i.Title

COLOMBIA DIGITAL FINANCIAL SOLUTIONS IN HEALTH

ii.Executive Summary

Describe in one paragraph, for a nontechnical audience, the context under which this application or work plan is being submitted to Digital Square and the expected outcomes. Answer the following questions: What will this investment from Digital Square specifically go toward? What is/are the goal(s) of the project? How will the goal(s) be achieved? How will your organization's expertise contribute to achieving the project goal(s)?

- *Over the past year, our alliance has received support from the Bill & Melinda Gates Foundation to implement health promotion and disease prevention solutions for low income families in Colombia. Moving from a reactive health care system to a proactive health promotion model, our efforts focus on providing digital financial services that addresses the gap in health services in a subsidized health system for low-income families. Access to dental health services and collective purchasing in nutrition for example, are not covered. Nevertheless, we know the lack of access to these services contribute to the proliferation of the main non communicable diseases our healthcare system is trying to address. Our digital solutions leverage the collective purchasing power of 13 million Colombians to offer them access to relevant financial instruments (ie. savings, micro insurance, collective sourcing)*

iii.Consortium Team

This RFA encourages partnering; in particular, it encourages partnerships between global health organizations and digital financial service organizations.

- *Led by GESTARSALUD, our alliance brings together health service providers that reaches more than 13 million Colombians who are receiving subsidized health services. The alliance is further strengthened by expert organizations in blockchain, innovative finance, food distribution (association of foodbanks), retail services, and big data. Gestarsalud and its members work directly with government agencies on improving access to health services for low-income families as well as chairs several global networks for the solidarity economy.*

- *TOPL brings expertise in the implementation of blockchain solutions in order to be able to provide digital financial health services to the targeted population. Our work to-date has focused on the customer interface as well as the processes to leverage the collective purchasing power of low-income families to access health promotion and disease prevention solutions.*

- *Together with QUADRATYX, we will use Artificial Intelligence to run deep learning exercises whereby the system is able to understand what type of information is relevant based on marker detection in the existing dataset. This allows to significantly speed up the process in identifying which affiliates would be a good match, based on their medical expenditure profile. Instead of reaching out to all 13 million affiliates in Colombia we are now able to pinpoint exactly which affiliates are a good fit for the specific financial instrument offered.*

- *Access to economic and social data on more than one-third of the Colombian population provides an opportunity to develop the right solutions with impact at scale.*

- *The team is already working with the Ministry of Health in the promotion of innovative financial solutions supported by AI and Machine Learning.*

iv.Project Description

Describe the project idea in further detail. If you have phases or objective areas in your project, outline those in the project description. Subsections within the project description should include:

1. Problem statement

Put the project/work within the larger context. Detail relevant background information necessary for a third party to understand. Where is the work taking place? What is the current phase/stage of project? Is this an ongoing or discrete project?

- *In multiple reports by multilateral finance institutions, NGO's and even the UN, a number of different financial instruments have been identified to address the social development gap in the most vulnerable communities. The unique context of many middle income countries is painting a fractured picture though. These countries often already have a well developed private sector, a regulated financial sector and a robust public sector able to deliver on implementing the required policy frameworks. Even with the regulatory and executive infrastructure in place, delivering these financial instruments to the most vulnerable people in the communities remains a challenge as adoption rates remain low. What barriers still exist?*

- *What we already learned during the current phase of the project is that the landscape of healthcare, promotion and prevention in low-income communities of middle income countries, like Colombia, is very fragmented. A large number of national programs funded by different Ministries are addressing related health issues in the same communities but due to lack of data sharing and communication, significant gaps in knowledge and understanding exist. This is exactly what we want to address with the support from DFHS.*

- *During the landscaping assessment we therefore first want to understand how consumers in low-income communities are dealing with health related expenses, how are they able to cover these expenses currently and on what type of health related issues do they tend to spend their time and money on. Having the knowledge on the consumer's behaviour, we are able to determine current spending and eventually predict future spending. This allows us to understand what financial instruments would be a good fit for which consumer.*

