Managing stakeholders' engagement in social innovation projects – learnings from the online world of open source innovation

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Abstract

Purpose of the article While failure rates remain a significant challenge for open source projects, there is a great opportunity for social innovation projects to learn from the online world when it comes to raising the levels of stakeholders' engagement. With more than 15 million open source contributors worldwide, the purpose of the article is to draw from the learnings on how to engage contributors and apply those learnings to implement better, more efficient and effective solutions to social problems.

Methodology/methods Based on previous findings from the open source innovation body of knowledge, a directed qualitative analysis is used within the current research to analyze interviews with social innovation stakeholders in Latvia, and identify the set of applicable practices/elements/areas that are perceived to be of high importance to the successful engagement of key stakeholder groups when it comes to implementing social innovation projects.

Scientific aim By seeking to connect the findings from interviews with social innovation stakeholders in Latvia and the broader theoretical framework, concerting factors, perceived to influence engagement levels in open source innovation projects, the research aims to enable cross-pollination of best practices and bridge the gap between the physical and online worlds of managing collaborative innovation.

Findings As a result of the directed qualitative content analysis, it was found that factors, perceived as leading to successful management of stakeholder engagement in open source innovation projects, are also considered to be of relevance in the case of social innovation. Based on this finding, a set of best practices from the open source world was suggested for implementation in the key areas identified – "Contextual awareness" and "Value-oriented communication and collaboration".

Conclusions The research confirmed that the main set of factors for successful engagement of project stakeholders is not limited to a particular country, stakeholder or project group. A need for broader efforts in the area of cross-pollination of knowledge, originating from the digital and the physical worlds, was found to be of importance in the current case (and in general). Such cross-pollination is projected to play ever more important role in business and entrepreneurship development in the digital age, especially in the dawn of the 4th industrial revolution, characterized by the fusion of technologies that is blurring the lines between the physical and the digital.

Keywords: social innovation, open source innovation, open collaboration, stakeholder engagement, stakeholder management, critical success factors

JEL Classification: M10, M14, M15

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Introduction

Social innovation[1] attracts the attention of researchers, entrepreneurs, policy makers, practitioners, governmental and nongovernmental organizations, and individuals in Latvia and beyond as it is considered to be a relatively new concept to be studied and promoted for the sustainable development of society (Oganisjana et al., 2015). Its raising popularity is due to one other important reason - social problems are complicated, context-dependent, and cross-boundary in nature (Dobele, 2015). And with the rise of the globalization-driven changes in today's technology-enabled economy (e.g. global value chains, distributed production, dispersed project teams, etc.), solving these problems effectively and efficiently by a single individual or organization, is no longer the case, hence the need for open collaboration.

Similar to social innovation, the decentralized development model of open source projects encourages open collaboration (Levine, Prietula, 2013). A main principle of open-source development projects is peer production, with products such as source code, design blueprints, and documentation freely available to the public - another similarity between both types of innovation activities, the outcomes of which are not intended to be internalized, but rather to be of use to as many stakeholders as possible. In fact, a diverse range of innovative social solutions, developed for marginalized communities across the world, are based on open source software (Bhatt et al., 2016), which in that sense can be viewed as both a form of social innovation, and a tool for social innovation.

While there are many researches that are dedicated to the success of social innovation initiatives in general (Mulgan et al., 2006; Clark et al. 2008; Caulier-Grice, et al., 2010) and open source innovation projects (Crowston et al., 2003; Mattila, Mehtonen, 2013; Martin, 2015), including many on the subject of the underlying success factors and measures on environmental, organizational, and individual level, less attention is turned to the operational aspects of achieving such success – how to manage the incorporated processes, what needs to be done in one or another key area, etc. This is a problem of great importance as despite the general agreement on what and where to look at, failure rates remain high, especially in open source initiatives where the greater sum of projects are reported either inactive or failed (Mattila, Mehtonen, 2013). While in the case of social innovation, countries such as Latvia are still struggling to cope with the lack of data and measurement to advance forward (Dobele, 2015).

