

Developing a Social Innovation Methodology in the Web 2.0 era^{*}

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Abstract. The world is facing a growing number of societal challenges such as inequality rise, political upheaval, ageing population, etc. Governments are struggling to keep up to their existing service offers, making it difficult for tackling overarching social challenges alone. The active involvement of citizens in partaking social innovations is seen as potential solution to those wider challenges. However, the majority of the population lacks an understanding of social innovation and on how to contribute. In this work, we present a social innovation methodology catering citizens without previous social innovation experience and accessible via an ICT platform. We describe the designing process of the methodology, the core aspects of the resulting methodology and its validation.

Keywords: social innovation process, collective awareness platforms

1 Introduction

The term “social innovation” is very much in vogue though with different understandings[17]. The TEPsIE project defines social innovations as innovations that are “social in their means and in their needs[11]”. Beyond solving social needs, social innovations usually engage and mobilise contributors with different backgrounds such as citizens, technology experts, innovation experts, public authorities, private companies and civil society organisations. Social innovation has increasingly gained focus in Europe. One evidence of measures taken is shown by the research programme denominated as CAPS (Collective Awareness Platforms for Sustainability and Social Innovation) in the European work-programme H2020. Without a doubt the internet has been a fundamental catalyst in transforming modern society, facilitating communication across large groups of people, engaging them in various activities and creating movements, as witnessed by

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the increasingly number of successful collaborative and crowd-based digital platforms over the last decades. Consequently, Internet-based platforms are foreseen as relevant for organising and conducting social innovation processes (SIPs).

Collaborative and crowd-based digital platforms have proven to be useful for different purposes such as outsourcing tasks (crowdsourcing[20]), raising money to support entrepreneurial initiatives (crowdfunding[21]), or sharing goods, services and assets (collaborative consumption[12]). In the context of innovation, some companies have managed to involve the crowd[13], as several open innovation platforms targeting professionals and companies are now available[14]. Besides these professionals-oriented platforms, there exist a few platforms targeting a wider audience and social innovation. This is the case of OpenIdeo[9] and MakeSense[7]. However, we identify two main shortcomings among the social innovation platforms we studied. First, they loosely connect to recommended SIPs and related methods. Although they often provide some tools or guidelines, they do not position them in the context of a SIP. They do not either explain the relevance and importance of the proposed guidelines. Second, they only address the early phases of the SIP, i.e. Prompts and Ideation. **Our overall hypothesis is that building digital social innovation platforms upon sound innovation methods, motivating users in adopting these methods and educating them in understanding the innovation process are key factors for increasing the success of social innovation initiatives.** The recent study conducted by DSI4Europe shows that few of the digital social innovation initiatives conducted in Europe have a real impact[26]. We are seeking to support engaged citizens in overcoming the barriers to the growth of social innovation.

Our research is conducted in the context of the H2020 SOCRATIC project[25]. The project aims at developing a platform so citizens and organisations can collaboratively discuss and solve social challenges. Beyond providing a meeting place for people, the platform will guide the contributors in the innovation process. Thus, the project develops methodological guidelines that are integrated in the platform. Two user organisations are involved in the co-creation and validation of SOCRATIC: CiberVoluntarios Foundation (CiB), a non-for-profit organization that engage volunteers on using information technologies for enabling citizens empowerment, and the Experts in Team (EiT) program at the Norwegian University of Science and Technology, a study program which involve multi-disciplinary groups of students in the role of social innovators. In the wider scope of SOCRATIC, this paper focuses on the definition of the SOCRATIC methodology. It addresses the research question: **How should a social innovation methodology be designed in order to cater a general public and take advantage of supporting digital platforms?**

2 Research methodology

The first part of the research conducted in SOCRATIC is interpretive. We try to identify and explain how the different potential users of SOCRATIC at CiB and EiT perceive the proposed methodology and the platform. We involve them in

