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VALPARAISO – CHILE



MATURITY MODEL FOR DESIGN MANAGEMENT IN SOCIAL INNOVATION: THE PHOENIX BRIK APPLIED CASE

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Tesis para optar al Título de Ingeniero Civil Industrial

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Marzo - 2018

Abstract

The objective of this thesis is to contribute on the incorporation of design management to support social innovation, as the first space identified is the measurement of design management and its seem that in a for profit context maturity models complete the assessment. The following research is conducted to develop a maturity model assessment of design management tailor-made for social innovation, inspired from Essmann & du Preez's (2009) Innovation Capability Maturity Model (ICMM), taking an approach from innovation management toward social contexts. The proposed modification to the model, inspired on the current available literature, is composed by 19 Social Innovation Capabilities, in which design might take an important role within their development, evaluating the organization's maturity levels regard design aspects. Divided in 3 main lines related to *direct characteristics of social innovation* as the process, sustainability and the solutions characteristics; *the external support* with the collaboration and the exploration of the ecosystem; and finally, *the organizational support* with the management and leadership of the organization. It was taken a case study strategy as an illustrative manner to describe the parts of model within context, taking from an own created data base of 233 design award related to social innovation, one case for each capability describes the role of design toward Social Innovation. Later, constructs were prioritized by an AHP process being able to produce a design development plan in line with the common lack of resources and accord to the preferences of social innovators. Finally, with the objective of get insights of the dynamics of application the model is applied in the local case study of Phoenix Brik, a local NGO that reuses Tetra Pack containers as a new building material and educating the community regard environmental issues, including people with differentiated skills on their production line, and lining emergency houses with the new reused material produced. Analysing for every construct to finally develop an implementing plan that suggests a design management plan within their processes to support its social innovation and find a sustainable model on their operation. The results from the applied case study remarks the difference of knowledge by social innovators regard design being a constraint on the model's assessment, and even when its seem the value, the lack of resources might causes no implementation at all. Finally conclusions are presented to the methodology of change, the proposed model and its impact on the inclusion and management of design for social innovation.

Resumen

El objetivo de esta tesis es contribuir en la incorporación de la gestión del diseño como soporte para la innovación social, siendo la primera brecha reconocida la forma de evaluar la madurez de la gestión del diseño. La siguiente investigación es conducida para el desarrollo de un modelo de evaluación de madurez de la gestión del diseño que se adapte a medida para la innovación social, inspirado en el modelo de madurez de capacidad de innovación de Essmann & du Preez (2009), incorporando un acercamiento al tema desde la gestión de la innovación hacia un contexto social. La modificación al modelo, inspirada en la literatura accesible existente, está compuesto por 19 capacidades de Innovación Social, donde el diseño puede tomar un rol importante en su desarrollo, evaluando el nivel de madurez de la organización con respecto al diseño. Divido en 3 líneas principales relacionadas a las *características directas de la innovación social* como el proceso, la sustentabilidad y las características intrínsecas de las soluciones; *el soporte externo* relacionado a la colaboración y la exploración del ecosistema de innovación social; y finalmente, *el soporte organizacional* relacionado a la gestión interna y el liderazgo en la organización. Se adopta una estrategia de casos de estudio de forma ilustrativa para describir cada capacidad donde de una base propia de 233 casos premiados en diseño relacionados con innovación social, se selecciona un caso describiendo su aporte en diseño hacia la Innovación Social. Luego, el modelo es jerarquizado a través de un proceso de AHP para ser capaz de crear un plan de gestión de diseño en línea con la común falta de recursos y atingente a las preferencias de los innovadores sociales. Finalmente, con el fin de obtener una visión de los resultados con respecto a las dinámicas de aplicación, el modelo es aplicado en el caso estudio de Phoenix Brik, una ONG local encargada de reutilizar los envases de Tetra Pack como un material de construcción y poder educar a la comunidad entrono a problemas medioambientales, incluyendo personas con capacidades diferenciadas en la línea de producción y forrando viviendas de emergencia con el material analizando en profundidad cada constructo para sugerir un plan de gestión del diseño para fortalecer la innovación social y encontrar un modelo sustentable en su operación. Los resultados del caso aplicado remarcan las diferencias en el entendimiento del diseño lo cual genera dificultades para su aplicación directa, y a pesar de exponer el valor y su interés en el diseño, la falta de recursos y la baja priorización en su agenda produce que su implementación sea dificultosa. Finalmente se describen conclusiones de la metodología de cambio, el modelo propuesto y su impacto en la utilización y gestión del diseño para la innovación social.

Agradecimientos

A mi madre “la Cecy” por la oportunidad de poder estudiar, sin su gran apoyo nada de esto sería posible, siendo una gran fuente de aprendizaje y crecimiento el cual se ve reflejado en la persona que escribe estas palabras. A mi familia más cercana, mi hermano Bnjamín y mi padre, por su apoyo incondicional y largas conversaciones en la búsqueda de forma, y Leoncito, que llegó en la mitad de la investigación. A mis amigos del POLI los que me ayudaron desde un principio en este trabajo, al Kikul y esos intentos de darle forma, Carlos “el CEO” Coy, Franco y Ludo que me acompañaron desde un principio en el viaje, a Laura por sus consejos y Vale intentando hacerme entender y que entendiera el trabajo. A mis amigos que gracias a la extención en el tiempo de la tesis pude volver a encontrar, los Malakatosos, en especial Cartasky, Rodrov, Ramitrov y Benjatrov, que, junto con el Santuario, han influenciado a tomar un rumbo altamente ligado con el compromiso social la cual me hizo embarcarme en esta ambiciosa investigación. A mis amigas, Cami, Belen, Titi, que siempre estuvieron dando ánimo para terminar el proceso. A Nathalia, agradecer el tiempo vivido en Milano y las grandes historias, nada sería lo mismo sin ese toque “malvado”. A Jimy Jara por las horas en la salita de Civiles y ese apoyo en la recta final. Y todos los que fueron parte de este proceso.

Agradecer la ayuda del profesor Christopher, el cual pudo encausar la investigación, al profesor Zurlo por sus consejos y Xue Pei con sus revisiones hasta por Skype, la persona que abre el tema de tesis gracias a su PhD. Además de Magglio, Cristobal y Norman en su ayuda con el Caso de estudio aplicado y su disposición en las entrevistas

Finalmente agradecer a mis hermanos “Los Vientos” en especial mi escuela, Xalo, Pipe y Ro por ser una inspiración siempre de la cual por suerte creo que no podré librarme jamás.

Gracias a todas las personas
y las grandes coincidencias
que me han dado la asistencia
de lograr en muchas zonas
conjugar a estas horas
un estudio del diseño
que he querido ser el dueño
dejando esta cruz
de la sombra a la luz
siendo todo como un sueño

Glossary

- ICMM: Innovation capability maturity model
- SI: Social Innovation
- DM: Design Management
- AHP: Analytic Hierarchical Process
- NGO: No governmental organization
- NPO: Non-profit organization
- NPD: New product development
- UN: United Nations
- UNOCHA: United Nations Office for the Coordination of Humanitarian Affairs
- EU: European Union
- WHO: World Health Organization
- TIPSIE: The theoretical, empirical and political foundations for the creation of social innovation in Europe
- SIMPACT: Strengthening the Impact of Social Innovation in Europe through Economic Keys
- DESIS: Design for Social Innovation and Sustainability
- SITRA: Finnish Innovation Fund
- OLPC: One Laptop Per Child
- DTM: Design That Matters
- RHU: Refugee Housing Unit
- HDX: Humanitarian Data Exchange
- CORFO: Corporación de fomento de Chile
- MESESUP: Mejoramiento de la calidad y la equidad en la educación terciaria (Quality and equality improvement program on third party education)
- PUC: Pontificia Universidad Católica
- UTFSM: Universidad Técnica Federico Santa María
- UAI: Universidad Adolfo Ibáñez
- PUCV: Pontificia Universidad Católica de Valparaíso
- ECLAC: Economic Commission for Latin America and the Caribbean
- ALS: Amyotrophic lateral sclerosis
- CEO: Chief executive officer
- UK: United Kingdom

Executive Summary

This research was conducted with the intent to reduce the gap between design management and social innovation due to the first identified lack of an assessment of design within social innovation. At a large scope this work presents a design maturity assessment model of 19 capabilities that supports social innovation, built based on a literature research proposing 3 levels for the development of each capability, illustrated by case study strategy for a in context understanding, selected from an own made design awards data base of 233 case studies related to social innovation. Then, the model is hierarchized by an AHP process according to the preferences of the social innovator, generating a broad design development plan. Finally, the model is applied as consultancy on a case study "Phoenix Brik", a local NGO, with a testing objective to get insights of the dynamics of application due to the uncertainty of the results of the new model, to conclude about the proposed model, the methodology of change, and its further development.

The main trigger for this research started with the current awareness and commitment on social issues, due to the new directions that are rising on society summarised with the 17 goals selected by the UN for sustainability. However, on one direction there is deep knowledge about what design could bring in a for profit context, having many studies showing the real potential of design in a tangible way as the return over design or the design index that are showing the increased profits that are having due to their design centred strategy, but in another hand, there is the feeling of the potential but a lot to do to put design on the social innovation context. In this line, the main goal of this thesis is to start filling this gap of knowledge, and trigger the inclusion of design as supporter of social innovation in a broad spectrum of what design might contribute, understanding that there is also a huge gap of understanding of what is design from a social innovator's perspective.

A literature review has been conducted, starting from basic concepts as innovation, social sector and design, to develop upon the complex and undefined complete concepts of design management and social innovation to arrive into the crossroad of this fields and the little literature about social design management and design management studies in social innovation.

It's taken the definition of TIPSIE's study about social innovation as "*"a new solution (product, service, market model, process, etc.) that simultaneously satisfies social needs (more effectively than existing ones) and produces new or improved capabilities and relationships as well as a better use of assets and resources. In other words, social innovation is as good for society as it promotes the capacity of society to act "* (Caulier-grice, Davies, Patrick, & Norman, 2012), understanding its process, described by G. Mulgan on his open book of social innovation, analysing the social outcome and its intrinsic characteristics, relation with the beneficiaries, its environment and context and the different typologies of organizations and its cross sectorial particularity. Identifying the differences at first with the traditional innovation and including also differences between social entrepreneurship, social enterprise, and social innovation to identify typologies and common patterns, that currently are not unified but in later stage inspire the transformation to the proposed model.

The approach to design management was done from a design perspective, defining it with its dual perspective of process and product. Analysing the double diamond process (Design Council, 2005) and its similarity to design thinking (Brown & Rowe, 2008) that nowadays is closer to managers, leading to a design attitude for problem solving, the one analysed by M. Amatullo (2015) defined by 5 aspects.

Then design is related to innovation as the bridge from creativity toward innovation from a user perspective (Cox, 2005), and increasing lately its role within many fields within a company, being lately under the spotlight for researcher lately by the Design Council in UK, providing quantitative data that shows over performance of design centered companies as much as 228% greater (Westcott, Sato, Wallace, Vanka, & Hardin, 2013).

Introducing to design management as the effective deployment of design resources and highly related to NPD process, analysing the lines proposed by Harpum (1997) and by K. Best (2015), going deeper on the paradigms for design management and the strategic line proposed by Cooper (2010). Exploring the bubble model proposed by S. Junginger (2009), to understand the inclusion of design thinking and methodologies in an organizational context, in a further spectrum within organizational culture.

The design ladder (2003) gave signals on the first type of design assessment, being improved on the design staircase model (2009) with a strong design management approach, being one of the current methods to see maturity of DM on the organization, related both models on the traditional usage of design for the organization, coming from a designer or a design manager, leaving a side many possibilities in which design might use its full potential.

Within a social context, design has been declared as a powerful tool, giving shape to the social innovation process proposed by Mulgan (2008), and related tools as visualization and the problem-solve approach that might be used to approach problems with a social context.

There are studies with several denominations as design for social impact, or social design, including educational programs with design with the specialization on social issues and problems, provided by many schools in EU and Europe, looking to fulfil the trend on the field. One of the most important researches is Ezio Manzini, that has defined design for social innovation as "*everything that a design expert can do to activate, maintain and guide processes of social change towards sustainability*" (Manzini, 2015). This definition spotlight the differences on the expertise that designers might bring, but knowing the common bricolage attitude of social innovators there is a huge step for them to add design expert to their lines, but to take design approaches is more likely within a diffuse design frame, this is one of the main reasons to expand the assessment model further from the designer.

There are also some design studios that has specialized on social problems as IDEO.org or Design that Matters, top design experts that are using the best of design methods to address important social issues, finding creative solutions with a reach beyond conventional structures and methods (Mulgan, 2014), but within a collaborative approach having on their back huge foundations that without their financing status make difficult to this studios to be hired by the most social innovations, leaving design duties to their own bricolage attitude, or very little trained design work.

Since in a broad-spectrum design is a method for problem-solving and sense making, Manzini (2015) and Pei (2016) have described two models for the type of design used depending on the expertise of the practitioner and the involvement of the users as the role of designer changes depending on the characteristics of the social innovation. Taking into consideration the design attitude studied by Amatullo (2015) on her research of the return of design in social innovation, that shows the relevance of this.

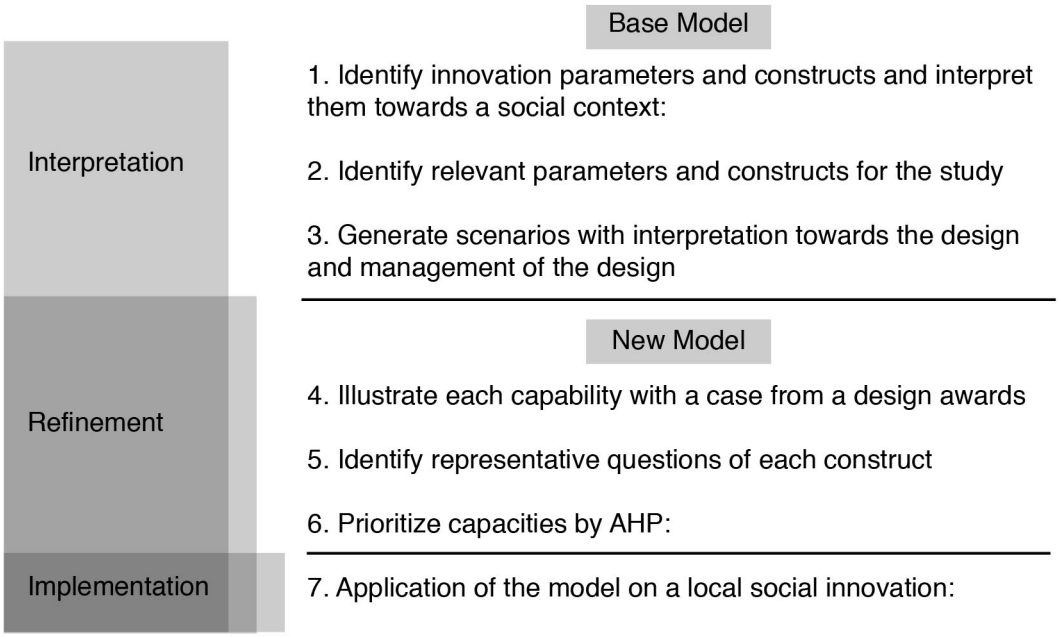
Since the literature shows that social innovation has little, but some studies from a design perspective, from a design management perspective there is a gap on the field, but since this type of

innovation have many intrinsic differences, making difficult to assess design management with the current methods defined leading us to generate our research problems as a first approach to foster the effective use of design management for social innovation with a formulation as:

RQ: How can design management be effectively assess in a social innovation context?

To answer this this research is focused to propose a model inspired from Essmann & du Preez's ICMM (2009), taking its innovation management approach adapted into social innovation and having a special emphasis on the design maturity as a support tool for this type of innovation. Considering several differences and approaches to a collaborative innovation on complex environments with high lack of resources and a bricolage attitude of social innovators as many dynamics that change, and design as it was founded in the literature might support the initiatives.

This research is composed by a 7-step methodology with two parts composed by case studies, illustrating and exploring the utilization on context of each part of the model. The following scheme introduces broadly the entire methodology applied:



The new proposed model is composed by 19 social innovation capabilities supported by design, classified into 11 groups: *Innovation process, Sustainability, Characteristics of the solution, Collaboration, Ecosystem, Management and Leadership* that are taken from 3 major aspects: ***Social Innovation, External Support and Organizational Support***, illustrated by different colours and with all the capabilities seen on next figure:

Social Innovation	Innovation process	1.1.1. Exploration of constraints for the development of new social innovation.	1.1.2. Understanding and re(formulation) of social issues from a user-perspective.	1.1.3. Creative process and solution's design.	1.1.4. Improvement of frugal solutions as NDP process.				
	Sustainability	1.2.1. Expansion and indirect scaling of solutions.	1.2.2. Search for a sustainable business model.						
	Characteristics of the solution	1.3.1. Research for systemic and efficient solutions.	1.3.2. Development of a beneficiaries' structure.					1.3.3. Value proposition identification and differentiation for each collaborator.	
External Support	Collaboration	2.1.1. Collaborators expectations and roles alignment.	2.1.2. Diversification of the collaboration network (volunteers, financers, in-kind resources).	2.1.3. Integration and development of collaboration network.					
	Ecosystem	2.2.1. Systemic analysis of the political, social, financial and civil society context.							
Organizational Support	Management	3.1.1. Design of a financial structure and organic reinvestment.	3.1.2. Creativity to measure social impact and make it visible.	3.1.3. Human resources and organizational capability management.	3.1.4. Promotion of value proposition and attraction of collaborators.	3.1.5. Use and management of formal design (external).			
	Leadership	3.2.1. Transfer of social mission values into intrinsic motivation.							

Each capability is developed from selected literature related to each topic and recent studies conducted by the European commission as SIMPACT (2014) analysing broadly every aspect that design enhances within the social innovation framework. A case study strategy is chosen for this step of the methodology to illustrate within the assessment frame, from an own generated database of 233 case studies of design awards between 2014 and 2016 (Annex A), were selected 19 broad case studies illustrating within context each one of the capabilities. Next table shows each capability and the case selected:

Nº	Capability	Selected Case Study
1.1.1.	Exploration of constraints for the development of new social innovation	Grameens Bank - Microloans
1.1.2.	Understanding and re(formulation) of social issues from a user-perspective	IDEO.org - Divas
1.1.3.	Creative process and solution's design	Inglorious Fruits – Intermarché
1.1.4	Improvement of frugal solutions as NDP process	OLPC - XO products
1.2.1.	Expansion and indirect scaling of solutions	Teach for all - Enseña Chile
1.2.2.	Search for a sustainable business model	Biolite – Homestove
1.3.1.	Research for systemic and efficient solutions	D.Light – A1
1.3.2.	Development of a beneficiaries' structure	ABCitta - Biblioteca Vivente
1.3.3.	Value proposition identification and differentiation for each collaborator	Cohousing.it
2.1.1.	Collaborators expectations and roles alignment	Design that matters - Firefly
2.1.2.	Diversification of the collaboration network (volunteers, financers, in-kind resources)	Techo
2.1.3.	Integration and development of collaboration network	Cyclehack
2.2.1.	Systemic analysis of the political, social, financial and civil society context	RHU Design team -Refugee Housing Unit
3.1.1.	Design of a financial structure and organic reinvestment	InVento Lab
3.1.2.	Creativity to measure social impact and make it visible	MASS Design group – Butaro district hospital
3.1.3.	Human resources and organizational capability management	AIESEC – Global Volunteer
3.1.4.	Promotion of value proposition and attraction of collaborators	Mekanism – It's on us
3.1.5.	Use and management of formal design (external)	Frog Design - HDX
3.2.1.	Transfer of social mission values into intrinsic motivation	Impact HUB

One of the benefits of a maturity model is its dual objective of assessing the current state of the organization and propose manners to improve its performance, in this case the usage of design. For each construct, are 3 proposed maturity levels (1-3-5, leaving levels 2 and 4 as middle points in between), highly inspired on the ones proposed by Essmann & du Preez on their ICMM v2 (2009), in which the level of were composed by *1) ah-hoc, 2) defined 3) supported, 4) aligned 5) synergized*, setting references on the level of incorporation of design into the processes and capabilities of social innovation.

Looking for the reflexion about design within each of the capabilities, questions about each one of the capabilities are proposed introducing the assessment of the model setting the boundaries of the maturity level from the organization within the social innovation, these questions on this research are on a for the analyst, but in further development might be applied as a self-assessment, depending on the design level of the organization and their understanding of the topic. This has been observed, after the Phoenix Brik applied case study, when there is a gap on the level of design knowledge and its understanding, the correct application of the model is hard and the results might be difficult to achieve, leaving for the analyst the duty to explore with proper vocabulary its good application.

The next step, done to align the common lack of resources by the social innovations and to set strategic lines with priorities of development considering his main concern. Through an AHP process the model is hierarchized comparing among them the 11 groups of capabilities, each one gets an importance ranking setting the bases of a design development plan. In this case, and suited for the following case study, the most important criteria are sustainability followed by the characteristics of the solution, and the collaborative aspects within the model as most critical capabilities to be developed. The results of the AHP process are resumed in the next table:

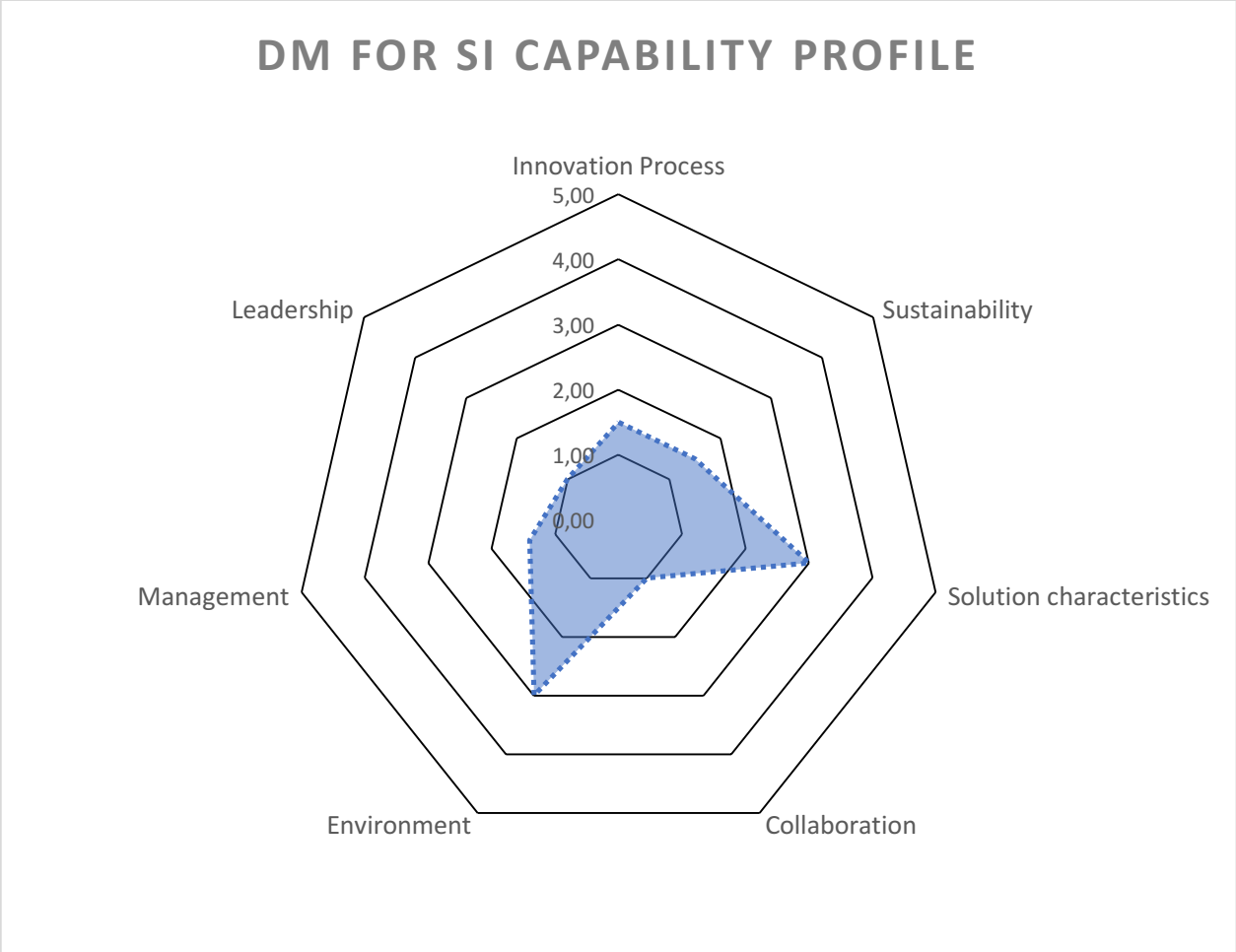
Criteria	**Assessment**	**Ranking**
Innovation process	10%	4
Sustainability	35%	1
Characteristics of the solution	24%	2
Collaboration	13%	3
Ecosystem	3%	7
Management	9%	5
Leadership	6%	6

Finally, following a case study strategy looking for insights regard the application of the model due to the uncertainty of the results and the application methodology. The model is applied through several interviews and gathering of relevant information into “Phoenix Brik” a local NGO that currently is working with 3 main social missions regard to: (1) social inclusion of people with special abilities, (2) reutilization of tetra pack containers with the production of BioPak (panel made of tetra pack), and (3) straight social service based on lining with the material houses of people in need.

The NGO, is deeply described from multiple perspectives to illustrate the current state of the organization. It is analysed broadly its timeline and history, the product that is currently produced and the initiatives they do with the community, to empathizing on the stake

holders network they have and relation with the beneficiaries to finally look at the organizational structure and its members.

The information was gather from 3 interviews of relevant people of the NGO and a design agency that started working with them on the last months, addressing the 19 questions proposed in an indirect manner depending on the design knowledge of the interviewed person, gathering information to assess the maturity levels of design within the NGO, getting the following results summarized on the DM profile, in which the clusters are calculate by the mean of the capabilities within each group:



Then it is deeply analysed each capability to understand dynamics involved around the organization's maturity for each one of the model's capability, getting a summarized conclusion for the seven middle groups of the model, presented on the next section:

- **Process of innovation:** The use of design is minimal despite having some attempts to use in two of the constructs, the process should be structured in the dynamic of the formulation and evolution of products or services thanks to feedback and a human centred process.
- **Sustainability:** Low levels of maturity for design are seen, it's observed the need to incorporation of it to achieve a sustainable model. Even seer as a possible risk the high

dependence of Magglio, its founder, on his incomprehensible effort to support the initiative without having a stable income source.

- **Characteristics of the solution:** This is the strongest regard to the use of design. However, the level does not reach the maximum due to the use of a diffuse design or some products developed by external designers that has given shape to solutions over time, but without a clear structure, visualization of the values shaped by this processes through design would complement and foster the relation among different type of products to be made more quickly.
- **Collaboration:** The three sub-constructs, have been at the lowest levels which is reflected in the level of effective collaboration that has and maintains with organizations, despite generating constantly new connections, they are not always durable over time. This is one of the points in which design as an integrator and communicator might generate greater impact.
- **Development ecosystem:** The ecosystem is analysed generally in a good manner using often a preview of future scenarios is recognized, but they are not aligned with value proposals with strategies for their development in the near future.
- **Management:** The level design use for management is at its lowest levels, having a general managerial knowledge deficit, being left room for many design tools to be incorporated to improve this area. However, recognizing the low prioritization within the capacities, the common lack of resources for support and the bricolage attitude, will limit the development of this capability.
- **Leadership:** Low level in general of this capability, and design might have a huge importance within the search of a strong leadership, values are clear and strong but not visible at a first impression, making difficult related issues on the organization as the retention of talent and connection with other stakeholders holding them motivated as the head of Phoenix Brik it is since its beginning on the project.

Combining this profile and the conclusions made from each capability with the AHP process, a broad Design Management development plan it is constructed looking for design development as a resource to support social innovation, suggesting design tools and management resources to increase their performance. Composed by three major sections it suggests the use of strategic design to search a sustainable model through tools such as the social business canvas model, for the interpretation of a hybrid business model in which stakeholders from different social missions are integrated to generate synergy more than divergence on their value proposition. A second point mentioned is to look for higher levels of maturity on the characteristics of the solutions, standardizing design processes with internal procedures that makes the generations of future initiatives aligned with current products and services, speeding them up and not leaving it just to external partnerships or students from universities outside. To finally, suggesting regard to collaboration, it is recommended to manage instruments to facilitate the integration of the collaboration network, first making a schematic map of the actors involved, to characterize them and then generate instruments for a more effective and efficient communication with respect to the management and alignment of expectations, to finally improve the value aligned to their role and expectations on the social innovation.

Finally, the conclusions of the research, proposal of the model and application on a local NGO the conclusions are divided in 3 sections, to the model, to the methodology and from the case study. Summarising the incorporation of 19 capabilities for an assessment model as a double objective tool, to evaluate and propose levels of maturity of design within key aspects of social innovation.

The model fulfils the first objective of this work assessing the level of design management in a tailor-made manner, using intrinsic values inspired from an innovation management perspective interpreted into social innovation capabilities. A secondary objective regard the understanding and education of design to social innovators is accomplished opening the discussion through the proposal of more mature levels inside each capability of the model, trying to reduce the gap of a design understanding and the role of designers and its management, presented with the illustrative success case studies to see their application within context. that might be adapted to this context. The model inspired by Essmann & du Preez ICMM (2009), reduced to 19 social innovation capacities, has a structure that includes three main areas, evaluating from the more specific aspects of social innovation, the behaviour regard the innovation ecosystem and its internal level of management, giving a broad-spectrum of evaluation much more the pre conceived aesthetical and common use of the design, including with the maturity levels from a more diffuse design to one more aware and practiced in a structured and conscientious way by professionals and experts deeply incorporated on the organization's culture..

