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# The experience of the Social Innovation Science Park MD in Cundinamarca: Current results and future challenges

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## Executive Summary

In Colombia, the presence of several social challenges requires that R&D capacities should focus in generating innovative alternatives to such problems. Since 2010, 'Corporación Universitaria Minuto de Dios – UNIMINUTO', with other public and research sector stakeholders, has design and implement the Social Innovation Science Park MD – SISP, a platform to enhance social innovation. Based on the conceptual and strategic design of this Science Park, this work, aims to present the first results from SIPS, and some lessons learned in the relation between the Science Park and communities and territories where incubated projects are being carried out. The paper is organized as follows: First, it briefly introduces the conceptual and strategic proposal of the SISP; second, it present main results achieved in the period 2012-2015. Then, it discuss some lessons learned in the relation between the Science Park, the communities and territories where it has presence. Finally, it presents SIPS future challenges.

## 1. Introduction to the Social Innovation Science Park MD

The Social Innovation Science Park is initiative carried out by 'Corporación Universitaria Minuto de Dios – UNIMINUTO', a Colombian university which has been recognized as 'Inclusive Business Innovation Model' in education by the G20. Although Social Innovation is a quite recent concept, the SISP team has proposed a definition, based on researchers such as Howaldt et. al (2012) , Phills et. al (2008) , and organizations like ECLAC (2010) , this has proposed a conceptual approach, that define this concept as following:

*Social innovation refers to the pursuing, finding and implementing solutions which are novel, efficient, participatory and sustainable, to face problems that limit the achievement of better life conditions in a community. These problems include, but are not limited to, the usual problems related to poverty, and the new challenges related to issues such as climate change, water management, food security, the energy security among others, on the most vulnerable populations .*

Based on this definition, and through alliances with other stakeholders, including the Government of Cundinamarca and other research universities, the park has develop and implement a conceptual, strategic and management model, in order to support the development of social innovations trough concrete projects.
In 2012, UNIMINUTO in alliance with the National Administrative Department of Science, Technology and Innovation of Colombia, develop a Feasibility Study for the SIPS, which produced the following conceptual model, based in five components:

**The Observatory:** An intelligence unit responsible for identifying social problems, that based on analysis and reporting of report trends and circumstances, promote projects and stakeholders articulation relevant to these needs. The Observatory identifies capabilities, resources and success references at the local, regional, national and international levels. It also includes a chapter to monitor the application of traditional knowledge coming from indigenous and farmer's communities.
Knowledge Network: In order to promote Knowledge Management that generates social innovation, the SISP articulates a network that integrates knowledge, skills and expertise from several agents involved in social innovation projects. The network is structured as a geo-referenced knowledge map, supported by an IT platform that facilitates interaction and exchange between agents. Furthermore, this Unit develops a knowledge data base that includes best practices, traditional knowledge and lessons learned from previous project's, which may be reused from their systemization. Additionally, the SISP infrastructure is not centralized, but is deployed around several "Nodes in the territory, where it brings its portfolio to the communities it wishes to serve.

**R&D Support Platform:** Science Park acts as a coordination hub for efforts and resources to enhance applied research processes oriented towards social innovation. Thus, the SISP offers a portfolio of services to research groups where they may take research products to develop them into social impact results.
Platform for Projects and Social Entrepreneurship: The Park offers a service platform to support Social Innovation and Social Entrepreneurship projects. The platform provides support in the processes of design, development and management these projects, in addition to services on knowledge transfer and intellectual

1. Howaldt, J. Franz, H. Hochgerner, J. (2012) Challenge Social Innovation: Potentials for Business, Social Entrepreneurship, Welfare and Civil Society. SpringerLink.
2. Phills, James., Deiglmeier, Kriss, & Miller, Dale. Rediscovering Social Innovation, Social Innovation Review, Fall 2008.
3. ECLAC (2009) Experiencias Innovadoras en América Latina y el Caribe. Available online from: www.cepal.org/dds/innovaciónsocial/e/concurso/htm.
4. González, M. (2013) Social Innovation Science Park MD: An opportunity to bring together researchers and communities to co-design solutions for social problems.

property registration. To provide this portfolio of services, the SISP has distinct physical spaces and facilities, where it is able to incubate projects. In order to generate value on the projects, the Platform uses state of the art practices on Project Management, particularly those suggested by the PMI .