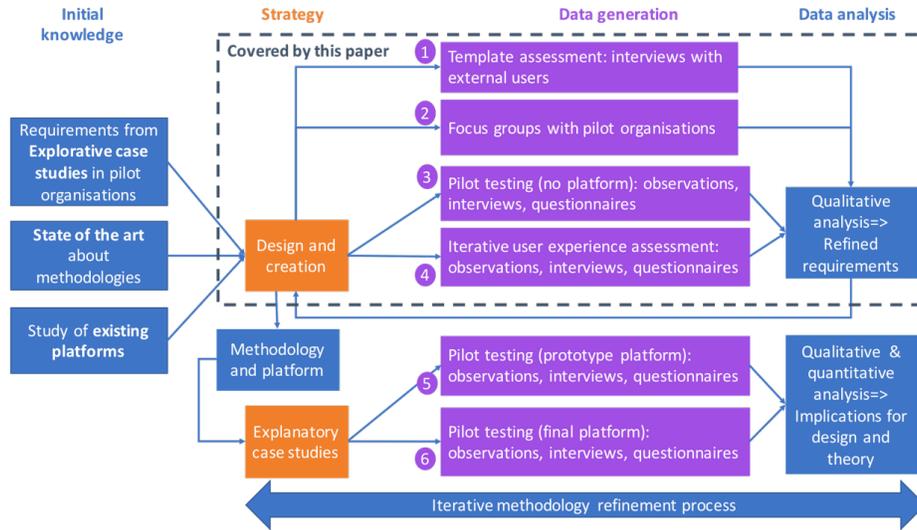


Fig. 1. Research Process

the design to understand their expectations to the solutions. We adopt a design and creation strategy[23], i.e. the focus is in the creation of a new IT artefact, in our case the social innovation methodology that will be supported by the SOCRATIC platform. The research follows an iterative approach to the creation and validation of the methodology. Fig.1 illustrates the steps and methods used in the research process. The numbering relates to the main work iterations. The social innovation methodology is first created based on existing knowledge (see section 2.1) and refined iteratively based on input from 1) *initial feedback from external users to templates for describing challenges and ideas* 2) *internal workshops with the project pilot organisations*, 3) *pilot testing in one of the pilot organisations*, 4) *iterative development and assessment of the user experience for the platform*. The paper covers these 4 first iterations. In the second part of our research, we will try to understand and explain how the platform and methodology are used in practice. This is illustrated by steps 5 and 6) *pilot testing using the prototype / final platform in the pilot organisations* in the figure. In addition, we will collect data using the technology acceptance model[28] in order to quantify acceptance of the solutions by the users.

2.1 Design and creation of the SOCRATIC methodology

Aiming at facilitating a wide involvement of citizens in the SIP, the methodology was drafted as to comply with the following principles:

- **Simplicity.** The SOCRATIC methodology is designed for a wide user group where contributors may have little experience in SIP. The process and guidelines should be easy to understand by contributors of different backgrounds.

- **Broadscale.** The SOCRATIC methodology is designed to solve different kinds of social challenges using different means. We avoid to recommend tools specific to particular domains or technologies. We rather provide examples of tools used for specific purposes.
- **Flexibility.** A major challenge with collaborative digital platforms is to attract a sufficient mass of users. Beyond attracting early adopters through the pilot trials, we avoid introducing rules and restrictions that may discourage people to participate.
- **Quality.** At each step of SIP, a major concern is to support contributors in achieving quality results. For instance, challenges should be well defined. We provide guidelines to that end.
- **Theory transparency.** The SOCRATIC methodology is grounded on existing theories. We avoid to expose contributors to the theory. We separate between the Methodology that explain the conceptual pillars and the Handbook that provides easy-to-understand guidelines to contributors.

Based on those principles, we used 3 core inputs for the methodology design:

- **State of the Art:** We reviewed different publications ([22, 27, 24, 19, 18]) analysing the Innovation Process, the SIP and different phases of the SIP.
- **SIP facilitating platforms:** We reviewed different digital platforms supporting the SIP, such as a few coming from different CAPS projects (Assembl[1], Litemap[6], Debatehub[3], Objective8[8] and Teem[10]), OpenIdea[9], Innocentive[5] and the innovation platform Extreme Factories[4], our starting point in SOCRATIC. Those platforms support simplified versions of the innovation process, being, therefore, an important inspirational point for allowing us to achieve simplicity with the SOCRATIC methodology.
- **Case Studies:** We analysed the SIP in different contexts through case studies of both SOCRATIC user organizations (CiB and EiT) [16].