Regard to the methodology, the first step focused on the transformation of the base model to an interpretation in the social context looking for social innovation capabilities, was made based on the existing and accessible literature, having the complexity that although it has been seen to be an increasing research current, there is still no unification of the theory, due in part to the broad spectrum of use with the merge of more than one discipline and its complexity of conducting empirical studies, that need large in time and resources to be scientifically verified. This might raise doubts about the interpretation of the constructs, especially since there is no capability model of social innovation, which would have favoured the investigation as a middle model, but as the scope of the research is merely explorative and propositional, its seen the model a starting point to be further tested. In the second and third steps, there was the complexity that there are capacities that have little or no research from the design side within the social context, lacking empirical studies of interpretation and impact, such as the transfer of motivation to intrinsic motivation through design, relating it from the relationship that exists with design-driven innovation and the intrinsic motivation that is characteristic of social innovation. On the refinement phase, the broad case study strategy incorporated to illustrate the capabilities, its seen as a manner to validate the capabilities within precise contexts accomplishing their duty, nevertheless the difficulties to gather relevant information regard the maturity levels might difficult a precise representation of the capabilities, however the most visible and evident capabilities were illustrated clearly to be understood by the reader. The prioritization through the AHP, has favoured the generation of a plan according to the limitation of resources that is generally generated in the initiatives, setting sustainability, the characteristics of the solutions and collaboration within the top three clusters of the model to be further supported by design management, adding value to the proposal of the model, thinking of the need to make efficient its resources to the maximum.

Regard the case study, the application into the Phoenix Brik case study, has been useful to find interesting insights regard the application strategy, as there is confirmed the differences on the understanding of design and confirming that even when there are intentions from the social innovator to use design it is hard for him to manage its implementation due to the scarcity of resources and his conception of design linked closer to an aesthetical and product development functions. It was found that the design management for social innovation capability was very low, due to the actual difficulty to focus by the organization, looking to solve every problem they face within their three social missions with a low budget and reduced and weakly rewarded team work. The assessment phase has brought for him the trigger for a discussion of his understanding about design and many possibilities to its usage, that in many of his projections its included a diffuse design attitude or no design at all opening the possibilities of improvement. However, as the

feedback done proposes lines of design development, his intentions were beyond the assessment looking for the implementation due to his previous agenda in mind, constraining the application of the proposed plan. Although the feedback was recognized valuable his resources and time constraints limited a further design implementation. Regard the questions selected for self-evaluation by the organizations in charge of the initiatives, its suggested to train in design previously to achieve a level of autonomy of the model, due to the different conceptions of the design is recommended that the questions elaborated also contain an explanation, so that the application should not be with a guided interview and its implementation can be scaled to test it a wide spectrum.

The discussion it is centred on the level of risk due to the vast gaps on the literature that haven't been empirically demonstrated to be suitable for social innovation. To overcome this situation, it is suggested as a further research the empirical research of the constructs proposed, there might be an assessment looking for the higher impact of the capabilities that might lead an even more detailed development program in future assessments done by the model.

A second major point is regard the model's scenarios, there is a need of further research to develop and test more accurate scenarios. Even more, there might be discussed the suggestion to separate the model for the different type of stakeholders within the social innovation, or depending on the typology of the incentive, that might drive to change priorities on the design management development plan due to the impact of design depending intrinsic characteristics as the scale of the projects, the resources available and the commitment of the higher managers, among others.

Finally summarising, this thesis has been a manner to explore from a complete different perspective the use and management of design in a complex and unexplored in deep social innovation context, proposing several insights from the relation of the literature and the use of cases studies to deliver am assessment tool tailor-made and with a double objective of evaluate and propose a path for development.

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1. Introduction

Society is evolving fast around technology and communication, since internet's creation there has been a high connectivity never seen before, added to a globalized world that for me it's been traduced to study MSc in Italy that 10 years before was almost unimaginable. Nevertheless, for the world its forecasted a global crisis around issues as scarcity of water, global warming and pollution, those have been addressed by the UN on 2015, setting the 17 global challenges for sustainability to be achieved by 2030 (UN, 2017). This efforts, give us signals on the cultural change that is coming for society on a social, economic and cultural dimension, the old paradigm is changed through creative and innovative solutions, producing a more sustainable growth, ensuring jobs enhancing capabilities toward competitiveness (Urama, Acheampong, & Nti, 2013).

Under this framework, social innovation raises as one of the big agents to generate a change looking to improve welfare in society (Caulier-grice et al., 2012), using in an incredible way efforts and resources from people, to create high impact solutions without the full dependence on a financer or government agenda that had been seen in crisis lately (Wilkinson, 2014), a third sector is taking care of social issues out of the scope of the other sectors, approaching issues as healthcare, ageing, poverty, among many others. However, this innovations are often developed under process that is high demanded to stay with low over costs leading to frugal solutions, leaded by high motivated people, but with lack of transversal knowledge (Terstriep, Kleverbeck, Deserti, & Rizzo, 2015) that impede to the social innovation from reaching high level of impact and drive the social change that it is needed.

Understanding the lately trend raising lately around design and its management due to its good results on a market basis (Dervojeda et al., 2014), this research aims to give answer to the support that social innovation needs, through its effective management. On social innovation's case there is a mixed understanding with social entrepreneurship and with social business or enterprises, having a definition with several shapes without unification (Caulier-grice et al., 2012), hampering the approach to the research. Design, depending on people's culture and the context, also takes different shapes and roles that are not deeply understood, challenging its management, execution and inclusion on essential processes for social innovation.

Looking to enhance this design management, considered as an agent needed for the development of social innovation capacities, it is proposed a maturity model inspired from Essmann & du Preez ICMM (2009), combined with the diverse maturity models of design management, since their direct enforcement on a social innovation context might be problematic due to the several mayor changes that are perceived with a more traditional innovation. Once the model its defined, it will be prioritized based on the application of a AHP (assessment hierarchical process) method (Saaty, 1990) for the formulation of an implementation plan accord to the resource availability and the based on the maturity level reached on an eventual application of the model.

Finally, the model will be tested as a consultancy on a Local NGO, that is currently developing its social innovation regarding to 3 different major social missions, with the assessment of the design's current state and its management conception, producing a prioritized implementation plan, to finally present conclusions regarding to the model, the methodology of change and the implications of the research.

2. Literature review and state of the art

The objective of this chapter is to up to date to the reader regarding to social innovation, design management and the mix of both topics, through a broad introduction to both innovation and design, that lead us to their intersection in social design and present the current state of social design management or the usage of design for social innovation.

2.1. Social Innovation:

To understand better social innovation, it is needed to take back a step and look from its building blocks as how is innovation and the social economy or the social context where it takes part, to deeply understand the concept, its dynamics and key factors of its characterization.

Within innovation's literature, the first reference was presented by the Austrian economist J.A Schumpeter, on his publication about the economic theory, giving first shape to the concept of innovation as *"a new combination of cognitive and tangible elements, that are economically more viable that the previous ways to do things"* (Schumpeter, 1934), presenting with this definition the basics of the two most relevant aspects of innovation that have been maintained over time, the novel aspect of the solution and the ability to improve from a previous state.

Starting from this definition, the study of this field has been separated into two branches, one focused on the *process* that produces innovation considering individual creativity, organizational structure, the ecosystem with economic and social factors. While a second branch is related to the *product* that manifests itself on the new products, characteristics and production methods (Deiglmeier, Miller, & Phills, 2008). This duality of process and product, later we will see that it is repeated in the design field.

The second part comes from the context that this innovation is settled, the "social" side of this concept has been on a debate in which it has been said that ambiguous factors as the motivation of the entrepreneur or the organizational typology are not sufficient to describe the concept in a good manner from a comparative perspective. However, the fact that it meets social needs begins to better describe the intrinsic value that social innovation entails (Deiglmeier et al., 2008).

Social innovation is a branch of innovation that has taken strength in recent decades mainly due to the internal deficits that governments have that it is reducing expenses on social programs. This has led to the so-called "third sector", characterized with values such as volunteering, values-based motivation and the independence of more powerful institutional structures (Corry, 2010) has creatively taken charge of collective and social problems.

A first definition of social innovation was proposed by the Stanford Social Innovation Review (2008) that present it as "*a new solution to social problems that is more effective, efficient, sustainable or just better than existing solutions whereby the value created is primarily towards society as a whole more than private individuals*" (Deiglmeier et al., 2008), combining novelty with social value, it highlights the fundamental aspects of innovation within the context of the social economy.

Inspired by this first approach, the Young Foundation (2010) broadens this definition by analysing various factors in its book "Open book for social innovation", that later will be widely

referenced by the literature as a main reference being the basics of a social innovation theory. Murray, Caulier-grice & Mulgan (2010) defines the concept as *"a new idea (product, service and models) that simultaneously satisfies social needs and creates a new relationship or collaboration, doing both good for society and improving society's capacity to act"*, adding references to the new dynamics and relationship that are generated within this type of innovation, managing to include a wider range of initiatives within this definition.

Understanding the lack of knowledge related to the subject, the European Union has taken charge of conducting researches to reduce this barrier. Some of the studies are TEPSIE (The theoretical, empirical and political foundations for the creation of social innovation in Europe) in 2012, the report conducted by BEPA (Bureau of European Policy Advisers) called "Social innovation, a decade of changes" in 2014, which is an in-depth study of the dynamics of social innovation, and the SIMPACT project (Strengthening the Impact of Social Innovation in Europe through Economic Keys) in 2016 and currently on the go. Locally, ECLAC (Economic Commission for Latin America and the Caribbean) and the Inter-American Development Bank have been responsible for publishing related reports, as well in Chile studies have been conducted from the PUC, exploring the definitions and differences between social innovation, social entrepreneurship and social enterprises and the role of the state for its strengthening and development. These studies will provide the basics for the development of this research.

Most of these reports have the definition created by Mulgan (2010) as a pillar for the development of their own definition. Even so, from project management Hernández and Cormican (2016) mention 4 major perspectives towards a definition, where we find social innovation as: 1) problem solving, 2) service oriented, 3) evolutionary i.e. referencing human evolution thanks to the efforts of the initiatives, or 4) process i.e. it is referenced in the definition plus the process that the result involved, accounting the great number of nuances within the understanding of what social innovation is.

For the use of this research, considered one of the most complete and focused on the value of innovation, integrating the social value it delivers, the definition made by the TEPSIE report (2012) will be taken that defined it as: *"a new solution (product, service, market model, process, etc.) that simultaneously satisfies social needs (more effectively than existing ones) and produces new or improved capabilities and relationships as well as a better use of assets and resources. In other words, social innovation is as good for society as it promotes the capacity of society to act "* (Caulier-grice et al., 2012).

Before going in deep about social innovation, it is preferable to mention the differences with social entrepreneurship and social enterprise, as it is shown in figure 1. The base composed by social entrepreneurs is focused on the figure of the new company which generates actions to create social value, leaving aside the novelty factor of the created, but taking the proximity factor as a local engine for change. Scaling into a higher level this entrepreneurs with their entrepreneurship in some point are going to consolidate their operations forming social enterprises, that in collaboration with other social enterpriser can make the big difference in the social system producing social innovation, when it is defined as a change at a social system level, taking the scope and the proximity of the impact as a factor it is clear the connections and the difficulties to separate them on from this grey spectrum to be catalogued of any of these groups (Pontificia Universidad Católica de Chile, 2012).

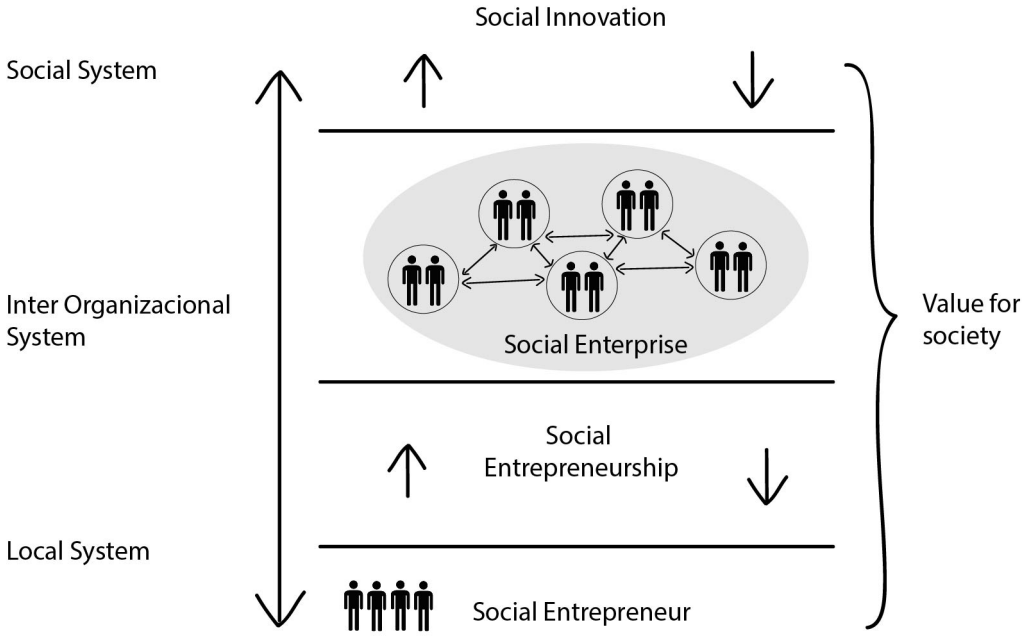


Figure 1: SI model from PUC study: "La Innovación Social en Chile y el rol del Estado en su Desarrollo"

For the use of our research, it is important to analyse the great differences in both results and relationships that can be find with respect to traditional innovation. Murray et al (2010) points 3 major differences, which produce that internal dynamics change.

1. **The measurement of success:** Because the objectives which cease to be economic and become social (Hernandez & Cormican, 2016), having a higher difficulty to be measured due to the complexity of the situations, often the results are seen in a long period of time, and most of the time are intangible without standards of measurement or metrics that summarise the great diversity of problems solved by this type of innovation.
2. **Organizational forms:** Depending on the typology and the context on which the innovation is located, countless organizational forms can be generated to address problems. Considering the transversal positioning within economic sectors that tend to produce social change beyond the barriers of the organization that promotes it (Murray et al., 2010), having to engage civil society as co-creators to increase its range of impact.
3. **Relationships and collaborations:** One of the main characteristic for the development of social innovation is the incorporation of multiple actors, which are aligned to produce social change, facing in a collaborative way the challenges of innovation's development, increasing difficulties to develop it due to divergent allocation of benefits (Komatsu, Deserti, Rizzo, & CELI, 2016).

From the understanding of innovation as a *process* and a *product* (Deiglmeier et al., 2008), is necessary to go in deep into its own typology analysing the influential factors in its development, considering the process of social innovation, the effect produced, intrinsic characteristics, the environment, context and ecosystem, and finally the organizational configuration, generating a wide framework of the current state of social innovation.

2.1.1. Process of social innovation

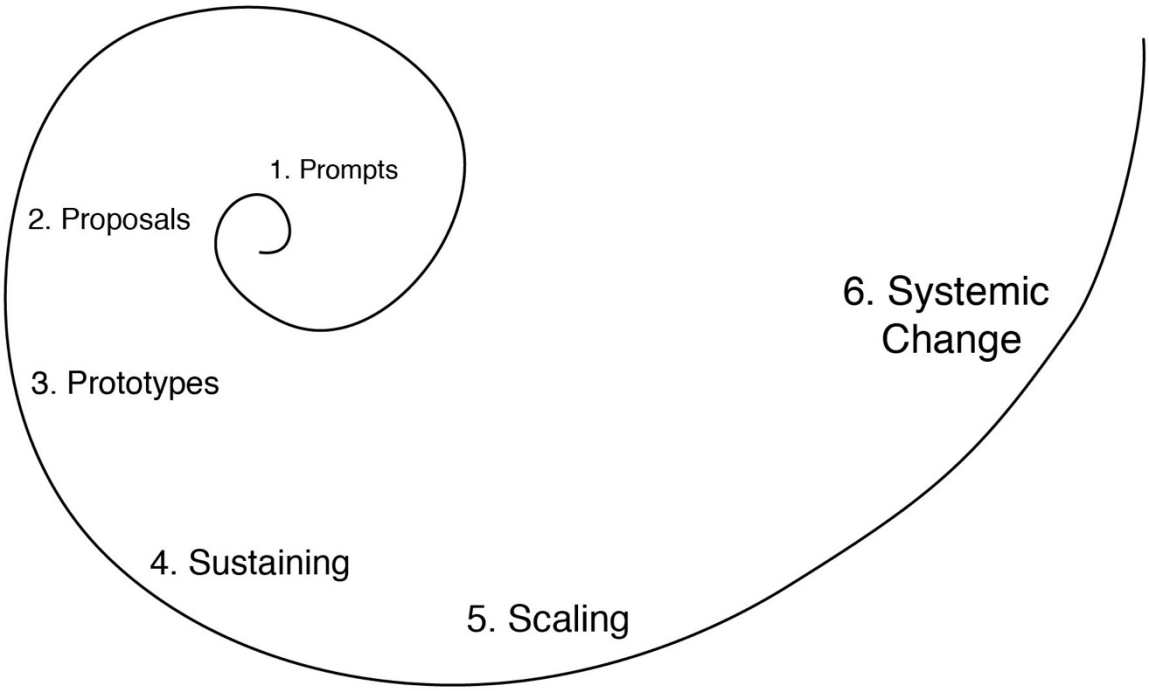


Figure 2: SI Process from "Open Book of social innovation", G. Mulgan

The process of social innovation, has been described with a spiral model (Murray et al., 2010) with six steps which has had wide acceptance in the literature. Referenced later in various studies of social innovation: The steps are the following:

1. **Prompts:** being the inspection process where it identifies the social need generated generally from crisis, reductions in public spending, poor performance of institutions, incorporation of new technology, new evidence of problems, to generate a diagnosis of the root causes of the problem and give the framework to the future solution.
2. **Proposals:** the generation of ideas using design methods, to incorporate the challenges perceived in the first phase into the proposals and produce coherent solutions that satisfy in a holistic way the identified needs.
3. **Pilots / Prototypes:** Within this phase the generated ideas are tested and put into practice, and then they are improved in an iterative process of great importance due to the need for a co-creation of the solutions making them with greater impact at the time of being scaled to a larger audience.
4. **Sustainability:** The ideas that come to be accepted in the short term, for a continuity over time must find mechanisms that allow financial sustainability, having to identify funding sources such as public funds, hybrid business models or collaborations.
5. **Scaling:** to generate radical changes in society a local impact is not enough, so it is necessary for social innovation to take expansion paths, which does not necessarily have to be through the growth of the organization, but there are different methods that even promote the spreading of the idea to break organizational and geographical barriers.

6. **Systemic change:** This is the final goal of all social innovation, where the social paradigm changes from an architecture of multiple social innovations which are aligned to solve deep problems holistically and permanently.

Contributing to the debate on the process of social innovation, based on the results of the SIMPACT empirical study, it have revealed the difference the process has with the actual process analysed from cases, commenting that social innovation often emerges in limited contexts and developed as frugal responses to social problems (Terstriep et al., 2015) due in part to the low prioritization of resource allocation to the idea generation or prototyping phases (Murray et al., 2010), distinguishing between the "ideal" model and the "real" model of social innovation, also commenting that it depends on many factors, which are influencing the development of innovation and the proposed spiral model is non-linear (Terstriep et al., 2015).

2.1.2. Social innovation outcome and intrinsic characteristics

Choi (2015) in his research, she speaks of three typologies of social innovation depending on its formalization i.e. on the way it manifests, being able to be services, models, products, interventions, technologies or laws. A second typology refers to the process of change or the changes it generates in social structures, which can be from social practices, power relations, social structures or social relationships. Finally, a third typology refers to social outcomes, which may be human or environmental welfare. In this direction, including the intrinsic characteristics of the solutions, the spectrum and the scopes of understanding social innovation are opened.

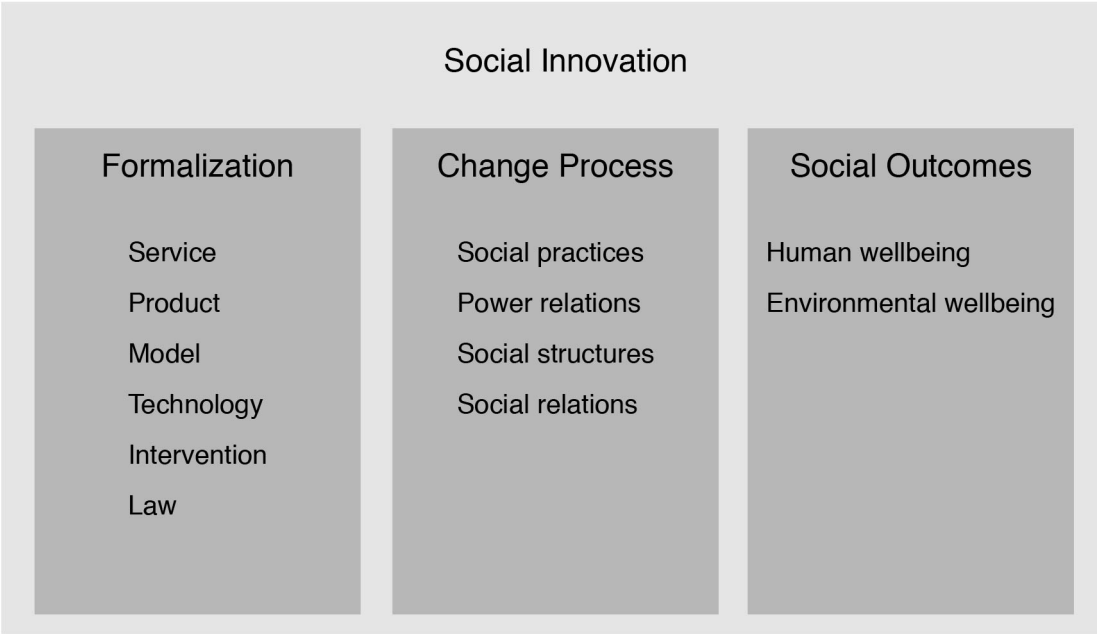


Figure 3: Types of SI, TIPSIE report

A well-known consulting firm contributes to the debate clustering the types of social intervention according to: the development of knowledge, development and delivery of product or service, strengthening and development of skills, change in behaviour, enablers of systems and

structures for social development or the development of policies and their implementation (McKinsey&Company, 2010).

Another complexity to analyse social innovation is the great diversity of problems being addressed by this type of innovation, among which are education, overcoming poverty, the health of the population, demographic changes such as the aging of the population, discrimination, social inclusion, housing, the environmental situation of the planet, the inclusion of renewable energies, the management of waste, employability, among many others, having each of them particular values, and types of outcomes.

Analysing social innovations from the business model perspective there are 4 beneficiary's perspective. Depending on the involvement within the solutions, they might be grouped, having structures that gather and include beneficiaries in different manners, with different degrees of independence of financers that is often translated in fragility due to the income stream, producing different results and levels of commitment of the stakeholders and beneficiaries. The models identified by SIMPACT research (Rizzo, Komatsu, & Deserti, 2015) are the following:

1. **Beneficiary as a social actor:** Social value is generated through the active participation of its beneficiaries in the production of commercial value, this model is enhanced due to the identification of a potential market first, giving strong model and possibility of success.
2. **Beneficiary as a customer:** Sale to beneficiaries with a subsidized price, to ensure access to certain services that are impossible according to the common laws of the market, with a middle level of independence due to the further support of third parties to make a feasible offer for the beneficiaries.
3. **Beneficiary as user**: Where the beneficiary takes part of the innovation only receiving value through the efforts of third parties, financed by third parties, being the most fragile of all business models, due to the low level of independence.
4. **Use of community resources:** The generation of value is born from the use of all the resources of a community for the mutual benefit promoted by its members. Being the most complex of the models, this is still under exploration by the diverse roles that the beneficiaries might take at the organizational form.

Social Innovation require a, or combination of complex business models to lower tensions between pursuing to create social value and remain financially independent. However, complex social hybrid organizations have the potential to correct through social innovation, the current failures in capitalism and the welfare state (Rizzo et al., 2015).

Business models of social innovations are often constructed starting from a social mission that in its search for sustainability, there is a trend on the social businesses which is driving them to find hybrid models (Grassl, 2012), these models have the complexity of effectively combining social value with economic value from the given goods, instead of those that would be optimal to maximize economic income. (Komatsu et al., 2016). Within the spectrum of social businesses models several typologies has been investigated by Kim Alter, (Alter, 2007), generating in addition to a framework with reference to the classification with respect to the social mission and the hybrid spectrum of business models where it is differentiated with the degree of integration of the business / program.

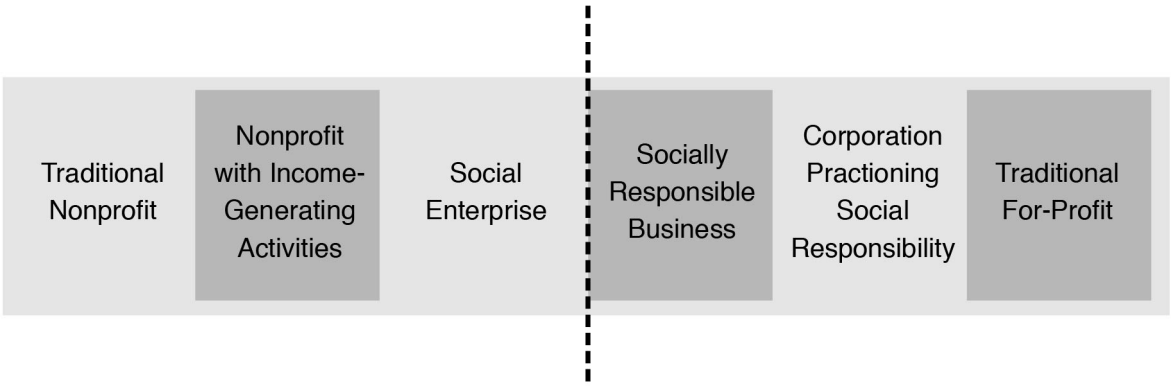


Figure 4: Hybrid Spectrum of Organizations, "Social Enterprise Typology" - K. Alter

Within the operational models there are 9 fundamental types, which are usually mixed. In addition, within the structures of social enterprises, legal and possession organizational typologies are distinguished, which also vary, which finally, allows us to dimension the large number of business models that can shape social enterprises, mentioning that social innovations, are generally a systemic mix of actors where one of them can be the social enterprise, thus generating an endless number of possible combinations, which makes it difficult to structure a single theory.

To consider successful a social innovation, It has been described that it is necessary to scale it up to generate real changes (Urama et al., 2013). There are more than 500 instruments to assess the impact (IRIS, 2017), which observe from the characteristics, practices, results and the creation of value (McKinsey&Company, 2010) depending on the type of problem addressed and even the precision with which it is desired to measure. The base of many metrics is the theory of change, it works from the identification of contributions, processes, product and outcomes, quantifies the impact that sometimes even leads to a valuation in money, which impacts governments or society in general e.g. the reduction of cost (money) in hours in hospital, due to the sexual education of women in Kenya and the reduction of associated diseases.

Impact measurement is done for two main reasons, first to demonstrate to employees, clients, government agents, founders and the community in general the importance of the organization and the work it does. A second reason to measure the impact is the reflection on the part of the organization the effectiveness results are obtained, in this way, it can improve what is currently done to allocate resources into what is really important or generates greater benefit. (Hebb & Bhatt, 2014).

Unfortunately, the difficulty of applying the majority of metrics combined with the attitude of investing in social outcomes rather than in the development of the internal organization, leads to perceive measurement in the initiatives as an exception to the rule, which is left with low priority compared to activities that generate a greater direct social impact (Terstriep et al., 2015).

2.1.3. Environment and context

Social innovation has been described highly specific according to the context (Dhondt et al., 2016) i.e. depending on the place and the conditions of its implementation, it will have different results, so the exploration of this context is generally a key factor for success, e.g. access to sex education in Kenya will be different from sex education in the US, because factors such as culture,

public policies, the economic situation of the target population, are completely different, having a different impact and barriers to implementation.

Due to the incidence of the places on which the initiative is established, the operational and business models must be adapted and designed from the perspectives of disadvantaged but vibrant communities that are waiting to find better conditions (Urama et al., 2013). Having a duality of a work with local impact, but with a global impact when looking for expansion and scaling solutions (Manzini, 2015).

Today, governments around the world have seen the need to create an ecosystem with institutions and policies the conditions for the development of initiatives (Deiglmeier & Miller, 2008) that mobilize collective energy to develop solutions that improve the quality of life of people. (BEPA, 2014). Another look at this issue is proposed by Ezio Manzini which proposes that the greatest incentive to promote social innovation on the part of governments is to get rid of certain governmental tasks, in addition to achieving great efficiency with very few resources, just as social innovations do (Manzini, 2015). However the precarious legislation, the lack of financing for long-term and regulations generally continue to disfavour their development in many places around the world (Terstriep et al., 2015).

2.1.4. Organizational typology

Analysing the organizational culture, there are several factors that influence SI. Starting from the size of the organization and the values promoted internally, e.g. Losing the fear of failure, and stimulating the exit from the comfort zone are values to foster social innovation overcoming the bureaucracy and hierarchy that should be promoted from senior management positions in larger organizations (Bond, 2016).

Understanding that social innovation is a multi-sectorial phenomenon, i.e. actors from the four socioeconomic sectors, non-profit, public, private, as well as a sector called informal which is not formally structured, but are part of civil society. charge of social innovations (Caulier-grice et al., 2012), seen in figure 5, in a collaborative way and with different roles within it. Collaboration on the part of the public and private sectors plays a very important role in supporting social innovation (Urama et al., 2013).

