Designing a Digital Social Innovation Platform: From Case Studies to Concepts

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Abstract. Governments in the western countries are faced with a number of growing social challenges, such as unemployment, migration, ageing population, explosion of chronic disease. Although they offer a wide range of public social services, we cannot assume that the economy will grow at a rate that can fund expanding needs for services risen by these challenges. We have to find new ways to adapt service provision and prevent social exclusion. Social innovations are new approaches to addressing social needs through engaging beneficiaries and supporting actors in the development of solutions. There is great potential in exploiting digital networks for social innovation. Supporting virtual communities and new forms of collaboration, digital networks make it possible to co-create knowledge and solutions at a wide scale. Various digital social innovation platforms have emerged in the recent years. However we observe that these platforms focus on specific areas, such as open democracy, collaborative consumption or environment, rather than providing support for a wide range of social challenges. We propose to develop a digital social innovation platform that facilitates citizens and organisations to collaboratively develop innovative social solutions. From the analysis of the current innovation processes and the expectations of two distinct cases, Cibervoluntarios (CIB) and Experts-In-Teamwork (EiT), we derive an initial set of concepts that serve as a basis for the development of a methodology and platform for social innovation.

Keywords: Social innovation · Co-creation · Open platforms

1 Introduction

A social innovation is a novel solution to a social problem. The TEPSIE project defines social innovations as innovations that are "social in their means and in their needs" [1]. Beyond solving social needs, social innovations engage and mobilise beneficiaries in the development of solutions. Social innovation has increasingly gained focus in Europe, as evidenced by the establishment of the research area CAPS (Collective Awareness Platforms for Sustainability and Social Innovation) in the European work programme FP7.

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Europe faces a number of growing social challenges, such as unemployment, migration, ageing population, explosion of chronic disease. Traditionally, the governments have provided a wide range of public social services in order to support social needs. We cannot assume that the economy will grow at a rate that make it possible to rely on public services to support the needs. How can we provide care to an increasing elderly population? How can we tackle the massive arrival of refugees? Social innovation is about engaging citizen in taking responsibility in solving societal problems. However, social innovation does not imply that citizens should solve problems alone. Public institutions and other organisations may drive social innovation with the citizen playing a major role, thus releasing institutions from carrying all responsibility.

Success stories of social innovation often illustrate initiatives taking place in local communities [2], with limited impact beyond the socio-spatial location where the innovation takes place. However, according to NESTA, things are moving slightly towards scalable social innovation, with concrete examples providing a better understanding on how innovation can scale [3]. Digital networks provide new opportunities for social innovation. Supporting virtual communities and new forms of collaboration, digital networks make it possible to co-create knowledge and solutions at a wide scale. Exploiting network effects, they make it possible to mobilize and engage people, and also to spread solutions widely. Despite the potential of digital technologies in boosting networks effects, we still lack a digital meeting place where organisations and citizens can easily find information about a wide range of social challenges, and collaborate to solve these challenges.

Differently, the H2020 SOCRATIC project [4] aims at developing a platform to support both citizens and organisations to collaboratively identify specific innovative solutions for achieving the desired social goals. The platform will allow individuals, collectives, institutions, companies or administrations to propose new challenges oriented to solve specific sustainability issues, to invite individuals or organizations to participate with innovative ideas that solve these issues and to collaboratively select and implement the most promising ideas. In order to ensure that the developed solutions can be applied in different contexts, and cover different needs, the project involves two diverse organisations:

- CiberVoluntarios Foundation (CIB) is a non-for-profit organization created and composed by Social Entrepreneurs engaging volunteers on using information technologies for social innovation and enabling citizens' empowerment. They play an active role in societal change by developing volunteer work to promote the use and knowledge of technological tools among populations with low or no access to technology and training.
- The "Experts in Team" (EiT) program at the Norwegian University of Science and Technology is a study program which involve multi-disciplinary groups of students in the role of social innovators. The students work to develop solutions to challenges brought by external "customers", e.g. NGOs or public institutions.

CIB and EiT are two distinct social contexts, which have very different work processes that involve different types of users. While students at EiT are young and have high educational backgrounds, the volunteers at CIB belong to different age groups and have different levels of education. The engagement of stakeholders varies

between both social contexts, within EIT, the students' engagement is bound by the study program, while at CIB the stakeholder engagement is completely voluntary.

Through the study of these different organisations and the elicitation of their needs, the SOCRATIC project aims at developing a platform, for supporting social innovation, that is more general than if it was otherwise developed targeting a single organisation. CIB and EiT have been involved throughout the project, from inception of the core ideas to the deployment and collation of evaluation data. They contribute to the definition of scenarios, they give feedback along the incremental development of the methodology and digital platform, and they will evaluate the pilot solutions.