3 The SOCRATIC Methodology

In this section we describe the SOCRATIC Methodology in terms of each step of the SIP. We present the purpose of the steps, key guidelines (what the user should do and why), main activities, and some key decisions during the design of the methodology. In addition to the definition of the methodology, SOCRATIC also provides a methodological handbook that is a simplified and practical version of the methodology. Due to limited space, we do not include the description of the handbook in this paper. The handbook can be retrieved online [15].

3.1 Preparation

The preparation step sets up the context for social innovation. It establishes a common understanding of social innovation and the SOCRATIC platform & methodology. In this step, those who will be facilitating the process, the **Coordinators (Coor)**, build their own **Innovation Space (IS)** focusing on a

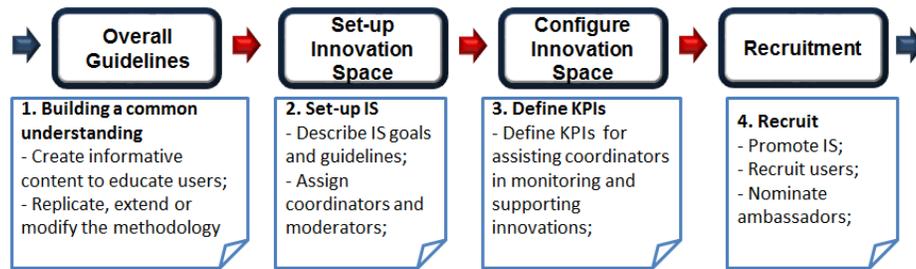


Fig. 2. The activities of the Preparation Step

specific cause, such as an UN sustainability goal, or a specific philosophy. The key guidelines in this step are:

- **Define the scope of the IS.** The IS is a mirror of the vision of the coordinating organization. It is important to describe what types of challenges the IS targets, what are the working practices and how coordinators support the innovations. The IS goals should be described together with the IS specific guidelines, if any, and as well as KPIs for measuring the IS’s impact.
- **Ensure that the communication is clear and participants have a common understanding of the SIP and IS.** As we aim at including citizens with and without previous social innovation background, it is important to get them all familiarized with the process.
- **Invite contributors to participate in the IS.** It is important to achieve an initial quorum of participants for reaching a critical mass sufficient to supply the different needs of skills, knowledge and work capacity for the social innovations. Moreover, it is important to invite a multidisciplinary mix of participants ranging from beneficiaries, thinkers and doers.

The preparation step was inspired by a similar step present in the Extreme Factories platform. In Extreme Factories, the step is responsible for building an innovation culture within an organization, similarly to the onboarding of users we would like to achieve with SOCRATIC. Furthermore, the different set-ups and ways of working observed in the user organizations led us to develop the concept of the ISs. ISs serve as a mechanism to accommodate the individualities of different organizations supporting social innovation

3.2 Prompts

Societal challenges are the trigger to social innovations. However, not all challenges are evident. A deep analysis can be necessary for understanding societal challenges root causes so that proposed solutions do not tackle just its symptoms. For that reason, the SOCRATIC methodology foresees an innovation step for the discussion and understanding the challenge: the Prompts. The key guidelines of the Prompts are:

