

Support Systems for Sustainable Entrepreneurship and Transformation (SHIFT)

Work Package 7: The roles of interagents and unusual collaboration in supporting sustainable start-ups and eco-SMEs – literature and findings

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Preface

The project SHIFT – Support Systems for Sustainable Entrepreneurship and Transformation – was carried out in 2012-2016 within the first call of the EU research network ECO-INNOVERA, which enabled international collaborative projects on eco-innovation that were funded by the respective national funding organisations of the participating research institutions. The goal of the project SHIFT has been to analyse how public, intermediary and private support systems for entrepreneurship have to be changed in order to systematically boost the development and implementation of eco-innovation, and make realistic recommendations for policy makers and important actors of the support system on how to initiate a paradigm change in their supporting schemes.

This report contains the results of Work Package 7 of the SHIFT project: The roles of interagents and unusual collaboration in supporting sustainable start-ups and eco-SMEs – literature and findings. It has been written as a project report for the SHIFT consortium and selected stakeholders of the project. Work Package 7 report provides theoretical foundation, an interdisciplinary framework and findings from the empirical work carried out in the work package. The foundations of the project as well as the theoretical framework are presented briefly in Chapter 1 of the present report, including our considerations on what makes business collaboration “unusual” in terms of support for eco-SMEs and eco-innovation. The findings and conclusions as regards the elaboration of current support system of entrepreneurship and eco-innovation are included in Chapter 6. In Appendix 4 of the report we have added a little glossary with central terms and their definitions.

In the WP7 report we have, through literature review and empirical cases, aimed at identifying what kind of unusual collaboration and related interagents exist, making a special reference to actors supporting eco-innovation in start-ups and SMEs. By analysing the contents of specific unusual collaboration cases, the report strives also to show how these collaborative and interagent services complement or overlap with the mainstream support services and how these services are related to overlapping concepts that promote entrepreneurship, such as cluster initiative, innovation community and business accelerator. We have also assessed the potential that such unusual collaboration approaches have in terms of *positive impacts* to serve the sustainable transformation in the society. It should be kept in mind that our empirical findings primarily reflect practical experience in a small country, namely Finland, which has been among the most advanced economies both in terms of public innovation support and eco-innovation. We are quite confident that many of the features present in the Finnish cases are applicable in other EU countries, too.

We hope that the potential readers of this report would find it enlightening and useful.

Helsinki, Finland and Porto, Portugal, 30 April 2016

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1 Introduction

In this chapter we outline the aims and discuss the background of the work package (WP) 7 of the SHIFT project. After presenting the research questions of the study we show some of our preliminary findings from a sample of Finnish eco-SMEs as well as define the concept of interagent and the features of unusual collaboration. After that we show some of the potential typologies that help in analyzing and classifying interagents and collaboration related to eco-innovation support. Finally, we provide an overview of literature perspectives on collaboration and eco-innovation support. The literature study ('state of the art') follows in Chapter 2. It covers the EU and wider international territory, while our empirical study focuses mainly on Finland and the Finnish (eco-) innovation systems.

1.1 Objectives and research questions of the work package

Firstly, we aim at identifying '**unusual collaboration**' promoted by interagents that supports start-ups (and SMEs), i.e.

- the activities are to some extent different from those identified and focused in other WPs which concentrate on the support provided by universities (WP2), business incubators (WP3), business development organisations (WP4), design services (WP5) and funding (WP6),
- a special reference is made to actors supporting eco-innovation,
- mainly start-ups are included, but eco-SMEs other than start-ups not excluded either as support receivers

RQ1 - What **emergent and innovative types of bringing people and other resources together to support eco-oriented innovation** and start-ups exist in the current support system (in addition to those of actors in focus in WPs 2-6)?

Secondly, our objective is to show how these services are integrated into support systems

- How these complement or overlap with the services analysed in WPs 2-6, as well as how they potentially integrate other existing (mainstream) support services,
- How these services relate to other concepts promoting entrepreneurship, especially 'cluster initiative', 'innovation community', 'strategic network', 'business accelerator', and 'business ecosystem'. The definitions for these concepts are presented in the glossary in Appendix 4 of this report.

RQ2 - What kind of **added value** do unusual collaboration and interagents support services create (and how) compared to the 'mainstream' support system and what **challenges** are involved (in terms of technological and behavioural change)?

Thirdly, we aim at assessing their potential for more positive impacts on eco-innovation support, and ultimately sustainable transformation in the society.

RQ3 - How should the eco-innovation support infrastructure / policies be developed to better serve the transformation of society (technological and behavioural perspectives)?

1.2 Preliminary findings on the support networks of a sample of Finnish eco-SMEs

The ‘official’ view of support does not necessarily recognize some parts of the support system (‘unusual suspects’ or ‘wild cards’) that are also contributing. In our small sample of industrial partners in Finland who joined the steering group for the SHIFT project in Aalto ARTS (Appendix 5), we have found, for example, the following unofficial and/or informal support actors:

- persons or organizations with large (often international) contact networks with potential customers,
- personal everyday circle (the entrepreneurs see it often having a central supportive role compared to the contribution by official entrepreneurship and innovation support services),
- the co-creative role of specialists and committed experts outside the institutionalized research and support infrastructure,

These ‘other’ actors that we are calling **interagents** (see the definition below) may have a very important role in the support system of individual start-ups. They may have tens of micro-enterprises in their *collaborative network*, and they seem to have a lot of *tacit knowledge* on the problems and challenges of the current support system.

