An Exploration of Strategic Sustainable Development (SSD) Complemented Transformative Social Innovation (TSI) Tools

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Abstract The human social system is facing complex social issues and (new) initiatives coming from different social actors are born to try to tackle these complex social issues. Social innovation is the field where these initiatives function, so it is also a complex field to identify and frame. Thus a new theory, the Transformative Social Innovation Theory (TSI), was developed in order to frame and bring more clarification on the social innovation field to contribute to societal transition and transformation. The five TSI tools were developed from the TSI theory and they are training tools. All the TSI tools aim to help the social innovation initiatives, actors and networks in the process of transformative social innovation. Transformative Social Innovation is the process of changes in social relations involving challenging, altering and/or replacing dominant institutions and structures which are considered to be the roots of systemic errors. This study sought to explore the Transformative Social Innovation tools from the perspective of the Strategic Sustainable Development (SSD). In this regard, the Framework for Strategic Sustainable Development (FSSD) was adopted as it provides a principle-based and scientifically-proved definition of sustainability as well as a systems thinking approach regarding the complexity of global sustainability challenges. This research project tried to identify the potential contributions of the TSI tools to sustainability and the entry points of the tools where relevant SSD features could complement them so that they can contribute to strategically move the society towards sustainability. A qualitative research approach was selected. The methodology included four research methods, namely document content analysis, interviews, the FSSD analysis and prototyping. The results of this research indicated three main contributions of the TSI tools that could help to strategically move the society towards sustainability. Five entry points where the tools could be complemented with SSD features and a set of add-ins from SSD that could complement the current TSI tools were identified. The add-ins were sent to the TSI theory authors for the expert consultation.

Keywords: Framework for Strategic Sustainable Development, Transformative Social Innovation, TRANSIT Project, TSI Tools
Statement of Contribution

Our journey as a thesis team started in December 2017. At that time, we could not have imagined the transformative journey we were going to embark...

Our thesis team shared the MSLS 2018 spirit which is characterized by both a diverse cultural background (Bolivia/Spain, China, Japan, and Turkey) as a diverse professional background (education, journalism, sustainability management, and diverse cultural projects). Thus, at the beginning of our collaboration, before embracing the “getting things done” mode, we realized as a team that this was an amazing life-opportunity to get to know better how to work in diversity and apply in our thesis process, the essential elements of adaptive capacity for human social systems: diversity, learning, self-organization, trust and common meaning. For doing so, a mind shift was needed. We needed to unlearn the “competitive”, “individualism” and “hierarchy” mind-set embedded in our respective ways of doing, organizing, learning and framing, and totally embrace the “building” upon and co-creation in the way we work and collaborate.

Now, after months working together, we can say “We did it!” We have learned to work with our diversity (cultural, backgrounds, dynamics); we have learned to trust each other; we have learned to self-organize; we have learned to learn from our daily practices, our stories and our challenges; and above all, we have learned to have a common meaning and courageously walk our thesis path together, step by step, little by little towards our shared vision.

Each member contributed with their mustard seed for the successful completion of our thesis project. Each of us was equally committed to do the best in our work and help each other to strengthen our strengths and overcome our weaknesses.

To name the team members’ contributions, we will use the alphabetical order and start with Adriana. First of all, she contributed to our team with her passion on our research. Her passion guided and motivated us throughout the process. Her keen eye and wit helped us a lot on catching to-be-important details, so she had the steering role in the most effective and kind way possible. She also contributed to the team a lot when she reminded us to start doing things when we became discussion fanatics. With her gorgeous smile, passionate spirit, and principled attitude, she empowered us a lot.

Gül played a mediator’s role in our team. She proactively tried to mediate different opinions and contributed to the team to increase their productive energy and collaboration capacity based on harmony and consensus. This helped the team to stay focused and realistic. On the academic side, she has astonishing skills to grab the most important and relevant data from any content immediately and put it into the sentences in a way that it becomes more appealing for the readers to read. You can see the proofs of her editing skills in many places like cool sub-titles. Her excellent language and academic skills helped our team to craft our research in the concise way.

Mari is the best energizer ever. Other than her social skills, she is one the smartest women we have met so far and she always mesmerized us with critical questions she asked when we were about to miss some critical points. With her calm and kind spirit, she contributed to the team a lot to find balance. She is very good at empathizing with other people and adjusting the space and experience to meet her team members’ needs. She also made her stand where
she saw the need displaying her true and authentic self, which the team appreciate a lot. She contributed to the team a lot with a lot of deep insights and cool ideas in the most humble and kind way possible.

Xiaohui, our analytical mind, always provided us with a bird-eye perspective where we were dealing with the tiniest details and lost our perspective. He helped the team realize the importance of asking powerful questions and guided us how to make good use of them in the process, which helped us with clarifying the process, brainstorming and reaching our goals at the end of the day. He is also very good at visualizing what is in his mind. This also helped us to understand his point of view and build on that. In this sense, he contributed to increase our collective creative capacity. He always tried to take care of the team members with his great heart even when he was not having his best day.

For the reasons above, we managed to become the Crazy Punky Diamond, which we are very proud to be a member of.

We feel deeply grateful for such a transformative experience and for having the opportunity to deep dive ourselves, unlearn what was needed to be unlearned and learn what was needed to be learned. We are grateful for being part of an incredible team of human beings committed to doing good and being a force of good in the world. We cherish this thesis process and we cherish being part of MSLS 2018.
Acknowledgements

We would first like to thank our thesis advisor, Pierre Johnson, for his overall contribution to our thesis and for understanding our thesis process dynamics. Pierre allowed us to develop this paper by being true to our essence, and steered us in the right direction whenever he thought it was needed. We would also like to thank our second advisor, Sze Yin Kwok, for her key contributions to our thesis by challenging us with critical questions and adding new perspectives to our research.

We would like to thank the experts who kindly agree to be part of our research as interviewees: Antonio Vasconcelos, Arianna Mazzeo, Bonno Pel, Jens Dorland, Julia Wittmayer, Ken Ito, Michael Søgaard Jørgensen, Miranda Williams and Tomoyuki Banno. Without their passionate participation and input, our research project could not have been successfully conducted. We would like to mention especially Michael, Jens and Tomo for their constant feedback to our research and their kind support to us. We would always remember you with our open heart!

We would also like to express our gratitude to the MSLS staff and our amazing MSLS 2018 family. We have learned so much from you, not only in the professional stream, but also from your humanity. We feel blessed to have been a part of this amazing year with all of you and of the change our beloved planet needs. We will take you in our hearts forever and ever!

Finally, we must express our very profound gratitude to our families for providing us with unfailing support and continuous encouragement throughout this amazing yet challenging year, and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you from the bottom of our hearts!

Adriana, Gül, Mari and Xiaohui
Executive Summary

Introduction

The sustainability challenge is important and requires attention as it embodies risks and threats given the fact that the world is going through an unsustainable path at the end of which the present technology might not be able to help to sort out the problems. The core elements, common features and typology of social innovations indicate the relevance and correlation between the objectives of social innovation and its impacts on addressing sustainability challenges.

In this research, we studied the Transformative Social Innovation (TSI) theory and its five tools, which were developed by the European Union funded project TRANSIT (2014 – 2017). The TSI theory tries to answer the question of to what extent social innovation contributes to societal transformation that responds to societal challenges; and how people can be empowered to contribute to such process. The five TSI tools are training tools and were developed from the TSI theory to enable practitioners and other target audiences to apply theoretical insights of the core themes discerned from the TSI theory. The five TSI tools are: 1st Shades of Change; 2nd Governance; 3rd Social Learning; 4th Resourcing; 5th Monitoring and Evaluation.

In this research, we adopted the principled definition of sustainability from the “Framework for Strategic Sustainable Development (FSSD)” to explore the potential of the Transformative Social Innovation theory and tools to contribute to strategically move the society towards sustainability. We chose FSSD as it provides its users a principle-based and scientifically-proved definition of sustainability as well as a systems thinking approach so that they can deal with the global sustainability challenges and navigate through complex systems. We explored the added value of SSD features to the TSI training tools. The principled definition of sustainability provides eight applicable and science-based principles on the success level to be useful in practice for backcasting planning and redesign for sustainability.

By studying the TSI theory and tools and exploring their potential to contribute to strategically move the society towards sustainability, we have the preliminary impression of some similarities between them. For example, both of them seem to take systems thinking and systemic approach to describe and address complexities. In this research, we chose TSI and SSD from social innovation and sustainability field respectively; because we think they have certain similarities and the goal to achieve societal transition towards sustainability.

The Aim of Our Research and Research Questions

The aim of our research was to explore and discuss how the TSI tools could be enhanced towards sustainability. We tried to find out how SSD could complement the TSI tools in order to support target audiences who could use the TSI tools in their endeavours to lead their social innovation towards sustainability. This inquiry could be possible through answering the research questions below:

Main Research Question (MRQ):
How can SSD complement TSI tools to support TSI users to strategically move the society towards sustainability?

Sub-questions (SRQ):

SRQ1: How could the TSI Tools contribute to strategically move the society towards sustainability?

SRQ2: What could be the entry points of the TSI Tools to be complemented with SSD features?

SRQ3: What could be complementary to TSI tools from SSD perspective?

Research Scope and Limitations

The scope of our research covered: 1. The background of Transit project and the TSI theory; 2. TSI theory and tools; 3. The other theories that are originally adopted by TSI tools; 4. The application of the tools. The width of data sampling depended on the number of interviewees that we could engage with. It was also a limiting factor that the TSI tools were recently published and do not have enough application cases available. Due to the research time duration, we prototyped the add-ins once with one round of expert feedback. The validity of the expert feedback depended on the expert’s personal interpretation of the add-ins and their personal standpoints in the TRANSIT project. We also aimed to carry out a workshop to test the validity of the add-ins by action research, but we could not get enough responses to our workshop invitations.

Methodology

The structure of the methodology we employed in our thesis relied on four main parts: document content analysis, interviews, FSSD analysis, and prototyping. The TSI deliverables (the TSI theory and the tools) were systematically coded and analysed with the generic five levels and SSD features. For the interviews, we targeted three groups of interviewees of TSI
authors, TSI tools development workshop participants and experts in social innovation and sustainability fields. This was designed to gain comprehensive insights of the development of TSI theory and tools, and their development and application contexts in the social innovation and sustainability fields. Then, TSI tools were analysed from the FSSD perspective. Finally, a set of add-ins was created to suggest how SSD features could complement TSI tools for the target audiences to strategically move the society towards sustainability. Feedback regarding our suggested add-ins were collected from the TSI authors and put into discussion.

Results

Results of Document Content Analysis

The results of document analysis indicated that the TSI theory adopts a systems thinking approach to deal with complexity and systemic errors towards system transition from the SSD perspective. The TSI theory mainly emphasizes the actors in the social innovation field, the interactions among agencies and the transformation of the socio-material context in the process of transformative social innovation.

The 1st TSI tool (Shades of Change) describes a specific system perspective of the dynamics of societal transformation. It helps to understand the dynamics of system change to reach the societal transformation, with the help of shades of change. The shades of change are based on the realization of complexity with a systems thinking perspective.

The 2nd TSI tool (Governance) suggests managing the complexity within the system by governing social innovation networks. This tool is to train the participants on the systems thinking and recognizing the roles of actors in the transformative social innovation processes.

The 3rd TSI Tool (Social Learning) is designed to empower social innovators to position and reorient themselves in complexity. The success of social learning is defined as creating new social relations; creating networks; and the gaining of reputation and legitimacy to increase political influence.

The 4th tool (Resourcing) leads to establishing resourcing strategies to overcome complex systemic errors. The success of this training is to generate skills of conceptualization and design of resourcing strategies useful for practitioners.

The 5th tool (Monitoring and Evaluation) introduces developmental and reflexive approaches. For the success of this training, it is designed to help its target audiences to learn about themselves through analysing the underlying values, actions and goals.

Results of Interviews

The aim of the interviews was to explore the theoretical background of the TSI theory and tools, to figure out their potential use in practice, and see the bigger picture in social innovation and sustainability fields as both fields comprise the main scope of the overall aim of our research project.

The first part of the interview results which come from the authors of the TSI theory and tools revealed the fact that the TSI theory and tools highlight the importance of various actors, context factors and their relations to each other in order to deal with the current challenges on
the system level. Thus, the system was pictured as multi-layered where interactions among the elements of these layers are of utmost importance for system transition. At the success level, empowerment was emphasized and considered to be highly related to self-organizing ability which could be achieved by social learning. It was also stated that TSI tools contribute to social innovation by explaining the interactions (inter-relations) among agencies and an understanding of sustainability could help in the empowerment process. Lastly, it was suggested that the TSI tools could help its users to be able to think differently by increasing their reflexivity skill.

The second part of the interview results includes the evaluation of one participant of the TSI development workshop. The developmental evaluation of the tool was considered highly relevant and important at the success level as the social innovation field keeps developing. It was also suggested there is a lack of systems thinking in the social innovation field, which prevents innovating more macro-scale solutions. Finally, it was noted that the social innovation process is not linear, but complex, and systemic errors need to be handled with careful monitoring.

The last part of the interview results depicted how social innovation and sustainability fields function in real life in the face of mutual challenges. It was pointed out that the social innovation field is very young and creating networks to reinforce relations is very critical for a social innovation to succeed. Building new relations was suggested as a strategy in creating more capacity for social innovators. Furthermore, the systems thinking approach was regarded crucial in that social issues covered by social innovation projects are complex. It was also stated that ecological system is not taken into consideration in the social innovation process, which leads to systemic errors. Finally, a separation between the ecological and social does not help to tackle with systemic errors and a more holistic approach should be adopted.

Results of FSSD Analysis

The results of FSSD analysis demonstrate TSI tools’ potential contributions to strategic sustainable development as well as the opportunities to fulfil the existing gaps.

The TSI tools stress the importance of system understanding for transformative social innovation; but TSI’s focus on system is limited to socio-material context that does not position social initiatives within the biosphere and Earth’s ecological system.

At the success level, the new socio-material relations created by the TSI tools’ target audiences have the potential to improve social sustainability. However, TSI tools do not define the success of transformative social innovation in a sustainability context.

Backcasting from scenarios is suggested in the TSI tools as well as several decision-making and prioritization stages that target audiences are supposed to experience and perform during the trainings. However, the TSI tools only state that all the choices should be based on the core purposes and values that the participants hold. There are no strategic guidelines and prioritization towards sustainability.

The contributions of the TSI tools and their application are mainly based on leading, nurturing and criticizing the social transformation as a result of social innovations. However, the actions around managing social transformation and social innovations would not necessarily contribute directly towards the solutions of global sustainability challenges.
There is neither a particular tool nor content in the TSI trainings to directly address sustainability issues. The social innovation cases and the Critical Turning Points (CTPs) database are not categorized or sorted with a possible perspective of global sustainability concerns.

Results of Prototyping

A set of add-ins with the aim to complement TSI training tools from a SSD perspective was created. The add-ins included the main features of SSD as well as a reasoning of why we chose to add SSD concepts, activities and strategic guidelines to certain TSI tools.

Expert feedback was mainly on the clarity, comprehensibility, relevance and compatibility of the add-ins to the current TSI tools. The “funnel metaphor” was considered to be highly relevant and self-explanatory. The other add-ins, including the eight sustainability principles and the operational procedure of strategic sustainability planning process (ABCD) were regarded as either not easy to understand or may need to provide certain contexts to demonstrate their application in the social innovation field.

Discussion

Answering the research questions

The TSI tools could contribute to strategically move the society towards sustainability regarding three main points: complexity, systems thinking and systemic errors. Their contribution comes from the fact that these three points are also closely linked with strategic sustainable development. The entry points that the TSI tools could be complemented from the SSD perspective are at: where transformative social innovation and its dynamics are positioned; the definition of success of transformative social innovation; the guidelines provided in the TSI tools; the TSI training activities; and the supporting tools within the TSI trainings. The “funnel metaphor”, “eight sustainability principles” and “ABCD” could be complementary to the current TSI training tools.