Research Questions

Defining the research questions in the current article was based on the general importance of the research problem, as well as on an in-depth review of the empirical data gathered for the purposes of the research project. More than 20 interviews with representatives of NGOs, businesses, and public institutions were conducted by graduate students from Riga Technical University, confirming that passivity and low level of support from stakeholders are considered to be among the main barriers to social innovation projects in Latvia[2]. This in addition to similar findings from previous studies, served as a solid foundation for the decision to address the problem by shedding light on the following two questions:

- Question 1: What are the key areas to focus on when engaging society's main stakeholders in resolving social problems through social innovation projects?
- Question 2: What collaborative innovation practices can be applied in the areas that are most commonly recognized as important?

Based on the numerous similarities with open source innovation projects - in their nature, barriers and success drivers, it was hypothesized that open source research would provide a useful framework to describe the key areas to focus on when engaging society's main stakeholders in resolving social problems, and that the importance of those areas will be recognized throughout different stakeholder and project groups.

2 Theoretical Framework

In recent decades, we have seen a growing interest in IT projects, based on open source - from the development of system and application software to even the hardware industry. Today, open source is the basis of some of the

[1] In the context of the current article, social innovation will be defined as *"better, more efficient and effective solutions of social problems resulting in new self-sustainable social practices and culture for sustainable development of the society".* This definition is used by the research team behind the project to which this study is associated - *"Involvement of the society in social innovation for providing sustainable development of Latvia"*.

[2] Similar barriers are reported throughout literature to stand on the way of open source innovation projects. Next to that, similar reasons are being named for starting social and open source innovation projects – either an interesting idea occurring on personal level with potential for implementation, or a topical social problem that is identified, or that needs to be solved.

most successful software products worldwide - operating systems (e.g. Linux), web servers (e.g. Apache), web browsers (e.g. Firefox), content management systems (e.g. Wordpress), a wide variety of business apps (e.g. OpenOffice). Considering that the core of these and other open source initiatives is the participation of different stakeholders on the principle of voluntary sharing and cooperation, efficient management of their engagement becomes a key condition, leading to the achievement of project objectives. This in turn defines critical success factors[3] (CSFs) exploration as a main problem of research interest with many scientific publications, dedicated to it (Aksulu, Wade, 2010).

Based on the findings from the open source innovation body of knowledge, the directed qualitative analysis within the current research article will enable us to identify a set of applicable areas that are perceived to be of high importance for the successful engagement of key stakeholder groups within society when it comes to solving social problems. The analysis, intended to bring both worlds together, in line with the direction of blurring the lines between the physical and the digital worlds, set by the 4th Industrial Revolution (Schwab, 2015), will be conducted under the following assumptions, associated with the categories (Table 1), which are to be tested for applicability[4].

Table 1 Critical success factors for managing stakeholders' engagement in open source innovation projects

Category	Context
Legal strategy	Includes all that is required to enable project's success by creating, adapting and complying with the comprehensive legal framework that surrounds the projects. Both inward- and outward-oriented strategies apply5.
Contextual awareness	Requires raising the understanding of the surrounding environment and the embedded problems and opportunities. It may include conducting preliminary research, coalition-building efforts as foundation for sustainability of the project, awareness of the marketing and other key contextual elements of the project, beyond the implementation of project's core activities.
Value-oriented communication and collaboration	Suggests understanding of the drives for participation in the project and the existing value-creation models from personal and broader social perspective. It requires two-way communication within the broader stakeholder community, including active promotion of the mechanisms and benefits of solving the problem in an innovative manner.
Community building agenda	Consists of measures, oriented towards nurturing community's identity (belonging and common values), organizing and conducting common events, providing mentoring, support, and opportunities for growth.
Openness in project practices	Stands for openness and transparency, surrounding the project, demonstrated through communication, documentation, online presence, how business matters are being run, among others.
Coherent contributor engagement strategy	Means that recruiting newcomers to ensure sustainability of the project community, with clear responsibilities assigned, should be preceded by a problem-oriented basis for the project, and resonating mission statement, intended to activate the various stakeholders.
Strategic project setup	Defines a consistent planning and execution approach, sometimes beyond the lifecycle of the project itself. From strategizing and commitment around achieving project's goals to implementation of the right governance / decision-making model, this strategic setup requires application of proven project management practices and a comprehensive network strategy.
Comprehensive tackling of intra- and intergroup conflicts	Speaks for the need of a project leadership that addresses group interests within the community, perceived to be conflicting, and manages growth (and growth-related challenges) successfully. Apart from the managerial implications of intra- and intergroup conflict resolution, a project lead would also need to rely on charter-based governance for stronger control in conflicting situations.