No relevant examples of collaborating incumbents and emerging eco-businesses existed *in our sample*, but we should not ignore large established businesses as potential interagents either.

1.3 Defining the interagent

WP7 focuses on the **roles of ‘interagents’, especially individuals, in supporting sustainable start-ups and eco-innovative SMEs with special reference to the Finnish eco-innovation systems**. Our working *definition* of the term describes an interagent as

- *an independent actor or player who has an agenda as intermediary, interceder, mediator or middle person to **bring people and other key resources together** for their self-interest and the interests of others in the innovation support system*

Interagents typically have informal organisational form (we note that this is also possible inside an otherwise formal organisation / structure). Interagents may play an important role in the development of new technologies or new behaviours, or both. Both behavioural and technological changes are needed to achieve ‘**efficacy**’, a combination of improved behaviour with existing technology (sufficiency) and existing behaviour with new technology (efficiency) (Sherwin and Bhamra 2000). A quite similar framework can be found in a conceptual sustainable design matrix by IfM Design Management Group (2014) – see Figures 1a and 1b below.

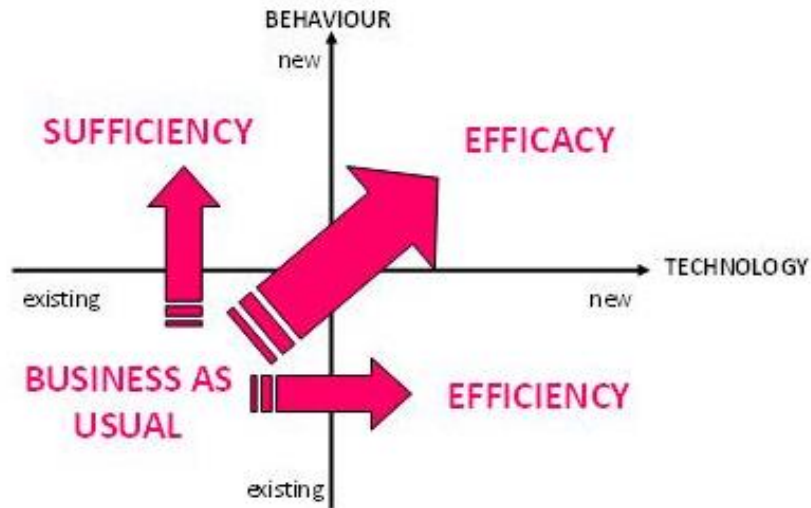


Figure 1a. From business as usual to efficiency with new technology, or to sufficiency through new behavior, or towards efficacy with both technological and behavioral change (source: Diagram by Alastair Fuad-Luke adapted from Sherwin & Bhamra 2000).

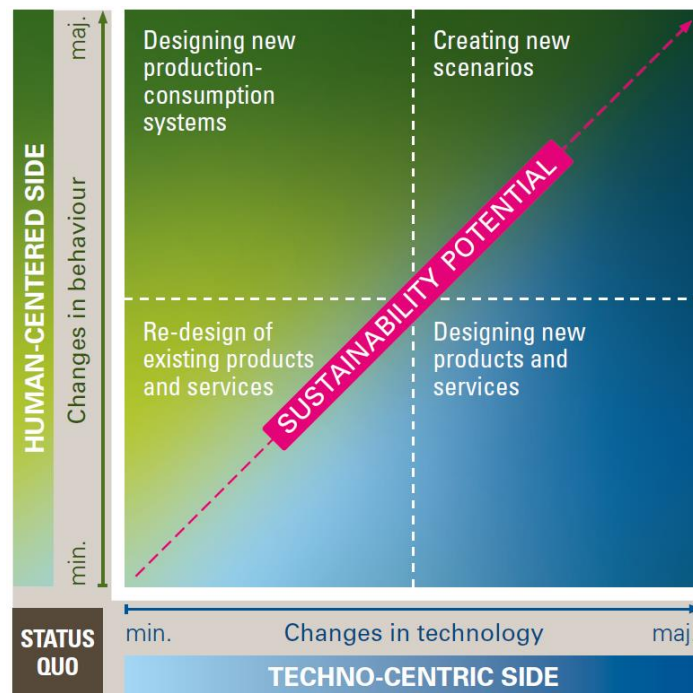


Figure 1b. Sustainability potential with new technology or new behavior, or creating new scenarios through both technological and behavioral change (source: IfM Design Management Group / University of Cambridge 2014).

1.4 The characteristics of unusual collaboration

What makes collaboration ‘unusual’? Here is a summary of our understandings from our literature review and our empirical and qualitative research work.

First, they have innovative, different organizational design for bringing people and other resources together to support eco-oriented innovation and start-ups, in addition to those of forms and actors that are in focus in WPs of the SHIFT project, i.e. universities (WP2), business incubators (WP3), business development organisations (WP4), design services (WP5) and funding (WP6). As regards the support that unusual collaboration is offering, their services are to a certain extent different from existing (mainstream) support system or they build up to some extent tailored combination of services. They also have a more informal institutional setting in the eco-innovation support infrastructure compared to the more established (mainstream) services. Consequently, the aims which are served by unusual collaboration are typically less standardised and more case specific than in the mainstream support services. Further, the support provided by interagents and unusual collaboration is more of a proactive nature - the mainstream services have a tendency to provide more like reactive support. *The collaboration approach also includes a multi-actor support as well as multi-level perspective* – the mainstream support services tend to focus on more limited perspectives. One important feature in such collaboration might be their explicit focus on supporting sustainable innovation and/or entrepreneurship. The rather explicit aim of the services is also to make changes on system (macro / policy) level to promote transformation in the society as well as support new business models based on the principles of sustainable development. Last but not least, collaboration seems to be offering easily accessible, and highly relevant support to SMEs.