Research Quality

The data breadth was influenced by the accessibility of TRANSIT project documents, to the TSI authors, other social innovation and sustainability practitioners as interviewees. The depth of our research was limited by the research project duration and our academic capacity. Validity of the add-ins was only tested by one round of expert consultation.

Conclusion

This study explored the Transformative Social Innovation tools from the perspective of the Strategic Sustainable Development (SSD). The TSI tools could contribute to strategically move society towards sustainability and to ignite a transformative change within the human social system. But it is important to highlight that this transformation is mainly based on the social system. In this regard, the SSD approach can ensure that the ecological system is included to improve the outcomes of the TSI initiatives to a better societal transition of society towards a more sustainable future. However, further studies are recommended, especially an action research project, to prototype and test the usability of the complementary add-ins we identified in this research.
List of Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>5LF</td>
<td>Five Level Framework</td>
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<td>8SPs</td>
<td>Eight Sustainability Principles</td>
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<tr>
<td>CTP</td>
<td>Critical Turning Point</td>
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<tr>
<td>FSSD</td>
<td>Framework for Strategic Sustainable Development</td>
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<tr>
<td>MSLS</td>
<td>Master's in Strategic Leadership towards Sustainability</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<tr>
<td>NoC</td>
<td>Narrative of Change</td>
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<tr>
<td>SI</td>
<td>Social Innovation</td>
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<tr>
<td>SSD</td>
<td>Strategic Sustainable Development</td>
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<tr>
<td>TSI</td>
<td>Transformative Social Innovation</td>
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## Glossary

<table>
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<tr>
<th>Term</th>
<th>Description</th>
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<tr>
<td>ABCD</td>
<td>SSD feature - It refers to the operational procedure that supports the execution of backcasting planning and redesign for sustainability.</td>
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<tr>
<td>(dis) Empowerment</td>
<td>Process in which social innovation actors gain a sense of autonomy, relatedness, competence, impact and meaning through empowering and/or disempowering institutions.</td>
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<tr>
<td>Funnel Metaphor</td>
<td>SSD feature - The metaphorical illustration of the human civilization entering deeper and deeper into a funnel, that representing the systematic decline of the ecological and social systems' potential to support the fulfilment of human needs, in combination with the growing population.</td>
</tr>
<tr>
<td>Generic Five Level Framework</td>
<td>A logic framework that structures information in the levels of system, success, strategic guidelines, actions and tools so that information becomes more useful for planning in complex systems.</td>
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<tr>
<td>Institutions</td>
<td>Norms, rules, conventions and values that both constrain and enable social relations and established patterns of doing, organising, framing and knowing.</td>
</tr>
<tr>
<td>Prototyping</td>
<td>Prototyping is an approach to developing, testing and improving an idea at an early stage before you commit a lot of resources to it.</td>
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<tr>
<td>Reflexivity and Social Learning</td>
<td>Processes of collective experimentation and reflection by which initiatives reach new shared understandings, which in turn become situated in practice.</td>
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<tr>
<td>Social Innovation (SI)</td>
<td>A change in social relations, involving new ways of doing, organising, framing and/or knowing.</td>
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<tr>
<td>SI actors</td>
<td>Collection of individuals, initiatives, networks and/or action fields that engage with SI processes.</td>
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<tr>
<td><strong>SI Initiative</strong></td>
<td>Collective of people working on ideas, objects and/or activities that are socially innovative.</td>
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<tr>
<td><strong>SI Network</strong></td>
<td>Network of initiatives working on ideas, objects and/or activities that are socially innovative.</td>
</tr>
<tr>
<td><strong>Sustainability Principles</strong></td>
<td>SSD feature - The current SSD phrasing of the eight sustainability principles</td>
</tr>
<tr>
<td><strong>SSD Five Level Framework</strong></td>
<td>SSD feature - A five-level structuring and inter-relational model distinguishing and clarifying the inter-relationships between phenomena of fundamentally different character in sustainability context.</td>
</tr>
<tr>
<td><strong>Structuration</strong></td>
<td>Institutions have a shaping role in human action but at the same time are constituted through human action. This interplay is referred to as the process of structuration.</td>
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<tr>
<td><strong>Target Audiences of TSI Tools</strong></td>
<td>A target group of actors, who are practitioners or professionals in the field of social innovation.</td>
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<tr>
<td><strong>TRANSIT Project</strong></td>
<td>The European Union funded project (2014 - 2017) to systematically study the role of social innovation in addressing societal challenges.</td>
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<tr>
<td><strong>TSI Theory</strong></td>
<td>The consolidated transformative social innovation theory developed in the TRANSIT Project.</td>
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<tr>
<td><strong>TSI Tools</strong></td>
<td>The five training tools developed in the TRANSIT Project.</td>
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1 Introduction

1.1 General Introduction

1.1.1 Sustainability Challenge

The sustainability challenge is important and requires attention given the fact that the world is going through an unsustainable path at the end of which the present technology might not be able to help to sort out the problems. Many of these grand challenges are complex problems such as climate change, increasing global population, diminishing resources, and conflicts all around the world (World Economic Forum 2013). The irreversibility of the unsustainable path points to a dead-end unless immediate action is taken in time from the perspective of the sustainability challenge. Effective actions are urgently needed in order to address the devastating effects of our current civilization on its own survival systems as well as the social injustices that are inherent in it (Bárcena, Bryant, and Lind 2009).

Global sustainability, and sustainable development issues and challenges have been observed, described, examined, studied and discussed by different players from different perspectives and over many scales. There are several popular definitions of sustainability and descriptions of the global sustainable development challenges. To name a few of them: the human-needs-centred Brundtland report’s definition; the United Nation Millennium Declaration; the triple bottom line which applies the three dimensions of economics, environment and social sustainability to identify the principles and treaties on sustainable development; and the United Nations’ Sustainable Development Goals (SDGs) that categorize sustainability challenges into global goals.

1.1.2 Social Innovation (SI)

Global systems innovation, innovation for sustainability and sustainable development, and innovation for wellbeing are among the twenty challenges identified for the upcoming decades in innovation studies (Martin 2016). Furthermore, the concern for sustainable development tends to demand the broadening of problem-framing and analytical framing in innovation studies (Smith, Voß, and Grin 2010). In this sense, social innovation is an emerging area of innovation studies regarding the fact that sustainability-related challenges are becoming more embedded in the innovation studies, and sustainable development is linked to social innovation (Ryan der Have and Rubalcaba 2016).

Literature reviews regarding Social Innovation (SI) indicated that the definition of SI is still open to different interpretations (Unceta, Castro-Spila, and García Fronti 2016). Although SI can be traced back to early human civilizations since “‘Civilizations are the result of human innovations’” (Cajaiba-Santana 2014, 43), its introduction to social sciences is quite new (Cajaiba-Santana 2014b). As the name suggests, the vagueness of the definition also stems from the fact that its individual components of the name are also open to various interpretations. For example, starting with the question of “What is social for SI?” two dimensions could help to see the breadth of the definition: the first one is related to “the behavioural practices or the human relations involved in the process of innovation creation”; and the second one is to “the creation of a greater common good” (Cajaiba-Santana 2014, 44). Here the question is whether or not SI could be redefined with an enriched and transformative
function in terms of creating more sustainable societies which are willing to create the capacity for more common good.

1.1.3 Social Innovation and Sustainability

The core elements, common features and typology of social innovation indicate the relevance and correlation between the objectives of social innovation and its impacts on addressing sustainability challenges. For example, enhancing the society’s capacity to act and meeting a social need are from the core elements of SI; more effective using of assets and resources, developing assets and capabilities, being open, collaborative and cross-sectorial are described as its common features; new products, services, processes, markets, platforms, organizational forms and business models are typical types of SI (Caulier-Grice et al. 2012).

However, to simply interpret SI as a means towards economic development could lead to some challenges as this interpretation of SI could increase the impacts of the unsustainable path the whole world has been taking since the Industrial Revolution. A more economy oriented social innovation paradigm could foster more unnecessary consumption while trying to reduce poverty and increase the wealth, which would then result in consuming-without-caring society. In this complex context, social innovation initiatives are still trying to create a single solution that fits within the framework of a complex problem (Balfour 2016). This is why it is important to adopt "a less material-intensive innovation, and exnovation of unsustainable practices and practices” (Ziegler 2017a, 390).

An important part in healing the balance and relationship between people and the planet lies in working actively with bricolage solutions that address innovations in a broader socio-ecological systems perspective (Westley et al. 2013; Olsson et al. 2017). There is an opportunity to build an integrated approach to social innovation that couples social innovation as a catalyster of the formation of new social systems with humanity’s need to move towards a sustainable society as there is a need to see the world as both simple and complicated in order to start seeing the world in all its complexity (Westley, Zimmerman, and Patton 2006). Additionally, some SI initiatives only focus on one aspect of a problem and they do not see the need to look at a problem systemically (Westley et al. 2013). These factors and the lack of complexity awareness and system perspective couple with the global sustainability challenges that the world is experiencing. Thus there is more need to build the capacity of the SI initiatives to foster solutions that could ignite change and permit our systems to learn, adapt, and transform (Westley et al. 2013).

1.1.4 Introduction of Transformative Social Innovation

TRANSIT was a research project that developed a mid-range theory of transformative social innovation which revolves around the topics of empowerment and change in society. It was co-funded by the European Commission and ran for four years, from January 2014 until December 2017. In the TRANSIT Project, the TSI theory was developed in order to answer the question of to what extent social innovation could contribute to societal transformation that responds to societal challenges, and how people can be empowered to contribute to such a process (Wittmayer et al. 2017). According to TSI, although technological innovations help to increase the comfort in daily life, they do not necessarily address to the social change adequately enough in order to reduce global problems of poverty, inequality, climate change, etc. in an increasingly inter-connected world. Moreover, the top-down policies which offer large-scale solutions to problems do not effectively work on local scale. In order to cope with
societal challenges which are inter-linked and systemic, transformative social innovation is needed to create transformative change. In that, it is seen as a process where it brings about “new socio-material relations” by “challenging, altering and replacing the dominant institutions” through the adoption of new ways of doing, organizing, framing and knowing. The initiative(s) that do things differently by taking up these new ways are considered “socially innovative.” Transformative social innovation aims to create the societal transition towards a more “sustainable, just and resilient” common future. (Haxeltine, Pel, Dumitru, Kemp, et al. 2017)

In the next sections, we introduce the TSI theory and tools developed by the TRANSIT project.

1.1.5 Background of Transformative Social Innovation Theory

TRANSIT utilized a research method that encouraged feedback from social entrepreneurs and innovators, policy makers and academics to develop a theory with practical relevance. The research project studied how social innovation can bring about empowerment and societal transformation.

The TSI theory relies on three themes, namely social innovation, transformative change and “the interactions between social innovation and processes of transformative change.” As for the context of social innovation, it suggests that it is “the sum-total of all actors, the different social and material relations among them as well as the institutional arrangements.” It stands out to be a middle range theory of transformative social innovation in that it explains not only what is happening in an initiative but also the enabling and constraining relations in the society where the initiative functions. It suggests that social innovation “both acts on its surrounding context and is produced by it.” In the surrounding context, institutions play a significant role. The relations between TSI agencies and the dominant institutions are emphasized as the interplay within the term “structuration.” (Haxeltine, Pel, Dumitru, Kemp, et al. 2017)

The TRANSIT project carried out empirical studies on 20 transnational social innovation networks and approximately 100 associated social innovation initiatives. In order to theorise the emergent nature of these SI initiatives which interact with changing institutions, a relational framework was developed (Haxeltine, Pel, Dumitru, Kemp, et al. 2017). This framework presents four clusters: (A) On the social relations within individual SI initiatives, (B) On the network formation of SI initiatives (the relations between initiatives), (C) Relations of SI initiatives to institutional change processes, (D) Relations of SI initiatives and networks to the broader socio-material context.
Cluster A, on the social relations within individual SI initiatives, briefly explains “the formation and evolution of SI initiatives.” It includes five propositions: (1) Motivations to start join and persist in, a SI initiative, (2) Rules of engagement and internal governance, (3) Experimentation with interpersonal relations, (4) Dynamics of individual and collective empowerment, (5) Reflexivity. In summary, it explains the psychological and motivational needs and conditions in empowerment within interpersonal relations.

Cluster B, on the network formation of SI initiatives (the relations between initiatives), gives insights on the processes of network formation that SI initiatives are involved in. What is important here is that SI initiatives tend to co-operate with each other in order to empower and get more empowered. Networking and empowerment stand out to be the keywords within this cluster. There are five propositions: (1) About the formation of trans-local SI networks, (2) About the kinds of empowerment generated through different forms of transnational SI networking, (3) About discourse formation and communication infrastructures, (4) About the empowerment through spaces for development of new knowledge and practices, (5) About the tensions and instability of action fields.

Cluster C, relations of SI initiatives to institutional change processes, tries to answer the question of how “SI initiatives and networks engage (individually and collectively) with processes of institutional change? What relations are important in achieving institutional change?” As mentioned earlier, people constitute institutions while institutions also have a transforming effect on human actions. The concept of institutionalization stands out to be very
clear here: SI initiatives should aim to reproduce established institutions while challenging, altering and replacing them. Regarding institutionalization, it is also important to keep in mind that transformation takes place at different degrees at different times, in different places. Cluster C propositions are (1) The metaphor of “institutional abundance”, (2) The metaphor of a “field” or “arena”, (3) The metaphor of “bricolage”.

Cluster D, relations of SI initiatives and networks to the broader socio-material context, explains the historical processes and the social trends which form the background of TSI processes. The discourse on social innovation, transformative goals of TSI and narratives of change are the highlights of Cluster D as they help to explore and discover the underlying expectations, assumptions, motivations and ways of engagement of SI initiatives. Macro elements such as economic crises are also considered as “game-changing dynamics” which are “complex processes of change that specific actors invoke to justify their particular set of proposed social and system innovations’.” There are six propositions in this cluster: (1) The transient nature of TSI agency, (2) Trends that are important to TSI, (3) The transformation enacted is a diverse transformation, (4) The degree of novelty varies greatly, (5) Crises are not game changers (6) Some narratives of change are subject to change.

Besides the four clusters, the TSI theory developed a set of theoretical propositions on TSI processes. These propositions articulate the complex and intertwined process-relations of TSI, based on the empirical cases. (Haxeltine, Pel, Dumitru, Avelino, et al. 2017).

The five TSI tools were developed based on the TSI theory, thus are in line with the propositions.

1.1.6 The Five TSI Tools

The TSI tools present useful approaches and methods to help SI initiatives to develop and proceed in their social innovation. This is why they are training tools. However, they are still open to development considering the fact that the SI field is still evolving. Furthermore, in other fields such as medicine, science, and business, one can speak of more availability and awareness on the methods in use. However, there is a limited number of approaches and methods social innovators could make use of in the social innovation field despite the richness and vitality of social innovation (Caulier-grice and Mulgan 2010).