Because of this combination of sectors, a collaboration system is created, made up of a large number of actors, who unite with different roles towards the same project or mission. The roles typified by the SIMPACT project (Terstriep et al., 2015) are divided into:

1. **Core team:** The initiators and / or those who operate social innovation.
2. **Support:** Actors who actively participate in the implementation of the solution.
3. **Promoter:** Actors that facilitate the operation, diffusion, expansion.
4. **Beneficiaries:** Actors who receive direct or indirect benefits.
5. **Opponents:** Actors who oppose social innovation.
6. **Follower / Impersonator:** Actors who continue with their projects social innovation, plus actors imitating solutions.

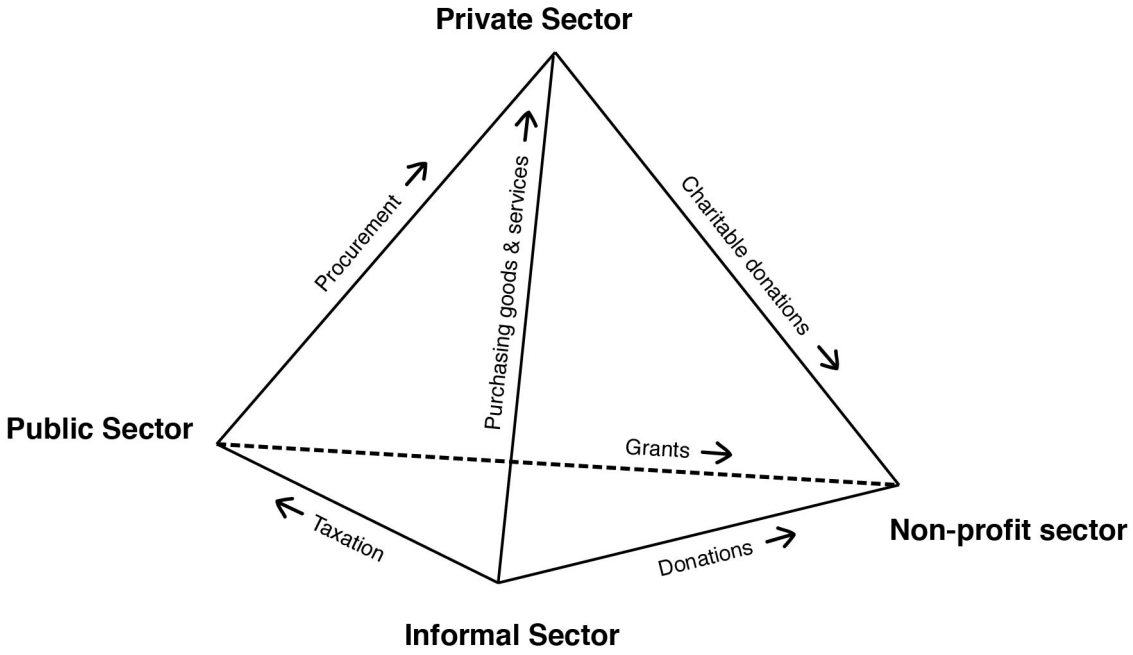


Figure 5: Sector Interaction, TIPSIE report

The definition of these roles and the definition of associated benefits towards each one of the actors, depending on their interests and capacities, define the organizational model that best adapts to the solution being promoted (Prestero, 2010), is considered essential to sustain the initiative along time.

The ecosystem of roles and relevance of the actors varies depending on the ecosystem of social innovation. As a common aspect, people from civil society are involved in the iterative part of the process, while financing institutions generally participate in a second phase, consolidating the initiative (Terstriep et al., 2015).

Companies in the business world, e.g. Coca-Cola, Unilever or Samsung; through collaborations, they take care of adding social innovation into their agendas, under the name of Corporate Social Responsibility (CSR), which has been highly criticized due to unsustainable models over time, that are often at risk needing the company that promotes it, usually being a way to clean up the image of companies that in their normal activities harms society (Caulier-grice et al., 2012), e.g. Shell, one of the largest oil producers in the world, funds NGOs to fight HIV in Asian countries, but in our scheme they are an engine to move SI, and its hidden purposes are more an ethical, discussion that it's not within the scope of this thesis.

Independently of the type, a common problem is the lack of resources to promote social innovation (Dervojeda et al., 2014; Konda, Starc, & Rodica, 2015), sometimes having to compete to acquire financial resources and achieve financers (Balta, Darlington, Smith, & Cornelius, 2012). However, it is commented by Grassl (2012), that it is not enough just to inject resources to succeed, but rather a combination of these with human capacities and experiences as a guide for the learning to achieve success.

Another mayor issue is the figure of the social innovator, emerging as another great agent, and the driving force behind each initiative. The main characteristic is its intrinsic motivation towards the social mission, which often comes from a close experience with this problem (Terstriep et al., 2015) e.g. The ice bucket challenge, fundraising campaign for the ALS was promoted by Pete Frates after his friend Pat Quinn was diagnosed with the disease. A second characteristic is the DIY or bricolage attitude i.e. the attitude of executing activities without having a professional training, mainly to reduce costs or adjust budget to the scarce resources, that generates lines of action and decision making underestimating the implications (Komatsu et al., 2016). However, this ability is the one that breaks with many limitations that would have prevented entirely the development of the initiative. A study that analyses the training programs of entrepreneurs or social innovators that exist in the market, highlights the skills of self-reflection, empathy, audacity and resilience to move from theory to practice (Romy Kraemer, 2016). Basic entrepreneurial skills such as pitching, ability to raise funds, business modelling and strategy, but they show little interest in the impact assessment. In addition, the need to promote the work of many actors, with skills of collaboration and effective communication is discussed.

The issue of collaboration and the multiplicity of actors involved in social innovation has been mentioned. Building from that basis, it is necessary to mention the importance of effective communication, even the dynamic theory of social impact suggests that it can be achieved a great impact and change cultures from their bases through close and constant communication (Harton & Bullock, 2007), illustrating the role that communication has inside SI.

2.2. Design management

For understanding the concept of design management, it is necessary to clarify that will be understood by design as an introduction for then to go in deep clarifying their roles within organizations, to finally contextualize a definition of design management and move on to the forms of measurement and evaluation that currently exist in the literature.

2.2.1. Design

The concept of design in western culture has had an evolution since the 20th century, since the use of this term has gone from being an interpretation focused on the aesthetic characteristics of a product to a concept much more wider, including design service and inclusive design processes (Manzini, 2014) increasing its importance within the organizations hierarchy, including from business models to a design culture of organizations taking even a role in front of society which it is going to be presented for this research.

Using the epistemology as a first reference, from the Latin of the word *"designare"*, that means to point, see, choose, design or name (Harper, 2016) pointing out from its root the multiple usage of the term. For its part, the Oxford defines it as "*A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.*" (Oxford University Press, 2016) in addition it presents other 5 definitions depending on the industry and the context in which it is applied. However, the large number of definitions can be grouped into two major nuances: those that refer to a creative *process* and those that gives reference to the *result* obtained or final product.

Due to the diversity of contexts and the multiplicity of uses of the design, the unification of its definition is extremely difficult, because it is the base of the creation process that many times

performers do without having the notion of realizing it (Gorb & Dumas, 1987), professionals without design studies have design tasks and take on the role of design. In the literature, this type of design has been called as a diffuse design or silent design, now the designer is becoming a specialist with a more important role in a world of diffuse designers (Manzini, 2006), however designers are often undervalued or assigned to superficial tasks.

Sara Hjlem (2009) proposes within her research that the role of the designer starts from the aesthetic conception of design, in which judging about the aesthetic quality is based only on an aesthetic training and the continuous development of the designer, considered as a tacit knowledge, that is often difficult to verbalize. An empirical study reaffirmed this preposition in the context of social innovation proposing that the level of experience of the designer is influential in its effectiveness (Amatullo, 2015). The ability to materialize and give shape to abstract concepts and knowledge to carry out the process in a correct and coherent way emphasizing details that only can be developed from training, are part of the differences that emerge from the designers, i.e. Everyone can take a pencil and draw a tree, but only an artist can make that tree a work of art, and live from it.

Despite of being an extremely complex process (Kootstra, 2009), the design process has been identified from a reverse engineering process proposing a model called "double diamond" (Design Council, 2005), referenced in its name the divergent and convergent process, seen in figure 6. They describe it in 4 steps:

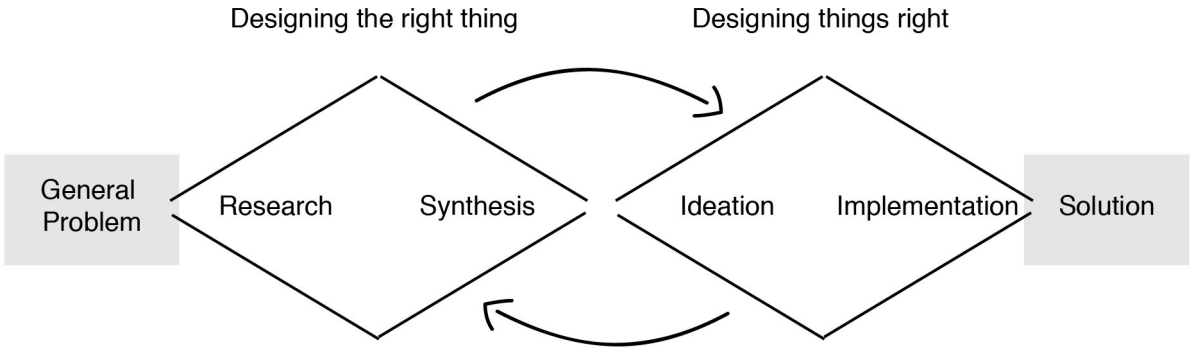


Figure 6: Double Diamond Process, Design Council

1. **Discover:** The initial idea or inspiration, obtained from a discovery process that is generally focused on the needs of the user, are identified through a deep research of the user, using relevant information from design research groups.
2. **Define:** The interpretation of needs and framing the problem to align it with corporate objectives is conceived in this stage, defining key activities for the development of the design project, its management and its subsequent closure.
3. **Develop:** Through design methodologies and collaborative work in multidisciplinary groups, solutions are built through an iterative process that goes through testing and refinement for a final delivery.
4. **Deliver:** The last phase is produced when the results are released to the market, after a test and final approval with evaluations of the potential market. Finally, a feedback is conducted to obtain results from users and possible adjustments.

Recently and with a strong trend, a problem-solving process inspired by the double diamond structure has been developed. Focused from the human centred perspective and its desires, has brought a path towards user centred innovation, called "design thinking" which is described by Tim Brown, CEO of IDEO and a reference of the topic as "*the methodology that completely impregnates the spectrum of innovation activities with a design character centred on the user*". (Brown & Rowe, 2008). A process described depending on the author of three to five steps, seen in figure 7, consisting on 5 phases: 1) Empathize, 2) Define, 3) Ideate, 4) Prototype, and 5) Test. Empirically it has been proven that its definition and perception is still ambiguous, referring to it as a tool, a method / process / protocol, a methodology and even a mentality (Schmiedgen, Rhinow, Köppen, & Meinel, 2015). Being a gateway for managers to take a design attitude to solve the problem related to innovation (Leavy, 2010) at every organizational levels. This premise has also been questioned with the idea that sometimes a side from the idea generated through the design thinking process, a design culture is needed for design to contribute to the construction of new and viable solutions (Deserti & Rizzo, 2014) in this way, its underestimated the potential that can have against innovation.

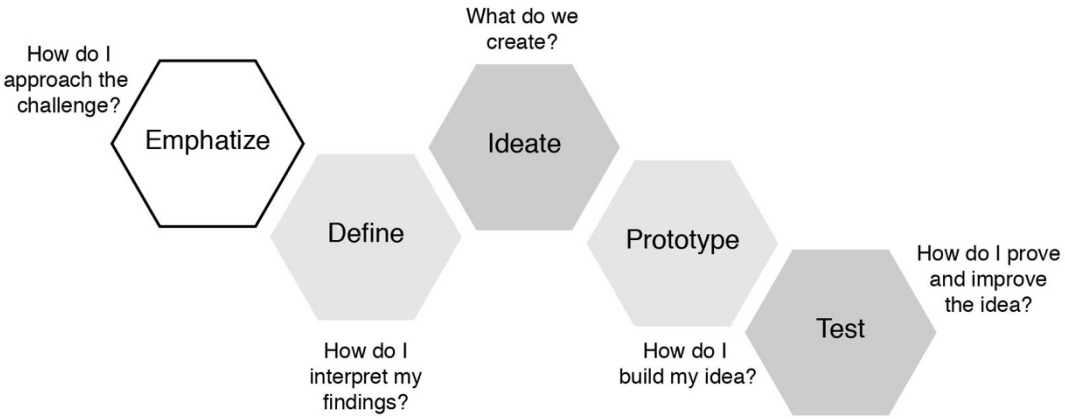


Figure 7: Design Thinking Process, IDEO

Innovation is intrinsically a highly creative process, in which design takes the role of guiding creativity towards innovation, shaping ideas that become practical and attractive propositions for clients and users (Cox, 2005), being even referred as the connection between creativity and innovation (Dervojeda et al., 2014). That is because, within the framework of innovation, the use of design methods such as user-centred design is highly recognized and appreciated within the innovation management.

The evolutionary trend of design over time has led to the understanding of design losing connection with material and products where it is spoken more as a tool for decision making (Hjelm, 2009) setting up new boundaries for the previous old usage of design that only focus on shape.

Looking at design within the management field, a "design attitude" is mentioned by managers as a tool for solving problems related to innovation. Contextualizing, problem solving

approaches are described by Guber, et al (2015), characterized it in 2 dimensions, depending on the type of thought (abstract to concrete) and the temporal space where it happens (past to future), generating a map of 4 activities within the resolution of problems (see figure 8),

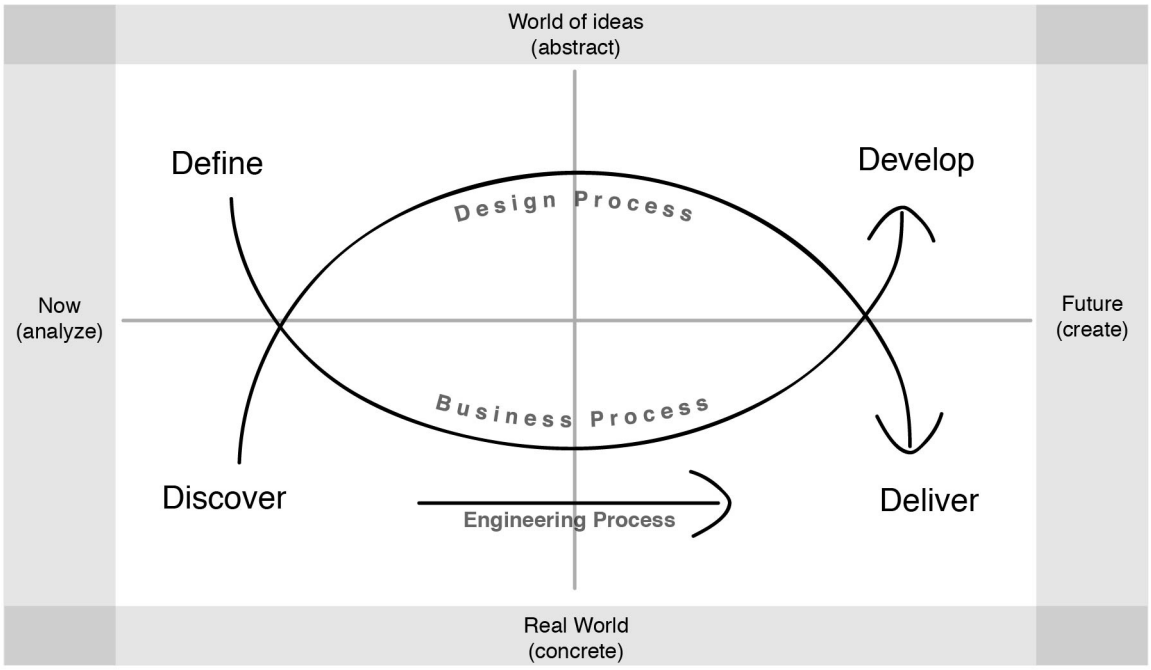


Figure 8: Approaches to problem solving, "Managing by Design" - M. Gruber

Depending on the order of the activities, 3 approaches are generated: a first developed with an engineering approach, that is identified by the resolution of more concrete and direct problems in a pragmatic way. A second approach is the business one, which first defines the problem or a potential business opportunity, develops a product, its distribution and marketing. Finally, the design approach is characterized by starting from the user and their understanding to then have a co-creation process in which more robust solutions are generated and with a better arrival to the user. This last approach is mentioned as favourable to solve complex problems, difficult to approach, with an undefined context; this is where the design thinking methodology provides great value.

To understand this design attitude in depth, M. Amatullo (2015) made an empirical study in the context of social innovation, characterizing this design attitude with 5 key factors, illustrated on figure 9.

One of the most developed countries in terms of design is UK, which has realized the importance of design as an enabler of innovation (Gruber et al., 2015). Through the Design Council, large studies have been carried out related to the state and the way of using design thinking and the recourse of design as a support for innovation and entrepreneurship, in order to improve competitiveness indicators and growth across its economy (Design Council, 2005). Similarly, the European Union has begun to develop innovation and entrepreneurship programs characterized by a strong inclusion of design through design thinking and design methodologies (European Comission, 2017).

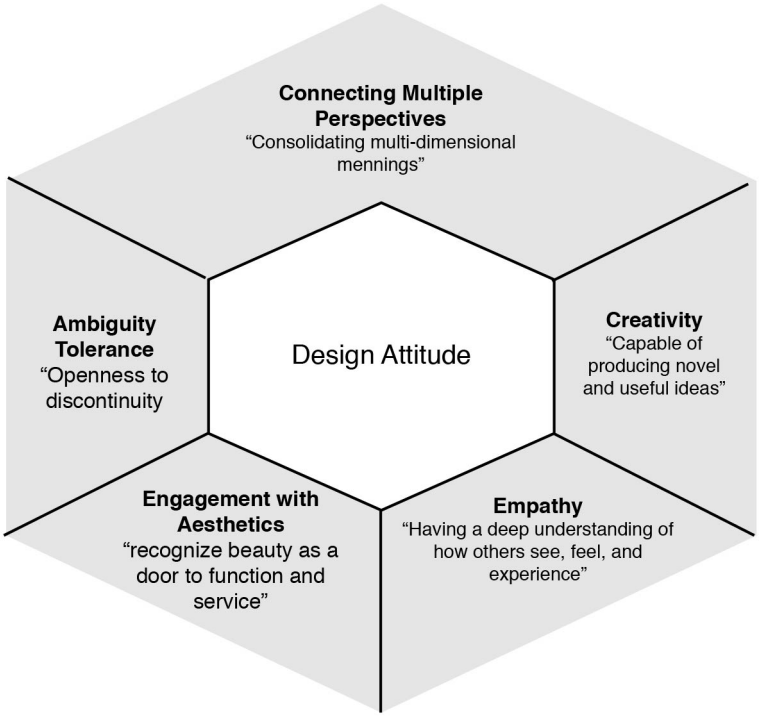


Figure 9: Design Attitude, M. Amatullo

Design, despite having shown great appreciation by the companies that are already are using it, is quite difficult for the designers within a company to take strategic roles and participate in strategic decisions, largely due to the inability to transmit with clear or quantified elements, the value of the design to managers. For its part contributing in this debate, the UK Design Council (2013) has made available resources to promote the use of design transversally throughout its economy, providing quantitative data of return on the design investment and generating its own index of design, which delivered in 2015 that companies focused on design have had a profitability 228% greater than those of its industry. (Westcott et al., 2013).

Víctor Seidel (2000) explains the inclusion of design activity at strategic levels of companies is found through design consultants, identifying 4 roles: strategy visualizer, core competence prospector, market exploiter and process provider. Identifying that in businesses with an emerging strategy design plays an important role, unlike those that are already predetermined.

Within the organizational framework of design, needing to connect in good manner the creative part of an organization with its business areas, to achieve effectivity and efficiency in the use of the creative resource, it is necessary implement design management practices (Best, 2015) to deploy the full potential and set necessary minimum boundaries to manage creativity.

2.2.2. Design Management

A first approach was from Peter Grob (1986), he defined it as "*The effective deployment by line managers of the design resource available to the organization in the pursuance of its corporate objectives*", referring it as a facilitator in charge of ensuring its effectiveness within the organization. Subsequently, Hollins defines it as "*The organization of the process for developing new products and services*" (Hollins, 2004), linking it as an essential part of the NPD process and for Cooper it is "*the*

response of individuals to the need of their business and the contribution they can make to activate the design to be used effectively" (R Cooper & Press, 1995). Turner (2013) finally refers to the success of design management is focused on attitude and behaviour towards design, more than practice. Analysing the nuances of these definitions, they are characterized by two major lines, one on the management of resources and processes within the design activity and on the other hand the company's organizational capability to have a culture focused on design.

Earl Power, president of the Design Management Institute (DMI), foresaw in 1997 a future in which is understood deeper the role of design in the innovation process, looking at design management as a powerful resource to effectively differentiates business allowing to build a competitive advantage (Harpum, 1997): This vision has been corroborated over time, setting DM in business agenda over the las decade.

Harpum (1997) presents in simple words the objectives of design management, dividing them into two main objectives: 1) To train partners/managers and designers. This entails familiarizing managers with design and designers with management, and 2) to develop methods of integrating design into the corporate environment, exhibiting newness of the topic and the gaps between designers and senior management knowledge from each other.

The division proposed by K. Best (2015) in her book "Design Management", she fragment it on three parts, 1) managing the design strategy, 2) managing the design process, 3) management the design implementation, illustrating with this division the nuances of the definitions, in addition to incorporating a third element regard to the implementation process, fundamental in order to test the results of the design work after the delivery, considering the measurement and the corresponding feedback, generating a bridge of common language to the other business areas.

Reviewing the role of design in the strategy of an organization Cooper has identified 3 paradigms of design management (2010): 1) Design as a strategy: regard to the efforts to make design a central element in the competition, a competitive advantage, 2) Design in strategy: including design in some part of the strategy 3) Design strategy: regard to the place design is used, 4) design for the strategy: using design as a facilitator to define and implement a strategy (Rachel Cooper, Junginger, & Lockwood, 2011). Illustrating different methods to add value, functionalities and/or objectives that design can take within an organization.

This classification is enriched by the reflexion and the bubble model proposed by S. Junginger (2009), seen in figure 10, indicating that there are 4 ways to fit design thinking and design methodologies in an organization by a design professional: 1) as an external resource, 2) as part of the organization, 3) at the core of the organization or 4) integrally in all aspects of the organization, the proposed model spotlight the links that the organization have with design and design methods, taking into account only people trained in design. These typologies of organizations behave different against design, making possible to identify stereotypes of companies and at an employee level.

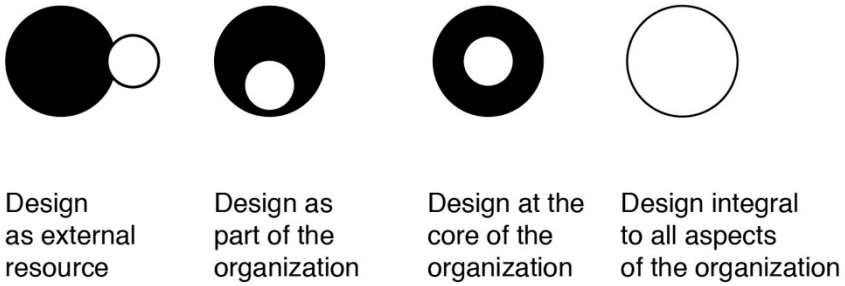


Figure 10: Bubble Model, S. Junginger (2009)

Due to the complexity of the forms of design as a process is being difficult to find reliable measurement for the design input, however a proxy for the measurement of design management, has been made based on a maturity model with respect to many factors. First, the Danish design ladder (NAEH, 2003), was developed by the Danish design centre, assigning 4 levels of maturity depending on their attitude towards design, from 1) no design, 2) design as styling, 3) design as process, 4) design as innovation, being a favourable model for product designers as a vehicle to discuss the design as part of a product development.

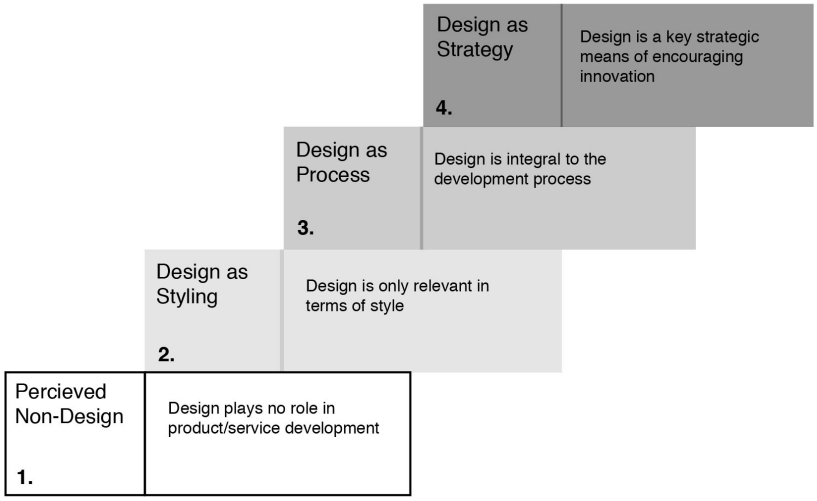


Figure 11: Danish Design Ladder (NAEH, 2003)

Building upon that base, a second model in stair form is developed the "design management staircase" (Kootstra, 2009), as a self-evaluation of the use and management of the design organized in two dimensions: First, five factors that describe the usage of design management within the organization, assessing from 1) the process of design management, 2) the expertise level of the staff, the 3) availability of resources allocated for design, the 4) awareness of the benefits of the design management and 5) the planning process around the design strategy and design projects. On the second dimension, are exposed the maturity level as 1) no Design management at all, 2) DM at a project level, 3) DM as functional level, or 4) DM transversally in the organization, this level is inspired from the design ladder.

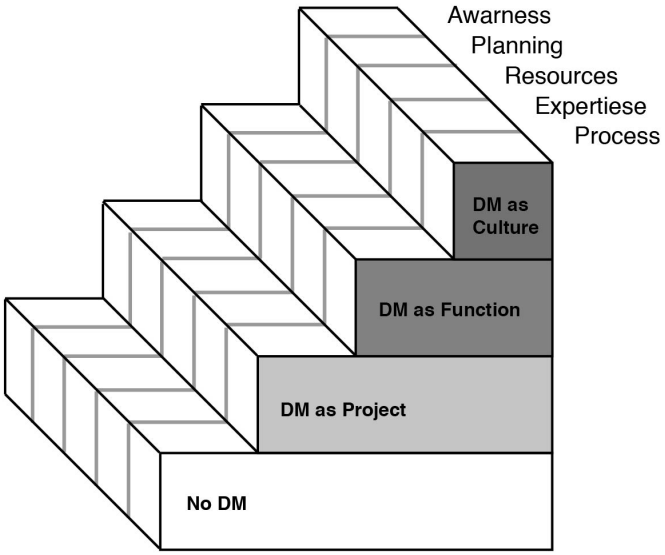


Figure 12: Design Management Staircase, DME (2009)

These two models are used for design management in a traditional context of product development, with a problem-solving role within the organization, leaving behind some problems that are addressed by design thinking or a design method that are called "wicked problems" or hidden problems (Buchanan, 1992) problems such as inviting, compromising or enabling the creation of sustainable organizations (Junginger, 2009), at this point it is precisely to mention that the inclusion of design towards the social innovation in which there are lot of wicked problems related to the motivations of collaborations or hyper-efficiency models looking for sustainability, it is worth to include this kind of measurement on the assessment to reflect the power of design on this context.

On her research, Borja de Mazota (2006) identifies design roles in the organization with four characteristics as a "differentiator", in terms of reputation against the market, as "coordinator or integrator" to generate unparalleled competitive advantages, and as a good business, referring to the return on the investment made on design, seeking an broader interpretation of the use of design within the organizational context, oriented on a for profit context.

2.2.3. Design Management in a social innovation context

Stepping into the combination of these two concepts, the advantages of applying user-centred design methods to understand the user experience in the ideation stage, rapid prototyping, visualization and the systemic approach to problems (Mulgan, 2014), have attracted the attention towards the incorporation of the design in this field.

First, clarify that there are many denominations of design in a social context, such as "social design", "design for social impact", "design of social innovation", but there is still a debate about how it differs from design in its traditional form (Cheryl & Mar, 2017). specially because of the intrinsic nature of design aiming to create things for a better world (Hjelm, 2009). Currently, there are several educational programs related to social design, for example at the Design Academy in

Eindhoven, at the Maryland Institute College of Arts, MICA Social Design or even design schools for social impact such as at Paris College of Arts, or at Stanford Design impact program, showing a trend and opening design schools to generate specialized social design professionals.

One formal definition of social design made by Kimbell sets it as "*A practical learning journey taken by people including managers and entrepreneurs, to create useful, usable and meaningful ventures, services and products that combine resources efficiently and effectively, to work towards achieving desired outcomes and impacts on society in ways that are open to contestation and dialogue*" (Kimbell & Julier, 2012). In this definition, its seen the value of the process and the product by the design, with concepts such as efficiency and effectiveness characteristic of social innovation, putting a final emphasis on the object of this type of innovation to face social problems. Finally, it is mentioned the topic of dialogue, referring to the co-creative value and space of integration of the many actors involved. However, it doesn't put in context directly the inner usage of design as its been discussed there are in social innovation.