This paper focuses on the understanding of the work processes of the involved organisations, the roles of the users that contribute to their work, and the identification of their needs. From this understanding, we derive the main elements of the SOCRATIC concept, which serve as a basis for an ICT-platform supported social Innovation methodology that can be applied to different organizations supporting social innovation.

The paper is structured as follows: Sect. 2 presents related work; Sect. 3 introduces the research methodology; Sect. 4 describes the case studies, i.e., the work processes at CIB and EiT; Sect. 5 introduces the SOCRATIC concept based on the case studies; Finally Sect. 6 concludes and identifies relevant further work.

2 Background

The Social Innovation Process (SIP) is described in the Open Book of Social Innovation as a process consisting of six steps [5]:

- Prompts: is a step which occurs in fact before the SI process itself. It is about identifying and better understanding the societal problem to be solved by the social innovation. It builds the knowledge for the next step, the ideation, to take place.
- Ideation: this step involves the generation and refinement of ideas to solve the societal challenge. As social innovation is about innovations which are social both in their ends and in their means, it is crucial that the idea definition process is socially inclusive.
- Prototyping: is about materializing the idea in a simple manner so that it can be done quickly and with relatively little resources but, at the same time, supporting evidence gain about the idea hypothesis.
- Sustaining: this step is about bringing the innovation to market and establishing a foundation (revenue streams, operational capacity, etc.) that can support the innovation to be sustainable.
- Scaling: once the innovation is operational and has a sustainable customer base, it is time to look into growing it towards a wider audience. Such grow, can be in terms of reaching new regions or beneficiary segments for example.
- Systemic change: corresponds to a state where the social innovation solution permeates different levels of the society and changes cultures and people's mindset.

When looking for digital social innovation platforms, we identified platforms that were either centered in a specific social domain (such as accessibility [6], carbon dioxide

emissions [7], etc.) or provided support to or within a single step of the SI process (such as ideation [8, 9], funding [10, 11] or project management [12, 13]). We did not identify any platform which guides innovators across the whole SI process and rely on a sound methodological foundation. The best candidates, Openideo [14] and Quirky [15] are industry-led initiatives whose results haven't been formally assessed through research.

Indeed one main challenge is that many activities in the social innovation process happen outside of the digital world. Face-to-face meetings have a big impact in enabling mutual understanding, prototyping a product (with the exception of a digital one) requires physical and tangible craftship and different communication means have different efficiencies when communicating with different target groups. For example, one may need to have physical meetings to open a dialogue with beneficiaries user groups that have not widely adopted digital technology such as elderly or low income communities. In many cases, it is also essential to understand the physical context in which the problems to be solved occur.

Digital support for facilitating social innovation should therefore focus at digitizing tasks that can be optimized or have their impact increased by being performed with assistance of computer systems. During our research, we analyzed how the SIP of two different organizations can be facilitated using digital technology and we generalized the concepts in order to provide technological solutions that support the processes of similar social innovation facilitator organizations.

3 Research Approach

The research in SOCRATIC follows the design-science paradigm [16]. While behavioral-science approaches focus on the use and benefits of a system implemented in an organization, design-science approaches seek to create information systems to solve identified organizational problems. Design-science approaches follow a recursive process allowing a gradual understanding of the problem to be solved and the improvement of solutions. The creation and assessment of IT artifacts is central for understanding and improvement. The term IT artifact is used in a wide sense and denotes various items related to the creation of information systems, such as models, methods and software prototypes. The design-science paradigm does not impose any concrete research and evaluation method. The choice of a method depends on the nature of the problem to be solved and the type of IT-artifact being created. In SOCRATIC, we plan to develop several IT-artifacts: the SOCRATIC concept presented in this paper, the intermediate version of the methodology, the intermediate version of the platform, the final version of the methodology and the final version of the platform.

As the first step of the research, presented in this paper, we aimed at understanding the two organisations that serve as a basis for the requirements of SOCRATIC and which will pilot SOCRATIC at the end of the project. To that end, we followed an exploratory case study strategy [17]. We conducted two exploratory case studies, one in each of the pilot organisations. The purpose of these case studies was to understand

the needs of the organisations and their expectations to the SOCRATIC platform. The research questions we had were:

- How do the organisations currently support the social innovation process?
- How can a digital platform facilitate and enhance the current process?

The two pilot organisations involve users with different backgrounds (e.g., age and education). They engage in innovators in different manners and focus on different sustainable development, thus allowing us to generate broader conclusions than involving a single organisation.

Further, following the collection and analysis of data, we developed a set of pilot scenarios together with key stakeholders in each pilot organisation in order to concretize the needs.