- *The current generic approach by the financial sector in middle income countries on health related spending is not considering the wide disparity in social development in the different communities. High social strata and low social strata are by definition not homogenous on their spending behavior. Health care cost for people in low economic strata takes up a much larger percentage of their disposable personal income, compared to people in high economic strata.*

- *Colombian counts with one of the highest rates of inequality in the Latin America. While 95% of low-income families receive subsidized health services in Colombia, the program doesn't provide opportunities for the 13 million Colombians to receive dental services, micro insurance, collective savings, and access to affordable and healthy food. With one of the highest rates of labor informality, low-income individuals do not have access to social programs (i.e. for women to stay at home after childbirth, or workers who have suffered an injury on the job). Our alliance has been working with a diverse group of partners to gauge access to digital financial solutions for low-income families.*

- *Building on investments from the government of Colombia as well as a grant from the Bill & Melinda Gates Foundation, this initiative is nearing the end of the initial phase. The opportunity to receive a grant from Digital Square would help implement the blockchain technology solutions to a large pool of identified families as well as cover expenses on Big Data analysis and deep learning tasks. That investment from Digital Square would serve as catalytic funding to actors that are able to crowd in private capital.*

- *Cultivate an understanding that nutrition, early childhood development, dental hygiene and other programs are proactive solutions for disease prevention and health promotion. We now have the opportunity for subsidized health services providers in Colombia to provide digital financial instruments to cover health services that provide benefits to the health system as a whole. Being able to reduce the burden of chronic diseases through health prevention frees up resources that can then be reallocated to improve coverage.*

- *Several studies have demonstrated that investment in Early Childhood Education, dental hygiene, and nutrition will positively impact health outcomes. Preventive measures and access to such services are not accessible to low-income families with limited financial resources. The legacy financial service providers often argue that the lack of financial*

resources with low-income families would not make for a sustainable business model to offer these type of services.

2. Approach

What is the technical approach or anticipated activities to address the problem statement and anticipated outcomes? Provide a short description of monitoring and evaluation approach, techniques, and/or process.

- *Building on our recent study of needs in the target population, we are crossing multiple sets of data from Health Service Providers and government agencies in order to inform the deployment of potential digital financial solutions in health services. The funding from Digital Square would be invested in applying blockchain solutions for the delivery of digital financial services.*

- *Using our theory of change offers several benefits. In particular, it helped to construct an evaluation framework focused on relevant outcomes and not just activities. The process of reflecting on intended goals and pathways will help staff to review the design of engagement activities. Challenges included practical considerations around time to consider evaluation plans among practitioners (a challenge for evaluation more generally regardless of method), and more fundamental difficulties related to identifying feasible and agreed upon outcomes.*

- *Together with Gestarsalud and its members, the subsidized health care insurance companies in Colombia, we have direct access to over 13 million unique data points. We would be able to place markers in their datasets and within the sample group follow over a fixed period of time the consumers' behaviour (ie. affiliates of the health insurance companies).*

- *During the First Phase of the project we are able to collect the raw data in real time from the field study. This phase of the project allows us to provide a general understanding on health care expenditure. It allows us to formulate different hypotheses around specific health care cost categories like for example dental care, health prevention, and noncommunicable diseases related to nutrition. To test these hypotheses during the Second Phase, Inputs and Outputs are identified, Indicators tested and Valuations determined.*

- *Now during the Second Phase we are to run multiple (likely 4) separate test groups in different parts of the country which provides a different mix in social structure, geography and ethnicity. This allows us to test our hypotheses with the input of real life data under different circumstances. After the fixed term of the test period we expect to be able to determine on the basis of the collected dataset whether the hypotheses hold or not. If inconclusive we would loop the same process until we can dismiss or confirm.*