Regarding the tools for social innovation, there are many approaches such as the leadership development, organizational approach, etc. Yet they do not necessarily reflect the reality of today’s complex world and there is not a true connection regarding large-scale problems (Mcleod Grant, Block, and Fors 2007) There is a lack of available approaches which can connect the SI initiatives with other systems. Besides this argument, in the TRANSIT project, they developed a critical perspective in the SI how-to-tools, with the argument that these tools could have the potential to reproduce the system by guiding practitioners through knowledge based on exactly the same system which does not give too much space to critically reflect on itself (Zuijderwijk et al. 2014). This approach taken by the TRANSIT project is of paramount importance from the point of view of the transformative change, “because transformation is a fundamental change of system and structures, requiring a questioning of these exact structures - as well as the training tools that are usually produced within these structures” (Zuijderwijk et al. 2014, 6).
Therefore, TRANSIT project developed not only the theory but also the tools for people who are practitioners of social innovation, policy makers and academia to empower them and their social initiatives in the global complex context from a reflective process which is based the notion of co-production of knowledge (Zuijderwijk et al. 2014). The five TSI tools were developed to enable practitioners and other targeted groups to apply theoretical insights of the core themes discerned from the TSI theory; namely:

i. Shades of Change
ii. Governance
iii. Social Learning
iv. Resourcing
v. Monitoring and Evaluation

The five TSI tools are training tools based on reflexive learning so that they can facilitate learning and reflexive experience in the context of transformative social innovation. Different from the traditional “how-to tools” applied in the social innovation field, the TSI training tools were developed following a similar three-mode pattern to address the notions of practical relevancy, reflexivity, the transfer and co-production of knowledge. (Zuijderwijk et al. 2014)

Mode 1 introduces and explains the relevant knowledge around the themes discussed in the tools. Mode 2 introduces the social innovation and system transition processes and identifies the ownership, i.e. who owns the process. Mode 3 provides re-orientation regarding emerging roles, ownerships and relations (Zuijderwijk et al. 2014, 6) .
1.1.7 Introduction of FSSD

The TSI theory and tools focus on the systems which are causing the challenges social innovation is trying to tackle. Thus, it has the purpose of supporting the social innovators in their contribution to a system change. Furthermore, the theory is based on the awareness of the complexity of the problems. The TSI researchers are cautious on making over-optimistic assumptions without careful analysis as there is the danger of underestimating the complexity of the challenges regarding transformative social innovation. They suggest that the current societal challenges are interlinked and run right through the heart of all the social and economic systems. Thus, transformative change is necessary to tackle these deep-rooted issues (Kemp et al. 2015, 5).

In this research, we chose to adopt the “Framework for Strategic Sustainable Development (FSSD)” (Broman and Robèrt 2017) to explore the potential of the TSI theory and tools to contribute to strategically move the society towards sustainability. The first reason is that FSSD provides a principle-based and scientifically-proved definition of sustainability in the complex context of global sustainability challenge. The second reason is the TSI theory does not prescribe a definition of sustainability.

We believe FSSD could add value to the reflectivity learning approach of the TSI tools. The principled definition of sustainability provides eight applicable and science-based principles on the success level to be useful in practice for backcasting planning and redesigning for sustainability. The FSSD definition of sustainability is phrased as:

In a sustainable society, nature is not subject to systematically increasing…

1. … concentrations of substances extracted from the Earth's crust.
2. … concentrations of substances produced by society.
3. … degradation by physical means.

and people are not subject to structural obstacles to…

4. … health.
5. … influence.
6. … competence.
7. … impartiality.
8. … meaning-making.

By studying the training tools developed from TSI theory and exploring their potential to contribute to strategically move society towards sustainability, we have the preliminary impression of some similarities between the TSI theory and tools and SSD. For example, both of them seem to take systems thinking and systemic approach to describe and address complexities. In this research, we chose TSI and SSD from the fields of social innovation and
sustainability, respectively; because we think they have certain similarities and they both share the mutual goal of creating a societal transition towards sustainability.

1.2 The Aim of Our Study and Research Questions

The aim of this thesis is to explore and discuss on how the TSI tools could be improved in order to move society towards sustainability. We are trying to find out how SSD could complement the TSI tools in order to support target audiences who could use the TSI tools in their endeavours to lead their social innovation towards sustainability. This inquiry could be possible through exploring the contribution of the TSI tools to strategically move the society towards sustainability: finding out the entry points from the current TSI tools that could be complemented with SSD features; prototyping add-ins from the SSD perspective and getting expert feedback on the add-ins for future research.

Main Research Question (MRQ):

*How can SSD complement TSI tools to support TSI users to strategically move the society towards sustainability?*

In order to answer this main research question, we came up with the following three sub-research questions (SRQ):

SRQ1: *How could the TSI Tools contribute to strategically move the society towards sustainability?*

SRQ2: *What could be the entry points of the TSI Tools to be complemented with SSD features?*

SRQ3: *What could be complementary to TSI tools from SSD perspective?*

1.3 Scope and Limitations

1.3.1 Scope

The focus of our research consists of two main parts: the TSI tools from the TRANSIT project and SSD. The scope in our research includes the background of Transit project and the TSI theory, TSI theory and tools, other theories that are originally adopted by TSI tools and the application of the tools.

1.3.2 Limitations

The width of data sampling depended on the number of interviewees who we could engage with. It was also a limiting factor that the TSI tools were recently published and did not have enough application cases available.

Due to the research time period, we prototyped the add-ins once with one round of expert feedback. The validity of the expert feedback depended on the expert’s personal interpretation of the add-ins and their personal standpoints in the TRANSIT project. We also aimed to carry out a workshop to test the validity of the add-ins by action research, but we could not get enough responses to our workshop invitations.
2 Methodology

The structure of the methodology we employed in our thesis relied on four main parts: document content analysis, interviews, FSSD analysis, and prototyping. The TSI deliverables (the TSI theory and the tools) were systematically coded and analyzed with the generic five level framework and SSD features. For the interviews, we targeted three groups of interviewees including the TSI authors, TSI tool workshop participants, and experts in both social innovation and sustainability fields. This was designed to gain comprehensive insights of the development of the TSI theory and tools, and their development and application contexts in the social innovation and sustainability fields. Then, TSI tools were analyzed through the FSSD perspective. Finally, a set of add-ins was created to suggest how SSD features could complement TSI tools for target audiences to strategically move the society towards sustainability. Feedbacks regarding our suggested add-ins were collected from the TSI authors and put into discussion.

Figure 2.1 Methodology and Links to Research Questions

2.1 Document Content Analysis

2.1.1 Aim of the Method

The document content analysis sought to collect relevant information about the Transformative Social Innovation theory and tools that are derived from the theory in order to better understand the social innovation and the stand point of the TSI theory within this field. Moreover, the document content analysis contributed to discover and reveal important
information about their potential implications in the sustainability field from the Strategic Sustainable Development (SSD) perspective.

2.1.2 Process

The process of conducting the document content analysis involved for key documents which are directly related to our research aim and questions and published in the TRANSIT Project database. The database resulted to have over 100 documents and several documents in forms of journal articles, deliverables, working papers, briefs and case studies. The main source of information were peer reviewed deliverables and working paper articles from the TRANSIT Project, the 4-year-old project whose main outcome is the focus of our research, namely the mid-range theory of the Transformative Social Innovation and its training tools.

Due to time limitations, it was not possible to undertake a document content analysis of all the documents. Therefore, we contacted the TRANSIT Project database manager organization, the Institute for Housing and Urban Development Studies (IHS) of Erasmus University Rotterdam and asked for the key documents related to our research. Six documents including the TSI theory and tools were suggested. Among the six documents, the document of Social Learning Tool is in Spanish.

In order to facilitate the document content analysis, systematic coding was employed to categorize the data we collected. For the coding, a code list (Appendix A: Code List) that prescribed the concepts and definitions that we used in coding was established. In this code list, the codes were categorized into two categories. The first category refers to the generic five-level framework codes, which is a framework developed to help solve complicated problems in complex systems. We chose this framework as it is very suitable for analysing the TSI field which is already very complex to analyse. This framework includes system, success, strategic guidelines, actions and tools levels. The second category is the codes that were employed to represent the prominent characteristics of SSD. The codes included systems thinking, complexity, boundary conditions, systemic errors, and transition referring to both the ecological (sustainability principles 1-3) and social (sustainability principles 4-8) transitions\(^1\). See Appendix B for a screen shot of the coding system.

Regarding the limitations of this method, the documents sources we used for the document content analysis came from the database of the TRANSIT Project. This project was developed by 12 partner organizations in a period of 4 years. The diverse characteristics of the project also influenced the structure and level of details of the documents as they were developed by the partner organizations. Moreover, the documents were not exclusively developed in English and needed to be translated.

2.2 Interviews

2.2.1 Aim of the Method

Our overall aim to design and conduct interviews was based on four sub-goals: to better understand and analyse the TSI theory and tools regarding our first sub-research question; to

\(^1\) The sustainability principles were discussed in the introduction.
gain insights on how the TSI tools could be complemented with SSD features to strategically move the society towards sustainability addressing to the second and third sub-research questions; to explore the practicality and the use of the TSI tools in the social innovation field and to have a more thorough understanding of the social innovation and sustainability fields from the perspectives of the experts who are experienced in the field in order to collect complementary and supportive data regarding our main research question. In summary, our interviews were developed with the purpose of revealing and getting to know more on what is in theory and practice. Thus we conducted our interviews with three groups of people: the authors of the TSI theory and tools who could provide more clarification on the theoretical background; the participants of the tool development workshop who could provide how the TSI theory and tools could help in practice; and independent experts from the social innovation and sustainability field who could help to clarify the challenges and opportunities regarding social innovation and sustainability fields as well as the points where both fields overlap.

![Figure 2.2 Composition of Interviewees](image)

### 2.2.2 Process

We conducted nine interviews. We used semi-structured questions as we had three groups of interviewee audiences and we wanted to provide them with enough space so that they could give us their own inputs on our research. In order to design the most comprehensive and to-the-point questions, we tried to make use of the most critical points from our document content analysis which consisted of the TSI project deliverables (website), scientific articles on social innovation and sustainability. We did coding with the deliverables to reveal the most critical and frequently mentioned phrases and key points and used them in the design of our questions. Our questions were designed to reveal the interviewee’s theoretical and practical understanding of the topic. As a general format, the questions were divided into two main groups. In the first part, we asked initial questions which aim to explore the interviewee’s individual work experience and their experience and relation regarding sustainability. In the second part, the questions differed as we had three groups of interviewees. For the first group,
the authors of the TSI theory and tools, we asked questions to gather in-depth data about the TRANSIT project, the TSI theory, their understanding and experience of sustainability within the theory and the tools as well as in the social innovation field. In the second set of questions which were designed for workshop participants who were involved in the workshop of the project, we asked questions to learn about their understanding and experience of social innovation and sustainability, how they could relate what they understood and learnt from the workshop to the social innovation field. The third set of questions which were designed for independent experts from the social innovation and sustainability fields aim to explore how they link sustainability with social innovation regarding their work experience. (Appendix C)

In order to conduct our interviews in the most effective way possible, we aimed to create a list of interviewees by three categories as mentioned earlier. We tried to reach all the names on our list, but prioritized especially the authors who took part in more than one part of the project. We e-mailed them with our attached interview questions and asked them if they were available for an interview via SKYPE. The interviews were conducted via SKYPE in one-hour session. Before the interview was conducted, we asked for the interviewee’s permission for recording and using their quotes if needed.

After the interviews were conducted, the recordings were transcribed using an online software and were divided among us for a further review of the transcription derived from the software. The review process consisted of an individual review while listening again to the audio recording, to improve its accuracy and validity. Some aspects were excluded such as the interviewees’ tones. Besides the time constraint, only one interviewee asked to receive back the transcription and it was the only case where the transcription was sent back. All the interviewees agreed, prior to the audio recording and the interview, on the use of the statements specified in the transcription for this research.

Moreover, a systematic coding was conducted to conceptualize the data that was collected from the interviews applying an FSSD perspective. The systematic coding followed the same logic and structure as described for the document content analysis, which was categorized into two categories. The generic five-level framework codes, which include system, success, strategic guidelines, actions and tools; and the codes that were employed to represent the prominent characteristics of SSD. System thinking, complexity, boundary conditions, systemic errors, transition (sustainability principles 1-3), transition (sustainability principles 4-8) fall to the second category of the codes that are immediately related with SSD. In the coding process, we highlighted and extracted the key patterns and insights to proceed with an FSSD analysis as the next process. We double-checked the coding to improve the validity. Our purpose of this analysis was to identify the key concepts, context and interrelations in the TSI theory and tools from an SSD perspective and use this information as a base for the FSSD analysis to find out the contributions and gaps as entry points. In this regard, we highlighted:

- Important terms as keywords
- Words used in context
- Frequently used terms and concepts
- Unusual use of terms and concepts
The relationships among ideas

A general sense of what the interviewee is saying, the meaning of the whole in context as the main theme

Regarding the limitations, the interviews were conducted during a timeframe of one hour. The interviews were not held face-to-face, so the feedback quality relied on verbal communication.

Table 2.1 List of Interviewees

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Relation to our research</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The co-author of TSI theory</td>
<td>Université Libre de Bruxelles - Researcher system innovation &amp; transitions</td>
</tr>
<tr>
<td>2</td>
<td>The co-author of TSI theory</td>
<td>Visiting researcher at Hongik University, PHD fellow Aalborg University</td>
</tr>
<tr>
<td>3</td>
<td>The co-author of TSI theory</td>
<td>Associate professor in sustainable innovation and sustainable transition at Center for Design, Innovation and Sustainable Transition (DIST)</td>
</tr>
<tr>
<td>4</td>
<td>Participant of the TSI Tools workshop</td>
<td>Project assistant professor at Keio University, Executive Director at SROI Network Japan</td>
</tr>
<tr>
<td>5</td>
<td>Independent expert from the sustainability field</td>
<td>Sustainability consultant &amp; director of Natural Step Portugal</td>
</tr>
<tr>
<td>6</td>
<td>Independent expert from the SI innovation field</td>
<td>Program manager at ETIC (Entrepreneurial Training for Innovative Communities)</td>
</tr>
<tr>
<td>7</td>
<td>Independent expert from SI &amp; sustainability field</td>
<td>Student in MSLS (master of strategic leadership towards sustainability)</td>
</tr>
<tr>
<td>8</td>
<td>Expert in SI &amp; sustainability (member of 1 network that) TRANSIT studied</td>
<td>Head of IR of University school of Design and Engineering of Barcelona, Director DESIS Lab Elisava &amp; Visitor Professor of Harvard University</td>
</tr>
<tr>
<td>9</td>
<td>Project coordinator of TRANSIT project; Co-author TSI theory, and Tools 1 &amp; 5</td>
<td>Background in Social &amp; Cultural Anthropology, PhD focus on Transition Management “Understanding local sustainability transitions”</td>
</tr>
</tbody>
</table>

2.3 The FSSD Analysis

2.3.1 Aim of the Method

The FSSD analysis was employed in our research project with the aim to examine the TSI tools’ contributions and gaps as entry points in the context of leading transformative social innovation towards sustainability. The objects of the FSSD analysis were the TSI theory based training tools developed by the TRANSIT project.
The TSI tools were developed to translate the TSI theory into practice and empower (or disempower) the individual actors, initiatives and networks to contribute to the transformative social innovation process through different forms of governance, social learning, resourcing and monitoring. Similarly, FSSD has proven to aid organizations in thoroughly understanding and putting themselves in context of the global sustainability challenge, and to move strategically towards sustainability. We employed the FSSD analysis as a research method to identify the design and application of the TSI tools regarding their contributions to sustainability, as well as the gaps that may be further complemented by SSD features. In this regard, we consider the FSSD analysis was proper to employ in the context of examining TSI tools from a strategic sustainable development perspective.

2.3.2 Process

The data used in the FSSD analysis was mainly from the results of the document analysis and interviews which were done with the authors and developers of the TSI theory and tools. An FSSD analysis was conducted to each of the five TSI training tools and the results were discussed considering the TSI theory and its five training tools as a whole.

The “Framework for Strategic Sustainable Development” (FSSD) analysis was intended to identify the strengths and weaknesses of the TSI tools from a strategic sustainable development perspective. FSSD comprises a five-level model to clarify differences and inter-relationships between entities of different character in the sustainability context (Broman and Robèrt 2017).

System level: It refers to the need to consider the whole system when planning or making decisions. It takes into account how the relevant social and ecological systems function and that they are affected by the choices the society made as well as the current sustainability challenge (Robèrt 2000). The system level includes principles for the functioning of the global system as well as familiar relationships between human practices, and impacts in the ecological and social systems (Broman and Robèrt 2017).

Success level: The success level includes the definition of the vision. The FSSD requires any vision to be framed by basic sustainability principles (Broman and Robèrt 2017). The eight sustainability principles set the basic conditions that are necessary to fulfil for the ecological and social systems not to degrade systematically. They are the boundary conditions that safeguard humanity to survive; and human society to function and evolve. The violations of the eight sustainability principles are considered as not sustainable.