3.1 Data Collection

We collected data from the pilot organizations regarding our research questions via two main steps:

- First, we performed an analysis of the documentation available in the public domain, secondary sources, e.g. web pages of the organisations, training materials. This provided us a baseline understanding of the context and to prepare for the next step. That allowed us to identify the key actors to involve in the next step and to design guidelines for it.
- Second, in-depth interviews, primary sources, involving key stakeholders in each pilot organisation were carried out. In order to respond to the main research questions presented above, these interviews were conducted in a semi-structured way, based on a common script. The interviews questions were elaborated as to give light on the following topics related to our research questions: (1) the form of the social innovation process followed by the organisation, (2) the actors involved in the innovation process as well as the nature of their participation and the interaction between these actors, (3) the ICT support in the innovation process, (4) the current and foreseen challenges related to process, participation and digital support as well as ideas for potential solutions, and, (5) the approach for evaluating the activities carried out.

3.2 Data Analysis

The analysis of the collected information has followed the thematic analysis methodology [18]. This methodology supports working with a wide range of research questions through the collection and analysis of primary sources and secondary sources, and in a specific data-set. While primary sources refer to self-produced content, such as semi-structured interviews and observations, secondary sources refer to content produced externally, such as bibliography. A specific data-set means the specific context in which the research takes place, in which the information is going to be collected.

The themes of the analysis were based on the research questions and theirs codes were created and refined during the analysis process based on the elements detected to

understand in detail the main themes. These are the variables attached to those. The list below presents the mapping between the different codes, themes and research questions:

- (RQ1) "How do the organisations currently support the social innovation process?
  - (T1) The understanding of social innovation among the different contributors in the organisation
    - C1.1: how is innovation understood;
    - C1.2: how is innovation transmitted,
    - C1.3: existence of shared understanding
  - (T2) The organization's innovation process
    - C2.1: actors (their interactions and roles in the process)
    - C2.2: ICT as support to the process
- (RQ2) "How can a digital platform facilitate and enhance the current process?
  - (T1) Challenges faced by the organizations
    - C1.1: need for further involvement of beneficiaries (and their representatives) in the process;
    - C1.2: automation of the recruitment process and its consequences
    - C1.3: ICT support to motivate the actors
    - C1.4: need for evaluating the success of the innovations
  - (T2) The organization's expectations of the resulting ICT platform and the pilot
    - C2.1: automation of the communication between organization and volunteers
    - C2.2: management of tools and materials to support the different innovations
    - C2.3: involving new actors in the innovation process

The codes were also analyzed in terms of the social innovation process step they relate to, and in terms of "gain and pain" elements (motivation, team building, flexibility of participation, commitment through time, adequate support from coordinators along the process, digital platform support, training material) in the process as highlighted by the interviewees.

Each case study was analyzed individually and then later reviewed by contrasting one with the other based on the core elements of the analysis: the actors; the social innovation process itself and the specific challenges faced by each of these institution's process. This enabled us to trace a common pattern to define the SOCRATIC concept.

4 The Case Studies

The results of each case studies are presented by introducing the organizations, how the data was collected in theirs case studies, their social innovation process (SIP) and the roles played by the different actors in it. Finally, we highlight the aspects of the processes which are of major challenge and could be impacted by the introduction of a new digital social innovation platform.

4.1 CiberVoluntarios Foundation

CiberVoluntarios Foundation (CIB) is a non-for-profit organization whose vision is to exploit information technologies to boost social innovation and to enable citizens' empowerment. CIB was founded in 2005. It coordinates the labour of so called CiberVolunteers, more than 1,500 volunteers all over the world (mostly Spain and Latin America) who actively engage in volunteer activities related to the digital inclusion of populations with low or no access to technology and training. CIB currently has an ICT platform that assists in the management of the volunteers, but it has its limitations. They would like that SOCRATIC to replace their current platform.

The main activities of the foundation are to support, coordinate and leverage a variety of actions that are delivered by the volunteers. These actions include on-site actions, training, courses, webinars and online campaign. CIB activities are usually conducted in cooperation with organisations that support groups of persons excluded from the society, for instance organisations supporting people with reduced physical or mental functionality, people on the verge of poverty, young people with social integration problems, or women facing gender violence.

Participants Involved in the Study

Along with going through the available secondary sources, i.e., CIB website and their training material, the founder of CIB and the volunteers' coordinator were interviewed in order to provide a first understanding of the organization. Based on the first analysis of these interviews and the secondary sources, four user profiles were identified and actors fitting those profiles were interviewed for the case study. Those four profiles consisted of a proactive volunteer, a junior volunteer, a senior volunteer who assumed the responsibility for training other volunteers, and a representative of a beneficiary institution served by CIB.