- *Finally, based on the confirmed hypotheses in Phase 2, we will now be able to design in detail the financial instruments that best suit the needs of the health care consumer during the Third and final phase. As part of the community oriented service sector, we would be able to leverage existing knowledge and experience from Financial Service Providers and regulators. A minimal viable product of the financial tool is tested with a sample population during a test period and determine for example adoption rate, claim rate, risk profile, and financial sustainability. Also we will conduct 'in app' polls with users of the tools, as well as periodic meetings with consumer focus groups to understand user experience and ways to improve on instruments with a strong focus on usability and affordability.*

3. Risk Mitigation

Are there potential obstacles or risks? What is the mitigation strategy and/or plan to overcome them?

- *The diversity of individuals and organizations that form part of the alliance provide opportunities to mitigate risk associated with the implementation of blockchain solutions. Engagement of government agencies and private sector partners can help address changes in government´s priority.*

- *The project and interventions are built on a (results based financing) model that would offer a pathway to financial sustainability; hence reducing the risk associated for ongoing funding required to guarantee operational continuity.*

- *We will be making use of blockchain technology to be able to tag users, track activities and record health care stats. Blockchain ID's are linked to Social ID numbers. Reporting will only be performed on the complete dataset without disclosure of individual data. Considering the nature of the information collected and analysed, we will obtain consent from all users in test and control groups. We expect to mitigate this risk through users accepting General Terms & Conditions when installing the app.*

4. High-level budget summary

The activities described below as Phase A (design) and Phase B (implementation) are included in the Work Package 1 and covers the first 9 months of the project. Work Package 2 includes Phase C (evaluation) and covers the final 3 months of the project.

Gestarsalud will contract some of the members for the project team and specific (technical) services like the blockchain architecture, AI and geomapping consultancy are outsourced to third party providers. Relative to the total budget we believe a significant percentage will be spent on Travel.

During the landscaping assessment we are not foreseeing any (significant) cost on Equipment, Supplies, or Others. Our indirect cost are contingency funds for any unforeseen expenditure at this stage.

Description	Work Package 1 (USD)	Work Package 2 (USD)	Total Cost (USD)
Personnel (Salaries & Wages)	$ 6,480.00	$ 2,160.00	**$ 8,640.00**
Fringe Benefits	$ -	$ -	**$ -**
Travel	$ 13,500.00	$ 4,500.00	**$ 18,000.00**
Equipment	$ -	$ -	**$ -**
Supplies	$ 900.00	$ 300.00	**$ 1,200.00**
Other Direct Costs	$ -	$ -	**$ -**
Contractual	$ 19,440.00	$ 6,480.00	**$ 25,920.00**
Consultants	$ 36,000.00	$ -	**$ 36,000.00**
Total Direct Costs	**$ 76,320.00**	**$ 13,440.00**	**$ 89,760.00**
Indirect Costs	$ 7,632.00	$ 1,344.00	**$ 8,976.00**
Total Project Costs	**$ 83,952.00**	**$ 14,784.00**	**$ 98,736.00**

5. Objectives and activities

When World Bank Group President Jim Yong Kim addressed the 66th session of the World Health Assembly in May 2013, he called for the global community to “bend the arc of history to ensure that everyone in the world has access to affordable, quality health services in a generation.” But is 100% coverage financially sustainable without incorporating elements of innovative finance?

The objectives of our work focuses on implementing new and innovative digital financial services that our members have identified: (First) complement services that are currently available to the subsidized population ¨96% access to healthcare ¨, (second) develop models for financial products required (informal workers and young mothers), (third) collaborate with financial service providers to design DFS specific to existing gaps (prevention and post hospitalization).

In order to be able to identify gaps within the different subset of this Affiliate group, we would need to test different assumptions.

5.1 Hypotheses

We are planning to test various hypotheses on our target groups with a number of different DFS tools (ie. insurance products). By using the null hypothesis model we expect to determine the extent of the correlation. When we reach this point we would be able to test the insurance products with different subsets in our target groups.