**Social Appropriation of Knowledge:** This component seeks to disseminate the results generated in the other parts of the SISP, with the goal that beneficiary communities appropriate Science and Technology as an opportunity to improve their living conditions. In addition, this Unit creates packages of the solutions generated, so that the results generated in the projects may be replicated and scaled up in other contexts, after adapting them.

The five components configure a systemic solution to strengthen Social Innovation capabilities, in an innovative scheme inside science parks context. Thus, the five components are not independent areas, but act coordinately to generate greater value to the initiatives involved in the SISP. Based on this conceptual model, on 2012 the SISP developed its Strategic Planning, which could be summarized in the following chart:

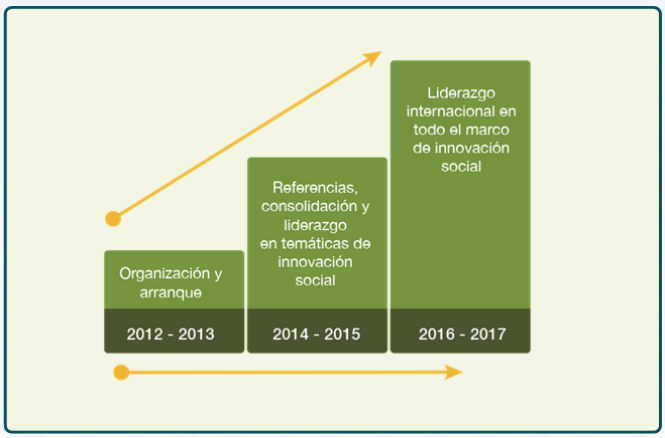


Illustration 1. Strategic Planning - Social Innovation Science Park MD

Based on the conceptual model and the Strategic Planning presented below, a team appointed by the National Principal of UNIMINUTO, began to work on the initiative, in order the implement the Social Innovation Science Park as a unit inside the university, with the midterm objective of becoming a fully operational Science Park.

## 2. First results

Since 2010, UNIMINUTO started the idea of establishing a Science Park, which was developed further during 2011 and 2012, through a design phase to build, socialize and improve its conceptual model. The founding idea is that the Social Innovation Science Park MD is a specialized agent in strengthening social innovation capacity of communities by articulating a range of services and solutions that promote projects where

5. Cundinamarca is a Colombian province around Bogotá (national capital).
6. Davenport, Thomas & Prusak, Laurence. (1998) Working knowledge. How organizations manage what they know. Boston: Harvard Business School Press.
7. PMI (2015). Project Managment Institute. http://www.pmi.org/.

contributions from the Research, Development and Innovation system and such communities interact under the condition of social appropriation of knowledge.

During 2012, a small scale operation was carried out, including the incubation of projects in areas like Green Entrepreneurship and Social ICT, and the building of alliances with stakeholders such as Nation Information Society Agency - NIA from government of The Republic of Korea (South Korea). This initial operation allowed the Social Innovation Science Park MD to validate the model and to get the necessary experience to develop a greater scale of operation.

Beginning in late 2013, the SISP has developed a macro-project, in order to enhance Social Innovation capabilities in Cundinamarca, with the support of the Secretariat of Science, Technology and Innovation of the Government of Cundinamarca, which is one of the key associates from the government in the development of this Science Park. Many of the results presented in this paper has been developed in this macro-project framework.

The results of the Social Innovation Science Park MD described next, are organized by each one of the components of the conceptual model introduced in Section 1. The results has been achieved by a team, which the authors of this paper currently lead, and soon each one will be presented in an academic or divulgation paper.

**Results from Social Innovation Observatory:**

The Social Innovation Observatory, based on the idea of how to drive the 'Technological Watch' concept to a social innovation framework, has worked on designing and implementing methodologies, which has allowed the following products:

- 'Hilando': Social mapping project, which identified social innovation initiatives to overcome poverty in 14 provinces in Colombia, developed jointly with ANSPE (Colombia National Agency to Overcome Extreme Poverty).
- 'Social Innovation Newsletter': A print and digital publication, that aims to divulgate results in SI projects to small municipalities in Cundinamarca, and inhabitants from rural areas.
- Research to measure the impact of higher education access to low income graduates from three campuses of UNIMINUTO.
- Design and implementation of a methodology of social innovations indicators, in order to improve the understanding and measuring of social innovation projects processes and impacts.
- Social cartography of Cundinamarca, where more than 1.000 students from UNIMINUTO mapped the problems faced their communities.
- Collaboration with several competitions to promote social innovation, in design, evaluation and systematization process.