Roles and Responsibilities

The management at CIB take care of the overarching strategy of the foundation, accounting, fundraising and other organizational aspects. CIB counts with one person dedicated to the management of the volunteers, the volunteers' coordinator. The main tasks of the volunteers' coordinator are to organize the volunteers training, the diffusion of the activities and the setting up of those.

The volunteers play a major role in the SIP supported by CIB, and are considered as the real social innovators. They are usually proactive and dynamic people, who find in CIB an interesting and stimulating way to contribute to society and use their skills for meaningful purposes. Volunteers can choose their grade of involvement depending on their availability and preferences. The flexibility given to the volunteers in relation with their participation in CIB is an important factor for attracting a large number of volunteers.

> *... through my work I had relation with an organization working with disability and this kind of things. So, seeing that there were some options there, through Alejandra, Yolanda, I told them that it would be interesting to work with some collective, even though I wasn't able to go on to give the training because of my schedule... I've seen both... if you're proactive, the organization responds you and you can develop some project... and I have jumped in projects that*

were developing… for me this flexibility/facility is very valuable, if not, you cannot be a volunteer for a lot of time.
Proactive and social innovator volunteer - 04'50

The social challenges that they implement solutions for are determined by the needs of the target social groups, which are represented in the process by beneficiaries organizations. The solutions for those challenges are, in general, proposed by the management at CIB. However, the most proactive volunteers also propose ideas, which are reviewed and approved by the management at CIB. When approved, the ideas are translated into "missions" whose complexity vary. Examples of missions include giving a course in a beneficiary organization or developing a website.

The management at CIB wants to empower volunteers to act "on the field" in order to tackle challenges.

Social Innovation Process

The process starts by the registration and enrolment of the volunteers. New members have to fill their profile. Profiles can then be updated at any time. In the profile, the volunteers share their availability, their preferred activities and information about the population group they would like to work with.

Shortly after registration, the volunteers coordinator contact the new member by phone in order to establish a first contact between the organization and the volunteer. After this call, the new volunteers are invited to receive an initial training aiming at establishing a common understanding of CIB and the SIP at CIB. This step has a legal dimension too: It enables the volunteers to get aware about their rights and duties.

Once the training is fulfilled, the volunteers are allowed to propose and take part in suggested activities. Depending on the kind of activity, the junior volunteer (i.e. less experienced) has to be accompanied by a senior volunteer. This is for instance the case for training activities.

In parallel, the management at CIB proactively identifies social needs which they believe theirs volunteers can help on solving. They enter in contact with beneficiaries organizations with those needs and organize activities to tackle them. The planning of the activities are mainly drawn by the volunteers' coordinator with support of the beneficiaries organizations. As new activities are planned, the volunteer's coordinator gets in touch with the volunteers by mail or by phone in order to inquire about their availability. Simultaneously, the activities are published in their current ICT platform, so that volunteers can manifest their interest to participate. Once the activity is further defined, all the needed information and baseline material for performing the activity is sent to the volunteers. This includes location, previous experiences and relevant knowledge.

In order to carry out the different activities, another important step of the process is the creation of the baseline materials. Those materials are mainly provided by the foundation itself, sometimes with the support of the volunteers. Volunteers support in the elaboration of the materials in two ways. They can enhance existing material with experiences from activities they took part on, and volunteers with special ICT expertise can create new materials. In both cases, the coordinator supervises the creation and management of the materials.

A last step of the process is the evaluation of the activity that has been carried out. The evaluation is performed by the beneficiary institution benefiting from the activity. Although that is seen as an important step, it is currently not done systematically and some activities go without a final evaluation.

Main Challenges

The process at CIB involves a lot of personal contact that is perceived as very important by all parties. The contact between the volunteers' coordinator and the new volunteer adds a necessary human touch to the process and reinforces the engagement of the volunteers.

> *I try to get them motivated… also try to engage them in making us known and so others become a cybervolunteer. I try to motivate them it's very important to motivate them, if not, they fell down (meaning that they drop being a volunteer)… If you are not motivating, if they don't know "there is A".*
>
> *Volunteer's coordinator -01'12"00*

Furthermore, CIB exploits this contact to estimate the motivation level of the newly enrolled volunteer and to establish a common understanding of the expectations, in particular about the importance of the initial training sessions.

Personal contact also applies in the relation between CIB and the beneficiaries organizations. In the cases where proactive volunteers bring the needs of new beneficiaries organizations to the attention of the management at CIB, and suggest a new activity, it is CIB's management who presents the activity to the organizations. This step enforces CIB's institutional responsibility and is understood to establish trust. Other reasons for CIB acting as a link between beneficiaries and the volunteers is the geographic distribution of the volunteers and the lack of implemented ICT support that supports remote collaboration. Thus CIB usually takes care of the prompt and ideation stage and only bring volunteers in the realization of projects.