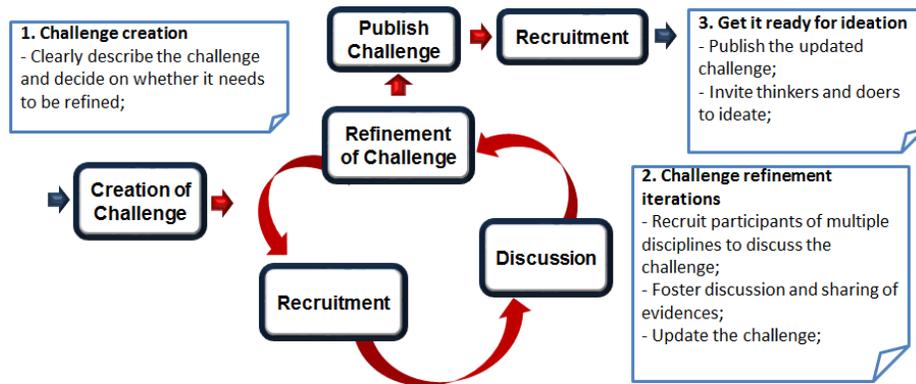


Fig. 3. The activities of the Prompts Step

- **Understand the beneficiaries.** It is important to meet, observe and understand the beneficiaries and theirs needs. Tools such as “A day in the life of”, Shadowing and Interviews can help building this understanding. It is important to research different sources and acquire evidences that the challenge is real and what is truly causing it.
- **Clearly define the gains and pains of the beneficiaries.** The gains represent what beneficiaries want or would expect while pains correspond to the undesired costs and negative experiences they currently must go through. A clear description of the gains and pains will make it easier to decide whether an idea really tackles the challenge.
- **Commitment of Challenge owners (COs).** The COs, those championing the challenge, must express how they will commit to supporting the initiatives which will emerge from the next steps.

The Prompts has been primarily based on the equivalent step within the Open Book of Social Innovation[22]. Our core contributions here have been on creating a Challenge Template to describe the challenges and define UX elements in the SOCRATIC platform to support the methodology.

3.3 Ideation

After the challenge has been clarified, challenge solvers leaders (CSLs) can formulate ideas on how to solve it. At this step, the participation of multiple stakeholders is needed to ensure that the idea is feasible and has a true potential impact towards the challenge. Those participating not only help refining the idea, but they also become prospect contributors, challenge solvers (CSs), to the idea implementation and further development. The Ideation key guidelines are:

- **Elaborate the idea.** It is important to outline the ideas value proposition, how it can be implemented and the market conditions enabling it. The idea description should help one to reflect on its feasibility and impact.

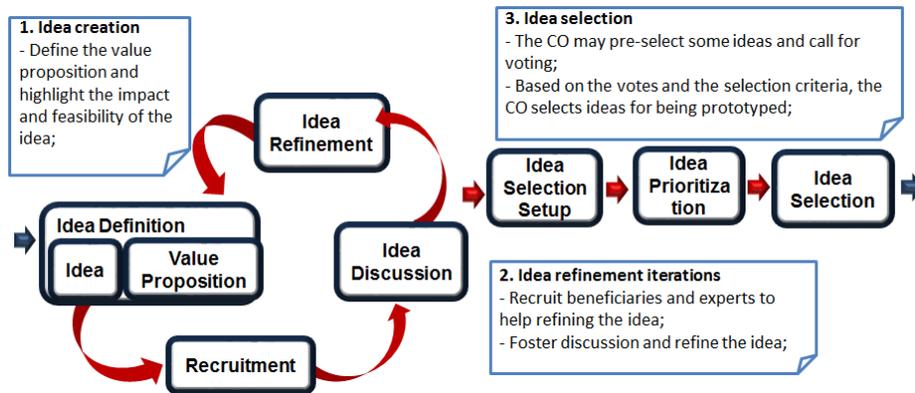


Fig. 4. The activities of the Ideation Step

- **Include stakeholders in the process.** The beneficiaries are the ones best suited to critically evaluate the ideas value proposition. They, together with other stakeholders, know the challenge context and constraints, and, therefore, can give advices on how to make the idea viable and impactful.
- **Identify contributors.** Those leading an idea, the CSLs, should try to identify possible contributors for the idea realization among those helping on the Ideation process.
- **Use well established tools to mature your idea.** There are many tools that can support the idea reflection and description. For example: 1) Elevator Pitch can help conveying the message behind the idea; 2) Interviews, questionnaires and other inquire tools can help understanding beneficiaries, assessing and feedbacking the value proposition; 3) Stakeholders Map and Business Model Canvas can help assessing the idea’s feasibility.

The Ideation was inspired on both the equivalent step described on the Open Book of Social Innovation[22] and on multiple platforms implementing Ideation (Extreme Factories, Benovative[2], OpenIdea, etc). Our key decision points when defining this step have been the elaboration of the Idea Template and adapting the process towards the needs encountered on the user organizations. They preferred to focus already on identifying skills needed to realize the idea and not impose a detailing of a business plan at this stage (just the value proposition).