Source: Author's work, forthcoming

[3] Rockart (1979) defines CSFs as those limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance, i.e. successful engagement of society in solving social problems (in our case). It is stated that those critical areas/elements should receive constant and careful attention from management, hence they are the source for best practices implementation when it comes to managing engagement.

[4] These categories are derived from a set of critical success factors identified as part of researcher's dissertation "Research on Critical Success Factors in Open Source Projects' Stakeholder Management". The aim of the dissertation is by studying the existing theory and practice, to derive and analyze from relational and significance perspective, the set of critical success factors in managing stakeholders in open source innovation projects.

[5] An inward-oriented strategy in case of open source projects may include trademark protection measures, project licensing and managing its implications, attracting and managing financial donations, etc. While an outward-oriented strategy would tend to influence the institutional context, in which the project is taking place.

Apart from those organizational factors in open source practice, there are a number of technical areas for teams to focus on, which are not in the scope of the current research, given the non-technical nature of social innovation projects that are being analyzed. When it comes to looking at the greater variety of social innovation initiatives that exist, specific development and/or system lifecycle success factors may apply, depending on the projects into consideration.

3 Research method

The interviews that are subject to qualitative content analysis were conducted in order to reveal how to involve society in the solution of social problems. The research team of the project "Involvement of the society in social innovation for providing sustainable development of Latvia" within National Research Programme "Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development – a New Approach to the Creation of a Sustainable Learning Community" (EKOSOC-LV) conducted a survey on social innovation, with the help of graduate students from Riga Technical University. The particular question of interest from within the questionnaire -"In your opinion, what is to be done to involve the society in the solution of social problems?" was open ended, allowing the researcher to gain deep understanding of the answers provided, including though review of the responses to related open-ended questions, such as "What to your mind is to be done to find better new solutions for social problems?".

Given the fact that the goal of a directed approach to content analysis is to validate or extend conceptually a theoretical framework or a theory, it is normal that the same is guided by a more structured process, compared to the conventional approach (Hickey, Kipping, 1996). The process that was followed, is described by Hsieh and Shannon (2005), and consists of the following steps:

- Using prior research and existing theory, we begin by identifying the set of key concepts as the coding categories to use.
- Operational definitions for each category are defined using the theory.
- As the goal of the research is to identify and categorize all instances of a particular phenomenon, the all relevant interviews are reviewed and relevant text is highlight.
- All highlighted passages are coded using the predetermined codes[6].
- Any text that cannot be categorized with the initial coding scheme is given a new code, i.e. new categories are being developed. Newly identified categories either offer a contradictory view of the phenome-non or might further refine/extend/enrich the theory.

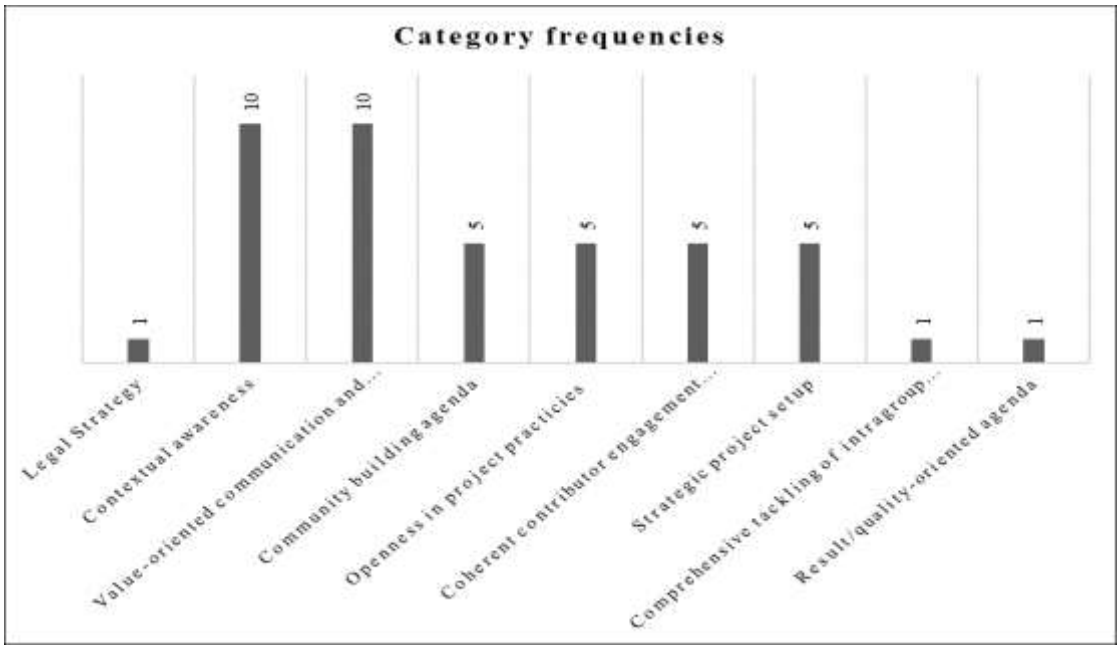
An assessment is made whether the findings from the directed content analysis offer supportive or non-supportive evidence for the theory in consideration. The theory/prior research used guides the discussion around the findings.