On a broader definition, Ezio Manzini makes a more rigid definition of design for social innovation as "*everything that a design expert can do to activate, maintain and guide processes of social change towards sustainability*" (Manzini, 2015), spotlighting the designer experience and the contribution it can generate from an expert point of view. Similarly Komatsu points out the importance of design tools being used by competent people with specific training (Komatsu et al., 2016). However, he said also that is always better to have design made by a non-expert, than to no have it at all, that is the case of many social innovations due to the bricolage attitude of their core teams pursuing for more direct impact than sustaining the system.

Design studios as IDEO.org or Design that matters, public entities as Mindlab in Denmark, SITRA in Finland or the Design Council in the UK and programs like the DESIS network or the Design management initiative, top design experts that are using the best of design methods to address important social issues, finding creative solutions with a reach beyond conventional structures and methods (Mulgan, 2014).

However, there are weaknesses such as the cost associated with the development of the design, the ability to demonstrate the impact generated by the design, the difficulty of implementing the proposed solutions due to lack of economic viability, and the egocentrism on the part of designers when collaborating in the projects (Mulgan, 2014).

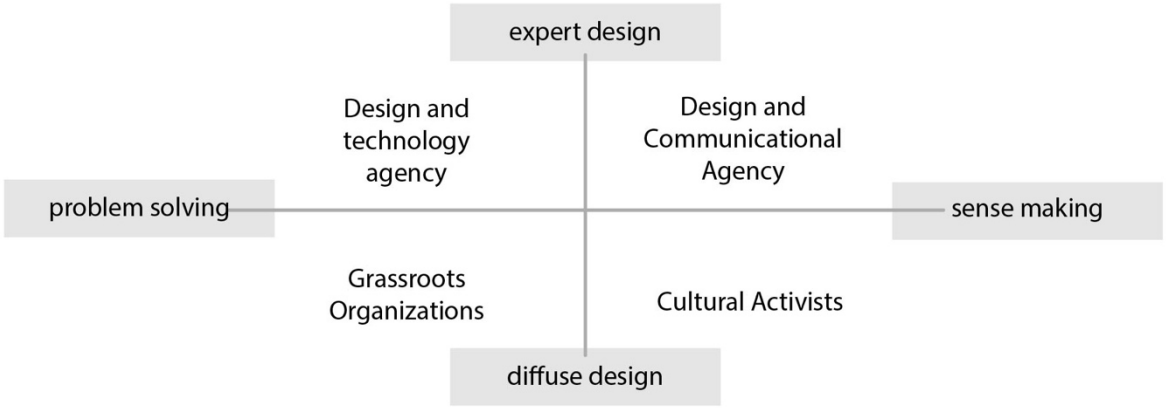


Figure 13: Design Use Map, E. Manzini

Let's not forget that the design in its broad spectrum and with the ability to perform design by the non-experts, Ezio Manzini (2015) proposes a map of uses of the design for social innovation constructed by identifying two relevant dimensions. First, a dimension based on the quality of the design practitioner, since it might be performed by an expert designer or leaded to a diffuse design, in which solutions come from people that perform design without having awareness of the design process they are doing. The second dimension refers to the typology of usage of design as a method for problem solving or as a tool to make sense. This generates 4 modes scenario to the usage of design are visualized with the respective ones, which give us a first notion of the Importance of design.

However, from the empirical study of SIMPACT, researchers have proposed that according to the type of problems that social innovation faces, design should focus its efforts towards the convergent phase of its thinking, because the first divergent phases are seen supplied by social innovators, with their great understanding of the social problems (Komatsu et al., 2016).

Design is at a crucial stage in which new ways to measure its impact are needed, since the incorporation in more internal social innovation process might bring outcomes that are unable to be perceived by the current methods, it is in the integration of design in the strategic conceptualization, the construction of leadership and capabilities through the transfer of skills, the approach from the human to the complex social systems, the creation of stories and the acceleration of impact, suitable opportunities for design within the internal processes of the development of the social innovation (Fabricant, 2014).

In the case of social enterprises, Grassl (2012) has found that the incorporation of design methods based on user's perception, conceiving a role in generating hybrid business models that, despite the complexities of the social ecosystem, promote organizations sustainable along time, leaving aside the fact of stepping of the social mission to be maintained on time.

Analysing the most recent results of the SIMPACT study, it shows with empiric evidence that despite the role that is attributed to design from the literature as an agent for social innovation, the process of exploration and use of design thinking and other design methodologies as well as a test for feedback, rarely emerges as an established practice in social innovation. On the contrary, there is no initial exploration, the restrictions are generally underestimated, the solutions are often elaborated and applied before having an adequate development, prototypes are considered definitive solutions rather than vehicles for refinement (Komatsu et al., 2016). From this study emerges the reflexion that even when it is worth to be used difficulties are higher, making suitable diffuse design as an entry level but delivered with some knowledge of design management for social innovators is crucial to be implemented in a right way.

Despite the large number of design studies for social innovation, surprisingly they do not detail the fundamental skills and practical methods to test the effectiveness of designers working in this sector (Amatullo, 2015), being the first milestone to set the value of design within social impact, and further use of design management for social innovation.

Even when research on the management of social design is extremely precarious. In 2014, a structured review of the literature was carried out, regarding design management and social innovation, where from 2 articles, 2 were selected, with the need to expand research to design and social innovation. (Corinaldesi, Gonçalves de Figueiredo, & Díaz Merino, 2014).

Recently, Xue Pei (2016), conducted a research facing the issue of social design management as a tool for the development of social businesses, proposing a map drawn up in two dimensions. First, a cultural dimension comparing between the usage of design from sense making to solve problems, against a second dimension that depends on the type of association with the beneficiaries of the social business, between feeding to just provide the solution to collaborative, enabling the differentiation from top-bottom character, or an integrating process that originates from the bases as grassroots. Generating in this way 4 possible scenarios with different nuances of the use of the design from the presented challenges.

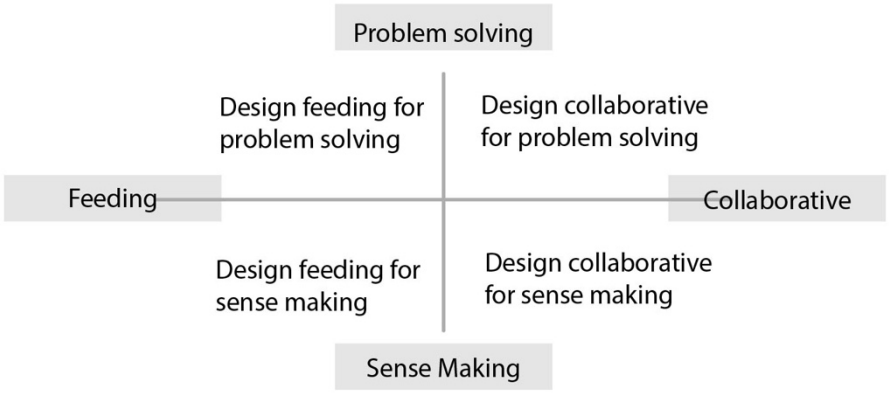


Figure 14: Design Management Map for Social Business, Xue Pei (2016)

A recent study conducted by Mariana Amatullo (2015), made a research on the return of design in social innovation, based on a structured study about the influence that certain parameters of design can have on social innovation, concluding that the attitude of design has a high positive influence on social innovation outcomes and lower on team learning and process satisfaction. From a user participation perspective, results show that it has a positive effect on team learning and process satisfaction but weakly supported relation with social outcomes.

3. Scope of the research

3.1. Research question:

From this literary review, a lack of knowledge about design management within social innovation is identified, since an environment of ambiguity in concepts and different meaning depending on the scope of researchers, looking for a design management impact on social innovation can't be assess directly with current models due to the scope that they have focused on the a for profit environment, made for traditional design practices or not suitable for social innovation context. Some of the aspects that might be included are the characteristics of social innovators, how to assess knowing the lack of resources problem as well as the complexity of the organizational and collaborative systems that characterizes the initiatives, knowing the huge potential that design has to offer when is made and included on a right way. This leads us to generate our research problems as a first approach to foster the effective use of design management for social innovation with a formulation as:

RQ: How can design management be effectively assess in a social innovation context?

3.2. Research Approach

The approach to solve this research question is through the interpretation of an innovation capability model done for traditional innovation that has the insights of many constructs that foster the ability of a company to deal with an innovation problem, many of them seen with a high degree of design usage involved. Since social innovation is a type of innovation, this will lead to propose constructs to deal with social innovation that can be supported by design, conducting the assessment to fill the gap of design and its management proposing levels of maturity.

3.2.1. Base Model

It has been discussed throughout this work, the difficulty of the current models described above such as the Design Staircase or the model proposed by S. Junginger (2009), to effectively assess the use of design in its structural form, generally because the models are focused to the measurement based on the new products generation process, also within the social innovation the inclusion of the design is quite relative to the conception that one has of the design, and the difference becomes even bigger when it comes to measure the use of design in problems that go beyond the generation of products associated with hidden problems where it is described that design thinking can have a role to solve them within the organizational structure, this is being improved by Ezio Manzini (2015) or Xue Pei (2016), on their scenario models, but they have not a perspective from the innovation capability, and design's many uses within it as its seen in the literature review.

The research about the maturity models conducted, give account of being used in the area of software engineering (Paulk, Curtis, Chrissis, & Webber, 1993), where they have been defined as the practices to establish the ability to perform a process. Within the framework of innovation is Essmann and du Preez ICMM model (2009), seen in a glance at figure 15, it consolidates the principles of innovation by identifying the essential components that constitute the ability of an organization to make innovation.

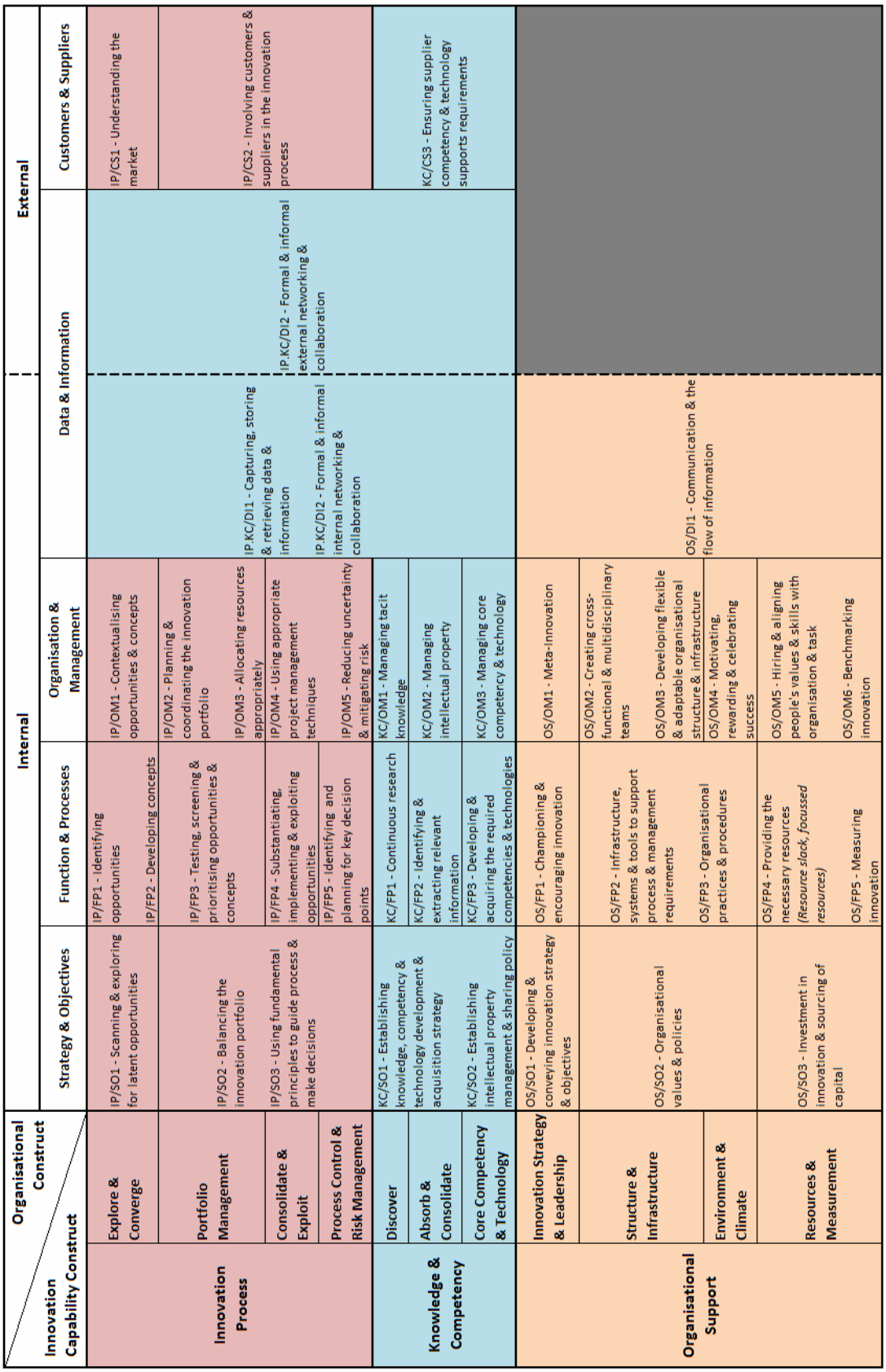


Figure 15: ICMM, H. Essmann & du Preez (2009)

The model is built in 3 dimensions. The first refers to the constructs of capabilities to make innovation, in which the organizational support is explored and decomposed in the innovation process, knowledge and competitiveness, generating a complete figure of the fields related to innovation. A second dimension is composed of organizational constructs, which provide the interrelation of the model at the different organizational levels: 1) the strategy and objectives, 2) functions and processes 3) organization and management, 4) data and information 5) customers and suppliers.

Finally, the dimension of maturity is incorporated, where 5 levels are distinguished, which is composed of 1) ah-hoc, 2) defined 3) supported, 4) aligned 5) synergized. Giving reference to the maturity of the incorporation of the process that is being carried out.

This type of maturity models has the benefit of generating a general perspective of the organizational factors in the different levels and processes of the innovation, it is a tool that proposes with the highest levels of maturity, paths that the companies can follow for increase their ability to make innovation.

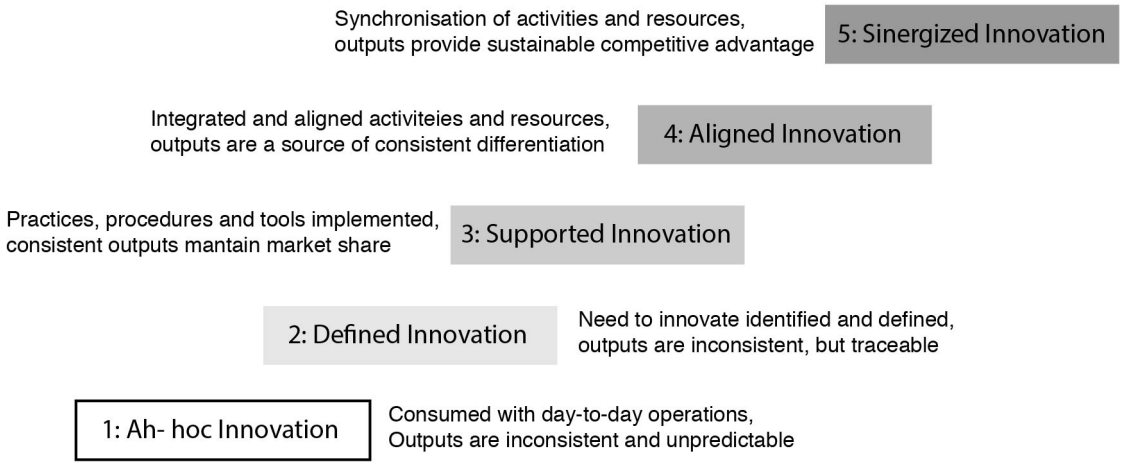


Figure 16: ICMM v2 Maturity Levels, H Essmann & du Preez (2009)

This model will be used as the main pillar of the research, conducting an interpretation of the constructs towards social innovation, with the search for the maturity of the design and its management which can take an important role in the development of the necessary capacities to generate social innovation.

4. Research Methodology

From the base model chosen, there is a 7-step methodology applied to illustrate, refine and implement a new iteration of the ICMM toward design management for social innovation. The methodology of change is constructed ad-hoc to the requirement of the iteration and based on the complex and contextual influenced environment in which the model is applied, having a first step to build the new model based on a literature from social innovation and design management analysis for the interpretation and further selection of relevant capabilities. A refinement phase is conducted with a step including a case study strategy done by the illustration of each one of the 19 capabilities with a broad case studies selected from a data base of 224 cases from 7 design awards related to social context allowing to identify in context the successful use of design followed by the construction of representative questions related to each capability to produce a good reflexion around the capability to finally hierarchize the model by an AHP process giving wage of importance to the main topics to be further included on the managerial part of the social innovators due to the relevance of the resource allocation and the scarcity of the resources. Finally, the model is applied with a deep case study methodology on a local NGO due to the uncertain outcomes of the model looking for internal insights of the application dynamics and suggestions for a further development.

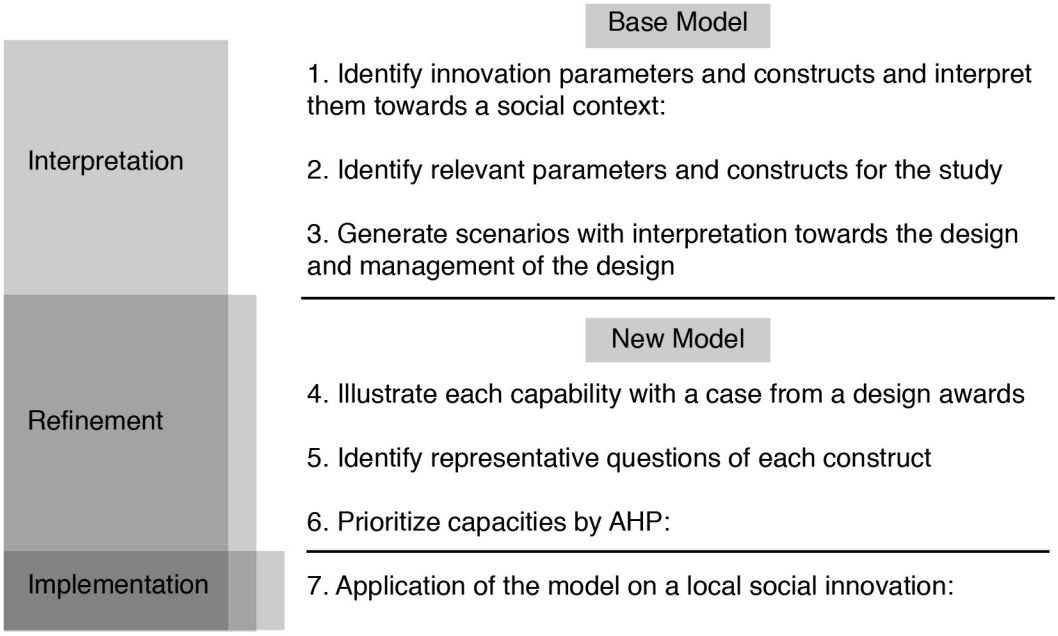


Figure 17: Methodology

1) **Identify innovation parameters and constructs and interpreting them towards a social context:** The objective of this step is to redesign the constructs of Essmann & du Preez ICMM (2009) model with social innovation values, using parameters as the process, characterization of its results and the organizational support that that differentiate it from traditional innovation changing the regular innovation conditions in which social innovation is subjected.

2) **Identify relevant parameters and constructs for the study:** Narrowing the model to propose the most relevant parameters within the construction of a capability to make social innovation, a first filter of constructs is made leaving out those constructs that fit well to a business innovation model, but not in a good way to social innovation. In addition, a second filter is performed where the incorporation of the design is observed directly or its management enablers.
3) **Generate scenarios with interpretation towards the design and management of the design:** In this step, the objective is to generate 3 levels of maturity that implicitly or explicitly design content as a relevant value for the development of the evaluated capability. The best practices on design and management refer to the highest values of maturity within the model.

   The format of each maturity scenario is inspired on Essmann & du Preez (2009) model and the design maturity models described on the literature review, having a basic level (1) with an ad-hoc value and reactive to the circumstances that occur over time. An intermediate level (3) which represents when the design practices and their management are already internalized processes can be diffuse and not formal but the design already occupies a role and is recognized within the assessed capacities. Finally, a level (5) where the levels of design maturity as support for innovation are maximum, having a formal process, managing resources, with the help of a specialized human capital and being an intrinsic part of the organization.
4) **Illustration of each capability with a case from a design award:** It is selected a case study approach with an illustrative objective (Yin, 2003) due to the evaluative objective of this work to describe within context for a better understanding. From an own created data source of 224 case studies gathered from 7 design awards within a 5-year frame having an emphasis on social design or design for social innovation being selected the best references for each capability to guide the reader and the assessment
5) **Identify representative questions of each construct:** Complementing the illustration and with a guiding purpose its proceeded to formulate representative question for the collection of information within the assessment due to the qualitative character of the model as the main source of information is based on interviews. Representing the construct and so that the counterpart of the organization can reflect on the capabilities and apply the model in a correct way as sometimes there is a gap of knowledge on the understanding of the main areas of the model.
6) **Prioritize capacities by AHP:** Finally, to set up the final part of model is conducted an AHP methodology to prioritize the capabilities within model, offering a design development path and design management plan, according to the most relevant capabilities that the social innovator considers with most interests and his own perception of the needs due to the highly commitment on his social innovation and his power on the managerial side of the organizations evaluated.
7) **Use of the model on a local case study:** Finally, a second case study approach is selected as the application of the model on a local NGO with an explorative objective due the newness character of the model having no clear single set of outcomes on its application (Yin, 2003) looking to give practical use to the model and being able to draw conclusions from the organization's performance and ways of improvement with a set of conclusions around the model itself.

5. Proposed Model: "Design management assessment model for social innovation"

The proposed model is created from the interpretation of the ICMM model of Essmann & du Preez (2009), towards a social context, emphasizing the capacities where the design and its management take an important role. In this way, we propose a model of 19 differentiated social innovation capacities in 3 groups and 7 subgroups that characterize the values to make social innovation. The capacities are classified into three large groups:

1. **Social innovation:** aiming to analyse the most internal and direct values of social innovation, responding to the innovation process, the value of sustainability within the solution and the organization and characteristics of the proposed solutions.
2. **External support:** The second set is composed by the external factors that contribute to the realization of social innovation. They are divided into collaboration and the relationship with the innovative environment. This is decided to separate from the values of social innovation by having an external factor that sometimes remains outside the hands of the organization, but design can have a role on the integration part.
3. **Organizational support:** The third level is related to the internal conditions of the organization that enable social innovation considering the capabilities of the team to do management in addition to the figure of the social innovator and the meaning related to the mission of the organization.

There is one construct (1.3.3.) presented in between two of the clusters, being a hybrid capability of the social innovation direct characteristic but at the same time is composed highly by an external situation. Three maturity scenarios are presented on the applied case study, table 4, based Essmann & du Preez's maturity levels for design.

Social Innovation	Innovation process	1.1.1. Exploration of constraints for the development of new social innovation.	1.1.2. Understanding and re(formulation) of social issues from a user-perspective.	1.1.3. Creative process and solution's design.	1.1.4. Improvement of frugal solutions as NDP process.		
	Sustainability	1.2.1. Expansion and indirect scaling of solutions.	1.2.2. Search for a sustainable business model.				
	Characteristics of the solution	1.3.1. Research for systemic and efficient solutions.	1.3.2. Development of a beneficiaries' structure.			1.3.3. Value proposition identification and differentiation for each collaborator.	
External Support	Collaboration	2.1.1. Collaborators expectations and roles alignment.	2.1.2. Diversification of the collaboration network (volunteers, financers, in-kind resources).	2.1.3. Integration and development of collaboration network.			
	Ecosystem	2.2.1. Systemic analysis of the political, social, financial and civil society context.					
Organizational Support	Management	3.1.1. Design of a financial structure and organic reinvestment.	3.1.2. Creativity to measure social impact and make it visible.	3.1.3. Human resources and organizational capability management.	3.1.4. Promotion of value proposition and attraction of collaborators.	3.1.5. Use and management of formal design (external).	
	Leadership	3.2.1. Transfer of social mission values into intrinsic motivation.					

Figure 18: Proposed Model

Next, there is a brief explanation of each of the 19 capacities, with their respective references to the literature and a case study that illustrates its operation:

Table 1: Resume of Proposed model with selected cases study

Nº	Capability	Selected Case Study
1.1.1.	Exploration of constraints for the development of new social innovation	Grameens Bank - Microloans
1.1.2.	Understanding and re(formulation) of social issues from a user-perspective	IDEO.org - Divas
1.1.3.	Creative process and solution's design	Inglorious Fruits – Intermarché
1.1.4	Improvement of frugal solutions as NDP process	OLPC - XO products
1.2.1.	Expansion and indirect scaling of solutions	Teach for all - Enseña Chile
1.2.2.	Search for a sustainable business model	Biolite – Homestove
1.3.1.	Research for systemic and efficient solutions	D.Light – A1
1.3.2.	Development of a beneficiaries' structure	ABCitta - Biblioteca Vivente
1.3.3.	Value proposition identification and differentiation for each collaborator	Cohousing.it
2.1.1.	Collaborators expectations and roles alignment	Design that matters - Firefly
2.1.2.	Diversification of the collaboration network (volunteers, financers, in-kind resources)	Techo
2.1.3.	Integration and development of collaboration network	Cyclehack
2.2.1.	Systemic analysis of the political, social, financial and civil society context	RHU Design team -Refugee Housing Unit
3.1.1.	Design of a financial structure and organic reinvestment	InVento Lab
3.1.2.	Creativity to measure social impact and make it visible	MASS Design group – Butaro district hospital
3.1.3.	Human resources and organizational capability management	AIESEC – Global Volunteer
3.1.4.	Promotion of value proposition and attraction of collaborators	Mekanism – It's on us
3.1.5.	Use and management of formal design (external)	Frog Design - HDX
3.2.1.	Transfer of social mission values into intrinsic motivation	Impact HUB

1.1.1. Exploration of constraints for the development of new social innovation:

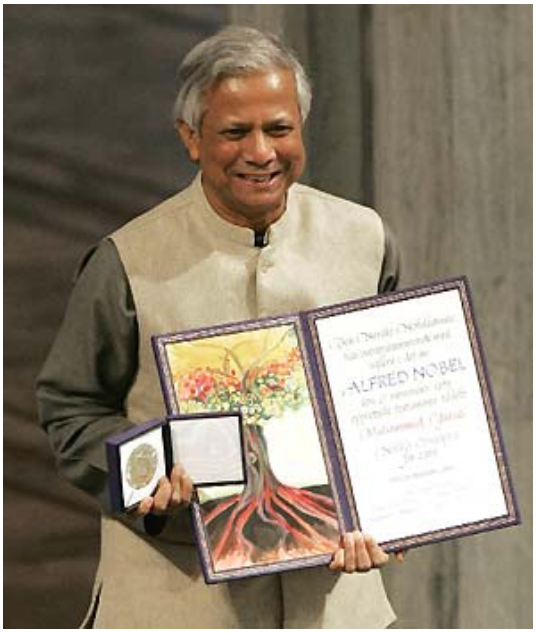
Within the process of social innovation, it begins with a period of inspiration for the search for new social innovation, (Murray et al., 2010) this has been put into debate because the findings showing that the problems addressed for social innovation are often well known by innovators, so this process of inspiration often is out of reach. Instead of this divergent process, it is proposed that the process might be supported by the convergent thinking of design looking for limitations and constraints of the system as a source of new social innovation (Terstriep et al., 2015) in which often the problems are recognized but the restrictions underestimated (Celi, Deserti, & Rizzo, 2015) making innovation often not viable without a good research process. It is in this research phase where design tools and methods might take part as human centred research tool.

Grameen Bank - Microloans

Grameen Bank

Widely recognized is the case of Yunus, the creator of the famous bank of the poor the one since its inception take care of the great impediment that poor people have accessing to bank loans due to the high risk associated with traditional bank evaluations. For his part, Yunus with the conviction that all people are born with an entrepreneurial spirit, but not everyone has access to develop it. He creates this bank to provide micro credits to the poorest people, developing a micro economy in the communities, allowing them to start a small business with their relatives or closest neighbours, empowering young women and allowing them to take their future in their own.





Picture 1: Yunus listening the communities, and receiving the novel price

One of the main pillars is the community created, in which the repayment system is based, in which the same community is in charge to take care of the payments, setting repayment programs accord to the businesses, reducing the main risk for the bank, having an actual 96,7% of repayment.

With over 100 million people reached with microloans, the bank lately has diversified into loans for telephone and housing programs with the same bottom of the pyramid and community based scheme.

A strong and deep understanding of the community is recognized by Yunus to the limitation of his people recognizing factors in Indian culture and communities that closes his bank model, which has made him worthy of the Nobel Peace Prize, taking care of complex limitations of a society that without the help of the bank the chances to overcome poverty is small.

1.1.2. Understanding and re-formulation of social issues from a user-perspective:

There is a debate about this capability, and it is pointed out as a value for social innovation to understand the problems from the perspective of the users, where the human-centred design provides an enriched understanding to solve most of the problems (Mulgan, 2014). On the other hand, from an empirical study it has been described that often the social innovator knows in depth about the problem and the needs, due to his closeness and personal experience that triggers his motivation to involvement, so the current state of the majority of initiatives do not have this phase of research that enriches the result. (Celi et al., 2015) It is therefore suggested to pay attention to the collaborators and beneficiaries as individuals and collaborative network (Chiappero-Martinetti, Houghton Budd, & Ziegler, 2017), to formulate the problem with insights from the users, having an effective impact from the very first moment investing more resources on the research but without wasting resources on solutions that are not tailor made for complex wicked problems.