Thus, the features of unusual collaboration compared to the mainstream start-up support services are many. The collaborative support services should in practice include several of the characteristics presented shortly in Table 1 below.

Table 1. The nature of unusual collaboration.

Origins of support service	Features of unusual collaboration supporting eco-innovation
Organizational design	Innovative / different organizational design of bringing people and other resources together
Service offering	Building up a different and more tailored combination of services compared to the mainstream support system
Institutional setting	Having a more informal setting in the eco-innovation support service infrastructure
Standardization of aims	Less standardised and more case specific than in the mainstream support services
Proactivity of services	Support offered by interagents / unusual collaboration is more of a proactive nature
Scope of perspectives	Multi-actor support as well as multi-level perspective
Focus in relation to sustainability	Focusing especially in supporting sustainable innovation and/or entrepreneurship
Aims in relation to system level changes	Aiming at system (macro / policy) level changes to promote transformation (as well as support the new business models) is explicit
Relevance to start-ups and micro-SMEs	Offering accessible, relevant, understandable and useful support to 'like-minded' SMEs (sector, needs, vision)

1.5 Potential perspectives (frames) about interagents and unusual collaboration

There are five perspectives (frames) available through which to classify interagency and collaboration related to eco-innovation support. A generic and practical approach to the analysis and classification of interagency and collaboration could consist of two dimensions, i.e. which area of services (or functions) does interagency offer value creating support, and on which level of business activity does its support focus on. These two views are integrated in Figure 2 below.

(1) Which **area of services** does interagency offer support / create value? (cf. Velamuri et al. 2011) Is it

- (eco-)entrepreneurship / Strategic & Business level view,
- (eco-)innovation / Innovation view,
- (eco-)marketing / Marketing view,
- (eco)design / Design view,
- or a combination of two, three, or all four of these?

(2) Which **level of business activity** does the support focus on? Is it

- Vision,
- Operations / processes / management,
- Product / service / content,
- or several of these?

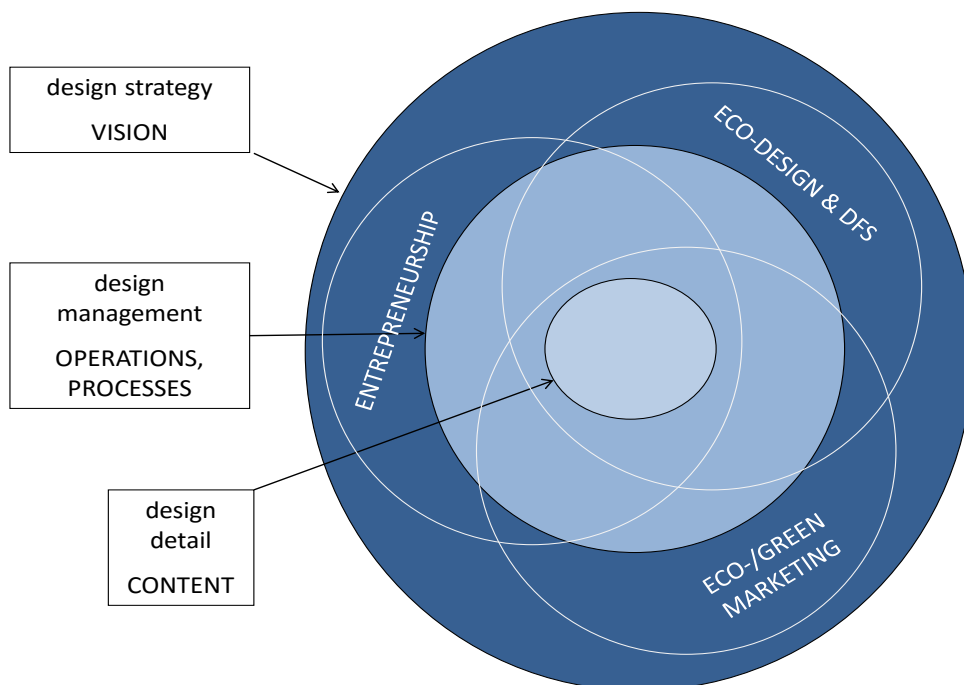


Figure 2. The analytical dimensions for the potential classification of eco-innovation support by area of services and level of (design) and business activity (adapted from: Fuad-Luke 2012).

A third potential analytical approach is linked to collaborative contexts by means of which the interagent offers support and creates added value. Thus, we may ask,

(3) In which **collaborative contexts** does interagency offer support / create value? Is it about

- creating,
- facilitating,
- stimulating,
- efficiating,
- educating,
- associating,
- corporate context,
- or a combination of several of these?

For example, recent research (Celik et al. 2014) included 500 design-driven social innovation networks worldwide presenting a categorization of collaborative social innovation networks based on the functionality that these networks delivered. Their findings are reviewed in chapter 2.2.5.