Strategic guidelines level: The strategic guidelines level includes guidelines for how to approach the principle-framed vision strategically. In this backcasting from sustainability principles approach, three generic prioritization questions should be asked to guide how to choose specific actions in certain contexts. The three prioritization questions are: “1. Does this action proceed in the right direction with respect to the Sustainability Principles? 2. Does this action provide a 'stepping stone' (flexible platform) for future improvements? 3. Is this action likely to produce sufficient return on investment?” (Robèrt 2000)

Actions level: The actions level includes the concrete actions that have been prioritized by the specific organization into a strategic plan, using the strategic guidelines and the vision to inspire, inform, and scrutinize the possible actions (Broman and Robèrt 2017).
Tools level: The tools level includes methods, tools and other forms of support that are often required for decision making, monitoring, and disclosures of the actions to ensure they are chosen in line with the strategic guidelines to arrive at the defined success step-by-step (Broman and Robert 2017).

We acknowledge the limitation that the data for the FSSD analysis on the actions level and tools level was not fully presented. This was due to the fact that the TSI tools were newly developed and issued at the end of 2017. Interviews with the participants of the TSI tools development workshops and people who were working very closely with social innovation organizations (such as trainers of social innovation and social entrepreneurship) were conducted as a mitigation of the above acknowledged lack of direct data.

2.4 Prototyping

2.4.1 Aim of the Method

The overall aim of our research is to enhance the potential of the TSI tools which aim to empower social innovators to contribute to societal change, by complementing the tools with SSD concepts which we name as add-ins in our research project. We believe the add-ins could contribute to the potential and scope of the TSI tools in leading societal change towards a more sustainable society in a strategic way. Regarding the third sub-research question, we aimed to identify complementary SSD add-ins for the TSI tools to meet the overall aim of our research project.

Concerning the structure of our research, we went through prototyping to answer the 3rd sub-research question after FSSD analysis which was based on document review and interviews and helped to provide answers to the 1st and the 2nd sub-research questions. In this process, we created a list of potential add-ins to complement the TSI tools in our first attempt. Then we asked the authors of the TSI theory who mainly cooperated with us to provide the feedback on the suggested add-ins.

2.4.2 Process

The add-ins

In this process, we created a set of concepts, frameworks and strategic methods from SSD to complement the TSI tools on the entry points we identified based on the results of FSSD analysis. Then, in the expert consultation part, we asked the TSI authors to give feedback on the add-ins regarding the suitability and effectiveness of the complementary add-ins.

As mentioned earlier, we found out the contributions and gaps of the TSI tools from SSD perspective in the FSSD analysis. We considered the contributions and gaps as entry points. Using these results, we conducted a brainstorming session in our team to fill these entry points identified in each tool with SSD features. Then, we sorted out ideas into several categories and identified patterns and insights. Finally, we ended up with a set of key add-ins for each TSI tool.

Evaluation of the Add-ins
For the expert consultation, we created a feedback form in written format including a list of add-ins with brief explanations and illustrations as we thought it might not be easy for the TSI authors to understand SSD concepts immediately. For the TSI authors to be able to evaluate the add-ins in the most effective way, we set four questions with the five-level-rating format. The questions aimed to provide answers on whether the add-ins are understandable and relevant to the challenges social innovators facing, whether they are effective to identify the sustainability characteristics, and whether they have applicability in the practice. We also asked them to add more comments if necessary.

Regarding the limitations of this method, the expert feedback was helpful to analyse the SSD features which could complement the TSI tools, as it contributed to reduce our bias on the add-ins. However, this method still had some limitations, as we could not find the experts who have expertise and knowledge on both the TSI tools and SSD to examine the add-ins from both perspectives. The experts also had to rely on their limited experience with the TSI tools and their assumptions as the project is new and has not documented any real case application of the tools.

Table 2.2 List of Expert

<table>
<thead>
<tr>
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<td>The co-author of TSI theory</td>
<td>Associate professor in sustainable innovation and sustainable transition at Center for Design, Innovation and Sustainable Transition (DIST)</td>
</tr>
</tbody>
</table>
3 Results

In the following section, we described the results of data through the methodology we adopted in our research project: document analysis, interviews, FSSD analysis, and prototyping. First, the coding results from the document analysis present how the TSI theory and tools function in the process of transformative change and how they could potentially contribute to strategically move the society towards sustainability. Interview coding results are divided into three categories depending on the audience profile: the authors of TSI theory and tools, tool development workshop participants and independent experts in social innovation and sustainability fields. The reason we divided the interview audiences into three categories was that we aimed to gather insights on the theoretical background of the TSI theory and tools, their potential use and effectiveness in practice, and both SI and sustainability fields to see the bigger picture. Based on the results from these two methods, we conducted an FSSD analysis to identify the contributions and gaps of the TSI theory and tools from an SSD perspective. After we got the results from the FSSD analysis, we suggested a set of add-ins from SSD to complement TSI tools. Finally in the last stage, we sent the add-ins to the experts to receive their feedback.

3.1 Results of Document Content Analysis

The results of the document content analysis include the analysis of the TSI theory and tools as they were the most relevant documents to answer our sub-research questions. The TSI theory is included as it provides the basis for all the five tools. The table below simply illustrates the most frequent themes in the TSI theory and tools. The detailed explanation of the results from the TSI theory and tools is provided in the following sections.

Table 3.1 Coding Results from Document Content Analysis

<table>
<thead>
<tr>
<th>Tools</th>
<th>System</th>
<th>Success</th>
<th>Strategic Guidelines</th>
<th>Actions</th>
<th>Tools</th>
<th>Systems Thinking</th>
<th>Complexity</th>
<th>Boundary Conditions</th>
<th>Systemic Error</th>
<th>Transition (P1-P3)</th>
<th>Transition (P4-P8)</th>
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</thead>
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<tr>
<td>1st Tool Shades of Change</td>
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<tr>
<td>2nd Tool Governance</td>
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<tr>
<td>5th Tool M&amp;E</td>
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</tr>
</tbody>
</table>
3.1.1 TSI Theory: Adopting Systems Thinking Approach to Deal with Complexity, Systemic Errors towards System Transition

In the TSI theory, the emphasis is mostly on the system and success levels of the generic 5LF. At the system level, the TSI theory suggests that social innovation not only affects but also is affected by its environment and surrounding interactions. Thus, at the system level, the emphasis is on the initiatives (with their intentions), the interactions among agencies including initiatives and institutions, and the social innovation field. Socio-material context is also highlighted in that the TSI processes contribute to how this context is shaped and transformed. The institutions, formal and/ or informal) are also regarded as “social facts” of this socio-material context. TSI comes out of this socio-material context and they “co-evolve.” As a result, social relations are not only among people, but also among material objects, practices, resources and narratives.

At the success level, the TSI theory regards TSI as a process. It tries to explore the conditions that enable a social innovation to create transformative change. It suggests that one-dimensional change is not enough for societal transformation, and “an identified need or vision” is necessary regarding the success of a social innovation. This concept of change requires challenging, altering or replacing the dominant institutions by adopting “new ways of doing, organising, framing, and knowing (DOFK).” In this sense, structuration is a key element towards success as it is the interplay between actors and institutions. Network formation is also emphasized in achieving a social innovation since transformative change is mainly based on social relations. Social relations with a highlight on interpersonal ones are important to sustain a constant co-evolution which is a key factor for the success of SI initiatives to be more sustainable and resilient.

At the strategic guidelines level, the TSI theory highlights adjusting the strategies in response to complex and dynamic circumstances. Getting into the co-evolutionary interactions which result from social relations within the socio-material context for an SI initiative to increase its transformative potential and creating social innovation spaces for SI initiatives to co-evolve together are also mentioned as strategies to achieve transformative social innovation.

From an SSD point of view, the TSI theory mostly addresses to complexity and systemic errors. The theory starts with mentioning “the non-determinacy of social life” to refer to complexity. Complexity is also mentioned where the TSI theory suggests that an SI initiative operates on the same socio-material relations it is a part of. Thus a social innovation is shaped by its surrounding context while shaping its context. The TSI theory also mentions a social innovation goes beyond “the sum-total of all actors and the different social and material relations between them, as well as the institutional arrangements” with which it interacts. Complexity is also studied from a time perspective where several dimensions of the context happen at the same time in different places. Regarding the relation between social innovation initiatives and institutions, it suggests the relationships are complex and the TSI processes can be understood as contributing to change in the context while equally re-crafting the institutional nature of the context. The concept of agency is also linked to complexity as it needs to be dynamic, relational and constantly and evolving where “actors transform themselves, their relationships and the social context in which they exist.” (Haxeltine, Pel, Dumitru, Kemp, et al. 2017)
Regarding the systemic errors, the TSI theory frequently mentions both formal and informal institutions as they are also the root causes of systemic errors which hinder a transformative social innovation. It also suggests that systemic errors occur mostly in the processes of structuration, resourcing, engagement of SI initiatives and governance. This is why all the TSI tools are designed to address the systemic errors within these processes.

The TSI theory also takes systems thinking into account as a social innovation is regarded to operate on a broader context which includes all actors and their relations and interactions. However, it does not go beyond mentioning the social innovation field and its processes.

3.1.2 The 1st Tool: a Specific System Perspective of the Dynamics of Societal Transformation

At the system level, this first TSI tool explains the basis of the social innovation field as well as the relations to achieve societal transformation. In this sense, it provides a specific system perspective for societal transformation as it is shaped and produced through particular patterns with the interaction among the shades of change “The shades of change” represent the dynamics of system change with different parameters in order to reach the societal transformation on a macro scale. These parameters include social innovation, system innovation, game-changer dynamics, narratives of change and societal transformation. At the success level, the tool also suggests that social innovators could increase the transformative potential of their social innovations by navigating into the social game changer dynamics of their times. At the strategic guidelines level, the tool includes backcasting from scenarios to help SI initiatives to develop their TSI story.

From the SSD perspective, the tool points out systems thinking and complexity several times especially regarding the shades of change. The shades of change (as a concept) adopts systems thinking in that it requires being able to analyse the interactions among different agencies which include the actors as well as the context. Similarly, it is also related with complexity as it tries to create awareness of the complexity of the relations between social innovation and societal transformation.

3.1.3 The 2nd TSI Tool: Managing the Complexity within the System by Governing Social Innovation Networks

The tool refers to the system level when it highlights the importance of recognizing the roles of actors in the transformative social innovation processes. A multi-actor perspective (MaP) is adopted to locate the third sector (associations, non-profit organizations) as an intermediary sector between the government, the private sector and the community. The tool also divides governance into two as internal governance, which focuses on internal decision-making and mechanisms of inclusion and exclusion; and external governance, which focuses on the structures and mechanisms which influence networks and initiatives and which networks try to use to obtain influence. At the strategic guidelines level, guiding principles are regarded helpful the uncertainty of networks which are due to the complexity of society, and the uncertainty of the process. These non-traditional guiding principles should be embedded in governance as governance is not a linear approach (Pennink and Zuijderwijk 2015). At the tool level, meta-governance was introduced as a tool to enable self-organizing network governance and influence network processes in a way that does not adopt the hierarchical and traditional command approach. (Pennink and Zuijderwijk 2015).
From the SSD stand, the tool suggests systemic errors are related to the complexity in the society and they need to be fixed by a new type of governance. Complexity is regarded as the main factor of the systemic errors as “society is increasingly complex and is characterized by ‘wicked’ (or persistent) problems” (Pennink and Zuijderwijk 2015). Interdependency is also emphasized in that actors (individuals and institutions) cannot solve problems on their own and they need to co-operate as they depend on each other.

### 3.1.4 The 3rd TSI Tool: Empowering Social Innovators to Position and Reorient Themselves in Complexity

At the system level, the tool aims to clarify how particular institutions and systems work and how they create undesirable values and practices. At the success level, there is emphasis on relations. The tool suggests that an SI initiative needs to understand and contest social relations in order to be able to change them. In order to contest the power relationships that support the existing social relations, shared social learning is emphasized. In that sense, the tool identifies four types of social learning: socio-relational learning, organic learning, socio-technical learning and socio-political-learning. Changing social relations relies on experimentation which aims to create new social relations (Becerra et al. 2016). Regarding the Strategic Level, developing effective strategies for different contexts is mentioned. SI initiatives must also learn how to engage with political actors and institutions, and develop specific strategies to gain political influence. At the actions level, experimenting is seen as a way to reach new shared meanings through interaction, collective experimentation and joint reflection. This is also called social learning in the tool.

From the SSD perspective, the tool addresses to complexity to help the members of SI initiatives in their political struggle and attempts when they deal with the dominant institutions and try to gain political influence (Becerra et al. 2016). Complexity is inherent in social relations as they constantly change and interact with each other creating unforeseeable outcomes. In the overall picture, the tool focuses on the social stream, as social learning is the key to understand how social innovation contributes to transformative social change. In this aspect, words like, peer-to-peer cooperation, participatory decision making, participating in common activities, collective experimentation, co-shaping appear several times throughout the documents reviewed. The experience of co-shaping and participating in the building of a social innovation initiative, learning from experience and witnessing the different impacts that it can achieve are considered to be deeply empowering. The result is a sense of personal and collective power. Regarding the social transition, the tool emphasizes the need to create a space where SI initiatives can co-shape and contribute to a community in meaningful way in order to increase their individual and collective power (Becerra et al. 2016).

### 3.1.5 The 4th Tool: Resourcing Strategies to Overcome Complex Systemic Errors

This tool suggests mostly on success, strategic guidelines and actions levels. At the success level, the main objective and secondary objectives are stated. The main objective is to enhance SI initiatives’ skills to design useful resourcing strategies. The strategies are introduced as venture capital, commons approach, self-financing, work-force collaboration. The tool also provides specific strategies and actions under the secondary objectives in order to generate skills in the assessment of resourcing problems at different levels. They are based on three themes namely the evaluation of different resourcing problems, strategies for
resource management and learning methodology to solve new resourcing problems. A change in the strategy is also regarded as a critical turning point. The tool also mentions that there is not only one resourcing problem and resourcing problems are generally related to each other. They could either be monetary and human related and affect not only now but also the future.

From the SSD perspective, the example of nested enterprises is emphasized in the Commons Approach regarding systems thinking. Complexity is also referred as having more than one problem that are inter-related. Regarding transition, “the bad actor” is mentioned as an external resource which leads to tensions and problems for an SI initiative.

### 3.1.6 The 5th Tool: A New Approach towards Success - Developmental and Reflexive Monitoring and Evaluation

On the system level, the tool highlights the constant changes in the surrounding environment and the feedback of its diverse actors. Thus, it is important for the developmental evaluator of an SI initiative to be able to clarify the changing context where the SI initiative operates so that the SI initiative could evaluate the opportunities, threats and risks which could affect their local action. The underlying values, actions, and goals (of an initiative) are taken into consideration on the system level. That is why the system is explained by not only space but also time where narratives of change helps SI initiatives to make sense of how their system has been affected up to the present moment and could be affected in the future. The society is also emphasized as it influences and is influenced by social innovation. Finally, the system is depicted as “the societal level through broad, lasting (and therefore transformative) changes in social relations, institutions, constructs and behaviours.”

At strategic guidelines level, empowerment of SI initiatives is context dependent and they are supposed to choose the actions which they find purposeful. Thus their values define the starting point of their strategy. The evaluation strategy is both developmental and reflexive as an SI initiative questions and gives feedback to its stakeholders to check what things they are doing right or wrong, and analyse and practice multi-stakeholder relations within transformative social innovation processes. Thus, one important part of creating the strategy is focusing on how to collaborate with the stakeholders to achieve social innovation. At the actions level, iterative monitoring is also used to understand how effectively social impacts are achieved instead of evaluating the outcomes and impacts in a direct way. Regarding narratives of change, reflecting about past decisions also helps to understand if an SI initiative reaches its goals. At the tool level, both narratives of change and critical turning points are suggested to be used as a combined tool. Narratives of change (NoCs) is also a key instrument in the evaluation of success as it helps SI initiatives to understand their environment from a perspective where their environment has also been formed through cultural values and assumptions., while CTPs help to reflect on and foresee moments which could generate impact.