3.4 Prototyping

The output of the Ideation step is the selection of the ideas most likely to address the societal challenge. To progress further, it is necessary to provide tangible artefacts, prototypes, for beneficiaries to engage and provide feedback. These prototypes can range in complexity and level of sophistication, with the aim to be assessed within a context that is as close to reality as possible. The key guidelines in that step are:

- **Aim to build a team looking beyond the prototyping step.** The CSL should identify key elements to support the drive of the SIP. The dynamics of the initial team are imprints of the organizational culture that may emerge in subsequent stages.
- **Shape the value proposition to create real value for the stakeholders.** The continued exploration and understanding of the idea through the development reveals where is the value for beneficiaries and what features should be supported.
- **Beneficiaries are more than testers.** Recruit beneficiaries as active stakeholders within the innovation process, providing the traditional testing, but also supporting the co-creation of the solution. Identify champions who will promote and influence the adoption of the proposed solution.
- **Build a minimal viable product (MVP) and not a complete product.** To test and validate the idea, one should aim to build MVPs focused on the core feature of the value proposition. The continuous improvements can take place once the MVP has been evaluated by beneficiaries, confirming that there is value in the solution to be developed.
- **Adopt lean development.** We recommend an iterative development approach where prototypes are incrementally developed and evaluated according to expectations of the beneficiaries. Learn from each iteration, and bring what you learnt to the next iteration.

The drive is to establish an understanding of the value proposition. To that end, we include the definition of the value map for assessing the value creation for the beneficiaries. Piloting is required to understand how much support the platform should facilitate, which is non-trivial considering that most teams will establish their own operational processes, even if they adopt the recommended guidelines of agile development driven by lean principles.

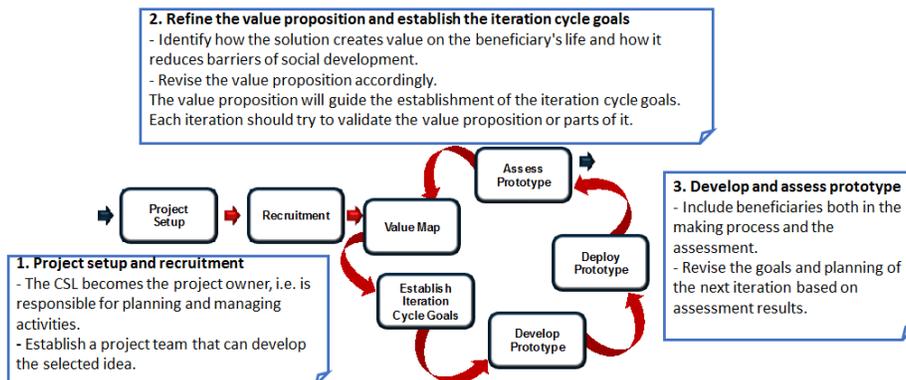


Fig. 5. The activities of the Prototyping Step

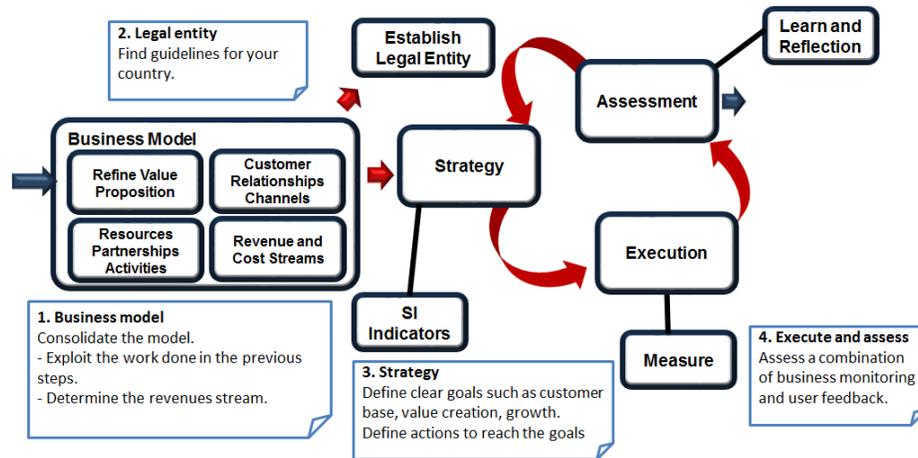


Fig. 6. The activities of the Sustaining Step

3.5 Sustaining

The prototyping has demonstrated the potential of the idea for moving on towards deployment in real contexts. The sustaining step is about developing an economic model that ensures the cost-effectiveness of sustaining the solution which emerged from the idea. The key guidelines in that step are:

- **Define the business model.** It will help to determine the potential to deliver economically viable solutions. In the previous steps, the methodology has provided guidance in defining a value proposition and customer gains pains and pains, and the prototype has demonstrated the fit of the value proposition. These results are the starting point.
- **Measure and learn.** The transition to an operative solution requires organizational adaptations. The team will most likely need to establish a legal entity and embrace business tasks such as accounting and marketing. It takes time to find an effective organizational model. The process should be measured and the strategy reviewed based on experience.