Further, we can also consider what kind of *exchanges* are transferred in the collaboration - are they related to specialized know-how, financial and material resources, or are there communication and networking skills involved. In terms of exchanges in collaboration and innovation support, **promotor theory** is highly relevant. It will be discussed in chapter 2.3 below. The **theory of social capital** is also strongly linked to interunit resource exchange as well as formation of start-up firms, entrepreneurship and innovation. The social capital has been said to be glue, which forms the structure of networks, and at the same time a lubricant that facilitates the operation of networks. Perspectives on social capital are reviewed in chapter 2.5 below.

Consequently,

(4) What kind of **exchanges** are present (transferred) in the collaboration? (cf. Fichter 2012)

Is it creating and/or transferring

- specialized knowledge and know-how
- resources (financial, technical, suppliers)
- relationships (communication skills, organizational know-how)
- structures and processes (interaction and network skills)
- or several of these

Last but not least, one highly relevant perspective to analyse any interagent or unusual collaboration would be the levels of society on which the collaboration takes place and creates impacts. For example, in the transition to a sustainable energy system in large sociotechnical systems, intermediary organisations can emerge as mediators in between several actor groups and facilitate collaboration between levels towards common goals. Such 'systemic intermediaries' emerging in *long-term transitions* towards a sustainable future are shortly discussed in chapter 2.4 below. In the same chapter, we will also review an interesting literature summary by Howells (2006) presenting different intermediary roles and functions in the intermediation process in innovation. He concluded that the support from the intermediaries is more holistic and varied than previously viewed and their functions are also of much wider range.

In relation to sociotechnical systems, we can ask,

(5) *On which level of society does the collaboration take place and have impacts?* (**multi-level perspective**)
(Geels 2011; Kemp et al 2007)

- macro level (system / society)
- meso level (regional / cluster)
- micro level (local / company)
- or several of these

In the empirical part of this study, we utilized all of these five perspectives to analyse interagents and related unusual collaboration. Based on the literature study, we also built up a specific multi-level framework for the analysis of interagency and unusual collaboration in supporting sustainable start-ups. The framework is presented in chapter 4 of this report.

1.6 Overview of literature perspectives on collaboration (and support) for start-ups in sustainable innovation

The findings from the literature study give an overview as regards **collaboration** of small businesses and (often bigger) interagent organisations, especially in terms of support for start-ups in the field of **sustainable innovation**. The perspectives on collaboration and interagency are many, with the majority of studies focusing on collaboration motives, types, outcomes and other conventional aspects of collaborating. As regards this study, we believe the most relevant perspectives are likely to come from studies focusing on promotor and intermediary roles, innovation network categories (i.e. collaborative contexts) as well as intermediary levels (i.e. business/micro level, meso level, and system/macro level) – see Figure 3.

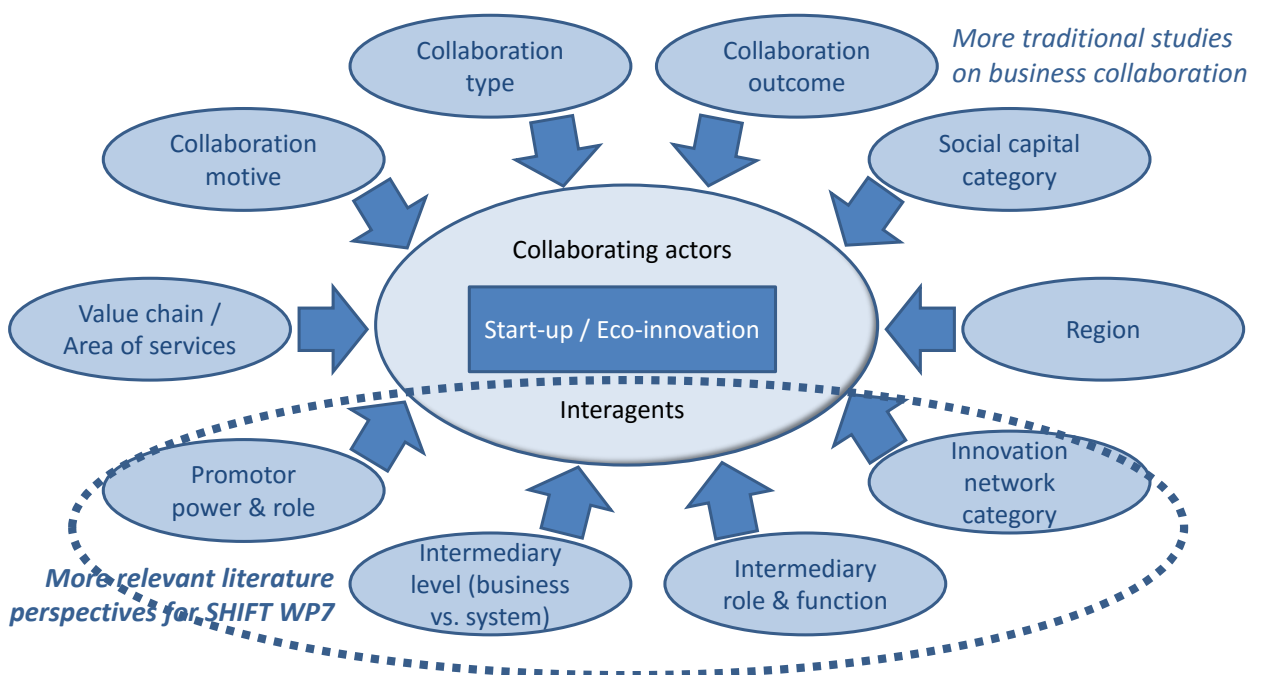


Figure 3. The various perspectives on corporate collaboration and interagents.