**Results from Social Innovation Knowledge Network:**

In order to articulate several actors and capabilities around social innovation, the Knowledge Network has been working mainly in two strategies:

a) Human Relations Strategy: The SIPS has recently cooperate with several stakeholders in order to stablish five innovation networks in Cundinamarca, a social innovation ecosystem in the central region in Colombia, and is actively participating in more than four international networks.

b) Technological Platform: SIPS has implemented a knowledge management platform to support the human strategy, called ATLAS (Territorial articulation to link the social appropriation of knowledge in Spanish) with integrates knowledge process workflows with an internal social network. The platform has successfully finished is internal beta phase, and recently has begun the external pilot phase.

**Results from R&D Platform:**

The R&D Platform for social innovation has become a space where researchers and institutions where products obtained by university professors may be translated into solutions to address social issues. Inside the initiatives lead by this platform, it is possibly to highlight the following ones:

- Urgent EVOKE. SIPS has been working with World Bank in adapting and translating a social innovation program 'Urgent Evoke' , an online 'serious game' designed to empower young people to work on world's social issues.
- Smart Town - Talent and Innovation for the territory: A joint project between three universities and Government of Cundinamarca, which takes nanotechnology, biotechnology and ICT materials, and adjust them to develop some capabilities in young people whom are not able to get into higher education.
- Water Resource Management. About using ICT to generate better water consumption habits, which is a key issue for sustainability.
- Music for Peace: Joint project with the department of Tolima's Music Academy, in order to design and implement Social Innovation laboratories is small municipalities, where through music and art young leaders can be

Results from Platform form Projects and Social Entrepreneurship:

Currently this unit is incubating the following social innovation projects, which are generating new technologies, methodologies that may become 'social spin offs in a medium term.

- STEM program, developed jointly between UNIMINUTO and iCarnegie for teaching science and mathematics using robotics in a curricular model, which benefits about 1200 high school students, with quite successful result to date.
- 'Community Green Business', project which began as a joint research program between UNIMINUTO and 'Andes University', one of the most prestigious research universities in Colombia. The project team has designed several tools to promote innovation and social entrepreneurship in areas with high environmental sensibility. During 2014, the project trained 350 high school students, enhance sustainability tools in more than 35 small business and generated ten technological prototypes for environmental challenges in the area.
- Engineer for your house: Project where based in a case study from a rural community of Cundinamarca, Engineers, Social Workers and Business Managers work jointly in order to design and test solutions for habitability and house improvement´s for the problems that many Colombians face daily. In the last year, the project has benefited more than 300 families from San Juan de Rioseco.
- Agro-ecology and Climate Change: Project that based on research results from Agro-ecology Department of UNIMINUTO, has worked with more than 50 families from rural areas with low accessibility, in how the implement best agricultural practices to recover vegetal and Andean cereals farming, improving their self-consumption and marketable production. Products includes a software tool to allow small producers to self-asses their sustainability situation and some carton type teaching materials, in order to share learned practices with farmers from other regions.

**Results from Social Appropriation of Knowledge:**

The SIPS and its partners, has implemented several strategies to enhance Science, Technology and Innovation capabilities in the communities in Cundinamarca, particularly aimed to those people how have

been traditional excluded to work with it.

- Organizing and co-organization academic events, where national and international experts discuss the important of social innovation in concrete problems in the project, with the participation of more than 2500 people.
- Training about 500 social leaders from Cundinamarca, in science, technology and innovation concept and methodologies. All the participants have been working the professional from the Science Park, in order to formulate projects and business plans for their social entrepreneurships.
- Hosting two 'Start Up Weekends' in small cities in Cundinamarca, in order to encourage local entrepreneurs and to discover potential initiatives for other programs.
- Teaching materials for students, stories and multimedia content for the communities which may appropriate knowledge through a simple language.

In synthesis, the SIPS during three years of organization and start-up phase, has worked in more than 46 projects, articulate investment of about 10 million USD dollars, had presence in 15 provinces in Colombia, and benefit directly and indirectly over 7.000 persons.
The results presented below show how in short time, a quite innovative concept such as the Social Innovation Science Park MD has been able to achieve important results in the areas where it is working. These results are the base to discuss who the relation between this Science Park and communities and territories has been developed.

## 3. Communities and Territories around the Science Park

The third part of the work, discuss the relations that have been developed between the Science Park, the communities and territories where the Park, and its projects, has presence. This is a key issue, since the main objective is to strengthen social innovation capabilities in the communities in the territories where it has presence, currently mainly in Cundinamarca province.