4. Research Findings

While there is a long list of articles, dedicated on the impact of social and open source innovation projects, less attention is payed to the operational aspects of achieving this success – how the underlying processes should be managed, what needs to be done in one or another area, identified as critical. Therefore, by coming with these additional insights on what is of key importance in the key importance areas, such as stakeholder engagement, the author expects to deepen the understanding of the practical work that is expected to be accomplished in order to turn a social innovation initiative into success.

Because the study design and analysis did not result in coded data that can be compared meaningfully using statistical tests of difference, the use of rank order comparisons of frequency of codes was used, as recommended by Curtis et al. (2001). Based on the frequencies observed (Figure 1), it is possible to conclude that the main factors perceived to influence society's engagement in open source innovation, are matching those, related to social innovation projects: contextual awareness, value-oriented communication and collaboration, community building agenda, openness in project practices, coherent contributor engagement strategy, and strategic project setup.

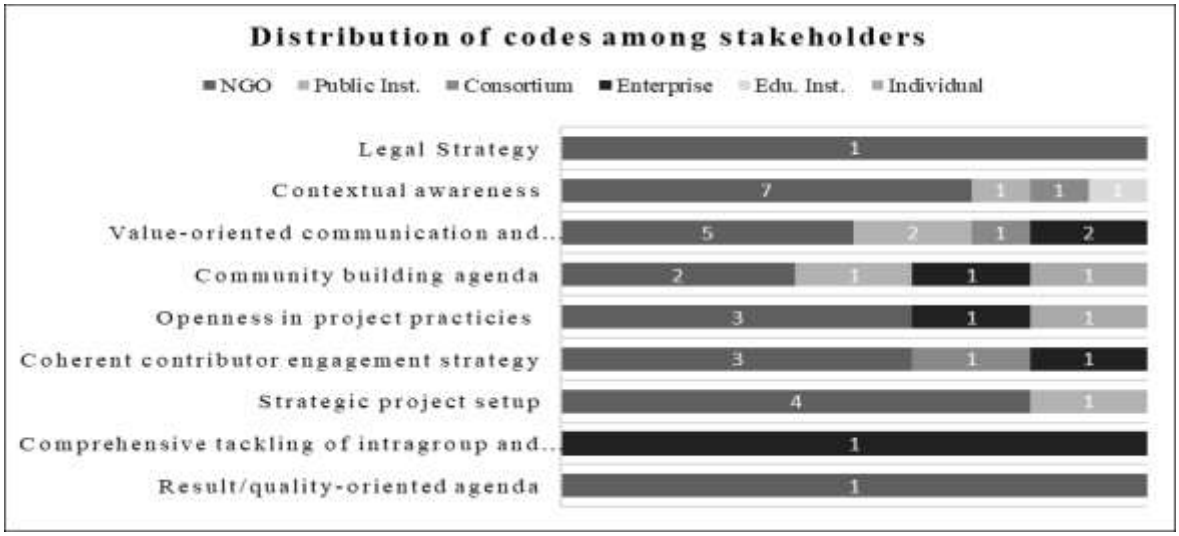
[6] Hsieh and Shannon (2005) underline that depending on the type and breadth of a category, the researcher might need to identify subcategories with subsequent analysis. No such need was identified in the current study, due to the limited amount of text, which was to be analyzed. Evidence is available in the form of codes with exemplars and corresponding rules.