1.7 The structure of the report

After portraying the background and objectives of the study in Chapter 1, we present a brief review of perspectives on collaboration for start-up and SME support as well as sustainable innovation based on previous literature in Chapter 2. Summary and conclusions of the literature study are presented in Chapter 3, and Chapter 4 provides an overview of the framework for the analysis of interagency and unusual collaboration in supporting sustainable start-ups to be used in this study. An analysis of interagency and unusual collaboration with three cases from Finland is presented in Chapter 5. The findings and conclusions as regards the elaboration of current support system of entrepreneurship and eco-innovation are included in Chapter 6.

2 Collaboration for SME support and eco-innovation ('State of the art')

This chapter focuses on the findings of the literature study related to collaboration for SME support and eco-innovation. Due to the aims of the SHIFT research project, we have narrowed the scope of the vast literature on inter-organizational collaboration so that we strive to have *more focus on entrepreneurial collaboration as well as collaboration in the area of sustainable innovation*.

2.1 The aim and content of the literature review in brief

The aim of the literature study is to get an overview as regards **collaboration** of small businesses and (often bigger) organisations, especially in terms of support for start-ups in the field of **sustainable innovation**. As an introduction we will provide a brief general perspective on previous research on corporate collaboration (*cf. WP1 report 3.4 Types of collaboration*). This includes

- Key features of collaboration between businesses; Typologies of collaboration in entrepreneurship with very limited, if any, focus on potential organization theories: network, actor-network, social capital, agency etc.,
- Existing empirical research on the collaboration of businesses generally and especially in the area of sustainable innovation (partnerships, networks, promoters, champions).

Additionally, we will focus on specific "other" actors and approaches in collaboration. These perspectives include

- The capacities, functions and models in collaboration between interagents (intermediating organisations) and start-ups, specifically in innovation process (*e.g. Howells 2006*),
- Social capital in collaboration.

At the same time, we also strive to chart sustainability oriented collaboration practices both on EU level and in national contexts (especially Finland). We aim to pick up bottlenecks and challenges as well as best practices from the findings of previous studies. All in all, the literature study aims to help us to build up the necessary framework to analyse the interagency and collaboration cases.

2.2 Perspectives on collaboration

In this chapter we briefly present perspectives on collaboration between businesses from existing empirical research on the collaboration in general as well as in the specific area of sustainable innovation. We will start with the concept of networking, and continue to motives of collaborating as well as different types of partnerships between organizations. After that we will discuss shortly two specific types of collaboration that are relevant to small new businesses, namely collaboration between incumbents and start-ups, and new business networks. The last part of chapter 2.2 is dedicated specifically to partnerships and networks for environmental engagement and eco-innovation, including social innovation.

2.2.1 Networks and alliances

Alliances and co-operative arrangements have received attention from companies since the 1980s (Welch 1992), and business networks have received more and more attention also by researchers since 1990s. A *network* consists of a set of actors and nodes with a set of ties of a specified type that link them (e.g. Borgatti & Halgin, 2011, Geiger & Finch 2010, Håkansson & Ford 2002). Much of the theories of network analysis consist of characterizing network structures and node positions and relating these to group and node outcomes. Research on social networks has grown considerably, but despite this popularity, there seems to be confusion about network theorizing (Borgatti & Halgin, 2011). There are typically multiple opportunities available to businesses in a network, as the relationships encourage interdependence between different systems and reinforce their complementarity. The macro perspective on networks compares the network to an instrument coordinating the companies, whereas the micro perspective investigates networks in terms of strategy and operations as a function of the changing dynamics of the company (Trequattrini et al., 2012). The setting of boundaries for a network of companies and organisations is challenging, as network setting extends without limits through connected relationships, making any network boundary arbitrary (Halinen & Törnroos, 2005).

There are no constraints in the formation of business networks in terms of company size. Company networks are formed both by small businesses and large companies (e.g. Trequattrini et al., 2012). In his study on the use of alliances by small firms in achieving internationalization, Welch (1992) examined four main types of alliance. The first type is a grouping of small firms, perhaps supported by an outside party or parties. The second type of alliance is that between small firms in different countries, with each assisting the other to penetrate its local market. A third type of alliance is that between one or more small firms and a large firm e.g. for the purpose of internationalization (see chapter 2.2.3 below). A fourth type of alliance is that between a small firm and another company in the foreign market, perhaps in the form of a joint venture. Project operations represent a somewhat unique form of collaboration, often involving a large number of companies, large and small, which do not fit readily into the four categories mentioned above (Welch 1992).

A company network is a free business association, which creates structures that are capable of integrating the efforts of members, for example, to exchange information and other resources, design and produce goods and services, develop new processes, reduce time needed for innovation or entry to the market (e.g. Håkansson & Ford, 2002). Networks have been claimed, for example, to be the defining feature of innovative regions (such as the Silicon Valley), the locus of innovation in high-tech industries, and shape the diffusion of technologies and practices (Owen-Smith, n.d.).