From the SSD perspective, regarding systems thinking, the tool mentions the importance of taking a broader systems perspective which helps to navigate in the uncertainty of change so that an SI initiative could analyse the pros and cons of a changing context and how that might affect their actions. Regarding complexity, it is suggested that it is important to adapt a project, strategy, or policy to “new conditions in complex dynamic systems.” It is also mentioned that social transformative innovation deals with complex systems. The tool defines social innovation as a “process interacting with complex systems” as the dynamics and challenges of social innovations are “nonlinear, uncertain and unpredictable.” Regarding transition,
narratives of change is emphasized as they help to analyse cultural values and assumptions on individual and societal level by providing sense-making which will help individuals and societies to transform towards a more sustainable and just society. Finally, as TSI is value-driven, choosing purposeful the actions helps SI initiatives to get empowered on individual and collective level within the transformation process.

### 3.2 Results of Interviews

The results of the interviews were categorized into three as it would be easier for the reader to analyse them in a more clear structure which mainly analyses the theory, practice and field. In the first part, the aim was to provide more insights on the rationale behind the development, goals and structure regarding the TSI theory and tools from the authors’ perspective. In the second part, we aimed to explore how the tools could prove to work in the field from the workshop participant’s perspective. Finally, the third part summarizes the insights from independent experts on social innovation and sustainability fields, which could depict a bigger picture of the whole system both social innovation and sustainability operate on.

#### Table 3.2 Coding Results of Interviews

<table>
<thead>
<tr>
<th></th>
<th>System</th>
<th>Success</th>
<th>Strategic Guidelines</th>
<th>Actions</th>
<th>Tools</th>
<th>Systems Thinking</th>
<th>Complexity</th>
<th>Boundary Conditions</th>
<th>Systemic Error</th>
<th>Transition (P1-P3)</th>
<th>Transition (P4-P8)</th>
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<tr>
<td>The Workshop Participants</td>
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### 3.2.1 The Development of the TSI Theory and Tools: The Authors’ Perspective

At the system level, interviewee 1 considered systems thinking from a socio-technical perspective and suggested that social order is about not only people and organizations but also the technologies that shape social relations. The interviewee also mentioned that social and technical innovations need to reinforce each other. The interviewee suggested the TSI theory includes various actors and the relation perspective. Interviewee 2 considered the SI research as a sub-group of sustainability research as SI focuses on the society and contributes to a
specific aspect of sustainability. The interviewee mentioned that many of the current social problems cannot be solved by states. Thus the solution to these problems requires active participation by different players like civil society and business actors. The interviewee also said the cases studied by TRANSIT were related to sustainability one way or another, and most of the social innovation work relates to the social part of sustainability. TRANSIT sees sustainability as a starting step. Finally, Interviewee 9 mentioned what a social innovator is doing is also influenced by the context factors.

At the success level, Interviewee 1 commented on the success level of the Governance Tool by reflecting on how actors can be empowered in social innovation processes. The interviewee mentioned it's a matter of the governance structures around them and how they self-organize themselves. Social learning aims to help to self-organize. Interviewee 2 suggested that TSI is not a coherent theory, but rather has four clusters of propositions and 20 specific topics. Interviewee 3 mentioned “sustainable innovation processes” where businesses and communities “can integrate especially other issues like social issues or economic issues into the innovation processes.” The interviewee suggested TSI’s contribution to social innovation is more on the interactions level between societal change and social innovation. The interviewee emphasized that SI initiatives have the potential to influence societal change towards a more democratic and sustainable one. In this respect, the interviewee mentioned social relations could contribute to system change via SI initiatives. The interviewee also highlighted the link between sustainability knowledge and awareness, and the empowerment of civil society. Creating spaces for people so that they can work together was mentioned several times, and the spaces were named as “spaces for co-creation.” Regarding the spaces for co-creation, the interviewee considered educational institutions very important for socialization. Another highlight was the importance of circular economy. The interviewee suggested that the timeline of a social innovation initiative matters in the sense that it addresses to a critical turning point. The interviewee also emphasized “the changes in internal governance or new ways of interacting with the dominant institutions.” According to the interviewee, the narratives of change could be used in order to get the support for the social innovation ideas. Interviewee 9 mentioned that the aim of the TSI tools is to increase the reflexivity of its users. The interviewee also suggested different kinds of tools would help people to think about transition. In this sense, the tools could provide the users the possibility to think differently, to position them and to find alternative strategies to make their social innovation more powerful and more transformative. The tools provide different lenses so that social innovators could see their current situation from different perspectives before adopting strategies.

At the strategic guidelines level, Interviewee 2 mentioned the importance of how to organize, congregate and merge networks that can interact with the institutions. Regarding the networks, the interviewee also suggested that practical relevant advices should be provided to policymakers and also to the SI networks on what steps could be taken and what things could produce impacts. However, TSI lacks practical tools to give advices for specific topics in specific context and setting.

On systems thinking, Interviewee 9 suggested that many social innovators are conscious of the impacts of what they are doing, but they also need a framework about how the system works. On complexity, Interviewee 8 mentioned social innovation process is interactive and full of risks. Interviewee 9 said what a social innovator is doing is also influenced by the
context factors. On boundary conditions, Interviewee 2 suggested the environment is the basis of the society.

Regarding transition which includes ecological and social sustainability principles, Interviewee 1 mentioned that his background is on socio-technical sustainability transitions and that he takes the Bruntland definition into consideration. The interviewee mainly commented that social innovation is the compensator for the social dimension of sustainability by taking the social dimension of sustainability into account quite strongly. The interviewee also highlighted that the projects that focus on transformative social innovation also includes some sustainability aspects. He illustrated this suggesting that challenging dominant institutions in the case of slow food is also quite sustainability oriented. Furthermore, he mentioned that sustainability does not cover everything about societal developments. The interviewee also emphasized that a lot of sustainability challenges are very persistent as they are of a very systemic nature and rooted in socio-technical systems that developed over time, and thus are very difficult to change. The interviewee also emphasized that different ways of doing, organizing and framing could contribute to sustainability as much as technological innovations. Interviewee 3 said social innovation projects are not dealing with environmental aspects of sustainability. As for social sustainability principles, the interviewee emphasized that social innovations change social relations. The interviewee also suggested social innovators should focus on sustainability. Interviewee 8 suggested a holistic approach should be adopted, which as interviewee also mentioned is becoming more and more difficult these days. Interviewee 9 said a social innovation is not always good, but it has the potential to become more sustainable. The interviewee also suggested the society needs to be transformative to become more sustainable, and in that reflexivity could be helpful. The interviewee also considered sustainability as a whole with both ecological and social dimensions. The interviewee noted it would be better if social innovators could position themselves by understanding sustainability more, which could also help increase their reflexivity and their social innovation.

3.2.2 Usefulness of the TSI Tools: Feedback from the Tool Development Workshop Participant

We received feedback from Interviewee 4 as a tool development workshop participant. Interviewee 4 is one of the participants in the workshop for developing the M&E tool.

At the success level, the interviewee emphasized the necessity of the developmental evaluation of the tool as social innovators cannot foresee the outcome at the beginning of their social innovation process. At the strategic guidelines level, the interviewee underlined the advantage of the tool in that the tool helps social innovators to understand if their values are in line with the values their stakeholders. When the values of both are not aligned, it does not produce effective work. The interviewee pointed out that most social innovations are developing spontaneously and are not easy to plan, so it is good for SI practitioners to find out their critical moments to keep track of their experience.

Regarding systems thinking, the interviewee pointed out the lack of systems thinking in the SI field. The interviewee suggested that social innovators are trying to bring solutions to the social issues, but they fail to consider the ecological ones. Moreover, they need to understand how they position their work in the whole life cycle for more effective communication.
The interviewee mentioned complexity suggesting that the social innovation process is not linear, but developmental. The interviewee also commented on the workshop and said the case studied in the workshop was something achieved at some certain level before so social innovators need to see what would happen in an on-going process. As a solution for this, the interviewee mentioned that backcasting could be helpful to social innovators.

On systemic errors, the interviewee mentioned that it is important to monitor institutions instead of controlling them and TSI helps social innovators to understand the lifecycle where all actors interact so that they can shape the life cycle in favour of their social innovation. From the sustainability perspective, the interviewee pointed out that the current economy system is not sustainable and leads to systemic errors, so the system needs to be innovated as well.

3.2.3 Understanding the Challenges in Social Innovation and Sustainability: Insights from Independent Experts

At the system level, Interviewee 7 mentioned that the SI field is very young, and there is not an overarching framework due to the fact that a lot of networks are emerging.

At the success level, the interviewee suggested that creating networks is essential to be able to move forward, and networks are vehicles for innovation. The problem regarding the success of the social innovation field is that people do not know what to do with social innovation. Innovating relationships between people is also important for success. By creating the dialogue, solutions are innovated. Looking at the underlying patterns such as the belief system and the needs is also critical when there is a problem in the way people work together. There is not enough knowledge or awareness of the ecosystem in the social innovation field. People need to take care of each other by providing more empathy, more trust, more participation and more equality in the society, which will also have a positive effect on the ecological system as people will then start to take care of their ecological system. In this regard, sustainability could complement social innovation field with a system lens and understanding of social complexity.

At the strategic guidelines level, Interviewee 7 suggested that developing and designing more programs would help social innovators to create capacity and including the ecological side into perspective would increase social innovators’ motivation. Building relationships, building cohesion among people and nations is also an important strategy in terms of success.

On systems thinking, Interviewee 5 stressed the importance of systems thinking and living systems to understand why we engage with all system actors. Interviewee 6 stressed the importance of using systems thinking in the social innovation field, but also warned against the complexity of social relations when adopting the systems thinking perspective. The interviewee provided some examples on how potential solutions lead to unexpected problems due to the complex systems. As an advantage of systems thinking, the interviewee pointed out that when social innovators understand the system structure, they can intervene. In order to deal with complexity in social innovation practice, it is important to learn to look at things from other people’s perspective, which means awareness on different worldviews.

On complexity, Interviewee 5 emphasized the simplicity and said people need to be very simple; otherwise it is very complex.
On systemic errors, Interviewee 7 mentioned that people mostly do not know what to do with social innovation. In this regard, social innovation is seen as a goal, whereas it should be seen as a vehicle. Moreover, there is a lack of mission in trainings. The knowledge and awareness on the ecological system is also missing. Regarding the ecological SPs, the interviewee mentioned that social innovation has an effect on the ecological system, but doesn’t take ecology into consideration.

On transition, Interviewee 5 highlighted the fact that it is very reductionist to separate social aspects of a social innovation from its ecological aspects as social innovation should not be limited to only the social impacts. Interviewee 6 described the current situation suggesting that companies are dealing with sustainability more than they are dealing with social innovation as they are forced to do so by regulations and policies. Interviewee 8 suggested that everyone plays a role in transition, and that the term empowerment is transforming to the co-production.

3.3 Results from the FSSD Analysis

The results of the FSSD analysis demonstrate TSI tools’ potential contributions to strategic sustainable development and the existing gaps as opportunities to improve.

The TSI tools emphasize that it is important to understand the system to achieve transformative social innovation; but the system focus is limited to socio-material context that does not position social initiatives within the biosphere and Earth’s ecological system.

At the success level, the new socio-material relations the target audiences of TSI tools create have the potential to improve the social sustainability. However, TSI tools do not define the success of transformative social innovation in a sustainability context.

Backcasting from scenarios is suggested in the TSI tools as well as several decision-making and prioritization stages that target audiences are supposed to experience and perform during the trainings. However, TSI tools only state that all the choices should be based on the core purposes and values. There are no strategic guidelines and alike on prioritization towards sustainability.

The contributions of the TSI training tools and their application are focused more on leading, nurturing and criticizing the transformation of social systems as a part of achieving the social innovation process. However, from the FSSD analysis perspective, the actions around managing social transitions in a social innovation process would not necessarily contribute towards the solutions of global sustainability challenges.

There is neither a particular tool nor content in the TSI trainings to directly address global sustainability challenges. Moreover, the social innovation cases and the CTPs database are not categorized or sorted from the perspective of global sustainability concerns.

<table>
<thead>
<tr>
<th>Contributions</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>System At the FSSD system level, this tool provides a “five-shade” framework to describe the dynamics of change for transformative social innovation is not put into the ecological system</td>
<td></td>
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</tbody>
</table>

Table 3.3 FSSD Analysis of the 1st Training Tool: “Shades of Change”
| Dynamics of transformative social innovation. | perspective. |
| Its aim is to understand and solve the structural obstacles of the current institutions and system. | Interactions and relations between social innovation activities and the Earth’s biosphere are not articulated. |
| The macro trend in the systematic degradation of the socio-ecological systems is not articulated. | |

| **Success** | **Interactions and relations between social innovation activities and the Earth’s biosphere are not articulated.** |
| At the FSSD success level, this tool aims to lead its target audiences to create their own scenarios to proceed successfully in their transformative social innovation. | The definition of sustainability is not prescribed in this training tool to ensure that the vision of success of target audiences is not against sustainability principles. |
| The success is stressed and focused on “change” and “transformation”; i.e. for the social innovations to help create new social systems and rules to solve the structural obstacles. | |
| The (dis)empowered actors, initiatives and networks are defined as the pre-requisite for the successful transformative social innovation. | |

| **Strategic Guidelines** | **From the FSSD strategic guidelines perspective, this tool does not provide any prioritization and strategic planning guidelines on how to address sustainability challenges.** |
| In order to create target audiences’ own narratives of change and TSI stories, the tool gives target audiences the opportunities to make further planning based on what has been successful or not | |
| The tool points out the prominent changing agencies, actors and the channels to create change as priorities. | |

| **Actions** | **There is no reference that the tool leads target audiences to identify their violations or contributions regarding global sustainability issues.** |
| Backcasting from the audiences’ prospective successful scenarios from 2050. | |
| The target audiences of the tool are led to reflect on their own | |
timelines.

| Tools | The on-line canvases help target audiences to create their own narratives of change and TSI stories. | Target audiences are not provided with any tools to identify sustainability issues regarding their history and further planning. |

Table 3.4 FSSD Analysis of the 2nd Training Tool: “Governance”

<table>
<thead>
<tr>
<th>Contributions</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>The tool introduces the Multi Actors Perspective (MaP) regarding the different levels of sectors. Governance is defined as a cross-cutting theme. And the tool realizes the complexity of governance.</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td>The tool demonstrates importance of governance in the empowerment process. Actors, initiatives and networks are the subjects of the (dis)empowerment. In this regard, the tool realizes that the qualities of the actors can influence and steer social innovations. The tool defines the nature and dynamics as well as the governance structures and forms in a transformative social innovation context.</td>
</tr>
<tr>
<td><strong>Strategic Guidelines</strong></td>
<td>Value based decision-making process is introduced in the tool.</td>
</tr>
<tr>
<td><strong>Actions</strong></td>
<td>Target audiences are encouraged to engage with different stakeholders to realise and develop their own institutional values, rules and networking skills; and to experience external forms of governance.</td>
</tr>
</tbody>
</table>
including the meta governance trends.

Table 3.5 FSSD Analysis of the 3rd Training Tool: “Social Learning”

<table>
<thead>
<tr>
<th>Contributions</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>The tool provides reflection on how particular institutions and systems work, how they perpetuate values and practices that are not desirable.</td>
</tr>
<tr>
<td><strong>Success</strong></td>
<td>The tool is based on new social relations, new ways of doing and experimentation. It highlights interaction, collective experimentation and joint reflection to create new shared meanings, norms and practices that would enable individual and collective growth.</td>
</tr>
<tr>
<td><strong>Strategic Guidelines</strong></td>
<td>The tool helps to target audiences to develop strategies for interacting with the existing institutions, practices and relations of power to leverage their initiatives and political influence by maintaining their values and principles.</td>
</tr>
</tbody>
</table>

**Actions**

**Tools**

Table 3.6 FSSD Analysis of the 4th Training Tool: “Resourcing”

<table>
<thead>
<tr>
<th>Contributions</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>The tool helps to identify resourcing problems at different levels within the context. This helps to discover new resources.</td>
</tr>
<tr>
<td><strong>Gaps</strong></td>
<td>The resourcing planning and practices are not discussed on the big canvas of</td>
</tr>
</tbody>
</table>
This training tool aims to train target audiences on identifying resourcing problems, defining strategies in order to deploy different models of resource management for SI and deploying a learning methodology in order to solve new resource problems.