Source: Own work

Figure 1 Frequencies of categories, observed as part of the qualitative content analysis conducted

One new category emerged from the study – "Result/quality-oriented agenda", which implies that there's a need for the social innovation project to be perceived by society as capable to achieve its mission in order for society to get on board. This new category, as well as few of the other ones, such as "Legal strategy" and "Comprehensive tackling of conflicts", occurred only once within the sample (22 responses were analyzed, 2 other interviews did not contain any response to the question of interest). This can be contributed to both the size of the sample, but also to the fact that one other question from within the questionnaire was looking at a similar matter. If responses to that other question were to be taken into consideration, the frequency of the categories would have increased, but the scope of our study would also have been broader – from managing society's engagement to managing social innovation in general. Despite the size limitations of the sample, data on Figure 2 shows that the categories/factors identified are considered to be of importance throughout a diverse range of stakeholders that are generally engaged in social innovation.

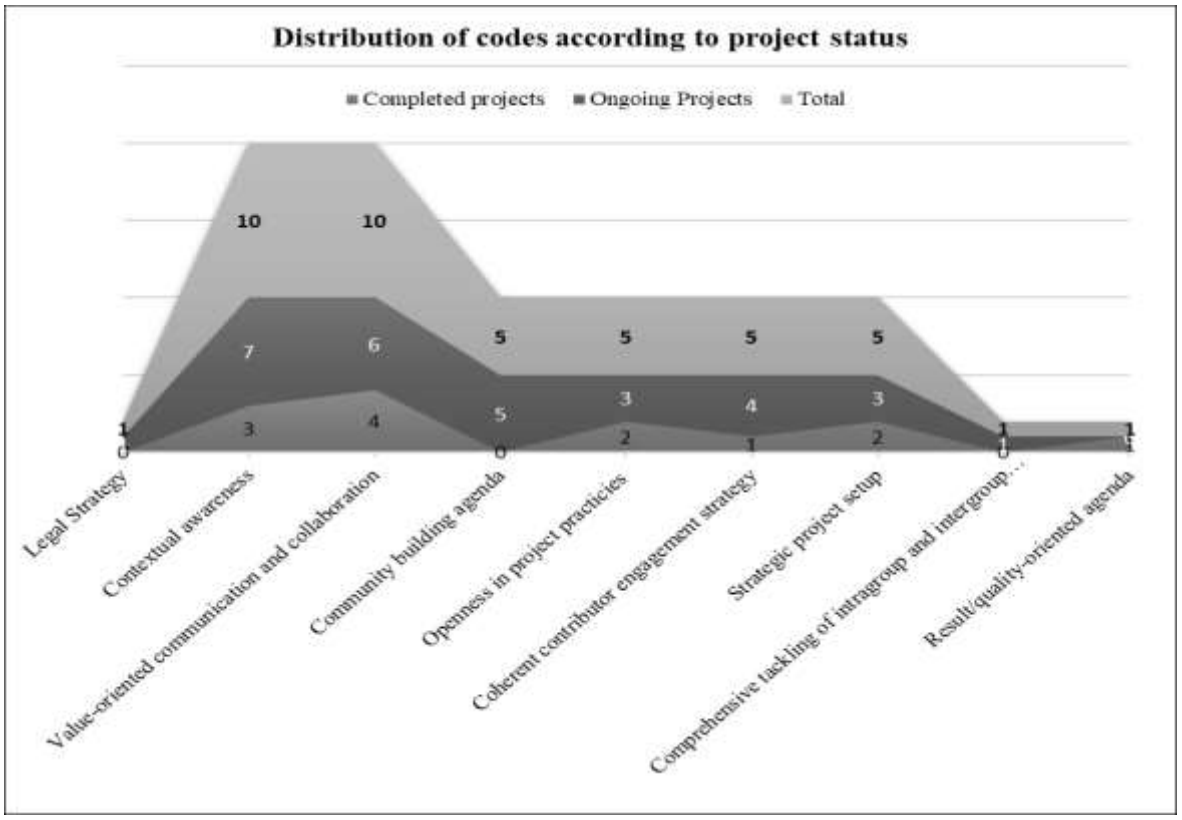


Source: Own work

Figure 2 Code distribution according to the type of stakeholder group to which the respondent belongs