The social or personal networks of entrepreneurs can be a cost-effective means of obtaining information that is valuable to the business, and moving from the personal to extended networks allows entrepreneurs to expand their access to information and resources (Dubini & Aldrich, 1991). In practice, *Business networking* has been defined as a socioeconomic activity by which groups of like-minded businesspeople recognize, create, or act upon business opportunities. It is a low-cost activity that involves more personal commitment than company money. Business networking is regarded as an effective low-cost method for developing contacts and also sales opportunities (cf. marketing). In addition to specific networking events and tools, such as local networking events, speed networking events and business networking websites, networking opportunities include e.g. exhibitions, workshops, professional clubs and websites, and societies and associations for specialist subjects (businessballs.com, 2013).

Active networking and participation in network partnerships is often seen as a beneficial opportunity for creating value and growth (Trequattrini et al., 2012). *Strategic partnerships* are often mentioned among the most important gains of networking. Other potential benefits include access to expertise, products and services. The exchange of ideas, mutual support of a peer group, and benchmarking opportunities and best practice have also been among the potential benefits of networking for a start-up or small business. Stimulation, a positive influence of networking, has also been emphasized in several practitioner oriented listings of the benefits of business networking (e.g. amazingbusiness.com, enterprisenation.com, is4profit.com 2013).

2.2.2 Motives of collaborating and types of partnerships

Access to resources and skills discrepancies has been recognized as a **motivator for collaboration** for a long time (e.g. Birley 1985, Hamel 1991). In her study on the role of networks in the process of starting a new firm (entrepreneurial process) Birley (1985) emphasized **the role and substantial influence of informal networks** (family, friends, business contacts) – in addition to the *formal networks* (banks, lawyers, accountants etc.) – for the nature of the SME.

Hamel (1991) studied competence and inter-partner learning within international strategic alliances. A *strategic alliance* can be defined as an arrangement between two companies that have decided to share resources to undertake a specific, mutually beneficial project. A strategic alliance could help a company develop a more effective process, expand into a new market or develop an advantage over a competitor, among other possibilities (Investopedia 2014). Hamel's findings suggest that **collaboration may provide an opportunity for one partner to internalize the skills of the other, and thus improve its position** both within and without the alliance. However, not all partners are equally adept to at learning. Thus, stability and longevity may be an inappropriate metrics of partnership success (Hamel 1991).

Since the late 1990s, companies have become increasingly engaged in partnerships also with non-profit (non-governmental) organisations. Kolk et al. (2008) identified three **different types of partnerships** between different organizations: public and private organizations, private and non-profit organizations and tripartite (a partnership between all three types of organizations). They found that private-nonprofit partnerships were most common, while tripartite and public-private partnerships were only emerging in their empirical setting in the Netherlands (Kolk et al, 2008).

2.2.3 Collaboration between incumbents and start-ups

The term "*incumbent*" refers here to a company that is powerful and has a large amount of market share, as for example in "the dominant incumbent software company". The incumbent is typically (amongst) the largest player(s) in an industry (e.g. Investopedia, 2013). These already established organizations gain certain incumbent's advantages in the market, as compared to new entrants.

Start-ups, e.g. new technology firms often lack certain *complementary assets* to commercialize their innovations. Complementary assets include infrastructure or capabilities necessary to support successful commercialization and marketing of an innovation. Consequently, *incumbent start-up collaboration is often linked to commercialization strategies for start-ups* (e.g. Belleflamme, 2012, Gans & Stern, 2003). On the other hand, incumbents may face severe difficulties in adapting to radical (technological) change. Radical

innovations may even initiate a process of creative destruction leading to the replacement of incumbents by new entrants. The concept was derived from the work of Marx and popularized as a theory of economic innovation and the business cycle by Schumpeter in his work entitled "Capitalism, Socialism and Democracy" (1942).

Inter-firm cooperation between incumbents and new entrants has been suggested as one way that the incumbents can adapt to radical (technological) change (Rothaermel, 2002). In addition, the cooperation between incumbents and new entrants may contribute to an improvement in incumbent industry performance (Rothaermel, 2001a,b).

Instead of attacking or competing with established incumbents in the markets, start-ups often choose collaborative partnerships with large incumbent firms who possess the necessary complementary assets such as manufacturing capabilities, marketing channels, brand name etc. (Rothaermel, 2001a). Start-up product entry to the market is often costly, and due to the high entrance cost, start-ups will favour the option of partnership with an incumbent firm. This will enable the incumbent firm to make use of the external start-up innovation that will be positive for its development. When start-ups do not present much competition for the incumbent, their ideas and inventions may sometimes be stolen and imitated by incumbent firms (Belleflamme, 2012). Innovators face a strategic trade-off between the protection of their ideas and an effective commercialization strategy. Protection against expropriation often requires some level of secrecy (Gans et al., 2008). A start-up innovator with weak intellectual property protection is likely a weak competitor, dampening the innovation incentives of entrepreneurs (Gans & Stern, 2003).

In niche markets however incumbent companies do not control complementary assets. This business environment is characterized by tight competition between start-up firms and incumbents, and start-up firms may have the opportunity to acquire stronger position using the existing "blind spots": the Swiss watch industry and the mobile telecommunications industry have been frequently used as examples where start-ups take advantage of blind spots in the industry (Glassmeier, 1991, Belleflamme, 2012). Start-ups can choose whether to compete or to cooperate with an incumbent firm. They are able to protect their own innovations from imitations, and thus they do not need the complementary assets of incumbents.