Regarding the FSSD success level, this tool does not provide description or benchmark on what resourcing strategy and practice would be sustainable or at least not violate the basic sustainability principles. The tool suggests that the four strategies can be delivered in mixed ways. However, it does not provide further strategic guidelines on how to employ different approaches in mixed ways. This is considered as a gap as target audiences unintentionally violate the sustainability principles when they try to mix different resourcing approaches.

Four resourcing strategies are introduced in this tool: venture capital, commons approach, self-financing, and workforce collaboration. The training provides practical cautions and suggestions on choosing resources and pathways.

The tool suggests using CTPs to look back and see past patterns for target audiences for them to analyse the system and navigate in complexity.

The tool takes the approach of reflecting on the past to create plans for the future. From the FSSD strategic guidelines perspective, this forecasting could be complemented by backcasting from sustainability principles.

<table>
<thead>
<tr>
<th>Success</th>
<th>Strategic Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>This training tool aims to train target audiences on identifying resourcing problems, defining strategies in order to deploy different models of resource management for SI and deploying a learning methodology in order to solve new resource problems.</td>
<td>Four resourcing strategies are introduced in this tool: venture capital, commons approach, self-financing, and workforce collaboration. The training provides practical cautions and suggestions on choosing resources and pathways.</td>
</tr>
</tbody>
</table>

Table 3.7 FSSD Analysis of the 5th Training Tool: “Monitoring & Evaluation”

<table>
<thead>
<tr>
<th>System</th>
<th>The tool puts monitoring and evaluation in the developmental and reflexive context of social innovation actors, initiatives and networks.</th>
<th>The M&amp;E of the participants are not put into such a context that impacts on socio-ecological systems could be monitored and evaluated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>The success is defined as to be able to continuously aware of the target audiences’ own critical turning points and create their own narratives of change.</td>
<td>Sustainability impact evaluation on the target audiences’ development is missing.</td>
</tr>
</tbody>
</table>

| Strategic Guidelines | This tool provides the concept of critical turning points (CTPs) to help target audiences to identify the patterns of when and how changes happened. The tool suggests using CTPs to look back and see past patterns for target audiences for them to analyse the system and navigate in complexity. | The tool takes the approach of reflecting on the past to create plans for the future. From the FSSD strategic guidelines perspective, this forecasting could be complemented by backcasting from sustainability principles. |

<table>
<thead>
<tr>
<th>Contributions</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>The tool puts monitoring and evaluation in the developmental and reflexive context of social innovation actors, initiatives and networks.</td>
</tr>
<tr>
<td>Success</td>
<td>The success is defined as to be able to continuously aware of the target audiences’ own critical turning points and create their own narratives of change.</td>
</tr>
<tr>
<td>Strategic Guidelines</td>
<td>This tool provides the concept of critical turning points (CTPs) to help target audiences to identify the patterns of when and how changes happened. The tool suggests using CTPs to look back and see past patterns for target audiences for them to analyse the system and navigate in complexity.</td>
</tr>
</tbody>
</table>
**Actions**

The tool suggests that monitoring and evaluation should be executed both internally and externally.

This tool deploys a learning journey about how an SI initiative is engaging with societal and transformative change.

**Tools**

The tool provides canvases for developmental evaluation and reflexive evaluation, so that the monitoring and evaluation process goes beyond the traditional impact evaluation.

### 3.4 The Result of Prototyping

#### 3.4.1 The Add-ins

After analysing each TSI tool from the FSSD perspective to identify both the contributions and gaps, we suggested a preliminary set of add-ins to complement the TSI tools so that they could strategically contribute to a more sustainable world. The table of add-ins consists of four categories: the name of the tool, the name of the add-in, the type of the add-in, and the reason why this add-in could complement the tool. We sent the suggested add-ins to the experts to receive their feedback. The experts asked us to include explanations for some add-ins, so we included explanations and sent the set of add-ins to the experts again. The one we present below is the set of add-ins we sent to the experts in the first place, thus does not include the explanations.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Add-ins</th>
<th>Type</th>
<th>Why</th>
</tr>
</thead>
</table>
| 1st Tool: Shades of Change | Funnel Concept | - Helps to widen the perspective of target audiences on the consequences of the anthropocene era.  
- Helps target audiences to understand the degradation of the socio-ecological system due to society’s current unsustainable activities, and the reducing capacity to manoeuvre in such a context.  
- Could strengthen the concept of sustainability in the TSI theory and... |
<table>
<thead>
<tr>
<th>Tool</th>
<th>Activity</th>
<th>Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles</td>
<td>tools, so target audiences can have guidance or boundaries when they</td>
<td>(Adaptive Capacity: diversity, self-organization, learning, common-</td>
</tr>
<tr>
<td></td>
<td>develop their own TSI narrative of change. The Social sustainability</td>
<td>meaning, trust)</td>
</tr>
<tr>
<td></td>
<td>principles can also be helpful to the TSI tools, due to their scientific</td>
<td></td>
</tr>
<tr>
<td></td>
<td>background based on Adaptive Capacity.</td>
<td></td>
</tr>
<tr>
<td>Backcasting from principles (8 SPs)</td>
<td>• Helps target audiences to stay focused and motivated in order to</td>
<td>• Helps to reinforce the relations stated in the Shades of Change, the</td>
</tr>
<tr>
<td></td>
<td>achieve their vision of success which is based on 8 sustainability</td>
<td>role of governance and the analysis of the Multi Actor Perspective.</td>
</tr>
<tr>
<td></td>
<td>principles so that they can make sure if they achieve a sustainable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>society and not violate the 8 SPs.</td>
<td></td>
</tr>
<tr>
<td>Complexity</td>
<td>• Helps to reinforce the relations stated in the Shades of Change, the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>role of governance and the analysis of the Multi Actor Perspective.</td>
<td></td>
</tr>
<tr>
<td>Intersystem Analysis – “a technique to</td>
<td>• Can support target audiences to ensure that they analyse their current</td>
<td></td>
</tr>
<tr>
<td>explore interrelatedness of different</td>
<td>position in the bigger system, and to see how they are connected to</td>
<td></td>
</tr>
<tr>
<td>systems” ²</td>
<td>other systems so that they can deal with complexity.</td>
<td></td>
</tr>
<tr>
<td>2nd Tool Governance</td>
<td>Help target audiences assess the sustainability challenges that are</td>
<td></td>
</tr>
<tr>
<td></td>
<td>inherent in their Multi-actor engagement. In this regard, it helps them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to rule, regulate and steer their</td>
<td></td>
</tr>
</tbody>
</table>

² The description of “intersystem analysis” was not in the original add-ins sent to the experts for feedback.
governance in a more sustainable way.

- As guiding principles and reference points, they help to make decision-making more structured and valid in itself and take sustainability into account in the decision-making process.
- The 8SPs are basic conditions, underpinned by scientific knowledge for the successful continuation of the socio-ecological system.
- Help to empower target audiences to make proper judgment regarding sustainability concerns upon their learning and discussion of internal and external governance.

<table>
<thead>
<tr>
<th>3rd Tool</th>
<th>Intersystem Analysis</th>
<th>Activity</th>
<th>Can support target audiences to ensure that they analyse their current position in the bigger system, and to see how they are connected to other systems so that they can deal with complexity.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social learning</td>
<td>The Tree Metaphor- Explanation of 8 SPs</td>
<td>Concept/Activity</td>
<td>The tree metaphor gives an idea to target audiences on how to understand each other better via their shared mental model of 8SPs as well as their individual challenges that are represented by the branches. This holistic picture helps them to visualize the overall case in a more concrete and reliable way.</td>
</tr>
</tbody>
</table>

| 4th Tool | Vision | Concept/Strategy | Creating the vision allows target audiences to focus on inspiring possibilities while taking the 8SPs |

---

3 The description of “the tree metaphor” was not in the original add-ins sent to the experts for feedback,
<table>
<thead>
<tr>
<th><strong>Resourcing</strong></th>
<th><strong>Strategy</strong></th>
<th><strong>Activity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Planning for Sustainability</td>
<td>This process can help target audiences to be more strategic while developing their narratives of change, determine CTPs and resources; recognize the possibilities that can be strategic steps towards the vision; select actions and measures that solve the current problems; connect short-term measures with the long-term vision.</td>
<td>This process is designed to be used in team-based workshops to trigger creativity and act as a checklist for planning. It can be helpful to implement during the training to reinforce strategic futures regarding resourcing.</td>
</tr>
<tr>
<td>ABCD Strategic Planning Process</td>
<td>Activity</td>
<td>• This is a flexible process of planning towards sustainability, which helps in monitoring the process in a cyclical way allowing organizations to have a systems thinking, encourage creative tensions to how develop their initiatives.</td>
</tr>
<tr>
<td>ABCD Strategic Planning Process</td>
<td>Activity</td>
<td>• Helps to merge the past learnings and internal reflection regarding the social innovation process towards a more strategic way forward.</td>
</tr>
<tr>
<td>ABCD Strategic Planning Process</td>
<td>Activity</td>
<td>• ABCD Strategic Planning Process fits the underpinning theory of TSI and the M&amp;E tool. The ABCD process should be able to provide target audiences with guidance on the process.</td>
</tr>
</tbody>
</table>
3.4.2 The Results of Evaluation of the Add-ins

In the following section, we described the results of the expert feedback the set of add-ins. The results are displayed following the questions in the interview and written feedback form.

The feedback we got is below:

**Comprehensibility:** When you read the add-in list above, are the add-ins understandable enough for you?

Expert 1 said that the add-ins were very easy to understand. Expert 2 also mentioned that Backcasting from principles is the easiest one to understand. However, Expert 2 also pointed out that add-ins are not self-explanatory enough for people who are not familiar with SSD to understand.

**Relevance for the challenges:** How relevant are the add-ins for the challenges social innovators are facing in the field?

Expert 1 rated the Funnel metaphor with the highest rate of 5, which means it is directly relevant. Expert 1 rated Backcasting from principles with 3. The expert rated the other add-ins with 2. However, the expert warned about the context dependency and suggested that the relevancy of the add-ins could change depending on situations and problems and they could be considered as highly relevant in specific situations. The expert considered the question to be too broad.

**Usefulness to identify the sustainability challenge:** How much do you think these add-ins could help social innovators to identify the sustainability characteristics in their field?

Expert 1 graded The Funnel metaphor with the highest rate and said they could see the value of the add-ins. He rated Backcasting from principles, The 8 Sustainability Principles, and The Tree Metaphor with 3. The rest of add-ins was rated with 2. The expert valued the Funnel metaphor and said it is visual and easy to use and present to other social innovators. The expert also pointed out the need to support the TSI tools towards sustainability as most social innovators already have some awareness on sustainability, but definitely need tools to negotiate with their stakeholders.

**Applicability:** Rate the applicability of the add-ins for social innovators in their field?

Expert 1 rated all the add-ins with 2. The expert also explained the reason behind by saying they personally rated the add-ins in relation to their work and field and they personally seldom use the features suggested in the add-ins. Expert 2 said the add-ins could be used for as guidelines to apply in practice and as a part of training. The expert requested additional explanation for the add-ins.

**General evaluation**

Both experts suggested that it was better to clarify the settings where the add-ins could be used. Expert 1 highlighted the importance of specifying target audiences and said “you should really consider more in depth who these tools are for.” The expert elaborated on different target audience profiles by giving examples like non-governmental organizations, academics, grass root activists, companies, social entrepreneurs, etc. The expert also emphasized the
difference between target audiences who are experts and the ones who just need help and guidance for their social innovation.

Expert 2 suggested that the add-ins need to be described in more details regarding target audiences and the context by including for whom, when, how. The expert also said: “You need to address certain needs, times and actors in a visual way”.

As specific suggestions for further improvement, Expert 1 said that the add-ins could be improved by including the potential users, scenarios so that they could be evaluated in a more effective way. The expert also emphasized that the users and scenarios should be based on real-life people and situations. Expert 2 suggested creating “the mental map” for users so that they can understand the whole picture of the TSI tools, the add-ins and their relations to each other.
4 Discussion

4.1 Answering Sub-Research Question 1

The TSI tools are considered to be consistent with three main SSD features i.e. complexity, systems thinking and systemic errors in order to strategically move the society towards sustainability. This consistency reveals the possibility of the TSI tools to be complemented by the SSD features.

SRQ1: How could the TSI Tools contribute to strategically move the society towards sustainability?

4.1.1 Raising the Awareness on Complexity

Regarding the first point, complexity, the TSI tools aim to help target audiences to raise the awareness of complexity of their socio-material and socio-historical contexts. In this regard, the tools support target audiences in mapping out relations within their context and dealing with complexity through creating networks. The tools suggest a holistic approach regarding complexity as it emphasizes the inter-relatedness not only among people but also material objects, resources, practices and narratives. They also highlight the importance of network formation as vehicles for innovation. In order to create networks and innovate relations, a social innovation initiative has to understand social complexity. Complexity is also seen as a consequence of co-evolution of all social and material interconnections. As a result, TSI deals with complexity on a multi-dimensional level, and considers understanding complexity as a pre-condition to social innovation. Thus the tools could potentially contribute to strategically move the society towards sustainability in that they help to understand complexity.

4.1.2 Introducing Systems Thinking

The TSI tools take a systems thinking perspective to help target audiences to examine and understand the dynamics of transformative social innovation. The tools suggest that it is important for an SI initiative to be aware of their context as any context is inherently open to change. The awareness on context also needs an understanding of the dynamics of the system and how the system dynamics co-operate.

Another focus of the TSI tools is the value-driven nature of the system an SI initiative operates in. This might sound like they only relate to the social aspects of the system, but it is also important to consider how the values, norms, rules and conventions have a direct effect on the material side including the ecology, thus affecting the whole system. They suggest Narratives of Change (NoC) as a medium to create new formal and informal institutions, which shape the existing norms while are simultaneously shaped by them. The systems thinking perspective of the tools help an SI initiative to strategically position itself within the relatedness of all systems and navigate their way to successfully achieve their goal through their social innovation. This is why the tools, with their systems thinking perspective, could help to enhance systems thinking capacity of an SI to socially innovate while they strategically help move the society towards sustainability.
4.1.3 Identifying Systemic Errors

Lastly, as a third point, the TSI tools help to explain about systemic errors which also relate to an unsustainable path. Formal and informal institutions are regarded as the main root causes for systemic errors, which helps target audiences to identify where systemic errors could stem, and how they can be dealt with, within their individual context. The tools present new practices, namely new ways of doing, organizing, framing and knowing in order to be able to challenge the existing institutions by altering or replacing them. In order to achieve that goal, it is also important to create new relations. The tools aim to shed light on both actors and their relations so that SI initiatives can position themselves and find alternative strategies while organizing their networks in order to deal with systemic errors by challenging the root causes, namely the dominant institutions.

4.1.4 Conceptualizing TSI on System and Success Levels

All three points mentioned above also match with what the tools suggest at system and success levels. The TSI theory can be taken as an example to illustrate this fact as it provides the main basis for all the tools. The theory focuses on broadening socio-material connections among people, material objects, practices and narratives to provide a holistic system perspective while aiming to clarify how complexity works inter-relationally, on different levels. Similarly, at the success level, the theory emphasizes institutional change in a context where institutions are the root causes of systemic errors which hinder moving towards sustainability. To sum up, the TSI theory and tools offer insights on adopting a holistic systems thinking and how to translate complexity and systemic errors in order to deal with them by conceptualizing transformative social innovation on system and success levels.