At the moment the methodology focuses on guidance for creating a business model and defining KPIs. It is envisioned that the methodology will provide country-dependent guidance in key decisions to be made concerning setting up an organization, such as setting up a legal entity and securing finance.

3.6 Scaling

After the solution has been successful deployed in a real context and the team has formed a legal entity or became part of one, it is time to think how to deliver the solution to a wider audience. The main questions to address are: "Why is

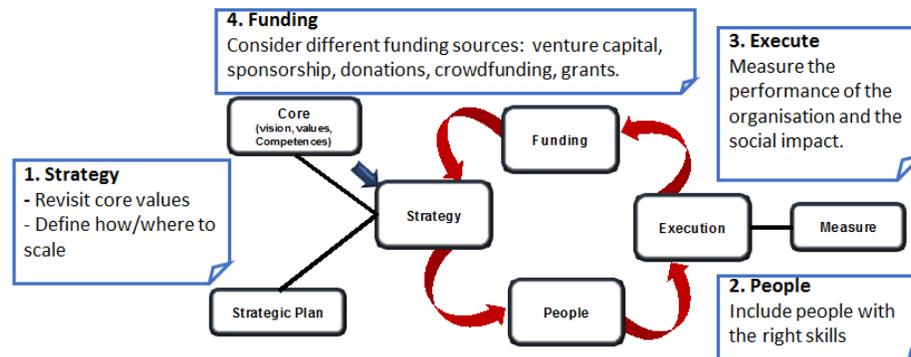


Fig. 7. The activities of the Scaling Step

it important to scale?”, ”What parts of the solutions should be scaled?” and ”How can scaling be achieved?”. The key guidelines in this step are:

- **Understand the core values provided by the innovation.** The core values determine its successful operation and provide a basis for scaling it up. It is important to differentiate the innovation from alternatives.
- **Define where to scale.** Scaling is about bringing the innovation to other markets. A common strategy is to bring it to other cities, countries or regions. Another path is to replicate the innovation towards beneficiaries who were not the original target of the innovation, but which could benefit from it.
- **Define how to scale.** Scaling can be pursued through organizational growth, franchising and partnering.
- **Update KPIs and keep measuring and learning.** The KPIs created during the sustaining step need to be updated to match the organizational changes and social impact triggered by the scaling strategy.

The guidelines and activities for the Scaling are inspired from [22, 19, 18].

3.7 Systemic Change

A resulting social innovation solution achieves systemic change when it leads to change in the balance of social relationships in society. As societal systems relate one another, systemic change normally affects multiple systems within society, from political to economical, but most of all, changing cultures and peoples mindset. For instance, the drive for energy sustainability requires the change of of mindset. It can be triggered by fiscal incentives and enabled by technological advancements. The key guidelines in this step are:

- **Passionate clear communication.** To multiply the impact of change, it is necessary to communicate clearly the vision. Telling a well-formed easily understood story ignites interest and potential adoption;