IDEO.org - Divas:

Runner-up of the Core 77 design award in 2016, IDEO.org is the organization under IDEO's design studio that deals with the social problems addressed by the company, characterized by its use of human-centred design as a hallmark the time to face the problems. Divas, is a program created in conjunction with Marie Stopes international and the Hewlett Foundation in Lusaka, Zambia to give young people access to contraceptives to have control over their bodies and their futures. In Zambia, a third of girls give birth before the age of 18, limiting their ability to decide about their future, while birth control education has been focused on people who already have a family. The field study conducted by IDEO provide valuable insights about the decision of condom usage as that it is a decision made by the man at the time of the relationship and the poor information and education that they obtain comes from the peers, including the difficulty of being addressed by the taboo condition of the subject. To solve this problem with a high human centred design method, IDEO.org created the divine divas centre, that through an informal conversation, young people can access sexual education from trained peers in a hair & nail salon in which they feel confident to talk about it taking control of their long-term decisions and empowering themselves against their future.



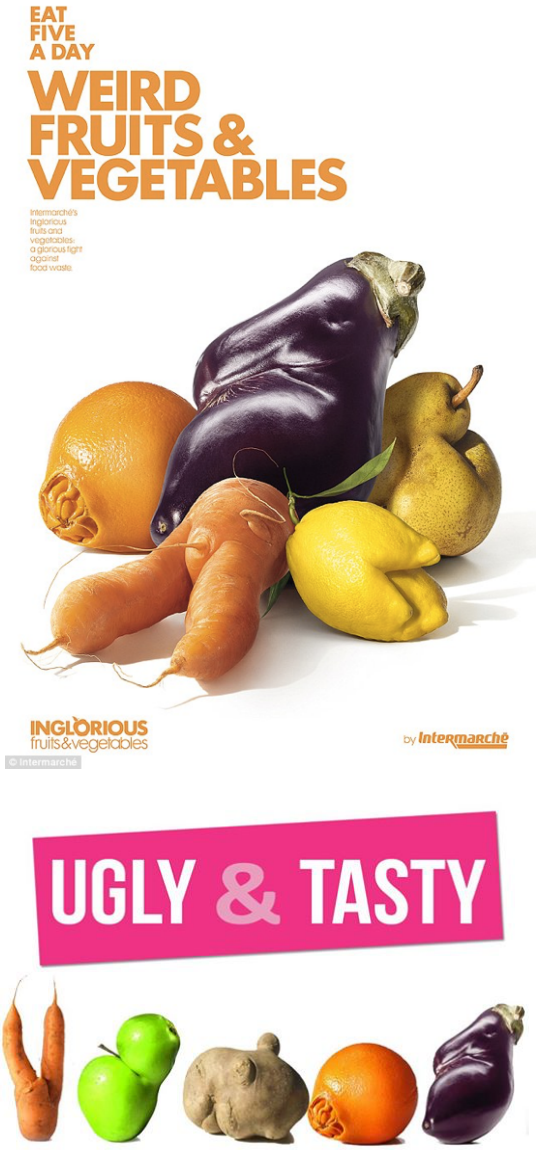
Picture 2: Divas centre

1.1.3. Creative process and solution's design.

The process of design in social innovation is rarely produced in a robust way because most of solutions find their way through a complex co-creative process (Pelka & Markmann, 2015), and depending on the circumstances this process may have a quota of urgency and other complexities. Characteristics such as scarcity of resources produce a development of frugal solutions, focused on the functionality of the solutions. A more structured creative and design process focused on the requirements might lead to results with a more systemic impact and higher levels of sustainability.

Inglorious Fruits – Intermarché

Fruit and vegetables are facing an absurd situation, in one hand people are encouraged to eat at least 5 pieces a day, and with the current market prices (in France at least), it's a huge amount of money. On the other side 3 ml tons are thrown away each year because of their non-calibre and rare or un common shape. In an intent to recover this type of food one of the biggest supermarket chain has launch a line of products called "inglorious fruits" selling at a 30% lower price with a touch of irony and creativity e.g. the ugly carrot or the disfigured eggplant; having high aesthetical standards on their promotion but staying as simple as possible on branding, attracting consumers with samples of secondary products as good as the ones made with the normal ones. They have had good reception by the consumers, increasing sales in 1.2 tons on every store in the first 2 days, having an impact beyond consumers reaching over 13 ml people in the first month, calling it a glorious fight against food waste. It's clear on this design process that designers working with irony have reached a market with product that it's not sell commonly, tackling from food waste, to health even increasing sells to the supermarket at the same time.



Picture 3: Inglorious fruits advertising

1.1.4. Improvement of frugal solutions as a NPD process

Social innovation due to its scarcity of resources and the bricolage attitude of the innovator generally does not present a use of prototypes for the development of solutions (Komatsu et al., 2016), since the first product that meets the minimum requirements is often adopted as final product (Pelka & Markmann, 2015), without taking into consideration, the possible feedback from users or future improvements due to technological or environmental factors. Taking values from the theory of change, it is visualized that depending on the conditions of the place that the solutions are applied the first introduction of the solution generates the greatest impact, being its improvements not so relevant (Nowak, Szamrej, & Latané, 1990). It is also considered that solutions should go through a process of improvement, to become optimal solutions and especially within the process of adapting solutions from other realities, which must be adopted and contextualized to the realities of the beneficiaries (Terstriep et al., 2015). From a more economic point of view, diversifying social innovation conception into more hybrid business models, the need for working capital to generate a "market push" that allows them to continue operating, providing the first followers, opening possibilities for feedback and generation of solutions that they really want and not what they think they want beneficiaries (Terstriep et al., 2015). This process is considered part of the design process in which the management contributes from the point of view of the systematization and definition of the process and management of allocated resources and clear goals.

One Laptop per child - XO Line of products

One computer per child is an organization founded in 2005 that has won several design awards such as the 2014 driven x design of New York, United States to the design of their las XO line of tablets. Their XO line of products has been responsible for providing children with limited resources in developing countries, access to an affordable computer, designed to be durable for kids from 12 to 18 years old, putting an emphasis on the adversities of the use of a child and the difficult connectivity to internet or electricity that in some rural areas of Africa might happen.

Laptops, and now tablets are designed to be a learning tool, giving access to basic knowledge and improving team work skills with internal software's and programming competences with the type of interface and IOS it has.

Often in the Tech industry as it evolves with a high speed, the XO line has done the same over time along with advances in technologies, improving the product throughout its existence to have better performance and accessibility, and even touchscreen in its latest version, to provide high quality education to children in the world.





Picture 4: Evolution of Hardware, kids in Kenya using the laptops

1.2.1. Expansion and indirect scaling of solutions

Social innovation to have significant impact on society it must be escalated. Social innovation generally has a process of expansion different from traditional innovation (Murray et al., 2010), because the main objective is the good of society rather than the recognition or economic benefit of those that drive it. The diffusion of the idea over than the organization itself is conceived as an indirect scaling (Terstriep et al., 2015). It is in this phase that design might make a big difference by stimulating the markets to adapt social innovation for a tailor-made initiative of different users (Dervojeda et al., 2014) or making a scaling model that is modular and with adaptable resources for the expansion of the solution, providing shapes to expand direct or indirect the solution of the social issue.

Teach for all - Enseña Chile

Non-Profit Organization founded by Wendy Coop in 1990 under the name of Teach for America with the mission of eliminate education inequality through empowering youth leaders to deliver education in the most vulnerable schools of the US maximizing student's potential, using education as a vehicle for social mobility. This mission was taken by several social innovators in different places around the world, and since then more than 45 country partners have develop their local NPO that under the Teach for All program, scaling the mission at a world-wide scope.

Chile has been one of the first to take part as partner under the name of Enseña Chile of this mission since 2007, empowering young graduates from universities on different high school subjects as math, history or biology, to make them young motivated teachers that enhance the educational level of the most vulnerable schools of the country, reaching higher levels on student's exit exam and providing them examples of life as more than teachers to become inspiration for the children to try to overcome their situation and help their family using education as a vehicle to overcome inequality and social mobility.

Teach for all, has become a network for teachers all over the world having meeting at local and global level, mentoring and equalizing study methods, sharing experiences and giving support to local NPO's from top to bottom levels in the organization, aligning for their mission and fostering motivations for social activists that are enrolled on the program.



Picture 5: Enseña Chile and teachers of the program

1.2.2. Search for a sustainable business model

Sustainability on organizations that promote social innovation has been described as the balance between the effectiveness and efficiency they should achieve with the use of given and scarce resources. Although social innovation often has a more altruistic outlook regarding the solutions proposed, it is necessary to generate sustainable models with the incorporation of economic sources of financing for continuity over time (Patiño C, Cruz Pérez, & Gómez Melo, 2016), a common lack of resources generates a barrier to growth and diminishes the innovator's incentives to continue with its social mission. The conjugation of social and economic resources in a unique and creative way is the only path to develop and sustain innovation over time (Terstriep et al., 2015), in this phase design with its systemic approach might take a role generating holistic models that work, being recommended that from the very beginning they should be created sustainable, (Komatsu et al., 2016).

Biolite – Homestove

More than 3 billion people still cooks their meal from an open fire, harming their health and the environment causing more deaths than the HIV. Current solutions are often not bought by consumers due to the high cost of complementary resources as special pellets or many cultural issues that block the correct purchase or usage of the product.

Using a design approach Biolite has design a solution with deep cultural insights as it is meant to be used by women but attracting men with power generation to buy them, as the leader of houses is often the one who decides what to buy. A second major issue is to keep the fire culture inside their homes, with high aesthetical and functional standards the main goal is to reducing CO_2 emissions that people inhale every day.

Thanks to a complete combustion due a fan powered by a thermal generator this home stove is sold at an affordable and symbolic price making it an aspirational product giving ownership sense for users.

To subside this affordable price, they have developed a “double innovation” as they call it, with a hybrid business model, offering a line of product with similar features, targeting outdoor-camping users, letting them know that their impact might be not direct, as the philosophy to sell always the product, but they are helping to provide the solution to new places, to build a team, and make this social innovation sustainable.



Picture 6: Biolite Homestove, the dual product and the usage in rural villages

1.3.1. Research for systemic and efficient solutions

Having a structural complexity due to the number of actors involved and the need to work in a deep level of comprehension of habits and dispositions of people, social innovation requires more than any systemic solutions, based on the needs of users, exactly is here that design thinking excels in methodology to solve this type of problems, enabling solutions that are born from the bases (Tim Brown & Wyatt, 2010). Design, since is not part of a powerful profession gives to professional performers a distance to take other perspectives to address social problems, different from those involved inside and fail to see (Mulgan, 2014; Tim Brown & Wyatt, 2010), producing multiple factors that favours to a cultural change by proposing solutions from a deep insight perceptions of culture.

D.Light – A1 Led light for rural communities in Africa

Absence of light is a clear major problem in rural communities of Africa, attracting the attention of many social organizations looking to provide this basic good with innovative solutions, using the state-of-the-art technology. However, sometimes is not well received by African population, due to in deep problems related to their culture or mind-set that don't let them see the advantages of its use.

D.Light with Some problems are as their lack of education or the difficulty of buying the lamps without access to credit, making them to continue using their old kerosene lamps, that harms their health and life quality. D.Light solution, in addition to the technical development of LED solar charge lamps, has gone further in the system designing a program for families to acquire the lights with access to credit, without adding extra cost to their previous budget for light, enabling families to acquire the solution with all the facilities to be implemented, not just a product that works, but also a community that can adopt it.



Picture 7: D. Light in use at rural Africa

1.3.2. Development of a beneficiaries' structure

Despite the great variety of problems addressed by social innovation and depending on the circumstances of the problems, often they require an assessment of the best type of involvement and empowerment due to the key role on the success on the process and the result (Hernandez & Cormican, 2016). Is suggested in the literature that it is necessary to overcome problems such as exclusion, marginalization and poverty in a meaningful way, include the beneficiaries in the development of the programs and policies, instead of doing the programs just for deliver to them. (Chiappero-Martinetti et al., 2017). Looking for a well-being in which the subjects are involved not as *"part of the problem"* but as *"part of the solution"* (Manzini, 2007).

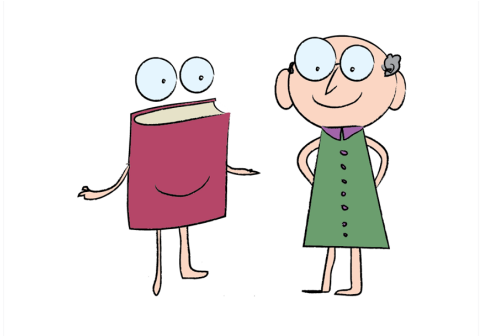
ABCitta – Biblioteca Vivente

Established in 1999, the Social Cooperative Onlus, based in Milano - Italy, is a group of experts from areas as architecture and urban planning that have specialized in collective participation projects with the mission of ensuring the proper development of 4 pillars as: the childhood, urban planning, environment and inclusion. Within this framework of inclusion, the "Biblioteca Vivente" or Living Library project in its translation, intends to tackle the problem of discrimination towards low dangerous convicts making easier their insertion into the world by generating awareness of their human condition to overcome discrimination. Adapting a Dutch initiative to an Italian reality, through a process of approximately 8 - 10 guided sessions, the convicts reflect on their crimes and prepare their "story", the one that is told (in a controlled environment and by themselves) to civil society, making people to understand the circumstances in which they were at the time of being taken into prison, erasing endless prejudices and bringing two distant realities. This initiative through the involvement of the beneficiaries, have made convicts part of the solution generating high impact on spectators. Currently they are exploring among other topics such as mental illness, making nurses tell stories of their anonymous patients or elderly people.









Picture 8: Biblioteca Vivente, participant, book session and illustration

1.3.3. Value proposition identification and differentiation for each collaborator

Social innovation sometimes is compared to a business from many sides, having to generate a business model with more than one value proposal, tailor-made and made directly to the different actors that compose the system, the ones that have different expectations and values, in this way producing a base of support that is more than in-kind help, the type of resources that social innovation excels in performance (Komatsu et al., 2016). One of the complexities of this type of model is the divergence of allocation between benefits and costs among the actors (Terstriep et al., 2015), being not necessarily the one who "pays" the same that "receives" the direct benefits. Creativity to inform this value proposition in which the design might take position in the search for value proposals aligned with the expectations of the participants, making them visible and easy to understand.

Co-housing.it, Milano Italy.

In Europe, several locations with a high college students and tourism have increased rooms fees for students reaching prices out of their budget, detracting them to access to higher education because of their economic situation. On another hand, increasing elderly population have problems every day such as desolation, abandonment, diminished mobility added to their low income by pensions complicating their possibility to overcome this kind of problems, also related to some taboo depending on the society related to being on an elderly house. Within this context, a co-housing service as the one in Milan, has been created in which university students agree to rent a room for an amount less than the market price, fulfilling the assistance of the elder owner of the place. A creative way to way to generate value for both users, in an act of mutualism and community service.



Picture 9: Co-housing.it

2.1.1. Collaborators expectations and roles alignment

The premise that social innovations are characterized by a complex network of collaboration (Pue, Vandergeest, & Breznitz, 2016) in which the incentives commonly differ among stakeholders and must be balanced (Quentin, Dr Marco, & Jess, 2016). It is fundamental for social innovation the alignment of roles and expectations within the complete social innovation system, being unclear at the initial stages, creates the risk that the initiative dilute due to lack of commitment or resources for a sustainable stage after the first direct impact (Prestero, 2010). It is within this context in which design with its integrative ability (Borja De Mozota, 2006) might generate high value in front of the different collaborators, assuming the convergent function to set common goals and align efforts towards social innovation.

Design that matters - Firefly:

Mentioned in the Core 77 Design Award in 2016, Design that matters is an organization founded in 2001 by Tim Prestero focused on solving new-born baby's problems since often large monetary contributions are wasted due to poor problem solving skills and no use of design. They are responsible for developing solutions with a high level of design that solve high number of problem with a tailor made base. In Africa and South East Asia 5.7 million infants are born with jaundice, needing to be treated with photoelectric therapy to overcome this condition, the one that if is not treated on the early days might generate more severe health complications in the future. Even though technology exists and in-kind resources are donated from other hospitals around the world, infants continued to be treated incorrectly due to the lack of skills from the staff. Design that matters has taken over this problem, and after a design process has generated Firefly. For its development, a field research was carried out, to understand the problem generating insights about the multiple users along the value chain and stakeholders, a process of ideation, prototyping, improvement and launching for a current escalation of the product even a research of the supply chain to be capable to provide the product locally, that had to be trained. Resulting in a product difficult to use badly, effective in cost and with high durability with which it has the option to change the lives of many people.



Picture 10: Firefly designed by DTM

2.1.2. Diversification of the collaboration network (volunteers, financiers, in-kind resources)

Initiatives that have a fewer collaborators tend to be riskier due to the high dependency on fewer stakeholders, so then also less likely to contract loans that drive them to sustainability. It is suggested that business model of social innovation should find the perfect mix among employees, financial contributions while reducing operational costs through in –kind supporters (Komatsu et al., 2016). One of the greatest differences is the incorporation of civil society as volunteers (Celi et al., 2015) having an high intrinsic motivation, making them to offer resources without great cost, being considered as valuable facilitators for the development of social innovation (Terstriep et al., 2015). Is in the modelling and configuration design, that design might take an active role using tools such as actor maps or resources for visualization and strategic design to interact designers and managers to develop the best, tailor-made and feasible models.

Techo

Organization bon in 1997 from a group of university students with the mission of overcoming poverty in Chile, initially focused on the construction of emergency housing to eradicate the most poor slums, today it has scaled to the entire continent with 19 countries, the collaboration of the Inter-American Development Bank (IDB), having 9 programs that promote the eradication of poverty, aligned with the provision of definitive housing solutions, education, community infrastructure, sustainable development, among other commitments. One of the strongest pillars of Techo throughout its history are the volunteers behind the initiative, mobilizing more than 723,178 volunteers throughout the continent to help on its mission, collaborating also on a global scale with big corporations as strategic partners such as BCG or MEC, other regional corporate alliances such as DHL or LATAM and associated organizations such as the University of Cambridge or Germinar adding internationally more than 50 collaborations, enriching their impact and making it real.



Picture 11: Techo para Chile, houses and volunteers

2.1.3. Integration and development of a collaboration network

The multi-sectorial nature of SI is a challenge for the organizations dealing with this initiatives (Konda et al., 2015) sharpening the need to build a strong collaborative network that could reach further in economic sectors to give the necessary stability and drive it to finally scale up in a good manner (Dervojeda et al., 2014). Social innovation also depends on relationships often based on belonging, trust, solidarity and reciprocity among its collaborators (Terstriep et al., 2015), acquiring them is a difficulty that often weakens the processes and harms its natural development. Design might take a role within this collaboration as a facilitator of communication (Dervojeda et al., 2014), for the integration and development of this network, especially thinking about the complex, creative and often co-creational process.

Cyclehack

Defined as their main mission Cyclehack is a global movement that supports people with the tools and platform to design, prototype and test new cycling innovations, with the objective to make the world more sustainable through reducing the barriers to cycling. Taking a grassroots approach, they empower individuals, organizations and government in a DIY and a human-centred design paradigm to innovate on the cycling industry. Starting with a hackathon this movement raised from design activities has reach many places around the world making interact a huge network of collaborators, that are making possible a cultural change to make more people go cycling, with all the environmental, health and traffic issues it can bring. For example, the Penny in Yo Pants, its literally a penny that go under the skirts of girls allowing them to be covered when they ride bikes, filling gaps of gender equality in at the same time.



Picture 12: Cyclehack, bicycle box and penny in Yo pants

2.2.1. Systemic analysis of the political, social, financial and civil society context

It's been said many times that the microeconomic and macroeconomic contexts play a role for the development of social innovation. In recent times, a global raising trend towards the development of this type of initiatives has led to the need for a more favourable ecosystem (Kaletka, Rehfeld, Terstriep, Schröder, & Howaldt, 2016). It's been measured by the Economist, countries' capacity to make social innovation as an index that takes into account 4 pillars: 1) Public policies, 2) Access to financing, 3) Entrepreneurship and 4) Civil society (The Economist, 2016), resulting as first in 2016 the USA with 79.4 pts, while Italy (17) and Chile (18) close to 57 points each. It is vital for the success of social innovation that managers understand this ecosystem of institutions that facilitate or impede development (Terstriep et al., 2015), being designers or their design attitude with its systemic thinking might help to visualizing the strategy that best suits the contextual requirements.

RHU Design Team - Refugee Housing Unit

The housing solution made with the collaboration of UNHCR and Ikea Foundation, is developed to set new standards for refugees in developing countries that lives in careless conditions. After a design process with field research, prototypes and testing, they have developed a solution that looking the conditions of the places, that politically are dangerous and there is nothing more than improve their current condition, in the main time that bigger problems as war are solved as it is in Iraq or Ethiopia. This Refugee shelter is designed with light materials and an easy setup, for high volume delivery, integrating solutions for electricity with solar panels, giving them little dignity and an option from a tent for those people living in a complex situation that might be extended even for years.



Picture 13: RHU shelter designed for refugees

3.1.1. Design of a financial structure and organic reinvestment

One of the greatest difficulty for social innovation is often the acquisition of economic resources (Konda et al., 2015). Recurrently the financing is through public funds, subsidies or donations, having not a stable structure it generates tight business models for innovators (Dervojeda et al., 2014), the ones that prefer to keep over costs low and reinvest possible surpluses in the social mission (Komatsu et al., 2016), generating a hyper-efficiency state producing creative solutions that are fragile and difficult to maintain over time. (Celi et al., 2015). Alternatives such as venture capital or bank loans, are difficult to get by social businesses because their proposal is generally under yield from a market assessment perspective. On the other hand, impact funds have been developed, allowing to be measured also the impact within the evaluation, a sector that is still under developed. Within financing context strategic design might help with the exploration of cases, and transmitting the trust to finally reach different type of sponsors and eventually disregard them.

InVento Lab:

Social enterprise based in Milano - Italy, founded in 2014 with the mission of educating young people and communities about sustainability and the environment, promoting environmental entrepreneurship in high school classrooms. Funded by projects that usually are given open call funds from the Cariplo Foundation or public funds from Lombardy region. Thanks to this, they have been able to generate partial on-site courses for schools in which entrepreneurial values are provided. Considering that the structure of the competitive funds is risky and fragile, InVento within its financing strategy and in search of diversifying and mitigating the risk, have designed the platform used for the courses in a modular way, making the contents easily modifiable to offer the training service also for companies employees to be trained, without incurring a deviation from their mission, generating a more stable and robust income source leaving their financial structure not depending on highly risk open call founds.





Picture 14: InVento lab talk and participants

3.1.2. Creativity to measure social impact and make it visible

Impact measurement is rarely considered in NGO's plans, being an extensive process due to its intangible nature (Hernandez & Cormican, 2016), and considered part of the bureaucratic paperwork that moves away the efforts from the social mission (Celi et al., 2015), preferring to keep costs as low as is possible to operate than to allocate part of scarce resources to this type of tasks (Terstriep et al., 2015), without visualizing the benefits related to support, credibility, and the generation of confidence on the part of collaborators, financiers, volunteers and the community in general about the effects of support activities generate. Design as well as in producing might contribute to the measurement with a view from the user understanding what success is for them (Dalberg, The MasterCard Foundation, & Learning Lab, 2015) and making it visible for stakeholders, in addition to the systemic approach and visualization of scenarios that characterizes the theory of change, and the recognized methods of impact evaluation.

MASS Design Group - Butaro district hospital

Placed in Butaro, with the objective to provide medical service to more than 320.000 people, Mass design group have partner with local health actors and the Clinton's Foundation to build this top-quality hospital. This case is interesting from the point of how designers get involved into the culture of Rwanda's people, by the collaboration of a local engineer that engage cultural values into the construction. First it was used local community labour force to build the entire hospital, plus using local material as the rocks on the façade, that forced the development of a capability for the people that built those walls with this technique, giving them knowledge on the process. Build by the community to have more engage and they would feel owners of the place, and finally made with medical insights to improve recovery of patients and reduce cross contamination of patients. This is an example of many impacts that design might produce and the way they measure is centred on the people they are helping, further than the hospital, looking beyond the building the entire contribution to the community.



Picture 155: Mass Design, inside and outside Butaro's hospital

3.1.3. Human resources and organizational capability management

It's been mentioned that one of the success factors is broad knowledge in different areas (Terstriep et al., 2015). In the case of most hybrid business models, unfortunately, knowledge in finance, management and the industry are rarely observed (Celi et al., 2015), partly because of the altruistic and philanthropic vision of social innovation in general, not producing an economic compensation at a market standard for the innovator or his core team (Patiño C et al., 2016), making difficult to retain talents that often need to combine their own livelihood with social intangible reward that innovation provides them. Looking to mitigate the impact of the skill absence, there are cases that from the outsourcing they get valuable skills to work with i.e. marketing skills were acquire by specialized professionals as volunteers that collaborate in specific tasks (Dervojeda et al., 2014). Design, on the other hand, is meant to contribute to the development of skills with the transfer of skills thanks to collaborative work (Fabricant, 2014) on its main process, as well as creating forms of visible non-economic incentives to generate a higher rate of retention and commitment.

AIESEC - Global Volunteer

With the vision of promoting peace and the development of human potential, having more than one million experiences done, AIESEC is the largest youth organization in the world. Founded in 1948 at the end of the World War II with the mission of prevent future generation from issues of this kind again through cultural exchange between young people from different nations. The program called "global volunteer" has managed to transform the trend of new generations to travel, discover and learn new cultures in incentive for young talents to occupy their skills to empower local NGOs, in experiences of between 1 and 24 months in which they know adverse realities and meet different cultures from the inside, enhancing their leadership and obtaining a view of the world as global citizens, using their potential to contribute in a globalized world with one issue that in the more recent time is raising again as its seen with the Brexit or xenophobic manifestations around the US and Europe.



Picture 16: AIESEC, global volunteer teaching program and meeting

3.1.4. Promotion of value proposition and attraction of collaborators

Due to the multiple actors working on social innovation, it is often necessary generate a model that has more than one value proposition. The private sector needs to be more aware of the possible businesses opportunities that social innovation can provide (Dervojeda et al., 2014), as well as civil society and financiers that commit to work or with donations. Without effective communication, the relationship and transference of this value proposition is hardly delivered to the relevant people, for this reason there must be a promotion or "sale" of the value generated (Komatsu et al., 2016) on a tailor-made base. Design thinking, after the prototyping phase is useful to create internal and external communication strategy of the organization due to the large number of insights that are possessed, that translated into an effective communication might eliminates cultural and language barriers (Tim Brown & Wyatt, 2010) making the integration of consumers through a recognized and accepted social value, thus having a greater customer base for the social innovation (Dervojeda et al., 2014).

Mekanism – It's on us

A cultural movement on the US to shift what people think about sexual assault, changing the perspective from the ones that commit the assaults, but to the large majority that can make something about it, fighting from college. The campaign started with Barack Obama and celebrities promoting the movement, followed by content defining content, taking the form of a badge that went viral driving the campaign to a larger movement creating content that spread across the country, capturing private partners and celebrities to promote the initiative with the same slogan and design "It's on us" vision and design, driving people to create their own content to support the movement. The main success it's been thanks to the ability to engage thousands of college students driving them to integrated the program into their college lives even reaching the academy awards, reaching at a social media level more than 3 billion impressions and growing.



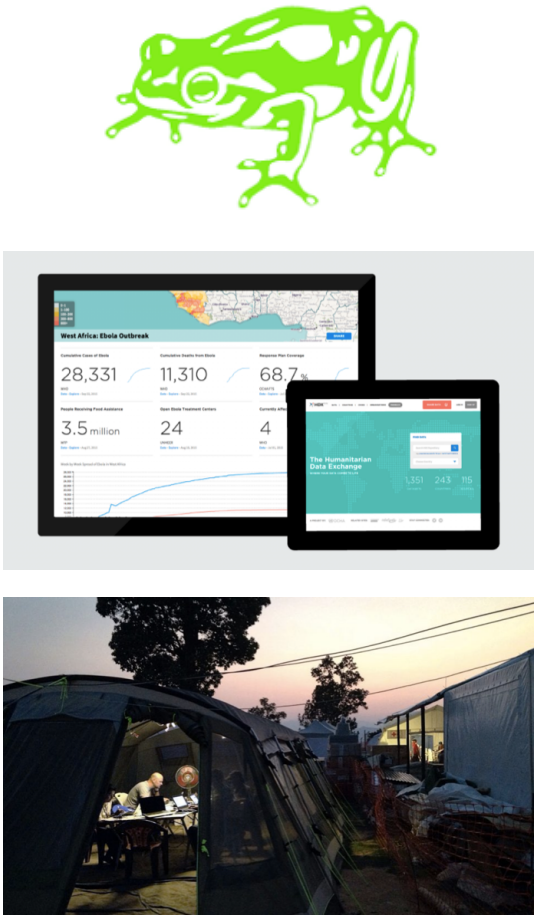
Picture 177: It's on us, campaign and lunch by president Obama

3.1.5. Use and management of formal design (external)[1]

Although design is described as a culture or ability for critical analysis and reflection (Manzini, 2016) it might be performed by everyone. Instead of that, this capability will be focused on design performed by trained professionals that can come from internal design teams or specialized design studios e.g. IDEO, frog design, design impact. Having different levels of integration depending on the allocation of resources, that often are placed for direct impact to the social mission, rather than the development of competencies or support activities that favour the internal development of the organization or social innovation. Empirical studies as SIMPACT (Terstriep et al., 2015) have shown that design methods are rarely used and performed, hardly by experts and completed with all their phases, this might be related to the difficulty that still exists to measure the impact or contribution from design to social innovation (Fabricant, 2014), generating doubts to social innovators around its usage and measurable performance.