Besides these three-main contributions of the TSI theory and tools to strategically move the society towards sustainability, there is also an emphasis on the reflexivity approach for learning in both the documents (of the tools) and interviews of the authors. This approach was mentioned in both the documents (of the tools) we analysed and the interviews as a key feature which differentiates TSI tools from other how-to tools. It is suggested that the how-to tools could continue supporting the same structures and institutions TSI initiatives are trying to transform. When compared the how-to tools, the TSI tools try to have a button-up approach, where the content and knowledge can be co-produced from the relevancy, reflexivity and the knowledge transfer of target audiences. Therefore, we believe that the main contributions of the TSI theory and tools rely on the knowledge, experiences and “savoirs” of the people who participated in the TSI trainings.

4.2 Answering Sub-Research Question 2

In this section, our second research question is answered by the discussion of the results from the FSSD analysis. We tried to identify the entry points where the TSI tools could be complemented with SSD features.

*SRQ 2: What could be the entry points of the TSI Tools to be complemented with SSD features?*
4.2.1 The Systems Where Transformative Social Innovation and its Dynamics is Positioned

As we already recognized from the document reviews and interviews, the TSI theory and tools revealed the need to put and understand transformative social innovation with a systemic perspective. They recognized the fact that the relations between social innovation and societal transformation are potentially more complex than often stated. However, neither the consolidated TSI theory nor the TSI tools refer to the fact that social innovation and the dynamics of transformative social innovation were positioned within the biosphere and the Earth’s ecological system. The tools were not designed to have an introduction or activities to help target audiences to understand that the development of human society and its transitions are directly related with the ecological systems at the system level. Yet, there were examples that organizations and initiatives were working on new social forms and systems with the ultimate goal to address sustainability challenges between human society and the environment in the cases that TRANSIT project studied. The TSI theory does not position social innovation and societal transformation within of the Earth’s biosphere.

The results of the interviews also indicated that there was a tendency not to discuss sustainability during the development of the TSI theory and tools, with the argument that sustainability was more relevant on the environmental management and technological innovation side and transformative social innovation should be studied merely on the social side. As a result of this dichotomy, the current TSI tools have limited capacity to help target audiences to become aware of and understand the relations and interactions between transformative social innovation cases and the Earth’s ecological system, particularly the sub-systems social innovations are most related to.

4.2.2 The Definition of Success of Transformative Social Innovation

The success of transformative social innovations, as defined in the TSI theory, is to create new socio-material relations among both the members of an SI initiative and other actors they interact with (Haxeltine, Pel, Dumitru, Kemp, et al. 2017).

In this definition of success from the TSI theory, the socio-material relations were taken into account. However, in the TSI theory and tools, these new socio-material relations were not put into any benchmarking or evaluation against any boundary conditions or structural obstacles of sustainability; i.e. the success was defined only as “new relations” but this definition does not guarantee whether the “new relations” would be sustainable. Our document reviews and interviews also indicated that the concepts of system boundary conditions and sustainability principles were rarely mentioned. Due to the fact that TSI theory and tools stressed more on the relations and (dis)empowerment of the actors, initiatives and networks, the sustainability concerns of the successful social transitions were neither touched nor put into any theoretical argument.

Developed from the TSI theory, the TSI tools described success as (dis)empowering institutions in the transformative social innovation processes. TRANSIT defined empowerment as a process in which target audiences gain the feeling that they can influence their surroundings and the direction of events (Pennink and Zuijderwijk 2015).
The tools do not prescribe any concepts and principles of ecological and social sustainability. Furthermore, all of the TSI tools were designed to lead target audiences to create or co-create their vision and scenario of success to a certain extent. Theoretically, from the current design and the content of the TSI training tools, target audiences were not provided with enough support on evaluating whether, and if yes to what extent the visions and successful scenarios they are supposed to develop from the training workshops would connect with and contribute to move the society towards sustainability.

4.2.3 Guidelines Provided in the TSI Tools

The concept of backcasting and related training designs were found in the TSI training tools. For example, the online canvas “Your TSI Story” (Zuijderwijk (eds.) et al. 2014, part V), and the cyclical process in phases of M&E trainings (Ruijsink et al. 2017), were designed to lead the participants to visualize their TSI stories and build their narrative of change and way forward with the reflection on both the future scenarios and current challenges.

It was noticed that the backcasting embedded in the current TSI tools is backcasting from scenarios. The TSI tools employed backcasting from the participants’ own desired scenarios, which the participants create themselves or co-create with multi-stakeholders during the application of the training tools.

In the design of the Resourcing tool, it was suggested that the selection of resourcing strategies should be based on the constant monitoring and evaluation of an SI initiative’s own purposes and values (Becerra and Juarez 2017). These purposes and values were supposed to be articulated and documented regularly by the TSI suggested reflective M&E practices, in which backcasting from scenarios was employed. In this sense, although TSI training tools provided a general guidance on backcasting from scenarios during planning and evaluation, there was no reference indicating that a set of comprehensive strategic sustainability guidelines were in place. Without the backcasting from sustainability principles, the scenarios created by the TSI targeted audiences and the social innovation plans and actions developed from the scenarios could not guarantee to avoid unintentional negative consequences upon the global sustainability issues; or one step further, to have positive contributions.

Furthermore, it was identified that there were several decision-making and prioritization stages that target audiences of TSI trainings were supposed to experience and perform. For example, all the five tools have the mode-3 science characteristics which include re-orientation towards societal relevancy and problems (Zuijderwijk et al. 2014, pt. I). On these points of the trainings, the TSI tools only stated that all the choices should be based on the core purposes and values that the participants hold. There were no strategic guidelines and alike on prioritization towards sustainability, such as the SSD’s three prioritization questions which aim to answer 1) the right direction; 2) the flexible platform; 3) the adequate return on investment (Robèrt 2000).

4.2.4 TSI Training Activities

The TSI tools lead target audiences to a series of reflection, planning and evaluation processes. The activities designed in the tools were based on the idea of “Module 1”- “Module 2” - and “Module 3”- science, in which mode 1 is “knowledge-first”, module 2 is “process-oriented” and module 3 is “re-oriental toward societal relevancy and problems”(Zuijderwijk et al. 2014, pt. I).
In the TSI trainings, the TSI tools are used to lead the participants to create their own transformative social innovation stories; reflect and identify system innovation, the critical turning points (CTPs) and the macro trends; redefine challenges; plan and activate multi-stakeholder engagement and learning; and constantly apply a combination of both impact and developmental evaluation.

During the TSI trainings, the participants were supposed to take a systematic approach to describe and document their own contexts and challenges regarding their social innovation and the societal transformation. The TSI tools also took a multi-actor perspective (MaP) which locates “the third sector as an intermediary sector between the government, the private sector and the community, and identified it as an important force in social innovation, as well as in facilitating the creation of transnational networks” (Pennink and Zuijderwijk 2015, pt. I). This encouraged multi-stakeholder engagement and put a theoretical basis for learning and co-evolving towards societal transformation.

The contributions of the TSI tools and their application were very much focused and stressed on leading, nurturing and criticizing the transformation of social systems which is a result of social innovations. However, it was noticed from the FSSD analysis perspective that the actions around managing social transitions and social innovations were not necessarily contributing directly towards the solutions of global sustainability challenges, i.e. eliminating the contributions to violations of the SPs.

4.2.5 The Supporting Tools within the TSI Tools

The five TSI tools are comprised of their own tools and supplementary contents respectively. These included the canvases that were designed to lead the participants to visualize the contents and were used as either a communication piece or planning guidance during team engagement. An on-line database of the TRANSIT studied social innovation cases and CTPs also serve as supplementary information.

From the FSSD perspective, there was neither a particular tool nor content in the TSI tools to directly address sustainability issues. The social innovation cases and the CTPs database were not categorized or sorted with a possible perspective of global sustainability concerns.

4.3 Answering Sub-Research Question 3

In this section, the answer to the sub-research question 3 is discussed from the results prototyping and expert consultation. The discussion is based on the different entry-points identified from an SSD perspective, and the analysis we developed from the feedback of the expert consultation.

SRQ3: What could be complementary to TSI tools from SSD perspective?

4.3.1 The Funnel Metaphor

From the FSSD analysis based on the document review and interviews, we recognized the different understanding of “system” between the TSI theory and tools, and SSD. The TSI theory and tools stress the importance of system understanding for transformative social innovation, because there are highly complex relations between social innovation and transition. However, their focus on the system is limited mainly to social context, namely the
socio-material context. The TSI theory and tools do not provide the systemic view which positions social initiatives within the biosphere and Earth’s ecological system. Therefore, risks to violate the sustainability principles would still remain, because the TSI target audiences cannot recognize their positions and predict the results of their actions within socio-ecological system.

In this regard, the Funnel metaphor could provide an understanding on the macro trend of the systematic degradation of the socio-ecological systems. The first TSI tool aims to provide the system perspective via the dynamics of transformative social innovation. It is also designed as the basis of all other tools to provide target audiences with the basic understanding of complexity and relations inherent in the system and each SI initiative. To add the systemic view including the ecological side which is used in SSD, the 1st tool could be suited because it deals with the same system level.

In the expert feedback results, Expert 1 rated the Funnel metaphor the highest number in two categories which were relevance with social innovation field and values to identify the sustainable challenges. The expert also favoured it as it is comprehensible enough with its visual image. The Funnel metaphor was considered suitable to use when SI initiatives interact and negotiate with their stakeholders.

4.3.2 The Eight Sustainability Principles

We chose the eight sustainability principles, because the TSI theory and tools do not put any benchmarking or evaluation to avoid reaching the boundary conditions or structural obstacles of sustainability. At the success level, the TSI theory defines their success as creating new socio-material relations that could contribute to transform the system. These new relations have the potential to improve the social sustainability but TSI target audiences cannot evaluate whether their activities could contribute to sustainability both social and ecological side in the social transition or not.

The 1st tool aims to lead TSI target audiences to create their own scenarios of a successful transformative social innovation. However, there is not a definition and enough guidance of sustainability to ensure that their scenarios are not against sustainability. The ecological sustainability principles can guide SI initiatives to improve their social innovation more in line with the ecological side while the social sustainability principles can help them to increase their adaptive capacity.

In the expert feedback results, Expert 1 rated the 8SPs with 3 out of five in response to how they can help target audiences to identify the sustainability challenges. However, it is important to note that the low score came from the fact that the expert considered the comprehensibility of the 8SPs low. In the set of add-ins, the explanations regarding 8SPs were not enough to illustrate how the 8SPs can help target audiences to understand and deal with sustainability challenges.

4.3.3 The ABCD strategic planning process

We considered that this planning process could help TSI target audiences by providing strategic guidelines and prioritization tools to guarantee that their SI initiatives move in the right direction towards sustainability. The training tools include the concept of backcasting. However, it is backcasting from scenarios. Thus it relies on the workshop participants’ own
desired scenarios. In this sense, this backcasting process cannot guarantee the subsequent actions and plans avoid having unintentional negative consequences on the system as a whole regarding the global sustainability challenges.

The ABCD process could contribute to the 5th TSI tool, Monitoring and Evaluation, and 4th TSI tool, Resourcing, which is directly linked to the 5th as this process could reinforce and help TSI initiatives to move towards the desired future while embracing sustainability at the same time.

In the expert feedback results, Expert 2 considered backcasting from principles as the easiest one. Expert 1 also rated the backcasting from principles with a 3 regarding its relevance to the social innovation field, but still saw the value in it that it could help users to identify the sustainability issues. Backcasting from principles is included in the ABCD process; however, it requires further explanation so that it is more understandable for TSI users.

4.3.4 Choosing the Most Relevant Add-ins

We developed a set of add-ins with 12 concepts and frameworks for all of the TSI tools and asked experts to provide feedback on them. After the expert feedback and further interviews with the TSI authors, we decided to include the most relevant items with SSD. Furthermore, the add-ins were found to be not self-explanatory according to the expert feedback. Reflecting on the feedback results and re-examining the usefulness and relatedness of the set of add-ins to the TSI tools, we decided to choose the three add-ins since they could also function on system, success and strategic guidelines levels.

4.3.5 Discussion for the Practicality and Relevance of the Add-ins

Regarding the expert feedback, it is clear that we need to explain the add-ins more clearly so that they are easier to evaluate on their practicality and relevance regarding the TSI tools. The expert feedback provided us with two main suggestions. One suggestion was to add more explanations and visuals to the add-ins. Expert 2 suggested to make add-ins more visual instead of putting them in a table. At the beginning, we developed a table of add-ins including a brief description, the type, the reason for choosing the specific add-in and the TSI tool each add-in corresponds to. However, for people who do not know about SSD, it can be difficult to understand the add-ins because they cannot grasp how the add-ins and tools could relate to each other, and how the add-ins could be applied in the field. In this regard, Expert 2 offered to develop a map to show the interconnection between each tool and add-ins in a more explanatory visual before introducing the table list.

The second suggestion was on the settings of the add-ins. Both experts suggested including more specific context in order to successfully apply the add-ins into practice. Expert 1 pointed out that the relevance of the add-ins really depend on the situation, which means they could be better suited in some situations or could not function well in some others. Therefore, it is important to take the audience of the tools into consideration. Expert 2 also mentioned that the add-ins could be used for the workshop and in the field, but it is better to clarify the settings by explaining by whom, when, and how the add-ins could be used. In addition, the user needs and desired outcomes could also be included in the set of add-ins. We see the value in introducing a clear context to each add-in in order to increase their applicability. Yet, we also realize that prescribing a specific context to the add-ins is not the only way to increase the applicability. The TSI theory, itself, is a mid-range theory, which means that it includes
theoretical background and the data derived from case studies. As the mid-range TSI theory suggests we are very cautious on prescribing a specific context for the add-ins as it could not be compatible with the current TSI tools.

4.4 Discussing Research Quality

In the following paragraphs, a brief analysis of the limitations and validity of the research is discussed to further develop the positive sides and challenges we encountered while developing our research.

4.4.1 Document Analysis

As discussed in the methods section earlier, the first part of our research methodology is the Document Content Analysis which provided us with important information and valuable results regarding the TSI theory and tools. Thanks to this method, we were able to gain a thorough understanding of the Transformative Social Innovation Theory; a better and deeper understanding of the design, structure and aims of the TSI tools developed by the TRANSIT project; and their implications in terms of strategic sustainable development.

One of the challenges we encountered during the document content analysis was the large amount of information and data which was not always well-connected. The TSI materials we were supposed to analyse were not fully coherent with each other as each document was developed by different authors and organizations within the TRANSIT project. Therefore, it was very important for us to have a shared mental model in order to navigate through the documents especially when we work on the systematic coding.

For this phase of our research methodology, we also tried to increase its validity by double-checking as we were aware of our own biases. We realized that we could interpret the data according to our own subjective perspectives and have different interpretations no matter how careful we were on sticking to the scientific research methodology principles. We tried to avoid this through a two-phase coding. First, we divided the documents into four parts, so each team member primarily coded two documents. Then, in the second phase, a second team member coded them again and we compared the results afterwards. This process helped us to increase the internal validity of this phase in our research.

The documents that were put into detailed content analysis in this research were limited to the TRANSIT deliverables that include the consolidated TSI theory and the last edition of the TSI tools. If we had had more time, we would have liked to include more documents into content analysis, e.g. the TRANSIT working papers that documented the developmental processes of the TSI theory and tools. This would have given us more data regarding the considerations of the TSI authors during the development of the theory and tools.

4.4.2 Interview

The most important limitation regarding the interviews is that they were held via SKYPE within a one-hour period. It would have been much more effective and helpful if we had found the opportunity to interview our interviewees face to face. We had some technical problems regarding the computer features (recording) and the interview place from time to time, but at the end, we could easily fix them with the help of our team spirit.
The interview time was another limitation. Although we tried to moderate the interview to ensure each question on the interview question list was answered, we sometimes needed to combine some questions when the interviewee preferred to speak more than the allocated time. Yet the main structure of the question list was good enough to provide insights regarding all questions.

As all our interviewees live outside Sweden, we tried to reach them via e-mail or phone call. We were hoping this would be an efficient way, but we could not reach most of the interviewees on our interviewee list. They either did not respond at all or gave their excuses. As the TRANSIT project is new, we also found it difficult to reach out the participants of the workshop. We reached one participant to get his feedback on the tool.