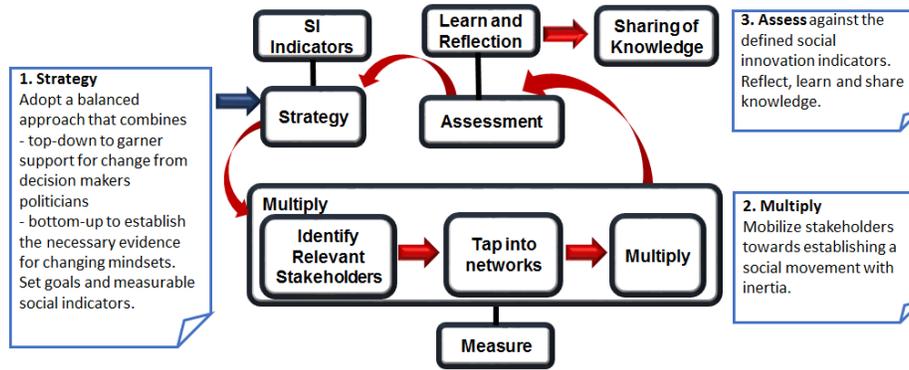


Fig. 8. The activities of the Systemic Change Step

- **Evidence to drive adoption.** It is important to demonstrate the benefits of the change in a clear and concise manner. With the expansion of adopters, one should leverage the sharing of knowledge generated by the different implementations;
- **Network.** Systemic change requires the involvement of multiple stakeholders from across society. The underlying strategy should be to empower and facilitate ownership by all the relevant stakeholders, namely the beneficiaries. Different strategies may be adopted to build the necessary partnerships to form a movement that leads to change.

It is difficult to define guidelines for achieving systemic change. So far, we opted to look at it in a holistic perspective and to explore it in SOCRATIC through the provision of knowledge of past cases of systemic change.

4 Preliminary Evaluation

As described in Section 2, the SOCRATIC methodology was developed in an iterative manner. Different tests were performed in order to validate and refine the methodology concepts (i.e., steps, activities and guidelines) and artefacts (i.e., templates and platform UX). In this section, we present those tests and summarize the results.

4.1 Templates Assessment

Templates are provided to define Challenges and Ideas in the Prompts and Ideation steps. They are key artefacts aiming at enforcing main guidelines of the SOCRATIC methodology in these steps. The templates were tested with user groups from both user organizations. The user groups included one participant from each of the following profiles: 1) coordinators of the SIP within the organizations, 2) beneficiaries, and 3) innovators (volunteers in the case of CiB

and students in the case of EiT). Each participant applied the template according to his/her role in SIP, while being observed by a researcher, as follows:

- Coordinators together with beneficiaries were asked to describe a real societal challenge they are interested on using the Challenge Template;
- Innovators were asked to read the description of the challenge and come up with ideas using the Idea Template;
- Coordinators with beneficiaries were asked to read the proposed ideas;

During and following the observations, the participants and the researcher discussed fields of the templates which generated doubts or confusion. Participants were also asked their opinions regarding the usefulness of the templates. Although the participants commented that templates were long and comprehensive, they found that the fields helped them to reflect on the challenge and ideas, and thus were necessary for describing the crucial aspects of the challenge and ideas. Participants also provided several suggestions regarding the wording and the instructions. Their suggestions were retained to make the template more easily understandable.

4.2 Focus groups with user organizations

The activities workflows for each methodology step was validated with the pilot organisations. Six focus groups were held, one for each of the first six SIP steps. Each user organisation in SOCRATIC was represented in all focus groups. The discussion was lead by one of the researchers involved in the methodology design (see section 2.1). The focus groups were run in the following manner:

- **Presentation.** The researcher presented the activities which compose the SI step being analyzed in the focus group.
- **Discussion.** The participants revised the activities of the SI step, analyzed its applicability in both organizations and discussed the appropriateness of the activities in isolation and combined.
- **Reflection.** Finally, the researcher summarized together with the group the key ideas coming from the discussion. Those ideas were then brought to feed the further refinement of the methodology.

The feedback from the focus groups consolidated the activities flow as presented in the previous chapter. It pointed towards the need of ISs and of defining different aspects within the IS such as openness, membership governance and scope. It also highlighted that the process needs to be flexible as to accommodate initiatives where some activities may not be necessary or possible, such as to allow challenge owners to publish a challenge without going through a refinement activity. The discussions concluded that the innovators should not need to define all the parts of the business model canvas already during prototyping. The participants suggested that the value proposition should be elaborated in that step, while other aspects such as customer channels and partners could be specified later. In addition, the value proposition concept was found too complex for users with no expertise within innovation. This reinforced the need for a simpler version of the methodology using easier jargon, i.e. the handbook.