As an example might serve:

Persons with a sisben[1] score over 55 can not afford medical insurance (H_0: $\mu > 55$)

Although not covered as part of this landscaping assessment, we plan during a follow up phase to work with the financial sector to see how the current insurance products could be further tailored to this specific audience (not previously considered). Part of this deep dive on the product dynamics would be i) price point, ii) understanding risk, iii) coverage, iv) credit score, v) savings behaviour etc.

Our modeling is based on 3 main components: i) the person, ii) his/her status, and iii) product.

5.1.1 Person

The persons in this canvassing are all existing affiliates of one of the member organizations of Gestarsalud. Because of the design of the project we have geofenced the target groups to 4 different locations in Colombia. The locations are mostly urban, high variety in cultural background, nutritional patterns, climates and all facing invisible barriers due to past conflict, violence, and limitations in access to healthcare. We are considering Cartagena, Pasto, Bogota, and Cali.

5.1.2 Status

The characterization of the persons in the target groups are defined based on their i) Health status, ii) Financial Status, and iii) Socioeconomic Status. We define health status as the person's medical history in combination with dynamic data received from Gestarsalud's member organizations and other stakeholders in the ecosystem. We define financial status as their credit rating in national credit databases, their savings pattern, and their access to banking products. Finally the socioeconomic status is mainly based on the sisben score which is awarded by the Colombian government that determines whether or not a person is allowed access to subsidized national programs.

5.1.3 Product

The product is defined as the specific (micro) insurance product available in the market. Although Colombia's financial sector is rather robust for a middle income country, there are (many) blank spots that are not covered for a variety of reasons. Just to name a few: i) Out Of Pockets payment (OOP) (transportation, drugs, etc), ii) Catastrophic Health Expenditures (CHE) iii) Total health expenditures.

Based on this modeling we will design and implement our project.

1. **Phase A - Design Hypotheses (3 months)**
   - **1.1. Identify Target & Control Groups**

[1] Sisben is a socioeconomic score for Colombian citizens based on which eligibility to government subsidized programs is determined

Within every one of the 4 regions we will form target groups as well as control groups that consist of persons with comparable status (health, socioeconomic, financial).

1.2. Identify Insurance products

In Colombia already a number of insurance products exist. We plan to long list the insurance products that would have most potential with the target groups identified.

1.3. Determine Common Taxonomy

For health professionals and DFS providers to clearly understand each other it is fundamental to determine a common language**.**

1.4. Design Hypotheses

Based on the addressable market, the insurance product and a common language we plan to design a number of different hypotheses spread across the different areas identified.

2. Phase B - Test Hypotheses (6 months)

The activities described below are not necessarily conducted sequentially. Some would need to be performed in parallel, due to time constraints.

2.1. Socialize amongst stakeholders

This is a high level socialization amongst key stakeholders that need to be aware of our landscaping assessment. For that purpose we will not only include members from the health sector and the financial sector, but also government bodies (ie. Min. Health, Min. Finance) as well as Academia. We will also consult with NGO's and other civil society organizations that are already operating in the areas that we have identified for this project. The objective here would be to create awareness as well as general community support.

2.2. DFHS training Distributors

As we believe that in order to best understand what type of insurance products would be the best fit for the different target groups, we should be testing the existing insurance products as if they were Minimum Viable Products. Receiving real life data on Affiliates showing interest in insurance products by buying them, is a clear indication of market fit. This would require a group of distributors (ie. sales team) that require the necessary training on these products.

2.2.1. Design training

Because of the geographical spread of this landscaping assessment we plan to use a 'train-the-trainer' model which allows us to have 1 (or 2) persons responsible in every location. This will also allow to have a first line of response for distributors by local trainers, during the implementation phase, before being escalated to the project team.

2.2.2. Identify distributors

We plan to mainly use female distributors for a number of different reasons. The distributors would need to be living in the same neighbourhoods as the Affiliates. Distributors would be separate from the Affiliates in the target groups and control groups.