Personal contact and CIB involvement in the first steps build a large workload over the volunteer's coordinator and the general management of the activities, making it difficult for CIB activities to scale. However, it also cannot be completely replaced by a digital platform. CIB wants, through a new ICT platform for social innovation, to find a way to streamline the process without jeopardizing the trust with members and beneficiaries organizations.

Activities can be proposed by CIB, volunteers or organisations benefiting of solutions to social challenges. The coordinator at CIB encourages volunteers and beneficiaries organizations to proactively suggest activities responding to social challenges.

> *we go through our neighborhood,… and we maybe don't know that there is a little organization with little resources attending people with functional disabilities… and they cannot do it because they're not in the internet, and the one that's not in the internet it seems that they cannot receive help…. a lot know us because of the internet…. In this case the CV will be the mediator or the direct contact with our help. We tell them, observe your neighborhood, your friends,… we tell them to observe around them, because there is always something to do. There is always someone that needs… we give them tips… Is there a little association…*
> *Volunteer's coordinator -21'12*

However, in practice, most activities are proposed by the coordinator. The current ICT platform used by CIB for interacting with volunteers does not stimulate volunteers to be proactive, but rather to respond to the activities proposed by the coordinator. From the management point of view, it is desirable that the organizations representing beneficiaries and the volunteers can take a more actively part of the process. A socially inclusive digital platform can facilitate their involvement in the innovation process.

> *sometimes we get directly in contact with the associations, materialized this help, that this person that answer me the phone, the person that we visit, the person that manage this NGO see this as a resource, a help that will generate wealth for their collective. ...[...] Give them the opportunity for them to grow up, give them this opportunity to get trained... but it doesn't happen do much. ... quite a lot contact us directly, but the one that we are contacting are quite a lot... but when we get into contact to grow our help and permit it gets to everybody, you find this wall, this barrier that say it's not for them. So, it's the only thing that I can find... Volunteer's coordinator -49'38*

The management of the baseline materials used is different actions is currently a time-consuming activity. A new digital platform should support document management. It would facilitate coordination and cooperation between volunteers.

Finally, the evaluation step can be clearly improved by the introduction of a digital platform supporting the collection of feedback from the involved institutions and for establishing a discussion space where volunteers can share experience and learn from their peers. Those would also help to set key performance indicators (KPIs) related to participation and perceived benefits and allow CIB to better understand their limitations and define measures towards improvements.

4.2 Experts in Team

The "Experts in Team" program (EiT) is a disruptive study program at the Norwegian University of Science and Technology (NTNU) that aims at teaching students teamwork skills and applying their academic competence in an innovative way. EiT is taken by 2,000 students every year, divided in approximately 70 classes (called "villages"). Each village is supervised by a professor, who describes for the village an open ended challenge. In the majority of the cases, this challenge is defined in cooperation with external customers. In each village, the students work in multi-disciplinary teams to solve the customer's challenges. Students are engaged in their projects primarily through experienced-based learning.

Participants Involved in the Study

As in the case of Cibervoluntarios, different members of the EiT program were interviewed in order to collect data to respond to our two main research questions. The same procedure was followed. In a first step, two EiT coordinators were interviewed in order to get a wide understanding of the program. Based on this understanding, two user profiles were identified and actors fitting those profiles were interviewed. The profiles consisted of students currently undertaking the EiT course, and students that had taken the EiT course in previous years. While the first profile allows us to understand the expectations of the SIP and its practice along the course, the second allows us to obtain information of EiT as a lived experience and its impact after the course.

Roles and Responsibilities

The village supervisor (i.e. a professor) and its assistants are trained to guide the students through the whole EiT innovation process. They are responsible for guiding the students in developing team work skills. They conduct different exercises and support the students in each step. Depending on the challenge and the ideas proposed to solve it, the supervisor invites external participants, corresponding to social innovation beneficiaries, to take part in the process.

The students freely propose various ideas and specify their own project implementation plan as long as they stay within the given thematic area and end up delivering the required outcomes. During the whole EiT innovation process, the students, within theirs teams, are responsible to address and strengthen team building and to identify positions for all members in the team. The intention with multi-disciplinarity in the teams is to reproduce the real-work world context.

Social Innovation Process

An important part of the process within EiT is the team building. The aim is to illustrate the benefits of working together from different perspectives, such as better understanding problems and bringing in critical questions in the development of solutions. The EiT program organizes team building sessions where different tools are used. For instance, the "competence triangle" invites the team members to reflect about their competences, both in terms of knowledge and personal capabilities; the "marshmallow and spaghetti tower challenge" stimulates teamwork though finding solutions to building the highest possible tower; the "sociogram" developed by the supervisor reflects the interaction taking place in the team and allows team members to become aware of the dynamic taking place; the "cooperation agreement", designed by the team at the beginning of the course, describes cooperation risks and measures to tackle them, and; the "process report" summarizes and analyses the lessons learnt during the process experiences.

