by the MIF that the milestones have been reached, as agreed in the annual planning; and (ii) the executing agency has justified at least 80% of the cumulative advances of funds.
- 6.3 **Procurement.** The executing agency will follow the IDB procurement policies for the procurement of goods and contracting of consulting services (documents GN-2349-9 and GN-2350-9), as well as market practices for the private or commercial sector that are acceptable to the Bank.

VII. INTELLECTUAL PROPERTY

- 7.1 **Intellectual property.** The Bank will retain the intellectual property rights to the outputs and studies developed under the project and will grant the University of Antioquia a nonexclusive license for their use, free of charge for noncommercial purposes within the territory of the Republic of Colombia. This will ensure the widest possible dissemination of the project's learnings in Colombia and in Latin America and the Caribbean.