2.2.3. Implement training

A central training is planned together with other stakeholders (ie. Gestarsalud members, (micro) insurance providers, and other relevant stakeholders, as well as the future local trainers.

After the central training, the local trainers go out into their region to train the future distributors that have already been identified.

2.3. Onboarding Affiliates

Affiliates are selected based on their health status, socioeconomic status and financial status. Therefore we expect to have a large number of target groups allowing us to test different scenarios. Affiliates are selected by the participating member organizations of Gestarsalud together with the project team. As far as necessary or relevant third party databases would be consulted to acquire the full dataset required for this assessment.

2.3.1. Fieldwork Distributors

Distributors will, based on the Affiliate list prepared by the project team, approach the persons in the target groups and offer the insurance products that have been pre-selected for the specific target group.

2.3.2. Registration Affiliates

Upon approval by the Affiliates, the Distributors will now initiate the registration process. During the registration process the Affiliate will provide explicit consent for him/her being monitored as part of this landscaping assessment.

2.4. Monitor Behaviour Affiliates

Digital monitoring of behaviour of Affiliates is only conducted with their explicit consent and only for the duration of this landscaping assessment. Only behaviour relevant to this assessment is monitored. Data on health expenditure, savings, general spending would fall within the scope.

2.4.1. Periodic In-app satisfaction surveys

Although the app will allow us to collect quantitative data, we plan to collect some qualitative data through a micro surveys on satisfaction (star rating + comment field).

2.4.2. Distributor led interviews

The purpose would be to collect qualitative data directly from the Affiliates through interviews (or focal groups) led by the Distributor (or someone from the Project Team).

3. Phase C - Evaluate Outcomes (3 months)

After Phase A and B we enter the evaluation phase of the landscaping assessment. Because of our micro-mapping approach we expect to be able to present outcomes that are relevant to specific subsets in the communities.

3.1. Outcome Surveys

We plan for outcome surveys to collect both quantitative and qualitative data from Stakeholders as well as Affiliates.

3.1.1. Stakeholders

Only the stakeholders closest to the project will be included in the surveys as we expect that other stakeholders would not be able to contribute in a meaningful way on evaluating the program (due to the relatively short runtime).

3.1.2. Affiliates

The Affiliates will be the most important group with whom we evaluate the program based on a set of expected outcomes that were determined in the design phase.

3.2. Evaluate, analyze, report on outcomes

Together with our consultants (ie. blockchain, AI, geomapping) the project team will be collecting the relevant data in order to be able to report on outcomes in a coherent and concise manner.

3.3. Pivot Strategy

The project team will also provide suggestions in the report on ways to pivot the program in order to further improve efficiency, effectiveness and scalability.

3.3.1. Reject or Accept call

The pilot team, together with Gestarsalud management team and potential future funders will then determine how to advance on the data that has been collected and analyzed.

6. Background

Constituted as Cooperatives and Mutuals, Gestarsalud's members receive a very small subsidy from the Colombian government to offer complete healthcare services to low-income Colombians. As Colombia reaches a national coverage of 95% of its population, the shift towards a proactive healthcare system is a must in order to instill sustainability in the provision of services as well as increase quality services. The foundation of such shift will be built on leveraging technology solutions and improving services currently not covered by the health system.

Building on the success in coverage, Gestarsalud's members have focused on identifying gaps and needs for a population that is highly informal (workwise) and low-income. Some financial services have been deployed in some areas but nothing to scale as the neighborhood they serve are extremely complex.

Colombia offers a very interesting setting for research on Digital Financial Health Services that would help inform other middle income countries, not only in increasing coverage, but also to address prevention and post hospitalization cost. The health system is traditionally reactive and provide services based mostly on care (ie. hospitalization).