During the development of ideas and solutions, several tools are also used and different issues have to be addressed at different steps following a well-defined calendar. The team has first to describe the problem to be solved, and, within the two first weeks, to propose an idea to solve the problem. To do so, a brainstorming session is organized. Once the team pick an idea and start elaborating it further, a "café dialogue" is organized in order to present the ideas to other teams and exchange feedback. As a third step, once the idea is well defined, the students starts planning and organizing the idea execution. They identify the tasks and the materials needed. Every morning, before the class, teachers are available to give support to the team in case it is needed. Students are graded mainly based on their competence in work as a team, not on the solution delivered.

The target beneficiary group for the solution is more or less involved throughout the process. The course organizes a feedback session with beneficiaries during the ideation period, but apart from that, it is up to the students to involve or not the beneficiaries further in the project.

Main Challenges

The students' assignments are made open as to make it easier for each team to define a project where every member is able to contribute with their particular expertise,

regardless of which study program they come from. It is also is expected to foster student creativity and a strong sense of ownership of the conceived project. However, such open approach can lead to projects that finally don't address the core societal problems of beneficiaries. The participation of beneficiaries is not a major issue for EiT. The course focus is multidisciplinary work and student cooperation in each innovation step. The students are graded on how well they work together, but not on how well their solution address the beneficiaries' problem. Enhancing the communication between students and beneficiaries could increased the value proposition of their project as well as provide a more realistic experience of social innovation. A digital platform has the potential to lower the barrier between students and beneficiaries without reducing the responsibility of the students and their ownership of the project.

> *The supervisors are interested in pursuing steps to make the contact between student teams and beneficiaries as part of the process. But, they don't want to insert many guidelines or requirements which can make the process too narrow. Finding a balance here is one of the key challenges for EiT.*

> *Nonono, they have… this is up to us as a teacher to organize this feedbacks sessions so that we invite… I could even think that we invite CIB to come here and see what they have done… but we cannot say "now we give you a bad mark because you don't…"*
> *Course coordinator 42'51*

Another challenge is about support the projects behind the prototyping phases. The course is too short for allowing enough time to go beyond prototyping. Therefore, students tend not to consider so much the scalability of their ideas or aim at big challenges. Beneficiaries feedback could also help with this aspect. Getting positive feedback and interest from the beneficiaries has the potential of motivating the teams to develop their innovations further even after the course has finished.

4.3 Analysis of Results

The Open Book of Social Innovation [5] SIP definition, presented in Sect. 2, is inline, in terms of steps, with the process undertaken and/or wished by both CIB and EiT. Currently the social innovation activities facilitated by both organizations go through the step of prompts, ideation and prototyping. In the case of EiT, student groups can go beyond prototyping, however that does not happen during the course. Meanwhile, in CiB the current activities are mainly punctual (such as a presentation, giving a course, etc.) and stop at an implementation and replication stage rather than evolving as a separate innovation venture to be sustained, scaled and trigger systemic change. **The steps proposed in the Open Book of Social Innovation are therefore a good starting point for establishing the core SOCRATIC concepts.**

Both organizations would like their supported innovations to go further. CiB would like to facilitate initiatives that go beyond punctual actions and NTNU/EiT would like to provide support for students projects after the course is finished. As a result, **the SOCRATIC concept must go beyond prototyping in order to enable both organizations to help theirs projects reaching bigger social impact.**

Both CIB volunteers and EiT students have little contact with beneficiaries or their representatives. **Enabling participation and collaboration between innovators and beneficiaries across all social innovation stages is a common need for increasing the social impact of the developed solutions.** It would allow offload the workload of CIB, empower both beneficiaries, volunteers and students, and increase the likelihood of designing solutions that match the real needs of the beneficiaries [19].

The introduction of a digital platform has several potential advantages. Community building supported by a platform can contribute to establish trust consolidated nowadays through direct contact with the coordinators at CIB and EiT. If the community achieves an active quorum, the process can become auto-organized and the moderators relieved from the coordination activities.

Flexibility and ownership are key success factors for a digital platform. Volunteers wish to be able to keep control of their engagement and the time assigned to volunteering. Letting teams organize their work and make decisions contribute to motivation. SOCRATIC should therefore define a methodology that supports the innovators, but do not limit their decision power.

In the table below we define generalized requirements towards the SOCRATIC concept and the support level to be obtained via a digital platform. We present those requirements together with the whishes or characteristics of CIB and EiT SIPs.