Frog design - Humanitarian Data Exchange

HDX is a data platform that enables workers from the UN, NGOs, government and universities to radically improve data sharing during extreme situations, generating transparency and access to everyone about humanitarian crises, standardizing the way workers share the information about causalities, damage assessments and infrastructure, in an easy way to scale and use. Design has done an intuitive visual language reducing the learning curve specially in important in crisis time, done by 3 weeks of field research in Kenya and Colombia to understand information management needs in the field, and lunched on Ebola crisis, then used in Nepal earthquake, to have official and reliable information. Today, there are more than 100.000 users from over 200 locations around the world, with data being shared by over 160 organizations including large UN agencies, including NGOs and governments, being an essential tool for the Red Cross for reporting with a huge impact and current expansion. On this project, the use of design performed by Frog, has been well manged by the UNOCHA achieving high impact with a solution that



Picture 18: Frog design, HXC interphase and field usage

[1] This capability differs from all others presented because, in general, the capacities are meant to be supported by design, whereas the ability to integrate formal design within the organizational model is an enabler for the other capabilities, thus is considered relevant to be evaluated in the framework of this study regarding to design management capability, inspired on its maturity models already discussed.

reach many sectors, and enabling collaboration with a sense of design on every aspect.

3.2.1. Transfer of social mission values into intrinsic motivation

Often the greatest motivation to gain commitment by social innovators is related to a direct experience with the problem or the solution behind social innovation (Terstriep et al., 2015). Long periods of time are needed to develop the leadership skills in social innovation being recommended to "live" the social issues in order to create solutions from a deep systemic understanding and analysis driving high impact (Romy Kraemer, 2016). From a design perspective, it might be related to give meaning to things as it is described on design driven theory (Verganti, 2010) relating this sense to the final motivation in the form as "why to do things?", is behind this motivation that design might take an important role in social innovation, facilitating the social mission transmission into intrinsic motivation of collaborators that is rewarded with intangible value i.e. social businesses that within their business models promote and highlight everything that it's necessary for people to participate in the process and even making them able to pay for it (Pei, 2016).

Impact Hub

It is a global collaboration network focused on creating world class ecosystem for innovation and entrepreneurship in which can be generated positive impact in the world. Founded in 2005 and based in London under the name of just "HUB", thanks to technology and connectivity, this creative community with intrinsic social spirit has climbed to about 100 hubs with more than 16,000 members in 5 continents taking the best of prototyping, and start-up incubators, combining it with an inspiring environment to enhance people to develop and grow initiatives with sustainable models and high social impact, providing them with access to the workshops and training sessions, to set basic knowledge and contacts ensuring success in this complex environment. It has been possible to create a sustainable business models by providing incubation services, leasing space, and memberships to enter the collaboration network through events, in which the space configuration and a communicational design have made explicit the social mission and it is promoted in such a way to attract people interested in its mission, to generate this high social impact environment to produce synergies and collaborations.



Picture 199: Impact Hub Space design and co-work room

6. Questions for model's constructs

Considering the model presented and the circumstances of the social innovation it is identified within the social innovator profile the lack of a design attitude or basic knowledge regard design and its usage, being one of the objectives of this research trigger a different approach from innovators and social innovation managers toward the inclusion of design for their success. Reducing the gap and starting the reflection regard the 19 capabilities, the following questions gives an starting point to the assessment, targeting on a first stage with a flexible interview in which the researcher has the ability to get the information and reflexion from the questions, but meant in a future to be a self-assessment for social innovation managers with basic knowledge of design, and management skills that allow them to understand without language or knowledge lacks the model for a good application.

1. Are the context restrictions of the target groups explored in the development phase of new solution or complementary to the existing ones? Are there some design tools or methods used for this purpose?
2. Is the understanding process conducted systematically, and adding new relevant information due to the evolution of the problematic? Is applied in a structured way? Is there a design tool or method or professional involved for a better understanding?
3. How is conducted a (re)formulation of challenges setting clear boundaries of problems and a clear and replicable design process done?
4. How is the prototype phase within the design phase, and how is its evolution to a final product/service? Is there a clear and replicable process, channels, and resources to do it?
5. How is the expansion and scaling of the social innovation planned and conducted, is there any design tool or expert involved on this task?
6. How is the sustainability of the organization pursued? In which time frame is planned, as long or short term, and how often this planning is reviewed and adapted?
7. Which is the solution's impact scope settled, is there any strategic design involved on this task looking for the best results?
8. Is analysed the role of the beneficiaries and their type of inclusion on the solutions, setting boundaries and exploring different options?
9. How is the beneficiaries network analysed Is the value proposition developed for different identified stakeholders?
10. How are the different collaborators expectative regard the social innovation managed and aligned?
11. How is the collaboration network managed and used to achieve synergies and bring out the best for the social innovation?
12. How are potential collaborators identified and engaged looking for their diversification lowering risks from dependency?
13. How social, political and economic context of social innovation is analysed? Is there a systematic process and standard tools to explore them?
14. How financing forms are explored and promoted, how is a finance competence incorporated to deal with the financial issues, and related to the other areas of the innovation?
15. How is social impact measured? Is this process systematic? Which tools are used to do it and how is this an advantage for the organization?
16. How basic competences are identified and acquired for the right development of social innovation? Is design considered a transversal capacity or a special tool done by trained people?

17. How is the value proposition promoted, is there a strategic development of it to acquire collaborators and resources, beyond the own and close sources?
18. How is formal design included and managed for social innovation? In which kind of activities are designers involved? Are resources allocated for this special item? Is considered worthy the incorporation of professional doing this kind of tasks?
19. How are motivation and experiences from the innovation leader transferred to foster the commitment of collaborators and align them toward the social mission?

These questions are a reference for a starting point to gather information, this is meant to be further developed with precise vocabulary, depending on the target organization and social innovation. Due to the differences on the design understanding the analyst might have to adapt them to get relevant information.

This questionnaire might be in a future a self-assessment for the proposed maturity model, but align with this work objectives, this will be left for further research.

7. Hierarchy process through AHP

Considering the type of constructs, being capacities difficult to recognize and that in any sense would be important to have each one at a high level, this increases the difficulties to organize a developing plan bearing in mind the current state of most of initiatives and their common lack of resources. A second major constraint for the implementation of the plan is the lack of information about importance with a theoretical fundament, that shows evidence about the results of the design incorporation within the aspects presented on the model, as its been presented the little literature about this subject and the long term and subjective results that highly depends on the context of application.

Since this work is focused on the proposition of the model, it's been reflected the double objective of a maturity model on the proposal side of higher maturity levels, but as is difficult to implement its been selected the following AHP process, a decision-making tool that will facilitate the development of the design management plan, to complement the following applied case study as a deliverable for the social innovation assessed to recognize further application insights.

The method "Analytic hierarchical process" or AHP has been adopted to complement the development plan which is proposed, assisting decision-making through the quantification of the analysed parameters (Saaty, 1990) this process being a mixture between a qualitative and quantitative analysis generates a result with internal validity, ordering, synthesizing and decomposing the information in a graphic way for a better understanding (Moreno Jiménez, 2014).

Within the model, the options are hierarchized, through a comparative evaluation generating a weight of importance depending on the critical evaluation that values the difference through the scale of Saaty levels.

Table 2: Saaty levels

Numerical scale	**Verbal scale**	**Explanation**
1	Equal importance	The two elements also contribute to the property or criterion.
3	Moderately more important one element than the other	Judgment and previous experience favour one element over the other.
5	More importantly an element than in another	One element dominates strongly. His domination is proven in practice
7	Much stronger the importance of one element than the other,	Judgment and previous experience strongly favour one element over the other.
9	Extreme importance of one element against the other.	One element dominates the other with the greatest order of magnitude possible
2-4-6-8	In-between Values	

After the evaluation, a weighted value is generated which indicates the relative importance of the constructs within the total model. Understanding that, having a subjective characterization, it is possible to find degrees of inconsistency, which is evaluated with a consistency coefficient (CR), calculated from the division between the consistency index (CI) and the random consistency index (IA), where with a result between 0 and 0.1 is considered with admissible values for the coherence of the answers, if it is greater than 0.1, the prioritization is not ratified.

For the purposes of the research, as the model proposes middle constructs that grouped the capacities, them were hierarchized, where after the analysis them through the AHP model, using the data gather from the case study to be tailor made in this case, and in order to be the proposed plan adopted from the very needs that were identified as most important for the competent people at the top management of the organization.

The following weighting is achieved:

Table 3: Results of AHP process

Criteria	Assessment	Ranking
Innovation process	10%	4
Sustainability	35%	1
Characteristics of the solution	24%	2
Collaboration	13%	3
Ecosystem	3%	7
Management	9%	5
Leadership	6%	6

Therefore, it is decided to prioritize the initiatives related to design, which are related to the search for sustainability of the model. Second, in the prioritization it is recognized that the intrinsic characteristics of the solution take a fundamental role towards success and, finally, emphasis is placed on collaboration and the management of work networks, which must be managed in a better way and is essential to the time to generate social innovation. The coefficient of relationship gives 9.8% which validates the coherence of the prioritization.

This hierarchy of the capabilities might change along social innovations, but with a further application of the AHP to other organizations would deliver results to set parameters that could be applied for a wider spectrum of social innovations. Although, as this is a complement of the research, it is filled with the first case and it's a first proxy, aligned with the literature found of social innovation and the interviews performed later on the applied case study.

8. Case Study - Phoenix Brik

The objective of this chapter is to present the applied case study performed as consultancy, in which the proposed assessment model was used to characterize central values of design within a local social innovation, evaluating through interviews the proposed maturity levels and providing a design management development plan to develop their social innovation capability by design, verifying the usage and the dynamics in the application of the model.

Picture 20: Phoenix Brik Logo

A brief introduction of the main aspects of the organization from the history, products, initiatives, stakeholders network, beneficiaries and organizational chart will be presented for contextualization on the NPO.

The application of the model is based on three main interviews that were conducted with the management and people related to the design of the organization collecting qualitative information and identify the level of maturity of the capacities to make social innovation, this lead to the application of the entire model of 19 capabilities to sum up from to general conclusion to create finally a design development plan to support their social innovation capability.

8.1. Introduction

Phoenix Brik is a non-profit organization, facing three social missions, firstly ensuring environmental education of the population through the recycling of multi-layer packaging. Second, using in the productive chain individuals with mild mental disability of selected schools, promoting their inclusion in the society fostering their capacities for future insertion in the labour market, and third with the material produced they provide lining to emergency houses to provide a safer environment to the people that lives in critical homes.



Picture 21: V. Reginato governor of Viña del mar

8.1.1. History:

The NGO founded by Magglio Aranda, was born in 2011 by a couple of high school students concern about Tetra pack's residual material. The material it is composed of several layers of plastic, cardboard and aluminium. The material is often wasted accumulating large tons of it on the environment due to its difficult to be separate for traditional recycling. This challenge was taken by the UTFSM's faculty of materials sciences, in collaboration with several departments, developing a transformation process to reuse the material based on heat and compression to form panels generating a material called BioPak, which has various uses, in construction and manufacturing industries.

The organization in the first years had an important boom with recognition in the local government, working collaboratively with institutions such as Tetra Pack and Santa Maria's University, working with schools all over the region to spread the reuse culture and an eco-friendly material to educate communities in environmental terms.

Over some time, the organization had a collaboration with a local special school with young people with special skills coming in the format of school workshops to work on the manufacturing phase of the panels due to the easy process, they could be trained and foster their inclusion in the society with a little salary to make them self-sustainable, with this useful for society feeling from their counterpart.

However, over time and trying but not achieving a sustainable business model, the first impulse was lost leaving behind some of the stakeholders. Since then, the social innovator has taken the responsibility to keep the initiative alive within a framework of hyper-efficiency and its economic contribution to the philanthropic action looking with hope for the coming years due to recent legislations about social inclusion and environmental.

8.1.2. The product:

The tetra pack or multilayer container is composed by a sandwich made of aluminium plastic and cardboard, a material that to be recycled in a traditional way, needs to follow a decomposition process that is quite complex to implement due to the costs, making it often economically unfeasible at a small scale. Through an alternative process that prevents the decomposition of the material has been developed a reused material called BioPak which might have many uses in the manufacturing and construction industry.



Picture 22: Mold to produce the panels

Depending on the thickness of the recycled plate, it takes different physical properties that currently have been tested:



Picture 23: First prototypes of panels

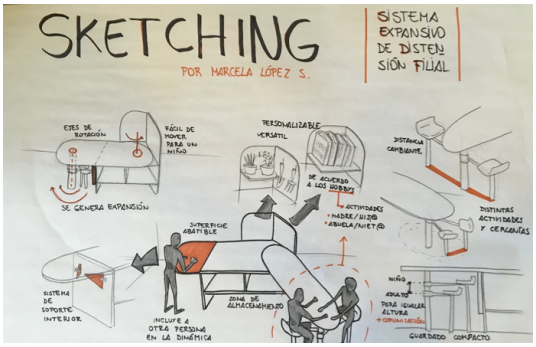
1. Low thickness panels: great properties of thermal insulation, used in panels for internal lining of emergency houses.

2. Intermediate width panels: used in some minor products.

3. Panels of greater width: The firmness that provides them makes it a material of characteristics similar to agglomerated wood, so it usage in the manufacture of outdoor furniture in a catalogue of products from chairs, outdoor tables and the lined of exposure domes which have a metallic structure is highly suitable.

The product has been evolving since its firs manufacture, having initially an outer layer of the packaging of the reused containers e.g. boxes of milk, juice or wine, or the other side with the silver colour of the inside of the boxes, taking an unpleasant coat. Over time this coat has evolved due to the perception of customers, leading to a colourful finish with the incorporation of plastic bottle caps of melted colours on the top.

Currently it has been developed in collaboration with the UAI and its design laboratory, a seat form product with the structure of the panel but on the outside lined by reused jeans, product which seeks to find the source of income that allows the business model to be sustainable, which has manufacturing limitations on the part of young people with special abilities.



Picture 24: USM's design student sketch for new product

A second development project is being carried out by students of the PUCV with the aim of creating a Longboard with recycled material. So far it is in the prototyping phase, but being a class project, there is no expectation that they will reach the market, at least without intervention of the founder.

A third project is carried out in collaboration with USM's design school, with the objective to generate an efficient type of furniture made with the reused material targeting the house of people who have suffered some catastrophe, as a complementary product of the lining done. Like the previous project, this type of furniture is not known if it will reach the market because there are no resources to mass produce them and see their possible commercialization.


Picture 25: Longboard prototype made by panels

Another proposal comes from a construction company which has requested the material for a façade finish, but tests must still be done on the material to be approved by the applicant company.

Finally, the material has been discovered to have acoustic insulating properties being appreciated on the domes they develop for educative talks, which has not been exploited or even less investigated due to lack of resources, and trying to find a product that finally drives them to a sustainable hybrid model to overcome their financial status.

8.1.3. Initiatives:

One of the main social mission is the education of the community regard to waste and care of the environment. the objective is to raise awareness in the community and create conscience to each person in a future take care of the waste it produces. The starting point are schools creating awareness of young people about the reuse of their waste, holding talks in schools to work in collaboration to collect the products. This collection is more complex than some waste because the containers to be stored prior the gathering phase must be opened and washed due to safety standards that might infect the environment with the accumulation of perishable juices that decompose when is not removed, opening the containers also allows to gather more material within small volume.

Considering that the place in which students spend most of the time in schools is in the classrooms, a container made with the BioPak panels has been designed which has the mission to show in a tangible way the result of recycling, enhancing in this way the values of recycling through the visualization of results.



Picture 27: Tetra pack container for gather the material

The talks, are done in the schools with the intention of scaling the initiative through the ids to their parents about environmental conscience, and they have been designed by experts taking strategies as gamification of the talk, with playful stages and desired experiences especially for the little ones to better internalize concepts in a fun and easy way.

A second social mission, is the use this panels of recycled material cover on the inside emergency houses or the ones needing to be thermally isolated in vulnerable communities of the region. These initiatives are coordinated by a partner ONG with the schools of children with special abilities including them as part of the volunteers that goes to cover the houses, having as a secondary effect the inclusion in society by these people that generally are isolated from society due to the little responsibility they can take, and the special environments in which they "must", or people think they must stay in.



Picture 26: Duomo made with the material

A third major activity is the itinerant exhibition of eco-domes, in which a metal structure is placed with BioPak panels which serve to generate reflexive environments and talks related to recycle and reuse to generate awareness to the community.

8.2. Stakeholders Network:

The collaborative map is composed of 6 main types of actors:

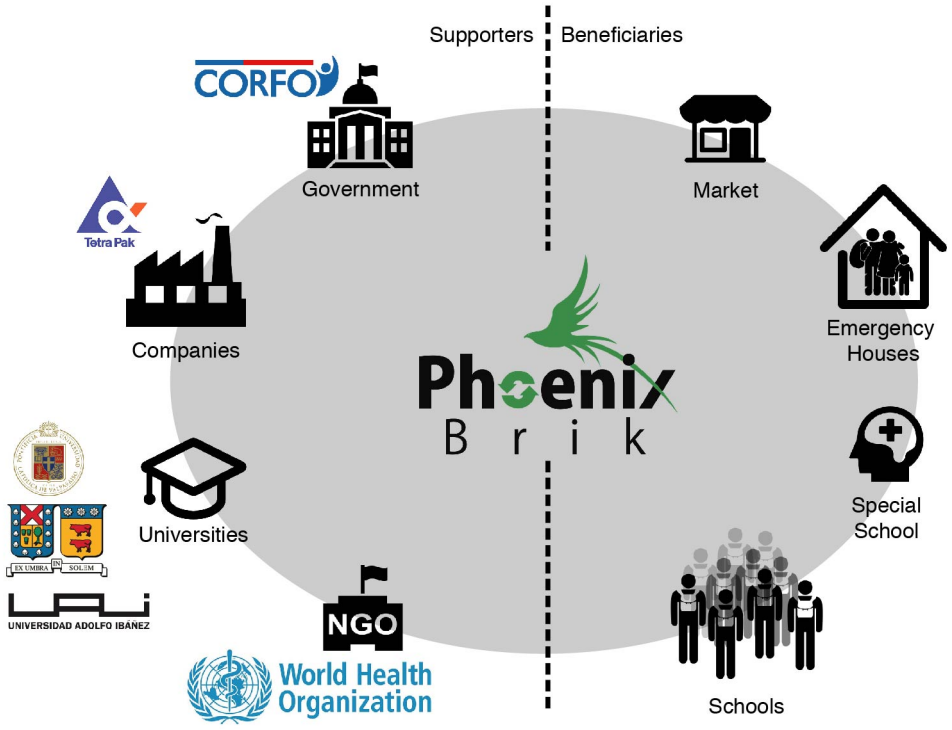


Figure 19: Stakeholders map

1. **Government and municipalities:** Chilean government within its environmental agenda has been part of the initiative delivering resources by competent institutions, in which they have earn open founds through collaboration with universities from CORFO and MESESUP recently.
2. **International Organizations:** The initiative was initially so strong that collaborations with the World Health Organization and foreign foundations were achieved receiving funds for the development of the social innovation, this resource are mainly financial and with a time gap, being evaluated every couple of years, however, operational help it is marginal.
3. **Private sector:** Companies such as Tetra pack have been linked to the organization sourcing in high quantities the material to be reused, favouring the employability and availability of recyclable resources, but within the educational framework does not contribute with funds to carry out activities. Other companies have been linked as sponsors, but they have the same role as the schools in terms of recycling and collection of material.
4. **Universities in the area (UAI, USM):** The two universities have been vehicles for the allocation of government funds, amplifying the development of certain areas such as new products development or production process. The challenge of integration on the part of this actor goes hand in hand with the availability of time and resources, associated with the bureaucracy on the work, the one that due to a lack of alignment of interests, often harm the project and its real implementation, depending on the relation that they have with the organization manager.

5. **The schools:** responsible for gathering the tetra pack containers in the classrooms, being a vehicle for the environmental education of their students. Thanks to the environmental education law, schools now have a greater incentive to acquire this type of services from the NGO to obtain the corresponding certification, that from next year will be compulsory.



Picture 28: Talks at schools

8.3. Beneficiaries and impact measurement

The beneficiaries of the social mission are characterized in 3 types, being their inclusion depending on the related issue being tackled as it seen in figure 20.

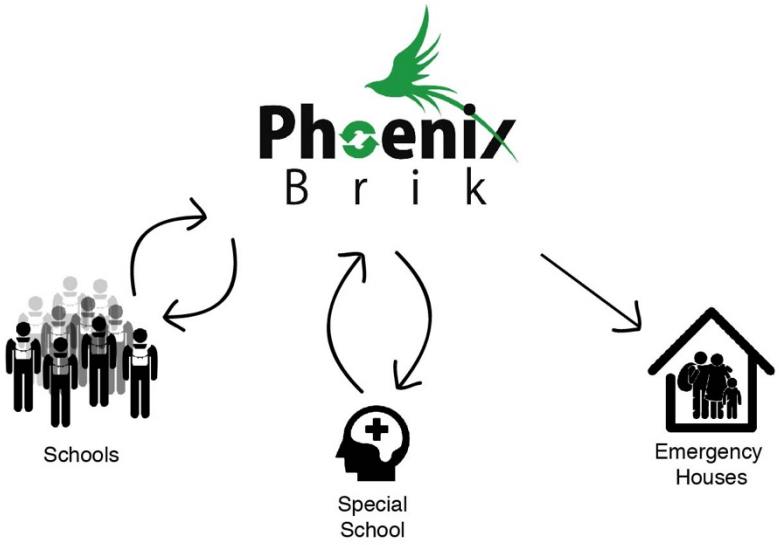


Figure 20: Beneficiaries map

1) **Civil society:** Through young students in the schools, civil society is being educated to the care of waste they produce, having a conscience and subsequent help. Their inclusion is more than a simple gather, due to the process of cutting and cleaning, they must deal to maintain safety and good space utilization. The measurement of impact on this segment is quite difficult due to the estimated time in which the results will be seen, being difficult to quantify the real generated consciousness. A possible proxy can be the number of children that have participated in talks, or reached in social media, as well as tonnage of recycled material from high schools and associated institutes.

2) **Young people with special abilities:** People with different abilities, today have an unemployed rate around to 97%, leading to little stability and high dependency of their family. Including them into the production process, having to be trained for the work, having a remuneration that, despite of being non-formalized, makes young people have a feeling of belonging and contribution to society which previously did not exist. Their involvement is high in terms of placement, even in the development of new products, due to the constraint that they apply on the production chain that has to be considered, from the initial design. The regularization of contracts and subsequent certification will place the option of these students to be inserted into the labour world in the future. Fortunately, there is a new policy that makes companies to hire within their workers a percentage of people with some degree of disability, encouraging their inclusion. In this line, there is a huge potential to offer services of this type to companies to outsource part of their work labour with social organizations. Currently, measurement does not exist, but a proxy might be the number of students that are inserted in the future into the labour market, or the number of certified students, or the increase in the percentage of employability by this segment of the population.
3) **People living in emergency housing:** Another of the altruistic mission is focuses the internal lining of emergency houses, bringing a thermal insulation to their inhabitants, increasing their level of health and life. Their inclusion is minimal, in part due to the urgency, they are conceived as receivers. This impact was measured by a student a few years ago, but the result was not published, in addition to being a highly altruistic activity the effort put in is difficult to be paid off more than with the intangible satisfaction of doing good to that particular family.

8.4. Organization's structure:

The organization is formally composed of 5 people of which only 2 people are operationally responsible for its operation, not counting the people attached by projects in the universities.

The major engine of the organization is Magglio Aranda, the one who started with the social innovation from its very beginning. Graduate of material science engineer, he developed the process for the reutilization of containers, passionate about the environment and the social work that is done with the inclusion of young boys. His position as founder and often supporter of the NGO makes him a key person which has focused on the technical part of manufacturing processes.

For 1,5 years now Cristóbal Chacón has been the right hand of Magglio giving new direction to the organization in the research for a sustainable model. Student of commercial engineering (economics degree) at the UAI has focused on regularizing the organizational toward government institutions, and has been responsible for leading projects for the acquisition of competitive funds, looking to give a sustainable model thanks to a source of constant income to the organization.

Thanks to the collaborations in the universities in each project there are teams assigned to work, but in a way attached to the organization, as well as Professor Waldo Valderrama, that through the social business hub under the USM, will look for future support for this social innovation.

8.5. Application of the Model

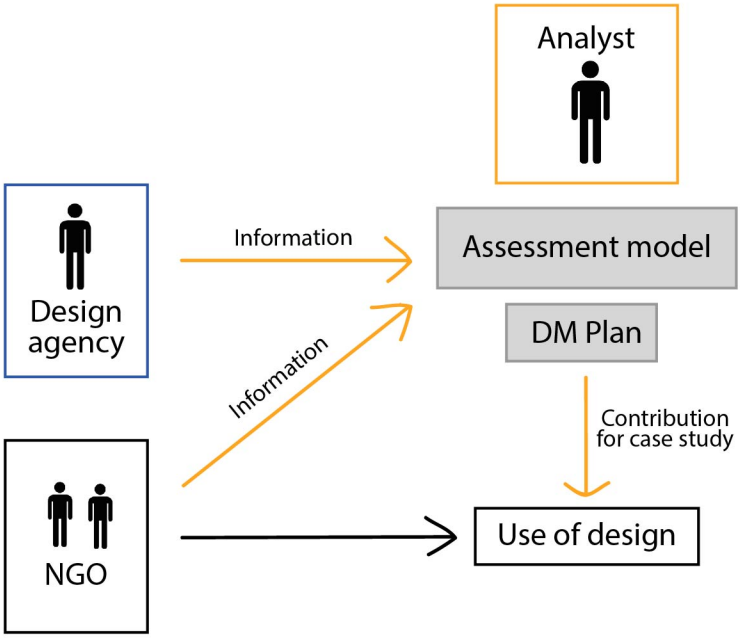


Figure 21: Case study application scheme

The assessment model was applied based on the information gathered from 3 semi-formal guided interviews with relevant people within the organization and partners for the study of the case, on a confident environment with an average length of 60 minutes. Initially, the model was meant to be applied directly as a questionnaire, but instead of this, it was conducted as a guided interview, conducted by the analyst, looking to explore the relevant concepts to fill within the proposed model, due to the misunderstanding on several design concepts and the own reference made by the culture and the context and background they live and work.

The three persons selected to be interviewed were by the strategic relevance, the decision power, and the current operations that the organization has, adding the important role of the current collaboration with BOH design studio and the person working on the project, looking for their perception of the usage of design, their understanding regard the model.

1. Magglio Aranda: Founder and manager of Phoenix Brik.
2. Cristóbal Chacón: Project manager and general support.
3. Pedro Hidalgo: Creative Designer of BOH strategic design studio.

After the assessment model, there was developed a design management development plan and for the organization in order to reach higher levels of maturity of the different constructs, finally reaching a good development of the social innovation with the support and high potential that design might give.

Next is presented on table 4 the scenarios of maturity and highlighted with a green background the level reached by the organization due to the analysis coming from data gathering.

Table 4: Proposed assessment model

Nº	Capability	Level 1	Level 2	Level 3	Level 4	Level 5
.1.1.	Exploration of constraints for the development of new SI	Constraints of the contexts are rarely explored for the development of new solutions, these are proposed to see the people's validation after.		There is a process for the exploration of constraints looking for adaptability of the solution to the restriction that the context provides gaining more probability of success		The exploration of the constraints of the contexts is systematically done, using specialized tools with clear goals and managing resources
.1.2.	Understanding and (re)formulation of problems with a user perspective	Rarely a complementary process is conducted for a deeper understanding of the social problem, work is done upon the perception of the social innovator, that its more related to the issue		A complementary understanding process of the problematic is done regularly identifying root causes with different perspectives and points of view		The deep understanding process is done systematically generating fundamental information for the development of the projects using specialized tools
.1.3.	Creative process and solutions design	Is not common to have a framing process of the problem confronted, its privileged quick, functional and fast launch forcing most of the times to try and error phase		The problem is formulated through a recognized procedure taking an often a formal design process for the development of the solution		There is a briefing process to frame the problematic giving a correct frame for the design of the solution, being a systematic process and replicable with clear objectives, managing resources and optimizing processes
.1.4	Improvement of frugal solutions as NDP process	Solutions seldom pass through an upgrading process, once the solution reaches the market solving the minimum needs its kept to obtain quick social value		Solutions are meant to pass through an improving process, iterating from prototypes to sustainable and scalable final solution		Solutions have an intrinsic prototyping and testing phase with visible iterations, being a well-defined process with clear goals managing and optimizing resources of the process.