One of the most interesting things we did not foresee at the beginning of our project was that the authors of the TSI tools we interviewed had different levels of knowledge regarding the whole set of tools. We sensed that there was a lack of comprehensive understanding of the whole TSI theory and tools, so the information they provided sometimes lacked clarity and coherence with each other.

Regarding confidence on our methodology, we gave the utmost importance to structure our interview questions in the most objective and comprehensive way possible. Still it is debatable how much we could fulfil the goal as the questions relied on our limited understanding of the TSI theory and tools as well as SSD. The results we derived from the interviews made sense as a whole, but it is important to keep in mind that we did not have a chance to validate the results by cross-checking the results derived from the coding with our interviewees. The fact that some interviewees did not directly answer each of the questions on our interview question list due to time limit might have also affected the interview results. Another point on confidence on the data is that as the TSI theory and tools are relatively new, the authors of the theory and tools also sound to have different understanding and their personal interpretation of its content. This might have had a negative effect on the validity of our interview results as well.

Due to the lack of responses to our interview requests and time restrictions, we had to interview with the co-authors and the TRANSIT project manager instead of the original authors of each tool. More first-hand information could have been obtained if we could have reached and interviewed the original authors of each tool.

4.4.3 FSSD Analysis

The purpose of the FSSD analysis was to identify the entry points from the current TSI tools that could be complemented by SSD features. The quality of the answer for this research question (SRQ2) was limited to our understanding and academic capacity on the FSSD analysis as well as the data that was put into the FSSD analysis.

As master program students, we had been studying the FSSD framework and its application on strategic planning for ten months. We had practiced FSSD analysis for a few times during our early studies. During this research project, our knowledge and academic capacity on the FSSD analysis was nurtured by our thesis advisors, other staff members and our colleagues from our master program as well as external experts who have been using FSSD framework for long time.
The data that was put into the FSSD analysis mainly came from the results of document content analysis and interviews. We are confident about the relevance of the data to our research questions; i.e. all the data from document analysis and interviews directly pointed to either the TSI theory and tools or the cross-cutting themes of (social and ecological) system transitions.

The overall volume of the data and the diverse characteristics of the data that was put into the FSSD analysis could have been further improved by reviewing and analysing more working papers from the TRANSIT project. Also we could have carried out more interviewees especially with the co-authors of the TSI tools if we had had more time for data collection and analysis and had got responses to our e-mails and calls.

Although we tried to discover the application cases of the TSI trainings during data collection, the immediate data regarding the application of TSI tools was still not fully presented in the FSSD analysis. The difficulty to find the real cases of the TSI trainings was mainly due to the fact that TSI tools were newly developed and were just published at the end of 2017. Three social innovation trainers, who worked on training and capacity building for social innovators were interviewed as a proxy to gather general criticism on the design and applicability of the TSI training tools. In this sense, the FSSD analysis on the actions level of the TSI trainings is limited. This also caused the add-ins to the current TSI tools to be based mainly on the results from the theoretical analysis instead of an action research.

4.4.4 Prototyping

We acknowledge the fact that our knowledge on the TSI theory and tools is limited as it relies on the analysis of TSI open-source deliverables (documents) and interviews. This could be a limitation on the content of the add-ins we suggested in this research project. Due to the timeline of our research, we needed to craft the add-ins in a short time period, but we would have liked to develop a more comprehensive, graphic and to-the-point add-in list. Both experts also mentioned this missed opportunity by saying the add-ins we derived from Strategic Sustainable Development are not clear and self-explanatory enough. This is why we sent the add-ins with more explanations for a second time.

The expert consultation included the authors of TSI theory and tools, as we believed they are the audience who have more knowledge about the focus of our study. However, we would have liked to have a larger range of audiences for feedback by including the workshop participant(s) in order to understand the effectiveness of the add-ins on both theoretical and practical ground as well as people from organizations that are using the TSI tools. As mentioned before, this was not possible due to the fact that the TSI theory and tools are new, thus are not widely used at the moment.

Another limitation was regarding the add-ins. They were crafted based on the results from the FSSD analysis which was developed from the interpreted analysis of the documents and interviews. We did our best to minimize our own biases during the analysis and be objective.

We acknowledge that it could have contributed more to our research project if we had come up with a revised set of add-ins based on the experts’ feedback and run further rounds of expert consultation.
4.5 Recommendation, needs and further research

During the process of our research, we explored the Transformative Social Innovation that is about challenging, altering and replacing the dominant institutions, and its five tools that have the aim to leverage the empowerment of individuals, SI initiatives, networks and organizations that want to develop their social innovations to co-create the societal transformation needed towards a more sustainable and just common future.

Through our research, we had the intention to support the TSI target audiences by complementing the TSI tools with the SSD features. Even though we also had the intention to bring theory and practice together through organizing two workshops to explore the TSI tools more in depth and in real-life practice, we did not have enough resources to fulfil this goal. The application of the SSD complemented TSI tools with various stakeholders and in different contexts could be the next step for future research. Therefore, we believe that action research is needed to fully understand and explore the potential of the SSD complemented TSI to strategically move society towards sustainability. It could also be more helpful to include all TSI target audiences including social innovators, academia, public sector and even the civil society and business world. As a team, we genuinely believe in the concept of co-creation and co-production and the importance of carrying out the scientific research with different stakeholders in the social innovation field.
5 Conclusion

“The spectator no longer delegates power to the characters either to think or to act in her place. The spectator frees themself; (s)he thinks and acts for themself!”

Augusto Boal, author of the Theatre of the Oppressed

The social innovation field and the sustainability field are two new fields that overlap in terms of their scope of studies, aims and purpose. It is possible to suggest that the theories and tools in these two fields could be complementary to each other.

This research explored the Transformative Social Innovation theory and tools from the perspective of the Strategic Sustainable Development (SSD) with the aim to answer one main question: How can SSD complemented TSI tools support TSI users to strategically move the society towards sustainability?

To answer this question, the main documents of TSI theory and tools were thoroughly analysed as well as the interviews with TSI authors, TRANSIT project workshop participants and experts and practitioners in both social innovation and sustainability fields.

The results of this research indicate that the current TSI tools have the potential to support the target audiences to strategically move the society towards sustainability. In this sense, three main characteristics of the TSI tools were identified in this research. The first characteristic is that TSI tools help target audiences to increase their awareness on the complexity of the socio-material context and the relations between all the actors that interact within this context. The second one is that the TSI tools employ systems thinking to reveal the structure of formal and informal institutions and how these institutions shape the dynamics of change. Finally the third one is that the TSI tools guide the target audiences to address the systemic errors, where the formal and informal institutions were presented in-depth, and the antidote to the systemic errors were developed in the way of new ways of doing, organizing, framing and knowing to challenge the existing institutions by altering or replacing them.

Furthermore, the research found that in both the TSI theory and the training tools the focus is on new ways of relating and how these new relations could help to change, alter or replace institutions. The tools support the target audiences to develop their own narratives of change (NoC) and critical turning points (CTPs); however, the concept of sustainability and an operational approach to reach sustainability is not prescribed in any of the tools. To compensate for this lack, the entry points on system, success, strategic guidelines, actions and tools levels of the TSI tools were identified where SSD features could be complementary.

Among a set of add-ins that went through consultation with the TSI authors, the SSD features of funnel metaphor, eight sustainability principles and the operational planning procedures (ABCD) of strategic sustainable development were concluded to be complementary to TSI tools to help target audiences to strategically move the society towards sustainability. It is clear that many social innovators do not consider the global sustainability challenges in their scope. It is also very hard for them to address the systemic errors as root causes of the social problems without having a system perspective. Therefore, the add-ins could help the TSI tool users to define sustainability; to position social innovation not only in social systems but also in broader ecological systems; and to integrate sustainability into their daily planning and
operations. It would be extremely helpful for future researchers to come up with suggestions and guidelines on the application of the add-ins with various target audiences in various contexts. In the overall process towards sustainability, engaging more stakeholders in the social innovation process could also help to enhance individual and collective learning and sharing.

The authors of this research project hope that this thesis contributes to the social innovation field by adding more strategic sustainable development perspective to the transformative social innovation to create the change needed in this lovely planet. In this regard, they really hope to inspire future researchers in exploring the potential of overlapping fields of social innovation and sustainability for more resilient and sustainable societies and a more well-cared planet. They also hope to shed new lights on how humans can co-evolve and flourish with the entire planet by minimizing or even eliminating all unintended consequences.

May the light shine for the whole planet and all the things it has been kindly and generously hosting for billions of years!
References


Bárcena, Zaida, Jayne Bryant, and Jenny Lind. 2009. “Sustainable Selves: Shifting Paradigms within Individuals as the Core Driver to Reaching a Sustainable Society,” 123.


Appendices

Appendix A: Code List

(Generic TSI 5LF)

**System**: Information about the system in which transformative social innovative occurs. (TSI RQ1) How does it conceptualize “transformative social innovation”?

**Success**: How is the successful transformative social innovation defined? (TSI RQ2) How, to what extent and under which conditions does social innovation contribute to transformative change?

**Strategic**: Guidelines on prioritization and selection of actions towards societal transformation; back-casting combined with the three prioritization questions. (TSI RQ3) How are people empowered (or disempowered) to contribute to such processes?

**Actions**: The actions that follow the TSI theory and its trainings to reach successful transformative social innovation.

**Tools**: The tools that employed or developed by TRANSIT project

(SSD)

**Systems thinking**: the organized study of systems, their feedbacks, and their behaviour as a whole. Some keywords may include: system boundary, subsystem, open/closed systems, etc.

**Complexity**: emergence and emergent system behaviours; complex relationships between system parts; thresholds (tipping point)

**Boundary conditions** (SSD system level): It describes the space/opportunity, within certain boundaries, for people to meet their needs and for societies to optimize their chances to prosper and flourish.

**Systemic errors** (SSD system level): In the SSD funnel paradigm, systemic errors are the causes of the declining capacity of the socio-ecological system to support humanity. It refers to the systemic errors in societal design and how they are connected to each other in complex ways. This may also be rephrased as “structural obstacles”.

**Transition towards ecological sustainability** (SSD success level): SP 1-3

**Transition towards social sustainability** (SSD success levels): Any changes that stop unsustainable actions or adjustment of patterns and structures which systematically have negative consequences for health, influence, competence, impartiality and meaning-making (SP4-8). This may also include the recognition of Human social system as complex adaptive system: the adaptive capacity (diversity, learning, self-organization, trust and common meaning)
Appendix C: Interview Questionnaire

For the Authors of TSI Theory and Tools

General Questions:

- Could you tell us what you do in your current work? How do you describe your work in the sustainability/social innovation field?
- What is your definition of Sustainability? Why did you choose this definition among others?
- The ‘sustainability’ word - How do you communicate about sustainability? Do you use the term “sustainability” when speaking to your stakeholders or clients?

On TSI Theory and Tools Regarding Social Innovation and Sustainability

- Could you tell us how you contributed to TRANSIT project? And why did you take part in the project?
- What is your understanding of TRANSIT project?
- Can you give us some insights regarding the impact of the TRANSIT project?
- How did you place sustainability in the TSI theory?
- How do you think TSI theory could help the sustainability? What could be the strengths and challenges regarding this?
- Do you think TSI theory could be further improved? How?
- There are many definitions of Social Innovation in the literature. Thus how did you come to the definition of Social Innovation within the TSI theory?
- What is your understanding of sustainability?
- Do you think social innovation field takes sustainability into account? If yes, how?
- Why did they develop the training tools from the theory?
- How can the tool box empower the social innovators? Why?
- Do you know the real organizations or individuals which use this training tool box? What was the follow up methodology after the project?
- How do you see social innovations can help to address sustainability? Why is transformative social innovation important for sustainability? How can the tools contribute to achieve this goal?
- Could you explain how you ended up with Shades of Change?

For the TSI Tools Development Workshop Participants

General Questions:

- How do you describe your work in the sustainability/social innovation field? What is the focus of your organization you are working with?
- What is your definition of Sustainability? Why did you choose this definition among others?
- The ‘sustainability’ word - How do you communicate about sustainability? Do you use the term “sustainability” when speaking to your stakeholders or clients?
- Do you think social innovation field takes sustainability into account? If yes, how?
How do you think sustainability would contribute to social innovation field?

Extra Questions:
• Do you think sustainability in social innovation requires the social innovators to get internal awareness and motivation to work towards sustainable society?
• What approach is effective to integrate sustainability into social innovation initiatives?

On the TSI Tools Workshop
• What is your understanding of the Transformative Social Innovation (TSI)?
• How do you think TSI would contribute to social innovation field?
• What do you think is applicable from the TSI workshop in the real life cases?
• Do you think the workshop content is related to sustainability as well?

For Independent Experts in Sustainability and Social Innovators

General Questions:
• Could you tell us what you do in your current work? How do you describe your work in the sustainability/social innovation field?
• What is your definition of Sustainability? Why did you choose this definition among others?
• The ‘sustainability’ word - How do you communicate about sustainability? Do you use the term “sustainability” when speaking to your stakeholders or clients?
  Extra Questions:
• Do you think sustainability in social innovation requires the social innovators to get internal awareness and motivation to work towards sustainable society?
• What approach is effective to integrate sustainability into social innovation initiatives?

On social Innovation and Sustainability Fields
• How is it to work within the Social Innovation/ Sustainability field? (Challenges, pros and cons)
• How do you social innovation and sustainability relate to each other?
• In your work, do you prioritize ecological or social, or vice-versa aspects of sustainability? What is your observation of people's reaction of ecological and social sustainability understanding?
• Is it easy to balance social & ecological sustainability in your work field?
• What is the role of systems thinking perspective in real-life practices?
• Can you give us a story or example where people apply systems thinking and complexity?
## Appendix D: Expert Feedback Form

1. When you read the add-in list above, are the add-ins understandable enough for you?

<table>
<thead>
<tr>
<th>Add-ins</th>
<th>Very easy to understand</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Very difficult to understand</th>
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<td></td>
<td>1</td>
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<td>The Funnel metaphor</td>
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<tr>
<td>The eight sustainability principles;</td>
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<tr>
<td>The five-level framework;</td>
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<tr>
<td>Back-casting from the eight sustainability principles;</td>
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<tr>
<td>The Tree Metaphor-Explanation of 8 SPs</td>
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<td></td>
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<td></td>
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<tr>
<td>Complexity</td>
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<tr>
<td>Intersystem Analysis</td>
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<tr>
<td>Vision</td>
<td></td>
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<tr>
<td>Strategic Planning for Sustainability</td>
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<tr>
<td>ABCD</td>
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<tr>
<td>Strategic Planning Process</td>
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</table>

2. How relevant are the add-ins for the challenges social innovators are facing in the field?

<table>
<thead>
<tr>
<th>Add-ins</th>
<th>Not relevant</th>
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<th>Directly relevant</th>
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</tbody>
</table>

56
### The Funnel metaphor

- The eight sustainability principles;
- The five-level framework;
- Back-casting from the eight sustainability principles;
- The Tree Metaphor - Explanation of 8 SPs
- Complexity
- Intersystem Analysis
- Vision
- Strategic Planning for Sustainability
- ABCD
- Strategic Planning Process

#### 3. How much do you think these add-ins could help social innovators to identify the sustainability characteristics in their field?

<table>
<thead>
<tr>
<th>Add-ins</th>
<th>Very little help</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</table>
The eight sustainability principles;
The five-level framework;
Back-casting from the eight sustainability principles;
The Tree Metaphor Explanation of 8 SPs
Complexity
Intersystem Analysis
Vision
Strategic Planning for Sustainability
ABCD
Strategic Planning Process

4. Please, rate the applicability of the add-ins for social innovators in their field?

<table>
<thead>
<tr>
<th>Add-ins</th>
<th>Difficult to apply</th>
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<th>Highly applicable</th>
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<td>Explanation of 8 SPs</td>
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<td>Complexity</td>
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<td>Strategic Planning Process</td>
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5. What would be your comments (general or specific) on the comprehensibility, relevance, applicability of the sustainability add-ins into TSI tools? Could you, please, give the reasons as well?