Generalized requirement	CIB	EiT
RQ1: platform should allow beneficiaries representatives to define the social challenges	CIB would like beneficiaries organizations to pro-actively bring and define social challenges to be solved	Customers present the social challenges to students
RQ2: coordinators provide guidelines and support to participants	CIB contact volunteers and provide an initial training in order to set-up common expectations and understanding	Professors present techniques for fostering teamwork at the student groups
RQ3: coordinators oversees and curate the initiatives they are supporting	CIB wants to approve ideas to be translated to missions CIB wants to oversee the process	Teachers are available to give support in case it is needed
RQ4: facilitating the mapping of skills and interests with ideas and projects	CIB's coordinators currently spend time trying to map and allocate volunteers to actions	Students expertise play a role into which ideas they will be part of developing
RQ5: facilitate discussion and information sharing between participants in the SIP	CIB share baseline information and materials. Volunteers collaborate in the further development of this material	Students present theirs ideas to each other and get feedback through a dialogue café
RQ6: beneficiaries should evaluate and give feedback	CIB would like to improve the evaluation process and	Professors think that initiatives developed

(*continued*)

(*continued*)

Generalized requirement	CIB	EiT
on the initiatives being developed by the innovators	systematically get feedback from beneficiaries	through EiT will have more impact if beneficiaries are more involved
RQ7: the concept model and platform should provide help for the projects to go beyond prototyping	CIB would like to put mechanisms to support initiatives with a longer duration (which stretch into sustaining, scaling and on)	EIT finishes at the prototyping stage but they would like the students to be encouraged and supported to go ahead with theirs innovations
RQ8: the concept model and platform should empower the participants and decrease the organization burden of the coordinators	CIB wants to foster the proactivity of its volunteers and offload the coordinators work	It is intended that students have a lot of freedom to develop theirs ideas but that they receive some guidance as well

5 The SOCRATIC Concept Model

The SOCRATIC SIP follows the same core steps of the Open Book of Social Innovation's SIP [5]. However, the SIP is adapted to:

1. incorporate the organizations' role of facilitating the social innovations;
2. take into account the opportunities (mainly collaborative discussion and production) enabled by a collaborative digital platform, the SOCRATIC platform;
3. be grounded on successful work process coming from the organizations (CIB and EIT) into facilitating social innovation.

In this section, we describe the core concepts of the SOCRATIC SIP and their relationship to the SOCRATIC platform. We start by introducing the different actors of the SIP as they will be referred to in the process steps.

5.1 Roles

The identified roles associated to the Socratic concept model are:

- Challenge Owner: A person who proposes a societal challenge that should be collectively solved. It is a role expected to be played by beneficiaries representatives or a public or private organization interested in solving that societal challenge. In a broader sense, it could be played by any citizen, as long as s-he is willing to support the emerging projects aimed at solve the challenge. It corresponds to EiT's village customers and CIB's beneficiaries representatives.
- Challenge Solver: A person who contributes to solve the societal challenge. The challenge solvers contribute to SIP by helping materialize and realize ideas. Any individual eager to solve a societal challenge and willing to contribute to a social

innovation project can play that role. In CIB, this role is typically played by volunteers and in EiT by the students.

- Challenge Solver-Leader (CSL): A person who takes the lead the development of an idea and/or the realization of a social innovation project. This role is played by the challenge solver driving the innovation and it can be shared and exchanged between the challenge solvers working on the same idea or project.
- Beneficiaries: Members of the societal group targeted by the societal challenge. Beneficiaries may also be actively involved in the process and play a role as a challenge solver or challenge solver leader.
- Coordinators: representatives of the facilitating organizations (such as CIB and EiT). They supervise the SIP and support the different stakeholders involved in the process (Table 1).

Table 1. Mapping roles to actors in CIB and EiT scenarios

Roles	CIB	EiT
Challenge owner	Beneficiaries representatives	Customer
Challenge solver	Volunteer	Student/student's group
Challenge solver-leader	Proactive volunteer	Student group leader
Beneficiaries	Beneficiaries (target groups)	Beneficiaries
Coordinator	Coordinator/cibervoluntarios foundation	Course coordinator/platform moderator