Our project innovates as it strikes to address digital financial services in support of the patient and the healthcare system in general. As we are already collaborating with Financial Service Providers (FSPs) providing such services to individuals with some capacity to pay, we will be able to more accurately present innovative finance solutions beyond micro health insurance. Our project takes into consideration the following information:

- As coverage of health services increased so did the number of complaints and legal filing against Health Insurers (public health) exponentially increase.

- Although health care coverage in Colombia is high and equally distributed among departments, there are strong indications that health outcomes and actual access to health services vary dramatically. This requires a micro mapping approach as described in the activities of our landscaping assessment.

- Largely as a result of the regulatory shortcomings in Colombia's health system, patients who are refused treatments, exams, and pharmaceuticals—whether or not these are included in the baskets of health services—are left with no better alternative than to file a

lawsuit using an informal judicial mechanism for the protection of basic rights, widely known as tutela, which was incorporated into the 1991 Constitution.

- The rapid growth of the subsidized population places significant pressure on the government's health budget. In 2011, for example, 68% of the funds used to finance the subsidized regime were public (transfers from the national to the local government through the General System of Participation). Only 25% of the funding came from payroll taxes. Furthermore, municipalities (1%) and departments (6%) are very small contributors to the funding for the subsidized regime.

- The government has conceded that part of Colombia's population is still uninsured. More significantly, the Ministry of Health has classified this population as the Uninsured Poor Population (UPP).

- Informal workers and pregnant women have access to subsidized health services but are left unprotected during postpartum or post hospitalization.

- Adverse health shocks are a major source of economic risk for adults in Colombia. Protection against such risk doesn't exist in Colombia for low-income individuals / families. Yet we know remarkably little about their exposure to economic risk from adverse health events.

- Access to Early Childhood Education for low-income families is normally paid for by the state. But access is limited as well as its coverage (70% nutritional value).

7. ADDITIONALITIES

In addition to the activities described above, we believe our work could also helps shed some light on appropriate policy action and research avenues to pursue. Because the severity of health shocks, household economic status and health system characteristics matter for outcomes, policy makers will need to consider these factors in tailoring their social protection policies for specific sub-groups. Policy makers also need to consider non-health sector mechanisms, such as introducing of disability insurance, safety nets, or supporting existing informal mechanisms for the protection of households against losses in income and consumption from health shocks. Future research can answer the feasibility and effectiveness of such mechanisms in protecting low-income households from the overall economic consequences of health shocks. Other areas where research can be fruitfully directed, include harmonization of indicators used for assessing health shocks and economic outcomes. Some of the additionalities to consider are:

- Consultation and information gathering on programs available to the high socioeconomic strata 4, 5, and 6;
- Recommendations on potential innovative finance solutions for funding new DFHS;