Factors such as contextual awareness, value-oriented communication and collaboration, community building agenda, openness in project practices, coherent contributor engagement strategy are detected in the responses, provided from respondents, representing at least 3 or more stakeholder groups[7] (e.g. NGOs, public institutions, enterprises, etc.). Any deeper conclusions, regarding individual respondents, and those from the enterprise, public, and educational sectors, may lack external validity and cannot be elaborated further as the majority of respondents, participating in the survey, are representatives of the NGO sector (above 60%), whereas the sample size of respondents, representing other stakeholder groups, is considered too small. It's worth noticing, however, that the only instance of "Comprehensive tackling of intragroup and intergroup conflicts", detected within the responses provided, comes from a company. This is of research interest on its own, as companies are in the focus of the 'social responsibility' discussion and quite too often, they are accused of not understanding / embracing the concept of responsibility towards society beyond one's own well-being. In this current sample, their representative is the only one to point out that issue, but on individual level.

Finally yet importantly, the distribution of codes according to projects' status of implementation (Figure 3) confirms our initial hypothesis that the categories we use will be considered important throughout different stakeholder and project groups, and in this particular case – in both ongoing and completed projects.



Source: Own work

Figure 3 Distribution according to the status of social innovation projects, which respondents represent

Data makes it clear that from the point of view of respondents who have experience in solving social problems by completing innovative projects in diverse fields (e.g. environment, education, etc.) the most important drivers, considered to influence society's involvement in those projects, are „Contextual awareness" and "Value-oriented communication and collaboration", which is close to the distribution of codes that is observed in the responses, provided by stakeholders, who are working on social innovation projects that are currently in an active state of implementation.

[7] According to the Project Management Institute (PMI), the term project stakeholder refers to, 'an individual, group, or organization, who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project' (PMI, 2013). This definition is embraced by the researcher when it comes to breaking the term 'society' down to its constituting components/stakeholders.

The unequal representation of the project groups in the sample does not allow us to drive further conclusions, apart from mentioning the obvious fact that in none of the responses, provided by representatives of completed projects, "Community building agenda" was detected. One may speculate that once a project is over, organizing and conducting events (and other community-building activities) is considered to be more of a 'business as usual'-type of work.

5 Discussion

5.1 Recommendations

Open source technologies and social innovation have emerged at a time when it is critical to adopt inclusive, creative, multi-disciplinary approaches to solving complex social and environmental problems (Huddart, 2008). Given the fact that 'show-how' (demonstrating good examples) is mentioned as a key driver for the realization of social innovation projects (Oganisjana, 2016), it is expected for one to exploit the similarities between open source and social innovation and recommend best practices to be followed by the project teams in order to achieve higher levels of engagement of society in social innovation, starting with the elements that were most commonly recognized to be of importance:

- Contextual awareness – to enable stakeholders to raise their awareness of the surrounding environment and the embedded problems and opportunities, e.g. to conduct research on what other projects before starting a new initiative, the open source world relies strongly on platforms, such as "GitHub"[8], which supports a community where more than 22 million people learn, share, and work together to build software. Such platforms support project teams coalition-building efforts and help raise the levels of awareness on other key contextual elements of the projects, beyond the implementation of their core activities. Despite smaller in volume (GitHub hosts 60+ million projects), there are plenty of other collaboration platforms, similar to "IDEO", which are partnering with change makers to design innovative systems and tools.

  Either such open collaboration platforms should be leveraged to raise awareness on social problems and solutions, or similar solutions may be developed, tailored to specific use-cases, as long as it is done with understanding of the importance of reaching a critical mass.
- Value-oriented communication and collaboration – while open source projects are commonly perceived as voluntary initiatives, there are viable business models behind many of them, consisting of professional support, training, consulting, and other services that lead up to multi-billion dollar public companies, such as "RedHat". While a variety of open-source compatible business approaches have gained prominence in recent years, the 'as a service' model behind projects, such as "OpenStack", is a notable profitable example that can be evangelized beyond the IT world and can win institutional and corporate stakeholders over to the side of social innovation.