Nº	Capability	Level 1	Level 2	Level 3	Level 4	Level 5
1.2.1.	Expansion and indirect scaling of solutions	Solutions are seldom developed to have a scaling process. Happening as a reaction to the opportunities presented along the way, not planned from the beginning.		Solutions are designed to be scalable and sustainable from its beginning, looking an organic growth and focused on enlarging the solution extent		There is a systematically process to look for scaling the solutions focused on the expansion of the social mission rather than on the organization, using tools to clarify goals and mapping an organic and sustainable growth.
1.2.2.	Search for sustainable business models	Rarely is pursued sustainability, generally there is fragile state requiring mainly for the social innovator's or core team's efforts to come through on the short run.		Sustainability of the organization is a value that is usually pursued on the design and development of the solutions, finding balance between efficacy and efficiency of resources for the permanence on time		Sustainability is an intrinsic value of the organization, innovations are crafted systemically to contribute having an equilibrium between efficacy and efficiency of the resources using specialized tools as scenario mas for its modelling
1.3.1.	Research for systemic and efficient solutions	Solutions are often punctual, looking for a quick social impact, having a reactive scope to found raised.		innovation generally look to tackle the deep and structural problems having a systemic approach to the solution and looking the multiple factors affecting the users and related relevant factors		there are design tools as system map used to generate systemic solutions that faces problems from different angles, taking account several factors and actors that are relevant to have a substantial and maintained impact
1.3.2.	Development of a beneficiaries' structure	Is not common to see beneficiaries included as active collaborators, they have a passive role as receivers with low level of commitment		The possibility for beneficiaries to take an active role is explored within the innovation, involving communities on multiple levels to improve their reception and commitment with the solutions		Roles and touchpoints with beneficiaries are mapped with specialized tools for an active collaboration, generating meaningful value and commitment from them as impact on their social value

Nº	Capability	Level 1	Level 2	Level 3	Level 4	Level 5
1.3.3.	Value proposition identification and differentiation for each collaborator	the value proposition is rarely defined for different collaborators, is mainly focused on the most direct beneficiary		Stakeholders are identified and there is a differentiation of the value proposition for each of them, being coherent as a multiuser business		Stakeholders are differentiated and characterized with specialized tools, building different value propositions for each relevant actor, obtaining a coherent with each social value global model
2.1.1.	Collaborators expectations and roles alignment	Expectative and roles of collaborators within the social innovation are rarely discussed and accorded, granting it less importance and considering it obvious		There is space for discussion of expectative and roles of collaborators within the social innovation generating a common and agreed line		Roles are designed based on the expectative, motivations and capacities of the collaborators, done with specialized tools as motivation matrix making the resources available more efficient
2.1.3.	Integration and development of collaboration network	Collaboration is weakly managed, being reactive and ad-hoc to the needs along the process of projects		Communication is regular among collaborators looking for a strong, fluid and dynamic partnership consolidated on time		relation with collaborators is naturally systematic and proactive, managing timing and resources. The collaboration is pursued using specialized tools for a fluid and better communication to cause synergies.
2.1.2.	Diversification of collaboration network (volunteers, financers, in-kind resources)	Collaborators are reactively found and identified, the social organization seldom triggers the connection		There is a regular pursuit of potential collaborators aligned with the social mission, having spaces for boost and make collaboration happen		There are systematic efforts to include new collaborators with diversified typologies and motivating them towards the social mission using designed tools to do it

Nº	Capability	Level 1	Level 2	Level 3	Level 4	Level 5
2.2.1.	Systemic analysis of the political, social, financial and civil society context	Context is seldom deeply analysed, the process is focused on the direct beneficiary, having a more static and limited understanding		Social, political, and economic context is analysed regularly to identify changes and possible opportunities for the development of the solution		The political, economic and social context is systematically analysed and foresee, with an intrinsic process using specialized tools for a complete mapping and analysis managing processes and resources.
3.1.1.	Design of a financial structure and organic reinvestment	The exploration of financing instruments is rarely done projects are reactively adopted depending on the acquisition of founds, being highly risky for the growth of innovation.		There is an exploration of financial instruments, modelling the financial equilibrium of the organization/project in time, with management techniques.		Financing sources are diversified, modelling sustainability of the solutions being the financial part strategically designed ensuring the organic growth of the innovation
3.1.2.	Creativity to measure social impact	Impact is seldom measured, it's privileged the allocation of resources to activities with a direct social impact		Impact is regularly measured identifying critical aspects for the improvement of solutions and its forecast		Impact is measured and forecasted systematically with standard methods as the logic model or the theory of change, with standard and recognized metrics, giving reliability to the innovation over stakeholders and potential collaborators
3.1.3.	Human resources and organizational capabilities management	Skills are rarely identified and acquired, there is a bricolage attitude for the development of the solution.		Skills are regularly identified and there are efforts from the organization to acquire them by direct acquisition to the human capital or by the collaborators resources		Competences related with the projects are systematically acquired through collaboration, training, looking ahead future requirements. Capacities are not overestimated.

Nº	Capability	Level 1	Level 2	Level 3	Level 4	Level 5
3.1.4.	Promotion of value proposition and attraction of collaborators	The value proposition is rarely promoted to potential collaborators, these are acquired reactively to the project's needs		The value proposition is promoted to relevant actors for their engagement and future collaboration with the social mission.		There is a social value proposition identified and differentiated that its promoted to potential collaborators identified with the goal to add them to the innovation, using designed tools to have greater impact
3.1.5.	Use and management of formal design (external)	Design is used on a basic/operational level ad-hoc to project's requirements, according to founds, used as a complementary resource on a late stage of development, just for image and final touches		There is a function dedicated for design within the organization that manage design from the very beginning of the development of the innovation, identifying the role it poses allocating appropriate resources for its use, knowing its potential uses		Design is part of the culture of the organization that its translated to the innovation, there are several trained and experts of design that are part of the strategical decision making process on the organization or innovation projects, done with a design process transmitted to all the organization
3.2.1.	Transfer of social mission values into intrinsic motivation	Motivation of the founder is rarely transferred on a formal way often is due to a permeation of its motivations trough the normal interaction		There are instances where the motivation of the core team or social innovator is promoted to the other collaborators, fostering commitment with its example.		Founder's motivation is systematically transferred with several formal instances to transmit his commitment to collaborators and sensitize them about the social issues using designed tools like user experience design to create the best impact and validation of collaborators

8.6. Organization's Profile

Once the assessment is done, a design management profile is build from the results, taking average points regard the 7 clusters of selected capabilities to summarise the maturity profile into with a graphic tool as it is shown on figure 22:

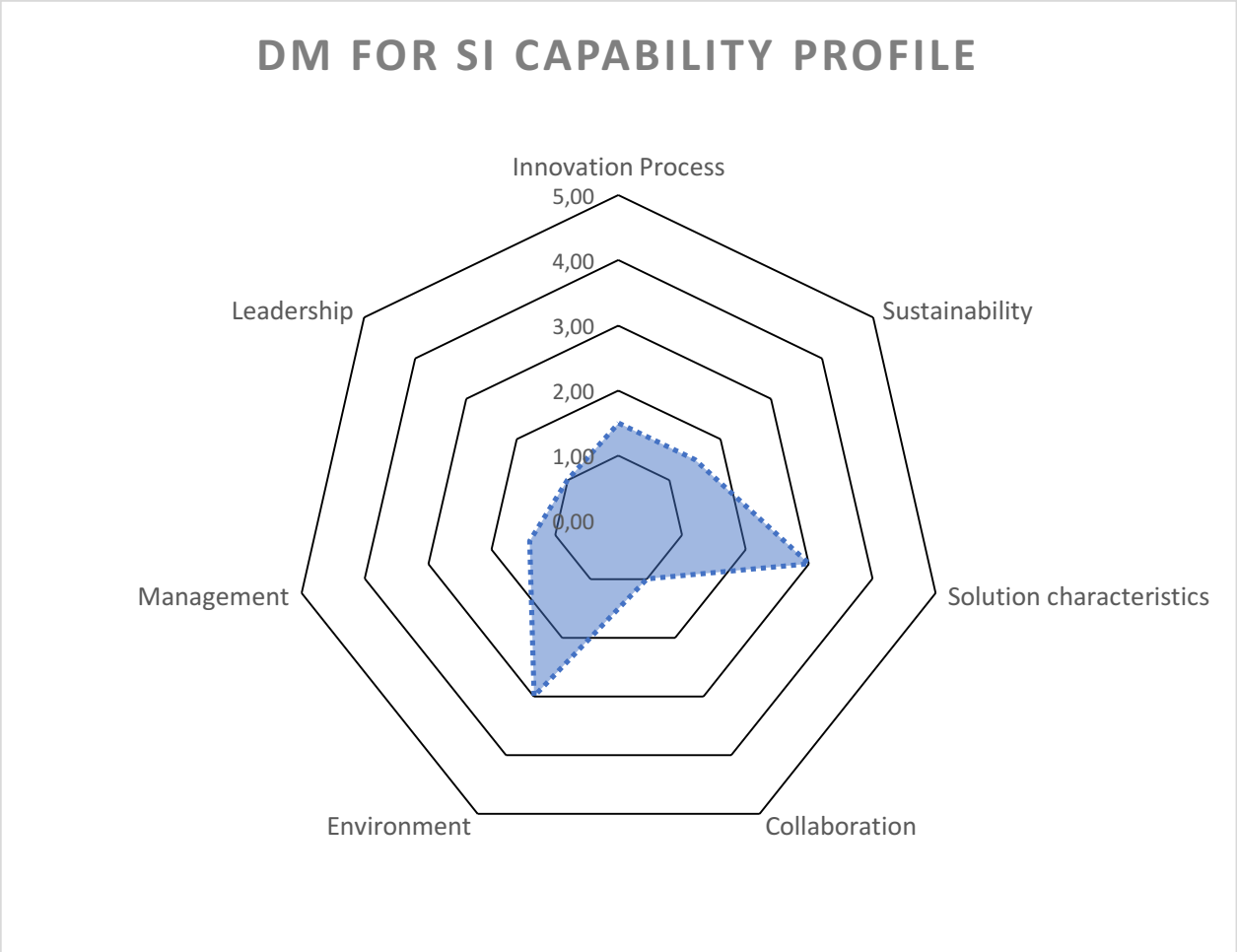


Figure 22: DM Profile

It is seen clearly the common underdevelopment of design on all seven cluster, having the solutions characteristics and the relation with the environment on a 3rd level of maturity as its been recognized some design on their development, recognizing in the others a big opportunity to implement design on them to foster the social innovation.

This map combined with the AHP are going to be the base for the DM development plan proposed to the organization as a result of the research.

8.7. Analysis by construct

It is useful for the analysis, to generate conclusions from each capability to obtain insights of the usage of design within the organization's context depending on several different intrinsic values for the development of the capabilities. Coming from conclusions of each capability is viable to generate general conclusions regard to the seven clusters identified within the proposed SI capability model, in order to manage with the AHP process to prioritize the suggestions into a design management development plan in line with the common lack of resources that often handle this type of innovation. This type of approach is worth to do for a detailed understanding and a deep qualitative method to set lines for a general and particular development of design with good management.

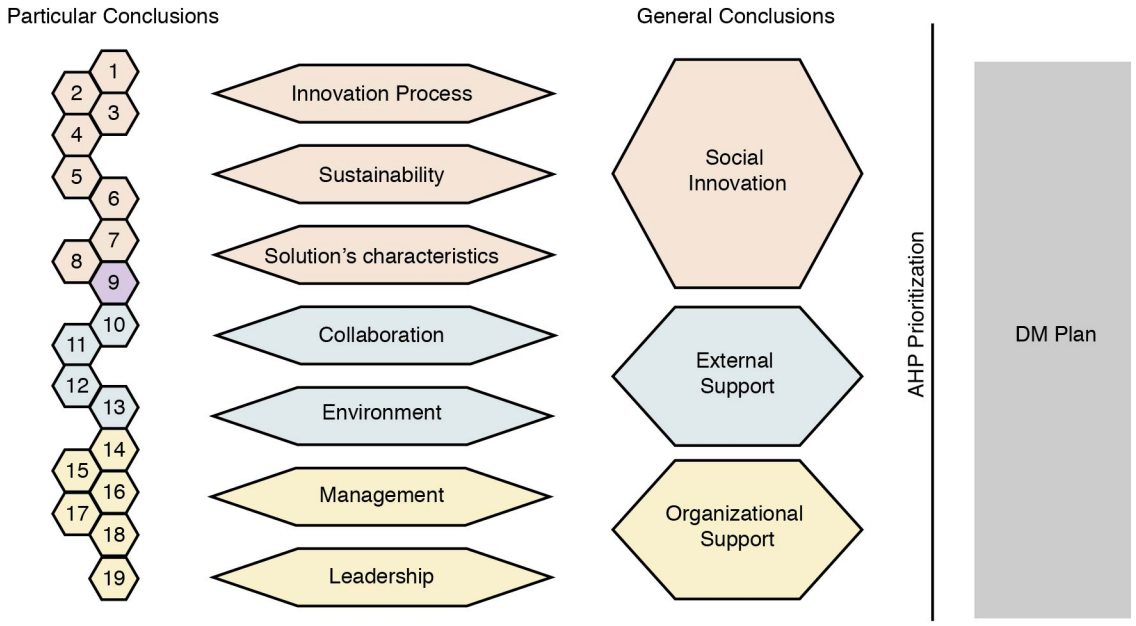


Figure 23: Conclusions map

Table 5: Analysis by construct

Construct	*Analysis to improve organization's situation by design.*
Social Innovation	
Process of innovation: *The use of design is minimal despite having some attempts to use in two of the constructs, the process should be structured in the dynamic of the formulation and evolution of products or services thanks to feedback and a human centred process.* *AHP: Nº 4*	*Exploration of constraints for the development of new SI:* The exploration of beneficiary's constraints towards a model of creation of new social innovation, is an area that has not been explored by the organization, this is because within the innovation process, many challenges have already been taken making difficult to achieve sustainability. Increasing a portfolio of new lines of innovation is not within the agenda of the organization, however is the visualization of the barriers by the different abilities of students working in the production line, one factor to consider within the process new product development to achieve feasible products.
	Understanding and (re)formulation of problems with a user perspective: The two main social issues addressed related to social inclusion and the environmental education of the community for their development in harmony with the environment, have been developed from the manager's perspective, the one. Is suggested to interpret needs of the beneficiaries working with psychologists to frame and understand integration and focus efforts on doing more inclusive work or to certificate it. The environmental education is more difficult to address because it is rather generic and the low urgency level causes it to be slowly assimilated as it is a cultural issue. In this line, the approach by young students to create ideal solutions for them is a good strategy, but is needed to find a way to get down from the children to the families and communities to achieve higher impact, re-formulating the problem towards the communities rather than the kids.
	Creative process and solutions design: The creative process for developing new products today is done through collaboration with the university, and lately have been found a mechanism to involve designers in the process but only in an operational way. The collaborations had led to products that are in the testing phase, but in general the creative process is left out of the organization, or simply there is no constant process of creation of new products, because efforts are put to consolidate a sustainable business model.
	Improvement of frugal solutions as NDP process: Panels have been in a process of improvement, but reactive to the willingness of people to purchase final products done with this material or the same beneficiaries that have reported the poor aesthetic of the panels. This process, with the incorporation of the design agency, is looking for a more suitable coat prototype for the commercialization of manufactured products. However, the ability to change the organization culture is slow despite that new methodologies are being incorporated, they are not having good results yet. To reach a tangible result, the panels are suggested to be improved with a better coat. The collaborations to generation new products by the universities, are

	often based on funds of projects or curricular activities of the universities, for a small period of time not achieving success beyond the prototypes into market, its suggested to standardize this process and make formal documents of duties.
Sustainability: *Low levels of maturity for design are seen, it's observed the need to incorporation of it to achieve a sustainable model. Even seer as a possible risk the high dependence of Magglio, its founder, on his incomprehensible effort to support the initiative without having a stable income source.* *AHP: Nº 1*	*Expansion and indirect scaling of solutions:* Regard to the expansion, there has been a slow expansion due to high difficulties to focus efforts in a single business model, slowing down the expansion. However, its founder Magglio, has mention a local growth plan, which is meant to scale to other localities of Chile, based on the strength of the communities that acquire the plant and the schools of children with special abilities which can carry out the project with the delivery of basic knowledge the organization. However, the expansion plans are still far from being implemented and difficult reach a larger scope.
	Search for sustainable business models: The current business model is poorly sustainable due to the lack of a sustained income source, taking from the history in which the organization has been created and various factors that are influencing the organization such as the lack of legal, communicational and organizational skills on the part of the core team. Partly due by the lack of incentives for employee retention. Management duties carried out by Cristóbal last 18 months have been in the research of a sustainable model incorporating new products, expecting to be launched in the short time, to provide the necessary support for the company to emerge more formally. However, a strategic design is suggested to visualize and understand markets keeping an eye in the necessary volumes of sales or other sources of income that might mitigate dependency on a single product, increasing risk on the organization's continuity.
Characteristics of the solution: *This is the strongest regard to the use of design. However, the level does not reach the maximum due to the use of a diffuse design or some products developed by external designers that has given shape to solutions over time, but without a clear structure, visualization of the values shaped by this processes through design would complement and foster the relation among different type of products to be made more quickly.* *AHP: Nº 2*	*Research for systemic and efficient solutions:* Magglio's vision has always been from the systemic point of view, incorporating different stakeholders across sectors to achieve a successful social innovation. Within the proposed plans a complete solution is visualized causing a cultural change in the community being incorporated tackling from the awareness of the potential to change the world in the future. However, the efforts despite having a good plan of incorporation, have not been made completely yet and depend on many factors to achieve success. It is suggested a more detailed planning of conditions needed, to achieve the vision would be useful to narrow efforts that until now has been diversified into many social missions.
	Development of a beneficiaries' structure: Analysing the different social missions, the inclusion of beneficiaries by young handicap students with special abilities is thought and designed for them. With respect to the environmental mission, the fact of having people wash the box to store it makes it more influential in habits, but a greater initial commitment its needed to not remain in only a first attempt. Lastly, the beneficiaries of the inner lining of the houses are made with the collaboration of the people they inhabit, but as it is a necessity of an urgent nature, the result is privileged to the process. In this phase, the design should be used to analyse contact points with the beneficiaries, and strengthen the key points.

	Value proposition identification and differentiation for each collaborator: The different collaborators are identified, and there is slight notion of the value proposed to each client. In this line, this value proposal should be formalized in order to promote it correctly, emphasizing the characterizations of the stakeholders with good communicational channels and languages according to their culture and level of understanding and internal objectives.
Ecosystem analysis and network management	
Collaboration: *The three sub-constructs, have been at the lowest levels which is reflected in the level of effective collaboration that has and maintains with organizations, despite generating constantly new connections, they are not always durable over time. This is one of the points in which design as an integrator and communicator might generate greater impact.* *AHP: Nº 3*	*Collaborators expectations and roles alignment:* Having a large number of collaborators through projects, its management and roles alignment to work fluidly is hard, due by lack of management knowledge of the work teams, and the little relationship they have sometimes with the social problems being addressed. It is suggested to use designed tools for a more fluid communication and according to the collaborators intentions and capacities.
	Integration and development of collaboration network: It has been thought to have a volunteer base within the NGO, but because is quite difficult to achieve due to the combination of the manufacture labour of the product is intended to be a paid job for people with special abilities. However, there is a collaboration network which has been refined over time, in which there is awareness of the role of the external partners and the internal team.
	Diversification of collaboration network (volunteers, financers, in-kind resources): The collaboration network with more than 30 partners is hard to manage, therefore, the relationship is difficult because there is a perception of this network, but not a normal definition. It is suggested to use a structural design for a better integration of this collaboration network, specifying tasks and obligations with the way of generating a synergy towards social innovation.
Development ecosystem: *The ecosystem is analysed generally in a good manner using often a preview of future scenarios is recognized, but they are not aligned with value proposals with strategies for their development in the near future.* *AHP: Nº 7*	*Systemic analysis of the political, social, financial and civil society context:* There is an understanding of the political situation and the coming environmental policies i.e. environmental certification by schools and inclusion policy to all the companies, producing a path to have higher possible impact on the community, being ahead of the general efforts of the government about these issues. However, it is recommended to produce a specific value proposal for these coming policies, and promote from the beginning to monopolize the "social market". Regarding the social, economic context, we have the minimum knowledge for the development of the organization.

Organizational Support	
Management: *The level design use for management is at its lowest levels, having a general managerial knowledge deficit, being left room for many design tools to be incorporated to improve this area. However, recognizing the low prioritization within the capacities, the common lack of resources for support and the bricolage attitude, will limit the development of this capability.* *AHP: Nº 5*	*Design of a financial structure and organic reinvestment:* The current financial structure remains unstable, depending on open funds and financial support of the founder, the one unconditionally carries out this initiative. Despite that a stable income stream is foresee with the new projects, this financial sustainability has not been achieved previously. The growth strategy has been based on competitive funds, but based on future assumptions, it could lead to sustained economic growth, with the necessary incentives for the specialized labour force. *Creativity to measure social impact:* Social impact has been measured previously with respect to the lining of emergency housing, but the other social missions are left to the perception of people instead of formal measurements. Currently the impact is not measured and it is not planned to do soon. Instead, the resources are allocated to other types of operational activities with direct impact on the social mission, more than in this secondary activity. It is suggested the use creative metrics for measurement to generate trust and reliability by institutions and achieve a stronger relation and commitment. *Human resources and organizational capabilities management:* The human capital sourced by young people with special abilities to do the manufacturing part of the chain is quite stable in number but generates lot of constraints on the type of products able to produce. Nevertheless, in higher positions with more responsibilities there is missing incentives for the retention of the talent, because they all work base on intrinsic motivation as volunteers. Having a small team of people, the organization has a lack of knowledge in different fields, the activities are assumed in a DIY attitude by the team. However, some of the design and communication skills have been acquired from the funds of projects by external companies but it's a competence that will last until the project is done, not an internal capability. The intangible benefits of the people in charge should be compensated in a better way with an economic compensation project according to the balance their motivations driving their retention for longer periods of time. *Promotion of value proposition and attraction of collaborators:* The value proposal is promoted directly to the collaborators and in some cases poorly by social media. In the case of schools there is a defined strategy in relation, with structured and designed talks for kids. The online communication of the different activities promoting the value proposal is almost non-existing, being fostered by the latter collaboration with the design agency, but without result yet. It is recommended to generate a more robust communication strategy with the differentiation of strategies depending on the promoted value proposal and the stake holder related, due to the need to transform the intangible value for collaborators in visible value to engage them. *Use and management of formal design (external):*

	Formal design has been added through collaboration with designers under projects of open funds, integrating them in an operational way in terms of the shape and aesthetics of the products and sometimes in a tactical level under the design of a production line accord to the constraints of the special workers. Although the communication strategy has been encouraged by the redesign of the logo of the organization, there is not an involvement of design on the main strategy followed by the organization, leaving this task to the former founder. Increase awareness regard the use of design is the first phase within the recommendations, but understanding the implications on the development of a business model and within the dynamic of a manufacturing company to develop products that are beyond the functionality but instead might have all the values within the inclusion and the ecosystem, to gain force facing a niche market that worth this kind of proposals. Secondly, a greater allocation of resources for this purpose looking for in a traditional innovation way the need of constant innovation within this stream of the organizations that might make the hybridity part of their business model, that might in the future drive the inclusion of a design professional in the core team, to address design in the core of the organization.
Leadership *AHP: Nº 6*	*Transfer of social mission values into intrinsic motivation:* Driven by a huge motivation is the constant of SI, and this is not an exception but the transferring it to more followers is weakly appreciated. The founder, has managed to acquire few volunteers, that works as employees, with an intrinsic motivation like his, but their efforts have not been enough to made this SI sustainable yet. It is recommended to attract more collaborators for the core team an impact campaigns to transfer this motivation into new fresh people. However, because the environmental problems are a sort of "commodity" difficult to be addressed, it is recommended an exploration of the values of specific users regarding this problematic to try mixing well the several social missions by communicating them in a good way to generate a unique intrinsic motivation and their strong engage.

8.8. DM Development plan

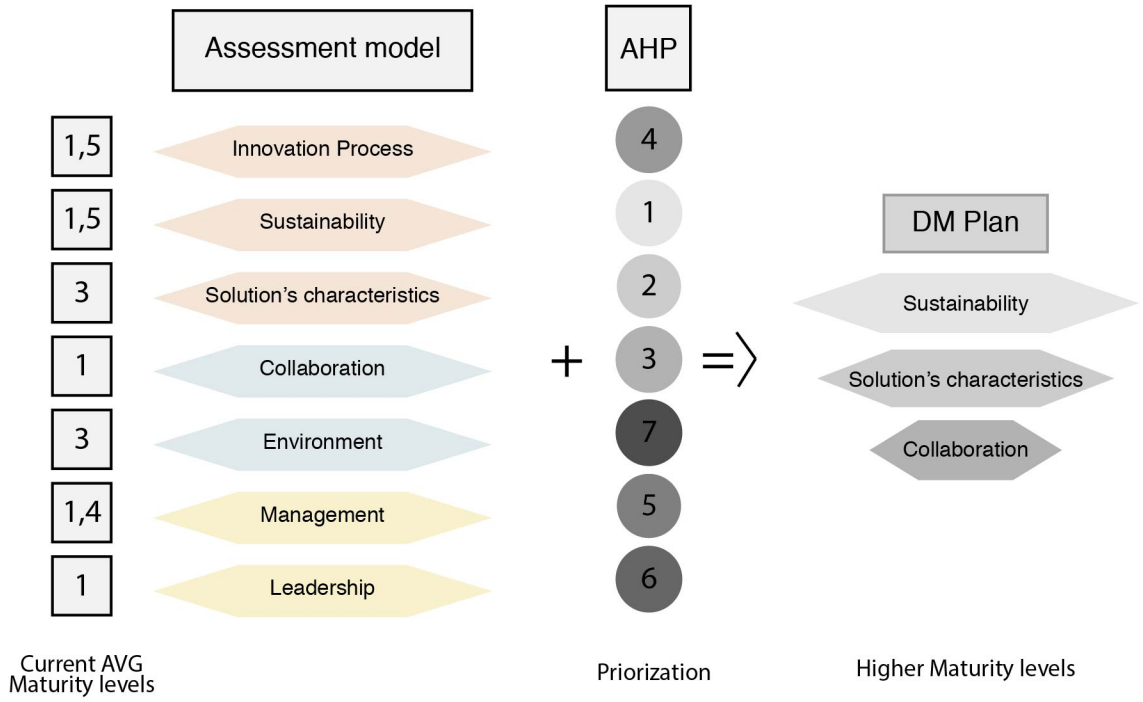


Figure 24: Development of DM Plan Scheme

The development plan was established regard the AHP hierarchy process due to the likeness of the social innovators to do more the things they think is worth to do more than the lowest levels of design maturity[2]. Then the plan is developed to foster the capabilities to higher level of maturity within the proposed scenarios of design management, understanding that the process of incorporation is a large process with small phases until the culture of the organization might embrace design to its full extent.

After analysing the state of maturity of the design and its management, it is identified that in general there is a lack of design incorporation in all areas. Being working with a design agency favours, raising the levels of maturity in terms of more operational levels, brand (just) image or communication degrees, but its usage is marginal from the full potential of design, being also based on some projects, making not an intrinsic value but a peripheral one.

Making an analysis from the average maturity levels from each group of capabilities, there is the following suggestions accord to the AHP hierarchy process to reach higher levels of maturity on design. May not be the most higher levels in a short period of time, but in a future, this is a goal for the organization processes and approaches to problem solving.

[2] Even though, there might be the inclusion of an auxiliary variable that take into both variables, level of maturity and AHP hierarchy process, leading to increase with a not just the most important for the social innovator but also considering the lowest levels of maturity, but without information on the literature it is considered out of the scope of this research.

In line with the prioritization of the plan, the use of a strategic design to search a sustainable model is recommended through tools such as the social business canvas model, for the interpretation of a hybrid business model in which stakeholders from different social missions are integrated to generate synergy more than divergence on their value proposition.

As a second point to foster, despite having better levels of maturity in terms of the characteristics of the solutions, it is recommended to foster higher levels of maturity in this field, standardizing design processes with internal procedures that makes the generations of future initiatives aligned with current products and services, speeding them up and not leaving it just to external partnerships or students from universities outside.

Finally, regard to collaboration, due to the low levels of maturity of the use of design in this area and in general of communication, it is recommended to manage instruments to facilitate the integration of the collaboration network, first making a schematic map of the actors involved, to characterize them and then generate instruments for a more effective and efficient communication with respect to the management and alignment of expectations, to finally improve the value aligned to their role and expectations on the social innovation.

9. Conclusions and discussion

With this research, it's been proposed a design management assessment inspired from the modification to the Essmann & du Preez's ICMM looking from an innovation management approach to assess design management capability within a social innovation context. This model contributes to the current researches regard social innovation and the use of design, often called social design, exploring in deep a social innovation capability, using design and its management as a support tool to foster innovation.

Proposing 19 social innovation capabilities, assessed by their maturity, clustered in 7 major groups, this instrument creates in a practical way conscience to social innovators/entrepreneurs regard the management of design as an educative tool, breaking pre-conceived perspectives of it and opening the space to influence their approach to design adding from a "design attitude" to the inclusion of professional designers on many dimensions of their projects, inspired by case studies identified and selected to illustrate each capability within context.

Our research question has been answered with the proposed model, as it is tailor made to assess design management within a social context including many specific characteristics regard social innovation in a broad spectrum adapting the model in a broad social innovation context allowing to identify many opportunities for design and a method to incorporate it with the maturity levels proposed.

Indeed, this work intent to be a part of a much larger research within the impact of design management within social innovation, opening the possibility to explore much larger hypotheses regard impact that would needed larger time and more resources to be tested, leaving the scope of this research over the instrument to identify design management within social innovation.

9.1. Conclusions

Specific conclusions will be divided into 3 sections, first a conclusion regard the new proposed model of 19 social innovation capacities, directly related to the structure and form that it has. Second, respect to the methodology of transformation that was used. Third, a conclusion regard the case study to end with a discussion and future research that its open.

9.1.1. To the Model

The "Maturity model of design management for social innovation" proposed fulfils the first objective of this work assessing the level of design management in a tailor-made manner, using intrinsic values inspired from an innovation management perspective interpreted into social innovation capabilities.