The key question about this relation is about what is the add value that to the SIPS drive to the projects and initiatives incubated or carried out inside the Park, when compared to individual actions carried out by other actors in the same territories. The following are the main lessons learned by the authors team, that are supported in the quite large scope of the projects carried out inside the Social Innovation Science Park.

- First, it is observed that SIPS projects not only achieve its products on its 'technical objective' (for example, improving management conditions for green entrepreneurs), but even more, the projects sensitize communities about the importance of science, technology and innovation on their lives. In a country like Colombia, where the education system faces several challenges, this is very important issue.
- Second, the SIPS projects tend to articulate by their selves, generating new possibilities for innovation. For example, the projects 'Engineer to your house' has been inspired by the STEM project pedagogic approach, and is being developing a new approach in teaching people how to use environmental friendly building materials.
- Third, the SIPS projects experience show the need that this type Science Parks involve the concept of 'Areas of Innovation', in both its conceptual and operational design. The request of the communities benefited by the Agro-ecology project, located more than 5 hours driving from the SIPS main office, to receive the entrepreneurship platform of the Science Park, has result in the generation of 'Mobile Service Unit' of the SIPS. This new service channel has raised the question of integrating the AI's model on current operation.}

- Fourth, the SIPS incubation model, always makes projects include a capacity development component, with emphasis in leadership, empowerment and entrepreneurship. This is done with the long term objective

the communities will be able to create their own 'social spin offs' and small enterprises in their territory, who will be responsible that the innovative solutions will remain sustainable in the long term. This issue is critical in order to make more efficient the social investment that is done in Colombia by the public and private sector.

• Fifth, the structure of the SISP, as typically of many STP's, it a multi stakeholder structure, in both decision and operation level. This structure also influences the projects that are being incubated, thus they also involved several actors when carrying on their operations. This is a key element, since its provide multiple knowledge, resources and connections, that smooth project development in communities from rural areas or far from big cities, where the context is very complex due to the low access to some technologies.

Since the learned lessons have emerged from the observation of the leadership team of SIPS, it will be quite reckless to generalize these ideas. However, evidence from a large scope of population benefitted by the projects, suggest that these lessons may be applicable to other Science and Technology Parks that may want to enhance further the impact of their tenants over the communities and territories where they develop their operations.

## 4. Future Challenges

According to the results presented, in just three years the Social Innovation Science Park has been able to achieve quite important results, which can be seen in the projects being incubated, and also trough the products that has been accomplished following the Strategic Plan proposed in 2012.

However, the Science Park has some challenges that management team aim to work on in the following years. First, a model to take incubated projects and transform them into 'social spinoffs', which may generate revenue for the stakeholders, and at the same time, create social value, it is an important topic; It would require am special property and legal framework in order to achieve this kind of enterprises. Some models like "B Corporations" would be quite useful building this idea, which will be key in order to maintain the social impact that UNIMINUTO and the SIPS has delivered to the communities.

Second, since the SISP aims to have a national presence, through all the 53 points that UNIMINUTO delivers its' educational services, how to manage a physical infrastructure which is delocalized will be a mayor issue. The role of IT technologies, the Science Park Knowledge Management System, and the lessons learned from other "Areas of Innovation", will be key in order to overcome this challenge.

Third, the question of measuring the impact on social and economic conditions of the communities and territories where the projects (and future social spin offs) are being developed. Right now, the time frame of the projects is to short to be able to measure any impact, but even that, the Observatory team is currently developing a methodology to implement social innovation indicators in two or three years. This implementation will be a significant scientific and methodological challenge.

Last, just like many other STP and AI, financial sustainability is always a main challenge for managers. SISP is currently transforming its model, in order to generate capabilities to continuously articulate innovators and R&D capabilities, which may generate projects for incubation that may evolve in 'social spin offs', in order to keep the Science Park operating, driving impact to the communities, and generating solutions for social problems in Colombia.

## 5. Conclusions

The present paper describes the 'Corporación Universitaria Minuto de Dios – UNIMINUTO' experience, in process of design and implement the Social Innovation Science Park MD – SISP, as platform where R&D capacities meet other stakeholders in order to enhance social innovation. Event that the SISP has a short time of operation, it has achieved important results as measured by the number of projects incubated, stakeholders articulated and resources mobilized. The process of achieving this results has shown some lessons in the relation between a STP and the communities and territories where incubated projects carry on its operations. Even that these lesson cannot be generalized, they may provide some useful insights in how to a Science Park may contribute further to the social and economic development of the region where it has operations.