Similarly, large (incumbent) and small (start-up) firms may have differential roles in transforming industries towards sustainable development. In their analysis, Hockerts and Wüstenhagen (2010) present a view of industry transformation, where the initial phase is characterized by sustainability initiatives of small firms, idealistic "Davids". In a second phase, some pioneering "Goliaths", e.g. retailers, mimic some of the David initiatives and try to bring them into their mainstream distribution channels. In isolation, none of these two developments would necessarily lead to sustainable transformation of mainstream markets, because Davids tend to get stuck in their high-quality, low-market penetration niche, while Goliaths have an inherent tendency to react to cost pressures by lowering the sustainability quality of their offerings.

The success of emerging Davids, which can also be seen as a potential competitive threat for incumbents, has been instrumental for some of the greening Goliaths to embark on the level of sustainable entrepreneurship that they did. It has been argued that the sustainable transformation of industries is not going to be brought about by either Davids or Goliaths alone. Instead, the interaction of incumbents and new entrants is essential in sustainable entrepreneurship. Achieving the sustainable transformation of an industry requires a fine-tuned mix of disruptive and incremental innovation, which can be promoted if the interplay of Emerging Davids and Greening Goliaths is understood, rather than focusing only on one of

these paths while neglecting the other. Smart innovation policies should try to leverage cooperation and competition between Davids and Goliaths (Hockerts & Wüstenhagen, 2010).

Providing estimations on the volume and quality of collaboration between incumbents and start-ups for example in Finland, Germany and Sweden is challenging as well. As mentioned above, the existence of tangible relationships and connections between companies has been observed in studies for tens of years (e.g. Håkansson & Ford, 2002), and there is also research and theorising on the relationships between incumbents and start-ups in sustainable entrepreneurship (e.g. Hockerts & Wüstenhagen, 2010). It seems however that there are no statistics available that would provide exact and comparable data on the interagency and unusual collaboration approach.

2.2.4 New Business Networks

There are several *specific business networking organizations that create models of networking activity* that allow the business person and/or owner-manager to build new business relationships and generate business opportunities at the same time. Business networking can be conducted in a local business community, or on a larger scale via the Internet. There are specific networking checklists and tips available for effective networking, and recently also teaching techniques for integrating traditional business networking skills with the newest social media (Delaney, 2013).

Providing estimations on the number of business networks for example in Finland, Germany and Sweden is challenging. In addition to formal networks there are also informal network structures between professionals, (M)SMEs and other organisations etc. The existence of tangible relationships and connections between companies has been observed in studies for tens of years (e.g. Håkansson & Ford, 2002), but there are no statistics available that would provide exact and comparable data on the (new) business networks approach. However, it seems that there is a growing trend in terms of networking approach.

2.2.5 Partnerships and networks for environmental engagement and eco-innovation

Studies of successful environmental practices implemented by small firms have revealed that *relationship with other firms or other organizations can contribute to greater awareness of the benefits* of these activities and also enhance environmental engagement (Lewis et al. 2014). Collaborative relationships may provide SMEs with opportunities to overcome some of the barriers to implementing environmental initiatives associated with, for example, their size. Collaborative relationships may both educate and engage SMEs, and trigger a level of environmental empowerment that tip SMEs for being laggards to the path of environmental leadership (Lewis et al. 2014). Naturally, this is true for mainstream SMEs, but small companies or start-ups committed to eco-innovation are in a different position as regards the benefits of collaboration.

Collaboration, eco-innovation and SMEs

Carrillo-Hermosilla et al (2009) concluded that engaging in collaboration partnerships and information flows is crucial to eco-innovate, although this may be a chicken and egg situation, as a pre-existing technological capacity and competency makes such engagement more likely. A key aspect of competency

to develop and adopt eco-innovations and use technological opportunities offered by the market depends on the creation of relationships and the formation of alliances as well as the use of collaboration networks with research institutions (Carrillo-Hermosilla et al, 2009).

Battaglia et al. (2010) aimed at identifying and understanding the role of the '*intermediary institutions*' (such as trade unions, local authorities, business consortia) in promoting Corporate Social Responsibility (CSR) and the adoption of CSR related tools among SMEs in three *industrial clusters* in Italy. The cluster approach included local multistakeholder working groups, communication tools to disseminate expertise and best practices, operational models, guidelines to support organizations towards CSR, and audits at local level. The approach promotes CSR of the productive system instead of promoting sustainability management within the system (the traditional approach). The application of the cluster approach resulted in a fundamental instrument to overcome the barriers that prevent SMEs from *developing systematic CSR initiatives* (costs and complexity of the operation). Sufficient technical and financial support to compensate lack of competence and resources in SMEs, as well as effective flows of information, was suggested to overcome barriers also in the analysis of the innovativeness in the Baltic Sea Region by Vasilenko et al. (2011). Tailor-made workshops and network of relevant actors were seen as an efficient tool for knowledge transfer from research projects to SMEs in a study of the European food sector by Braun & Hadwiger (2011).