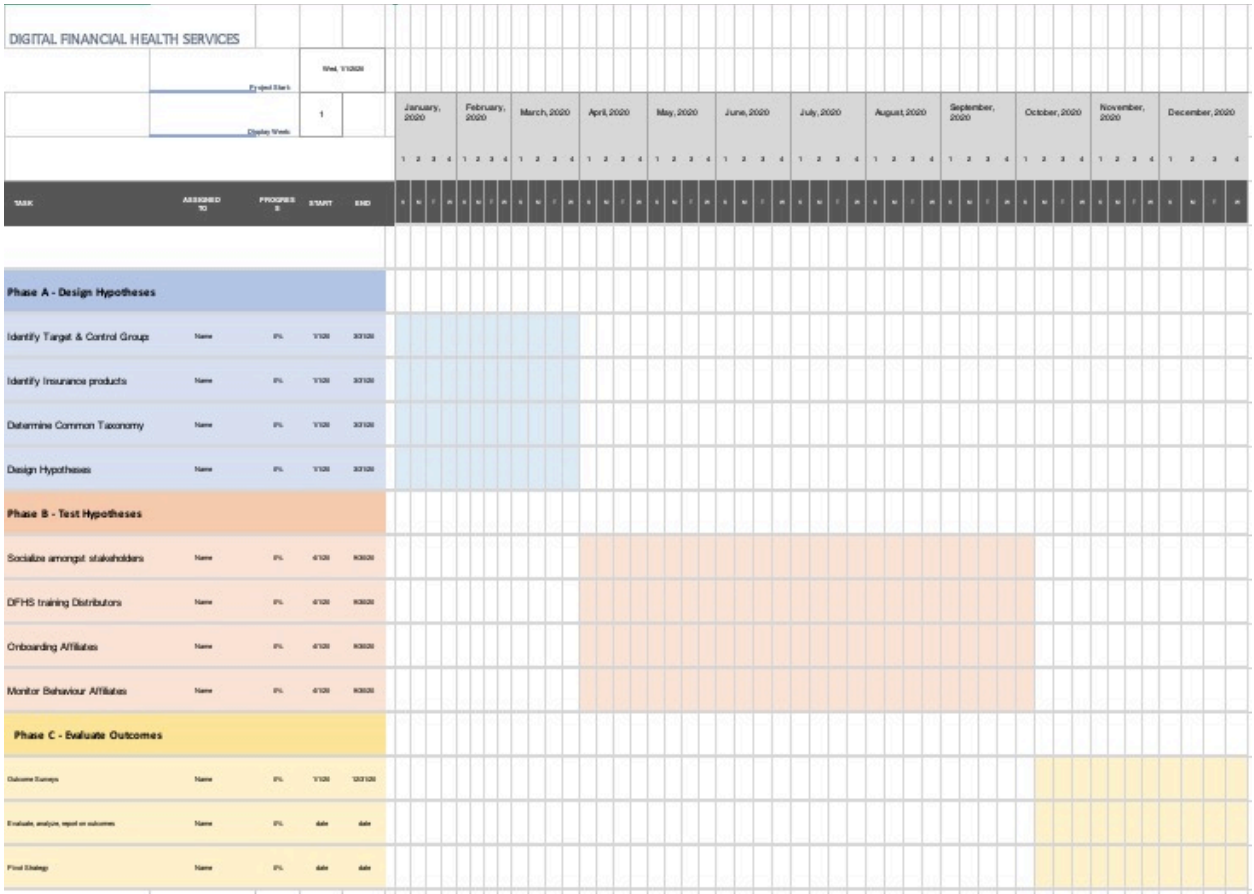
- Collection of rigorous empirical evidence on the performance of Colombia's health care system due in large part to the lack of detailed individual– or household–level data on health spending
- Application of innovative finance principles to help design new funding mechanisms;

6. Schedule

As part of our work as providers of healthcare services to 13 million Colombians covered by the subsidized healthcare, several of our members Cooperatives and Mutuals have already begun to look at addressing gaps in the way healthcare services are provided in Colombia.

Building on the work of our member organizations, we are also addressing the financing gap in making subsidized healthcare sustainable. The financing from Digital Square Open will set in motion a series of dedicated activities that will substantially support and help coordinate all efforts between the multiple actors that are also concerned with the quality access to digital financial health services.

As soon as the funding is confirmed, Gestarsalud will engage their member organizations to plan all activities, timelines, and deliverables. Below is a schedule based on activities described above.



7. Deliverables

Gestarsalud in collaboration with its member organizations will produce a report containing the following information. As a member and Vice President of the International Association of Mutuals (AIM), we will try to engage our regional partners to contribute to the research and provide local and contextualized information.

We expect that within (12) months, we will have completed the above-mentioned work and consultation and would require an additional 2 months to prepare our final reporting on:

- A regional context on access to healthcare services, offering a micro-mapping solution to bring to the fore health challenges for low-income communities;
- A taxonomy on current digital and non-digital health financial services applicable to the region;
- The gaps and opportunities in digital health financial services relevant to the region;
- A Cost Analysis of new programs (post hospitalization) and (prevention)