  "HUBzero" – an open source software platform that supports scientific discovery, learning, and collaboration, is a practical use-case for social innovation stakeholders to learn from, regarding prospects of joining commercially viable, yet socially-oriented projects, given the free opportunities for advancement it provides to dozens of research hubs across a variety of disciplines, including cancer research and biofuels, on top of which a sustainable service/support business model can be built to funnel investments in the project and generate profits for its actively involved stakeholders.

5.2 Research Limitations

Because a directed approach to qualitative content analysis was implemented in the research process, more needs to be done, concerting the 'ecological validity' of the study – to test the capacity of research findings to make sense in their natural setting, for the people concerned (Cicourel, 1982). A useful effort in that direction would be to present the respondents with the findings and discuss their usefulness and potential to build upon them (e.g. provide training in the key areas identified as relevant to social innovation project teams).

5.3 Reliability and Validity

From reliability point of view, i.e. the confidence that if data is to be gathered again, the same method would not produce different results, it should be disclosed that the researcher did not take part in the development of the

[8] See www.github.com/about

main questionnaire, neither in its piloting and broader implementation[9], which would have been the best way to ensure that all respondents are understanding the questions in the same way and that corrective measures are being taken if that's not the case, due to loose ends in the research instrument's design and / or its application.

In the same time, it is worth mentioning that the current study is part of a broader research effort as part of which similar data collection exercise had been conducted over the previous year. Comparing the findings, originating from this and another qualitative content analysis, conducted in 2016 around a similar question ("In your opinion what is necessary to motivate people to become involved in the solution of social problems?"), it is reassuring that similarities in the leading categories are being observed in both studies. This is despite the fact that the researchers have taken different approaches on the qualitative content analysis itself – directed (in the current case) vs. conventional content analysis in the previous one, where the coding process has been done organically, i.e. regardless of any particular theory or field of research.

Regarding the validity of the research – its capacity to encapsulate the characteristics of the concepts being studied, and so properly to measure what the methods were intended to measure, as our aim was to interpret subjective meanings, it counts for little that other kinds of validity may be satisfactory, if "ecological validity" is not achieved, as mentioned above.

Conclusion

In view of the relevance of the theme and the importance of the issues discussed, raising the levels of stakeholder engagement in both social and open source innovation projects seems to share common success factors in today's digital age. According to the critical success factors theory, those are the few key areas where things must go right for the project to flourish. If results in these areas are not adequate, organization's efforts for the period will be less than desired, which in our case would mean low levels of engagement / disengagement of society in the solution of social problems.

While the central thesis of the original study from where the initial set of categories used in the current research was derived, is that there is a specific set of success factors in the engagement of project stakeholders, applicable to open source innovation projects, and that those factors can be organized and classified in order to improve the management of this type of projects, our current research was focused towards the opportunity to support and extend the application of these findings from the open source world for the purposes of social innovation projects. The latter represents the main strength of using a directed approach to content analysis, it is the reason why it was chosen by the researcher.

Keeping its focus on the main questions as defined in the beginning of the research, our study was able to provide support for achieving the goals of the broader research effort that it is part of. Together with social innovation research in Latvia, the research team behind "Involvement of the society in social innovation for providing sustainable development of Latvia" project is planning to adapt the experience of other countries and elaborate new projects. By analyzing and connecting the responses, provided by Latvian social innovation stakeholders, with a general set of factors, perceived to influence engagement levels in collaborative innovation projects from around the world, we confirmed that the main set of factors are not limited to any particular region, country, project or stakeholder group. Therefore, to a certain extend we confirmed the need to internationalize the scope of the research project in order to support the local stakeholders in Latvia in their social innovation efforts though cross-pollination of knowledge, which plays an important role in innovative processes.

As a first step, initial set of best practices was presented, originating from the global open source innovation practice, but a more tailored, project-specific benchmarking approach might be of greater help when it comes to addressing the particular challenges and opportunities, embedded in the specific environment of any project.

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[9] That is apart from a single interview conducted with a participant in the research, which did not result in concerns being raised, regarding the consistency and the overall quality of the research instrument.

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