A secondary objective regard the understanding and education of design to social innovators is accomplished opening the discussion through the proposal of more mature levels inside each capability of the model, trying to reduce the gap of a design understanding and the role of designers and its management, presented with the illustrative success case studies to see their application within context. that might be adapted to this context.

The model inspired by Essmann & du Preez ICMM (2009), reduced to 19 social innovation capacities, has a structure that includes three main areas, evaluating from the more specific aspects of social innovation, the behaviour regard the innovation ecosystem and its internal level of management, giving a broad-spectrum of evaluation much more the pre conceived aesthetical and common use of the design, including with the maturity levels from a more diffuse design to one more aware and practiced in a structured and conscientious way by professionals and experts deeply incorporated on the organization's culture.

9.1.2. To the Methodology

Regard to the methodology, the first step focused on the transformation of the base model to an interpretation in the social context looking for social innovation capabilities, was made based on the existing and accessible literature, having the complexity that although it has been seen to be an increasing research current, there is still no unification of the theory, due in part to the broad spectrum of use with the merge of more than one discipline and its complexity of conducting empirical studies, that need large in time and resources to be scientifically verified. This might raise doubts about the interpretation of the constructs, especially since there is no capability model of social innovation, which would have favoured the investigation as a middle model, but as the scope of the research is merely explorative and propositional, its seen the model a starting point to be further tested.

In the second and third steps, there was the complexity that there are capacities that have little or no research from the design side within the social context, lacking empirical studies of interpretation and impact, such as the transfer of motivation to intrinsic motivation through design, relating it from the relationship that exists with design-driven innovation and the intrinsic motivation that is characteristic of social innovation.

On the refinement phase, the broad case study strategy incorporated to illustrate the capabilities, its seen as a manner to validate the capabilities within precise contexts accomplishing their duty, nevertheless the difficulties to gather relevant information regard the maturity levels might difficult a precise representation of the capabilities, however the most visible and evident capabilities were illustrated clearly to be understood by the reader.

The prioritization through the AHP, has favoured the generation of a plan according to the limitation of resources that is generally generated in the initiatives, setting sustainability, the characteristics of the solutions and collaboration within the top three clusters of the model to be further supported by design management, adding value to the proposal of the model, thinking of the need to make efficient its resources to the maximum.

9.1.3. To the Case Study

The application into the Phoenix Brik case study, has been useful to find interesting insights regard the application strategy, as there is confirmed the differences on the understanding of design and confirming that even when there are intentions from the social innovator to use design it is hard for him to manage its implementation due to the scarcity of resources and his conception of design linked closer to an aesthetical and product development functions.

It was found that the design management for social innovation capability was very low, due to the actual difficulty to focus by the organization, looking to solve every problem they face within their three social missions with a low budget and reduced and weakly rewarded team work.

The assessment phase has brought for him the trigger for a discussion of his understanding about design and many possibilities to its usage, that in many of his projections its included a diffuse design attitude or no design at all opening the possibilities of improvement. However, as the feedback done proposes lines of design development, his intentions were beyond the assessment looking for the implementation due to his previous agenda in mind, constraining the application of the proposed plan. Although the feedback was recognized valuable his resources and time constraints limited a further design implementation.

Regard the questions selected for self-evaluation by the organizations in charge of the initiatives, its suggested to train in design previously to achieve a level of autonomy of the model, due to the different conceptions of the design is recommended that the questions elaborated also contain an explanation, so that the application should not be with a guided interview and its implementation can be scaled to test it a wide spectrum.

9.2. Discussion

The presented work has merge different approaches to explore design management within social innovation as part measure the capability to use design as a support tool, looking the big picture of further researches of return of design management for social impact. Taking an unusual methodology inspired in the innovation capability interpreting the ICMM model, this approach has been conducted even when there are some gaps on the literature, being the capabilities suggested but some of them haven't been empirically demonstrated to be fitting in a precise manner as social innovation capabilities. To overcome this situation, it is suggested as a further investigation the empirical research of the constructs proposed, there might be an assessment looking for the higher impact of the capabilities that might lead an even more detailed development program in future assessments done by the model.

The model's scenarios, there is a need of further research to develop and test more accurate scenarios. Even more, there might be explored the possibility to separate the model depending on the type of stakeholders within the social innovation, or depending on the typology of the incentive, that might drive to change priorities on the design management development plan due to the impact of design depending intrinsic characteristics as the scale of the projects, the resources available and the commitment of the higher managers, among others.

The AHP process, the data to make this process its taken from the applied case study and might be some discussion regard the valuation of the capabilities due to the context and approaches of social innovators to their projects, its recommended to reinforce the findings with the process on more social innovation projects within different contexts.

Finally, this thesis has been a manner to explore from a complete different perspective the use and management of design in a complex and unexplored social innovation context, proposing several insights from the relation of the literature and the use of cases studies to deliver an assessment tool tailor-made and with a double objective of evaluate and propose a path for development, looking to support social innovation with design management.

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Annexes

A. Cases Research Data Base

Awards:

ADI design index

1.- GOODESIGN by Best Up
2.-Hispanola- Design per la solidarietà by Modoloco Design
3.-H2O nuovi scenario per la sopravvivenza by H2O NPO
4.-progetto Alzheimer by Francesca Turati
5.-Xfood - qualcosa di diverso by Sara Mondani
6.-Tsara by Giulio Vinaccia
7.-2Km di Futuro by Enrico Loccioni
8.-Construiré belleza by Cristian Campagnaro and Valentina Porcellana
9.-Liscabianca by Vito Lucio Pavia
10.-Saint'anna Jamming by Push and Urbanita
11.-Design in town 2015 by pasquale volte and franco Achilli
12.-Bargellino 3.0 by Design management center Bologna
13.-Borgo Vecchio Factory by Puc(s)h
14.-Abitare Cangiari by community creativa cangiari
15.-Malazè by Rosario Mattera
16.-Casa Netural by Andrea Paoletti and Claudio de Leo
17.-Crezi food Kit by studio super santos
18.-99 Infarinate by futura cooperativa sociale
19.-Magri Design Toolkit by frog design
20.-Normali Meraviglie by TAM-TAM
21.-Plus by Coppa+Landini
22.-#Circuitinvisibili by Gruppo Pozzi

Spark Award

2016

1.-Eticcs by Michaela Epp - Program Manager
2.-Flexi Apartment by This is felix
3.-HIV Prevention Software - India by Piya Sorcar by Teach AIDS, NPO
4.-Last Straw Fest by Wunderman Production
5.-SmartCycle by Be Girl, NPO
6.-SolarCity Home Gateway
7.-SPRING Accelerator by Fuseproject
8.-Women's Blue Sky Freedom by Marc Samson

2015

9.- A1 Solar Lantern by dlight, NPO
10.- Bahu by designmatters

11-Enough Project Curriculum by Klabs design studio
12-Flo by design that matters
13.-Forget-me-not by student of Capa peninsula university
14.-LoanGifting by rkdesign
15.-One-Handed Tableware Set samar madanat
16.-Ultralight Solar Fan Heater and design

Red Dot Award

2016

1.-WhatsGerman by Plan Net
2.-Dark Sky by Kevin May
3.-Maastrichtse Decolletés by Zui
4.-The 2 Euro T-Shirt – A Social Experiment by BBDO Berlin
5.-Friendship Jungle by Xiaoxiao Zeng, San Francisco
6.-FoREST IN PEACE by inspire/d, Seoul
7.-New Baraka – Building a Home with 30,000 by People by denkwerk gmbh, Cologne
8.-BETTER RE by enlighten

2015

9.-Loved & Found by Loved gmbh
10.-Voice of Taiwan
11.-Radwende - Change your city for cyclists by Scholz & Volkmer GmbH
12.-Keep them flying by Leo Brunett GmbH
13.-Kiezkaufhaus by Scholz & Volker GmbH
14.-Portraid by Servicpolan/plan.net
15.-The autocomplete truth by Memac Oglivy
16.-ReCycle by You.Jin Choi
17.-Shoot Goals Not Guns by Jady Xiong
18.-Watch Out! by plan.net
19.-the way back home
20.-the second aid by NOSINGER
21.-Subway map for colour-blind people by INAT, NAVER corporation
22.-Dog Prisoners by Tina Kim
23.-Samsung look at me by Designfever and chill worldwide
24.-the fading portraits project by press
25.-Less is more
26.-Naver Hangeul signboard & Cheonggyecheon campaign by Never corporation
27.- Endemic birds of taiwan

2014

28.-Co-nnection by fraser hallway & oliver ward at massey university
29.-kunterbult by slim
30.-virtual adoption by i prefer integrated marketing co

31.-inventarium by kathrin corinna bohm
32.-tea in story by inclusive orientation design -campus WU by burro bauer gesellschaft fur orienteering & Identity mbH
33.-world of waves by should & Friends
34.-Key for life by Lambie-Nairn
35.-NoNuclear by Chaing Huei Ge
36.-The age of information Erosion by Ping Chen Chen
37.-CWS-boco Sustainability report 2012by strichpunkt design
38.-KHA TSHU BI by JIA-HUA He
39.-the dachau concentration camp memorial site by s2 Intermedia GmbH
40.-RECOFFEE tree in the bottle by Hair O'right International Corporation
41.-The ant Rally by BBDD Germany

A'Design Award & Competition

2015-2016

1.-Pee fence flexible urinal by Peefence
2.-shelter pack post disaster shelter by Design Nobis
3.-public seat B-shape concrete by Design Boom
4.-Lr16 Disaster coffin by Adam Miklosi
5.-atelier by J-AR Public Art Studio
6.-Backslash communication by Backslash
7.-refugee wearable shelter wearable tent, jacket, coat for refugees by Dr Harriet Harriss & Graemer Brooker
8.-blue frontiers ship hospital ship by Luis Felipe Burigotto Rocco
9.-resq tru temporary rescue unit by 111ARQ & Israel Lara
10.-signal ethic food allergies pictograms by Alvaro de Ramon Murillo
11.-WinterHYDE emergency tent by billion bricks
12.-sonoro public sound furniture by PSF-Public social furniture

2014-2015

13.-Tranquilo social campaign by Behance
14.-inflatable house post disaster house by altar-studio
15.-tentative post disaster tent by Hakan Gursu, Designnobis
16.-be girl pad holder reusable menstrual hygienic product
17.-green project home composting system by Han Rihango Gal
18.-smart park system proposal for outdoor playgrounds by Name Basar Kesdi & Hatch S. Aydin
19.-infinity reflective head stone by Soroush Vahidian Kamyar Coroflot
20.-reuse laundry water recycler by Angela Granados

2013-2014

21.-backpack bed outdoor portable by Tony Clark & Lisa Clark swags

22.-door stops seating for transit riders by Craig Wilkins for Detroit collaborative design center
23.-safe agua colombia: calientamigos water heat & pressurised shower by Design that matters center
24.-360 water barrier by Nicholas Tay Meng Kiat
25.-bucket of love logo design by Alma Cafe
26.-gris water saving system by Igen Design
27.-fight aids his campaign by AUM
28.-child health & vaccination info system by Lisa Scharoun at Bill & Melinda Gates foundation
29.-don luis traffic signal CasBeVilla Team

2012-2013

30.-smartbin cigarette/Gum bin by Smartstreets
31.-festival village arts hub by studio Tilt
32.-puncher squeeze punch by space cube design lab

2011-2012

33.-chilote house shoes indoor shoe by ChiloteShoes
34.-triton warning system by Design Nobis

2010-2011

35.-sunflower solar powered lunchbox by Edita Barabas

World design organisation, world design impact prize.

2015-2016

1.-Warka Water by Architecture and Vision
2.-Happy Tap by waterShed Asia
3.-RE:BUILD by Cameron Sinclair
4.-IHearYou by Blamey sounders hears
5.-Invelox by Sheerwind
6.-Lumkani by Lumkani

2013-2014

7.-ABC Syringe by David Swann at University of Huddersfield
8.-Biolite Homestrove by Biolite
9.-Refugee Housing Unit by RHU Design Team
10.-Family by Family by Playford and the Australian centre for social innovation
11.-Ladoo Project by Design Impact
12.-Leveraged Freedom chair by Jake Childs

13.-Potty Project by CURE

Core 77

2016

1.-WonderSphere by Bresslergroup
2.-Divas by IDEO
3.-Ball Magazine by MICA Social Design
4.-Owlet Smartsock by Astro Studios
5.-Ilima Primary School by Mass Design Group
6.-Direfly Infant Phototherapy by Design that Matters

2015

7.-CycleHack by Cyclehack LTD
8.-Asili by IDEO
9.-See what I mean by Ilyanna Kerr
10.-BARF by MICA for Social Design
11.-It's on us: by Mekanism
12.-Biomeme one3 by Likuma Labs
13.-The Upright new-born bag-mask by Jens petter inake, knell ove korneliussen % Amp torre laerdal

2014

14.-Saajhi stepping pump by Sam Rulli / Xylem Essence of Life
15.-3D Printed Personal Ekso by Ekso Bionics
16.-A Self Stabilizing Spoon for Hand Tremors by Liftware

2013

17.-BioLite HomeStove by BioLite
18.-Clean Team by IDEO.org + Unilever and Water & Sanitation for the Urban Poor (WSUP)
19.-Wheelchair for children in Guatemala by Design without Borders
20.-Obama for America Mobile Campaign by thirteen23
21.-UNICEF Emergency Response Simulation Game by Frog

D&AD Impact

1.-Taking aim at corporate america by GREY Canada
2.-Inglorious Fruits and Vegetables by Marcel
3.-Purity test by Cohn and Jansen JWT
4.-Missing child lock screen by Cheil HK
5.-allan Index by RBK Communication

6.-Land Cruiser Emergency Network by Saatchi & Saatchi Sydney
7.-Snap Counsellors by TBWA\India
8.-Bigger issues by TMW Unlimited
9.-Google - The voice by OMD Taiwan
10.-It Can wait by BBDO New York
11.-Music vs gun Violence by Leo Burnett Chicago (1)
12.-*Reword by Leo Burnett Melbourne*
13.-#OptOutside by Venables Bell & Partners
14.-#Maplaceestdansalle by FRED & FARID
15.-*Intimate Words by Leo Burnett*
16.-LandCruiser Emergency Network by Saatchi & Saatchi Sydney
17.-#MakeWhatsNext by McCann New York
18.-Proud Whopper by DAVID
19.-Taxi Fabric by A Good Feeling (2)
20.-The Learning Boat of Leyte by Ogilvy & Mather Philippines
21.-Touch the pickle by BBDO India
22.-Dads # Sharetheload by BBDO India
23.-Love Has No Labels by R/GA
24.-*Redefinin #Likeagirl by Leo Burnett Toronto*
25.-This is Wholesome by Droga5 (6)
26.-Barbie evolve the doll by Weber Shandwick
27.-leggay bride by Leo Burnett Beirut
28.-never alone by AMVBBDO
29.-the autocomplete truth by Memac Ogilvy - Dubai
30.-Care counts by DigitasLBi North America
31.-Lifesavier backpack by J. Walter Thompson Colombia
32.-one laptop per child educational program by OLPC, Inc. (3)
33.-the cognitoys dino by CogniToys
34.-the moreover kit by Technology Will Save Us
35.-touchable ink by. Walter Thompson Bangkok
36.-*reword by Leo Burnett Melbourne*
37.-the #62milliongirls yearbook by Edelman
38.-the gay sweater by Saatchi & Saatchi Canada
39.-brewtroleum by Colenso BBDO
40.-edible six pack rings by We Believers
41.-precious plastic by Precious Plastic (4)
42.-reversible barcode by Cheil HK
43.-*just by Leo Burnett*
44.-depaul box co by Publicis London
45.-fuck the poor by Publicis London
46.-race for retirement by Droga5
47.-nigeria elD by MasterCard
48.-beauty Tips by Reshma by Ogilvy & Mather, Mumbai, India
48.-swedish number by INGO Stockholm
49.-taking aim at corporate america by GREY Canada
50.-manboobs4boobs by DAVID Buenos Aires
51.-*brainBand by Leo Burnett*
52.-Melanoma likes me by GPY&R Melbourne and Brisbane
53.-check it before by DDB Group Germany
53.-this girl can by FCB Inferno

54.-the story of an unborn child. champ by PHD India / MullenLowe Group
55.-bennison baby care wear by gyro New York
56.-the social swipe by Kolle Rebbe GmbH
57.-sugar detox by Marcel
58.-the field trip to mars by McCann New York
59.-makewhatsnext by McCann New York
60.-crowdsourcing for clean water by IBM Corporate Citizenship
61.-Protect, equalise end improve one Hundred by Interbrand
62.-ONE HOUNDRED AGENCY (7)
63.-the world addressed by what3words
64.-tmall chinese academy by Anomaly
65.-fair food program branding campaign by Pinkwater & Putman (5)
66.-ryman eco by Grey London
67.-the organic effect by Forsman & Bodenfors
68.-slow down GPS by Forsman & Bodenfors
69.-#myfamilycan by Leo Burnett Melbourne
70.-fairphone 2 by seymourpowell
71.-flow by BeeInventive Pty Ltd (8)
72.-give a beep by Edelman Deportivo
73.-blood banking by J Walter Thompson
74.-open road project by DENTSU INC
75.-link NYC by Intersection
76.-Tokyo bonsai by DENTSU INC

Other Projects with other design award

1.- Techo para Chile
2.- Teach for all
3.- Araucania Hub
4.- Impact Hub
5.- Enseña Chile
6.- AIESEC Global Volunteer
7.- Bibliteca Vivente by ABCitaa
8.- CoHousing.it
9.- InVento Lab

B. Interviews

1. Magglio Aranda Founder – Extract from the interview

Working on his bachelor thesis, Magglio Aranda the founder of Phoenix Brick, had his first approach to the feeling that lately will trigger his social innovation, the transfer of the confidence and responsibility by his teacher believing on his ability to know and do something, this has trigger on him this mind set to start transmitting this kind of confidence to disadvantaged people.

With the desire to do something with the environment a second motivation raised from two high school girls asking him about projects related to recycling tetra pack box. Taking the challenge, he aligned efforts at a university level to develop an initiative involving students from design and engineering schools with professors, having a good start even with an expo to show their work, getting founds from friends well positioned, collaborating with the USM and the company Tetra pack, municipalities. Unfortunately, this social entrepreneurship couldn't find its way to sustainability and people's efforts were declining along time, having problems with the vision and credits given to the partners.

A meaningful experience, took place in Valparaiso when there were two people in a miserable place living, with terrible conditions and they went to line the internal part of the house producing a change on his perspective, on what they could do for this society, being able to bring this access to knowledge and better conditions to disadvantaged people when the government are not willing or just can't take care of, one of a common seen value of the social sector.

One of the biggest objectives of the innovation is the inclusion of people due to the statements of the founder of Magglio's University, Mr. Federico Santa Maria and his statement to give chances to educate people from its early ages to the meritorious helpless, finding this kind of values trespassed to the social innovation. In this line, the effort to educate children on their early ages to be more aware of their waste is one of the core missions, having secondary effects as the trespass of values as the inclusion, a belonging feeling and a sense of common possession, looking for a systemic change more than a simple recycling bin, but also tangible objects done by the previous waste turned into raw material.

Luckily for Phoenix Brick, the environment ministry has recently promoted a normative for schools to be more environment friendly. From the legislation, the "carton container for liquids" the one's that the ONG is recycling is aligned with the Chilean regulations and "el manual de la casa verde" (the green house handbook), having schools now incentives to use the services to educate their students recycling, increasing expectations for coming years to scale up the project.

One of the challenges from the point of view of the people recycling is to clean the boxes, as they can't be storage on a container for more than a few days, because it's not hygienic due to the fluids that can be milk and juice. The requirements for people to give them the boxes is to be clean and flat opened, making people to be take care of their waste more than just putting it in just another container.

A second challenge is the delivery method the clean boxes, that vary depending on the institution gathering them, this is been solved in the main time but with the scaling process will be a major problem that should be addressed

The project has more than 10 years, and they have evaluated it with numbers, but as the volume needed is too big and the main value is not conserved they are still trying to look for sustainability through another way keeping their main values. As there is a company doing the same product in Santiago but with a more industrialized process that follows other line on values, without the inclusion and the other values.

The vision in a future is to have small plants to process the raw material every 10 km to involve communities, and its benefits direct but to do so a complex value chain is required to develop the product and its need a lot of effort to happened make it possible

About collaboration: Once the regional government was involved but its didn't last as they didn't catch and didn't understand the value of take care about our waste, they need to understand the final value of the commitment more than just a superficial solution.

They are associated to the world health organization (WHO) "habita saludable", together under this network working together in the same line to make a network for tackling global issues. Receiving founds and contacts, but every two years depending on the meetings they make.

About Sustainability: Today sustainability is not achieved, there are no sells, no sells force. There are being some projects to develop new products for Christmas, but nothing really clear. Line emergency houses internally are for free as a donation, because the product is not suitable for selling it in that purpose. The current small plants to processing the material is designed for one community, but the vision is to implement more in the future and now with the support of CORFO and the needed certification of the schools there is a chance to gain sustainability in a short period.

There were problems with some papers of the NGO, due to the instability that it seems to be more like a fraud to the tax office, but now it's everything in rule, able to make invoices and looking forward to finding a better sustainable model

Maggio Aranda, is a chemical engineer from USM that works as a consultant for a company that allow him to have flexibility to work on his project. He is the engine of the NGO with not many collaborators, it's his main project and it's the reflection of his values and way of living.

There are other collaborators as Hugo Fuentes, director NGO, Jemael Cigarta Perez, Magglio's sister and Cristobal Chacón as the core team, also there are many students doing research as thesis with the project, but usually they don't stick in time. Being rewarded not with money but with other type of value, as Cristobal had the opportunity to be with the environmental minister and chat with him about the project, this kind of value that not everyone sees.

The places that gather the boxes as "Punto limpio Con-Con", that finally there is a network of people built along time that works that is consolidated. Some of them are schools that partnership was built by chance, but today there is a network all over the region. The importance to last is the quality of delivery of the boxes, but now with the certification that the environment ministry is requiring the need of the schools for it will be easier to commit them to recycle.

There have been meeting with tetra pack as they are the main distributors of the boxes, and they will be introduced as donors, getting back their support. In the future, there are institutions like Corporacion municipal, that are looking to put another plant for recycling and give more jobs to people that it is on special schools.

Marketing is not done properly but its increasing organically. The main window to promote the initiative are the containers made with the material and meant to store clean open boxes that have had a good reception in schools and other institutions to make tangible the recycled product, but now other type of products is needed to look for sustainability.

Impact measurement is not measured and even when there is a notion to do it there are many things before and resources are not enough to do so.

About competences and labour specialization, Magglio is focused on the processing plant and there is Waldo in charge to write the projects with the USM, together with Cristobal are looking to push forward the innovation in other type of lines that might lead to sustainability in a future.

About Design management: When it started, there was the collaboration with product design engineering school of Santa Maria University, having a vision about design but more related to the material, not to the final product, but currently they have taken a sort of partnership with a design studio in Santiago to improve this kind of competences and introduce a bit more the design.

There is also a collaboration again after 10 years with product design engineering school of Santa Maria University to make but until now intuition has been the motor of everything by testing validating slowly everything but everything by Magglio and its current team.

In the future, there is the desire to scale but today are far but with good expectation for the near future.

Finally, about volunteering Magglio argues that Is needed a structure for voluntaries, but it makes the model a bit more vulnerable due to the motivations of them that are not reliable if there might be a social business behind it.

2. Cristóbal Chacón - Extract from the Interview

The ONG has mainly 3 axes of work with the society, first there is the inclusion of a group of kids from a special school that are hired to work of the production line, giving them a job and empowering them to be more self-sufficient. A second line of social objective is to educate people about their waste, due to the conditions of the boxes recycled they must be cleaned in a good manner, otherwise their storage dirty brings sanitation problems, implying awareness from the people to take care of their home waste, being mostly children on their early ages that are being engaged to recycle through school programs on a first stage. The third axis is the contribution to give better housing condition to people in vulnerable houses lining emergency houses with the panels to give a wormer house for climate conditions.

A real great advantage of the product developed is the characteristics of the material, due to its composition from carton, aluminium, and plastic, it has properties as a thermos isolating and acoustic isolating combining to its durability makes it suitable for a lot of uses, that today are not exploited due to the lack of resources to make research on the material.

As nothing can be perfect, the material has also problems as its final look, being primarily silver coloured, and rustic form due to the process done without chopping the boxes, they have been improving this condition and adding some colours from bottle caps to the result, improving but in a current developing.

Working as a volunteer for Phoenix Brick since early 2016, he has taken care of a wide range of problems from the inside of the organizations.

One of the first focus is to make more sustainable the model from the financial side due to its inconsistence to sell products, today the NGO is selling a little number of recycled panels. To tackle this, he applied to 6 governmental founds getting 2 of them for next projects, one with CORFO and one with MESESUP. Within these projects there is the objective to develop a more suitable product done in a more industrial line, having developed a small seat done by the same kids from the special school and with a collaboration with UAI design Lab that Cristobal is collaborator also

There are several initiatives from students working on universities along the region to implement uses to this material. "Rie" from a student graduated from the special school and with the collaboration of Catholica University of Valparaiso is an entrepreneurship making furniture from the recycled material. There is a student from Santa Maria University developing a sustainable model for the NGO, and a PhD student working on the case looking to Magglio's motivation for her research, but as these initiatives there has been a lot more but no one has last long to bring sustainability to the NGO.

Collaborations have been created along time due to the efforts of Magglio and as coincidences from life, as the partnership with the students of the special school founded on an Expo, proposing him to work together.

Production Process is done by putting on a mould the open clean boxes on layers, depending the use of the panel, then heat it up on an industrial oven to high temperature to finally process it with a hydraulic press, moulding the panels that after will be processed on more elaborated products.

The actual uses of the material is for lining interior of houses, with the challenge to get a better final aesthetic finish. Bigger structures as Domos and furniture as containers to recycle.

Today there is a collaboration with BOH, a design agency, to use design to create a corporative image, and a web page more suitable to the product, closer to kids, including technology to show better to customers the values of the organization.

3. Pedro Hidalgo – Designer at BOH Agency

BOH agency is a design studio located 200 km from Valparaiso, and currently they are working on a project based model with phoenix Brik since March 2017, with the development of a new logo and manuals. As strategic design firm, they have their own appreciation of the NGO and which are the difficulties to work with them.

The first difficulty is the huge absence of a business plan, and Magglio is not prepared show up with it by himself, if he is not close to the right people there is a little chance to succeed of this project. Talking with Cristobal he is thinking to set up after he graduates from the university and invest his own time and money to build the project, but until then the need of a solid business plan is a major concern.

At BOH design agency, in 6 months we have not done more than a few graphics, a design of a web page and some advertising posters, after they paid us all on the very beginning but without having an enterprise structure is hard to work with them, that in the close time they will be doing

the same as the past ten years, small things that they cannot even sell on a bigger scale to become scalable.

Even though they have a good project there is the lack of many insights even from the environmental perspective, as to the water footprint that even they don't know with their current operation the real impact. There is no productive chain, the current place is not suitable for production, with highly handmade production, being difficult to pretend to have larger operation.

There is a problem on the management at a large spectrum, is not sustainable from a business model, and there is the lack of team with the skills to manage the NGO. There is many goodwill on the SI, but only with that it is impossible to work. There is lack of the management knowledge, even sometimes quotes are done wrong, they have a model with founds, undervalued, with highly unproportioned values.

As design office after quoting, we start foreseeing the problems at what can be done by the agency. There are many problem with the communication, writing is not their skill having problems to settled very clear but when they need to transmit the project into paper, there are several theses researches but without a line and a same purpose.

We foresee a great potential in product innovation, and social innovation , as their products have a lower billing but because they don't have a design approach, and they do before think, a much more engineering approach than a design one, having functional approach, but with a close look for a niche market different from the actual one that are people needing lining on their homes that they are not able to pay for their products, but in the same way there is a good product that must need to face in a good way a profitable market.

From the development of products, there is a lack of production and they are waiting for external initiatives coming from students of universities to propose new products, or developed by the DIY attitude of the founder, as he is surviving in this complex environment and carrying out his initiative.

The actual social impact is the real impact of the NGO, so in this term, this is not reflected on the advisory of the products, but the product is not looking for an impact. One of the problems is the finish coat of the current product, there is a problem that could be solved from the usage of other type of products, with the reutilization of the product not recycling with the bigger scope of inclusion and reutilization without the trauma of using other type of materials.

Other problem is the wide spectrum of social missions that in a point is giving a drawback for the line of action of the NGO. They don't know what they really want, and they are facing many lines. Magglio in the end is alone, having a good reception, but in the end as it is not sustainable as it is now. He needs another person with the commercial side of the business looking for a more hybrid model.

We have worked with the logo to be friendlier with the kids as it is one of the main lines of work, but even the name is a mismatch related to the recycling turn instead of the inclusion mission that they mention as the real core of the NGO.

Another major problem is their webpage as the communication must be in a different way as a window to show not only their work, but raising a value proposition for the private sector to make

visible their support, generating less incentives to get investors and supporters, as they don't have a way to give back another type of value.

The name is an issue, as the phoenix is regard to the recycling, but the main core, as it is formulated by the founder is the inclusion of the young with special skills, but it is difficult to change due to the short period that they have the name.

Finally, its seen that there is a good intention but not a sustainable business side, being a romantic idea but without form, and nobody is willing to work and to invest without a model just the founder. It is needed a person on the head with more vision, younger, and with a perspective to work this more as a business.

There is the needed of a team with a commercial and a designer and leaving the founder to the production side of the business, to set people with skills more than with goodwill.

Having a huge potential there is a lack of vision to set a good model and for more good will there is no possible inclusion of design because the lack of the counterpart of the NGO is higher actor to the inclusion due to their incidence on the strategical decisions, and today this counterpart is without this former vision to produce a model sustainable.