4.3 Pilot testing at EiT

Part of the Experts in Team course of January 2017 used an early version of SOCRATIC to support their SIP. Several aspects of the methodology were introduced in the innovation process. The process followed the proposed activity workflow and used the Challenge and Idea Templates. Five members of the Autism Association of Trondheim acted as COs and described 7 different challenges related to autism using the Challenge Template. The challenges were published, and the 26 students organised in 5 groups generated ideas, collaborated with the COs and beneficiaries and commented ideas from other groups. After the Ideation, COs selected the best ideas provided by each group, and the groups proceeded with the prototyping of the selected ideas.

The methodology validation in this pilot covered the templates and mechanisms for people to communicate, feedback and vote on ideas. It allowed participants to evaluate the usefulness of those. The students found that the templates and the activities effectively supported them in the SIP. The templates and the collaboration with COs and other student groups helped them reflecting on the ideas and substantially improving them. The students pointed that the beneficiaries and COs comments on the idea motivated them to further refine the ideas. Some of the students perceived the voting and inter-group collaboration as a competitiveness factor that contributed to motivation as well.

4.4 Iterative user experience assessment

In parallel with the definition of the SOCRATIC methodology, the User Experience (UX) of the platform was designed and iteratively tested with users. The UX incorporates several aspects of the methodology, such as user roles, guidelines, activities workflows. Thus beyond evaluating the interaction with the platform, we were also able to collect feedback about these aspects of the methodology. The UX assessment was conducted iteratively. Each iteration aimed at testing new mockups related to a specific SIP step or activities within that step. The late iterations involved persons taking part in the first iterations because the assessment of late steps requires knowledge of the previous steps. The participants were recruited in order to cover the following profiles:

- A representative of both user organizations that will be responsible of coordinating an IS.
- A potential future innovator in SOCRATIC, i.e. a student or volunteer affiliated to EiT or CiB.
- A digital platforms usability expert.

The participants were asked to conduct pre-defined social innovation scenarios (such as creating an idea, voting, etc) using the platform mock-ups. The different results were then analyzed taking into account the background of the participants and their role in a SIP. While there were no suggestions triggering major reformulation of the methodological steps, the tests helped identifying situations that were not covered by the methodology, such as: supporting ideas and

solutions though liking and sharing them. The major contributions related to assessing the platform regarding community building, participation and communication. It was noted that achieving a balance between the physical and virtual world is important. The tests enabled us to validate that the methodology, as implemented in the mockups, is in line with the SIP the participants are used to follow and can support their current process. Participants expressed that they expect the platform to be very useful in carrying on social innovations.

5 Discussion and further work

In their recent mapping of the digital social innovation (DSI) initiatives in Europe, covering 1883 organizations and 1051 projects, the DSI4Europe project concludes “We are far from making the most of the potential in DSI with few examples of DSI achieving impact at scale.”[26]. Through the analysis of the studied initiatives, they identify main barriers to grow. Besides barriers at the ecosystem level, e.g., need for policies and support by government, several barriers relate to the project and organization level. Many projects fail to understand user demand (willingness to use the solution) and effective demand (willingness to pay). By motivating challenge owners and solvers to involve beneficiaries in the definition of challenges and ideas, and in the co-creation and evaluation of prototypes, the SOCRATIC methodology aims at achieving a better understanding of the real social needs. Many projects also fail to develop sustainable business models. Here also we draw attention on business aspects in the SIP, first on the value proposition, and later on more detailed business aspects. Further, a main barrier is the lack of understanding and measurement of impact in DSI. The SOCRATIC methodology also addresses continuous improvement through measurement and learning.

The iterative definition and validation of the methodology helped us in confirming the fit of the SOCRATIC methodology and platform in the SIP of both user organizations. It also indicates the usefulness of the templates and some core aspects, such as the dialogue with beneficiaries during the whole SIP and the early reflection about business concerns. So far, the participants have been very positive. However it still remains to understand how users make use of the platform and methodology in a wider context. In the coming months, the SOCRATIC platform and methodology will be assessed in two pilots: 1) NTNU will be running a social innovation hackathon, and 2) CiB will invite all their volunteers and beneficiary contacts to use the platform and methodology. Those pilots will enable us to assess the platform and methodology in both a controlled scenario and non-controlled scenario. The different user engagement and social innovation manifestations along both pilots will allow us to understand if, how and under which circumstances SOCRATIC effectively supports the SIP.

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