5.2 Process Steps

- Preparation: users need to be "prepared" for SOCRATIC in the sense of understanding the roles of the different actors and the SIP (RQ2). The coordinators take an active role teaching this understanding to users. In order to support them, we defined the concept of Innovation Space. Innovations Spaces are curated spaces (RQ3) in the SOCRATIC platform customized by organizations supporting social innovations, such as EiT and NTNU. There, coordinators can present their vision, introduce the SIP, and theirs role within the SIP in a terminology and context adapted to its contributors.
- Prompts: Challenge Owners describe the social challenge in the SOCRATIC platform (RQ1) and have the opportunity to discuss it with the SOCRATIC community, i.e. beneficiaries, researchers, innovators and professionals of different skills. In this step, challenge owners can get a further understanding of the challenge and create awareness and interest among the community. The platform enables the different stakeholders to collaborate and discuss the challenge. The end of this stage is marked by the final definition of the challenge and the start of the ideation process.
- Ideation: Challenge Solvers brainstorm, collaboratively develop RQ5 and rank ideas that can address the societal challenge through the platform. The whole

SOCRATIC community can participate in this step and innovators should be encouraged to involve the beneficiaries RQ6. This step is completed when the Challenge Owners selects the most promising ideas to advance on the SIP.

- Prototyping: this stage corresponds to the beginning of the ideas materialization. The CSL leading the selected idea, together with other Challenge Solvers, starts a project with the aim of realizing the idea and testing its value proposition. Inspired by the success of agile methodologies in software development [20] and management [21], in SOCRATIC, we advocate that this stage should be performed iteratively through the development and test of minimum viable products (MVPs) with increased complexity. Beneficiaries should test the MVPs and may also participate in co-designing them RQ6. The SOCRATIC platform should facilitate the interaction between Challenge Solvers, Beneficiaries, Challenge owner and other possible investors, and help guiding the Challenge Solver-Leader in adopting an iterative approach following the SOCRATIC methodology. This stage is completed when the MVP provides enough value to the beneficiaries to support its sustainability.

From the prototyping stage, we foresee that the SOCRATIC platform will mainly function as a meeting place between project team and a wider community including the beneficiaries. RQ7 It should allow the project team to present the progress of their project, ask for support and share their learning experiences with the community. The steps after the prototyping correspond to bringing the prototype to market as a solution, scale it and have it socially adopted at large bringing systemic. Those steps are common to the Open Book of Social Innovation's [5] SIP and heavily rely on strategic planning, execution and building networks with customers, partners and policy makers. Much of that traditionally happens outside of ICT platforms, and as of now, we are not yet sure on how they could be supported by the SOCRATIC platform (apart from what is already supported in terms of prototyping.

In this process, the innovation is characterized as an evolving artefact in which the different contributors discuss and collaborate with the support of a digital platform. This artefact starts as a challenge, which once is well defined and published, is open for discussion of potential ideas that may lead to a solution. Once an idea is selected as a viable project, an iterative development project is established with prototypes used to engage with the beneficiaries until the release of the solution.

The role of a digital platform in SOCRATIC is largely to support a wide collaboration among stakeholders along this process and the evolution of this artefact. Such aspect addresses CIB's and EIT's challenge in terms of decentralizing the process and ensuring beneficiaries involvement respectively RQ8.

In practice the collaboration can be facilitated via social computing elements such as web-voting, sharing and conversation threading tailored for each of the social innovation steps. The tailoring of the interface in each step should guide users in following the methodology. So, for example, during the ideation phase, different UI elements will advise users about performing a business analysis, elaborating an elevator pitch and researching the value proposition with real beneficiaries through interviews and other data collection methods. However, to maintain flexibility, the innovators should be able to choose what aspects are relevant and what tools to use. As noticed in

both case study, the Challenge solvers will have different time availability and/or skills, making in it necessary to have a flexible approach in order to accommodate them RQ4.

In order to support proactivity and engagement, the digital platform should implement some sort of recommendation system that matches together challenges to users with relevant interests and/or skills RQ8/RQ4. In that way Challenge Solvers could easily identify initiatives they want to collaborate at, offloading the coordinator's work. With the mechanisms in place for Challenge Owners and Solvers to take more ownership of the process, the coordinators would essentially use the platform to supervise the progress and collaborations happening in each innovation.

6 Conclusions and Further Research Steps

The goals of CIB and EiT are different. The two organisations have developed social innovation processes independently from each other, in a pragmatic way, based on experiences gained through voluntarism and training in cooperation work. Despite these differences, the case studies allow us to identify several commonalities between their innovation processes. We also find out that a digital collaboration platform has the potential to facilitate the processes, for instance by releasing the coordinators from a substantial workload, and to enhance the developed solutions by enabling tighter collaboration with beneficiaries. The case studies also a need to educate new volunteers as CIB and students at EiT in implementing social innovation processes. Therefore a digital platform should not solely support collaboration, but also provide methodological guidelines that help a wide audience what social innovation is about and teach them best practices to achieve successful social innovation.

The SOCRATIC project is currently developing a methodology and a digital platform. In our work we tightly work with coordinators, volunteers and students at CIB and EiT. All solutions are developed and tested in an iterative way. Pilots will be conducted to assess both methodology and platform.

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