Related to barriers and stimuli for ecodesign in SMEs, van Hemel and Cramer (2002) compared 33 ecodesign principles distinguished to improve the environmental performance of products in a sample of 77 Dutch SMEs in 1997. They concluded that internal stimuli were a stronger driving force for ecodesign than external stimuli. Enhancing ecodesign in SMEs does not only depend on finding alternative solutions for technical problems. Even more important are economic and social factors like the acceptance of improved products in the market, as well as the way in which SMEs perceive the market perspectives of these products. However, the study of the stimuli and barriers for ecodesign did not explicitly reflect the relevance of collaboration either in relation to stimuli or to barriers of ecodesign in SMEs.

As regards barriers complicating commercialization encountered by eco-innovations, a study by Palmén & Åslund (2013) revealed several barriers for eco-innovators. Same three main groups of barriers came up both in literature review and in the empirical study of Swedish eco-innovations. These include lack of capital, and sales skills. SMEs need both company-specific and more general support by networks. Business Development organizations would have a lot to offer via *networking*, and for specific support such as technical advice and financing they could act as a *bridging actor* instead.

Using data from 24 UK SMEs from a range of sectors, Jenkins (2009) demonstrated how SMEs can take advantage of the CSR opportunities (corporate social opportunities, CSO) available to them, such as developing innovative products and services and exploiting niche markets. A crucial part of profiting from the opportunities presented by CSR is to develop a business strategy that aligns the company's business goals with a strong commitment to CSR values and principles. In SMEs, the change agent or business champion for CSR is usually the owner-manager or the founding team (cf. Chapter 2.3 below on Promotor Theory and Champion research below). Jenkins emphasizes also the willingness to draw on *external knowledge sources*. *External networks* – engaging with a number of stakeholders – are crucial to have access to all the skills and information needed to adopt CSR practices and realize CSO. Jenkins concludes that in many ways SMEs are ideally placed to gain competitive advantage from socially and environmentally responsible activities.

The taxonomy for strategic sustainability behaviors in SMEs (Klewitz & Hansen 2014) presents the sustainability-rooted SMEs as the most advanced level of strategic behavior. This business model builds on the integration of economic, environmental and social aspects with market transformation as the ultimate goal by spreading sustainability-oriented innovations (SOIs) in niche and mass markets. This strategic sustainability behavior is more likely to lead to radical product, process, and organizational (business model) innovations SMEs than anticipatory or innovation-based behavior. Sustainability-rooted SMEs' *interaction with external actors* will also be highly extensive compared to medium or lower levels of external interaction by other types of SMEs (Klewitz & Hansen 2014, 70).

Thus, the *involvement in networks* has been found to be *important for eco-innovation* (Klewitz, et al., 2012; Halila & Rundquist, 2011; Triguero, et al., 2013; Pereira & Xavier, 2012; cf. Palmén & Åslund's working paper 'Boosting eco-innovation', 2013, 11). In a case study of 12 innovation cases, Halila & Rundquist (2011) found that the use of these networks differs between actors; some use their networks in order to solve technical issues in the earlier stages of development, whereas others took advantage of their network in the latter stages in order to overcome market barriers. For eco-innovators the network was used more for solving technological problems, whereas other innovators used the network to a greater extent for assistance with finance and marketing. In addition, eco-innovators had greater difficulty than other innovators in attracting venture capital for development (Halila & Rundquist, 2011). Knowledge from a network could also drive the change towards a more sustainable business operation (Klewitz, et al., 2012).

According to the study on European SMEs by Triguero et al. (2013), *private companies involved in networks with universities, agencies and research institutes are more likely to come up with all kinds of eco-innovations*. Therefore, they also pointed out the importance for the manager to be aware of these actors and active for possible collaborations to enhance their environmental innovation strategy. Also public policy should promote the creation of these networks between eco-innovative firms, universities, governments and consumers (Triguero et al. 2013, 32).

Yarahmadi & Higgins (2012) examined the green innovation literature to explain *the driving forces behind environmental cooperative activities* of firms. Their findings suggested that firms cooperate with governmental agencies, NGOs, suppliers, customers and industry associations to comply with environmental laws and regulation, obtain legitimacy (cf. *institutional theory*) as well as acquire competency (i.e. access to resources such as funds, knowledge and skills; cf. *resource-based theory*). However, only competency-oriented motivation seemed to stimulate organisations to cooperate with competitors and knowledge leaders.

McEwen (2013) analysed *ecopreneurship* as a solution to environmental problems in the context of college level entrepreneurship education. In order to stimulate ecopreneurship, and harness the innovative potential of ecopreneurs (for the meaning and typologies of ecopreneurs, see McEwen 2013, 266-269), *society should facilitate collaboration and networking among ecopreneurs and innovation intermediaries*. They would help the ecopreneur acquire knowledge outside their own organizational boundaries (Clarke & Roome, 1999), and as such the ecopreneur gain access to and exchange relevant ecology and sustainability-related information. Collaboration between ecopreneurs and innovation intermediaries also provide access to direct assistance, e.g., advice on funding sources, advice on business operations, identification of potential collaborators, etc., which supplement the ecopreneurs resources and can lead to a startup involved with eco-innovations (Klewitz et al., 2012).

Categorizing collaborative innovation networks

Recently, Celik et al (2014) implemented an inventory of collaborative innovation networks. The research that included 500 design-driven social innovation networks worldwide presented a new categorization of collaborative social innovation networks based on the functionality that these networks delivered. The preliminary typology of collaborative innovation networks by Celik et al. included seven main categories (see Figure 3). They also provided practical examples of each category.

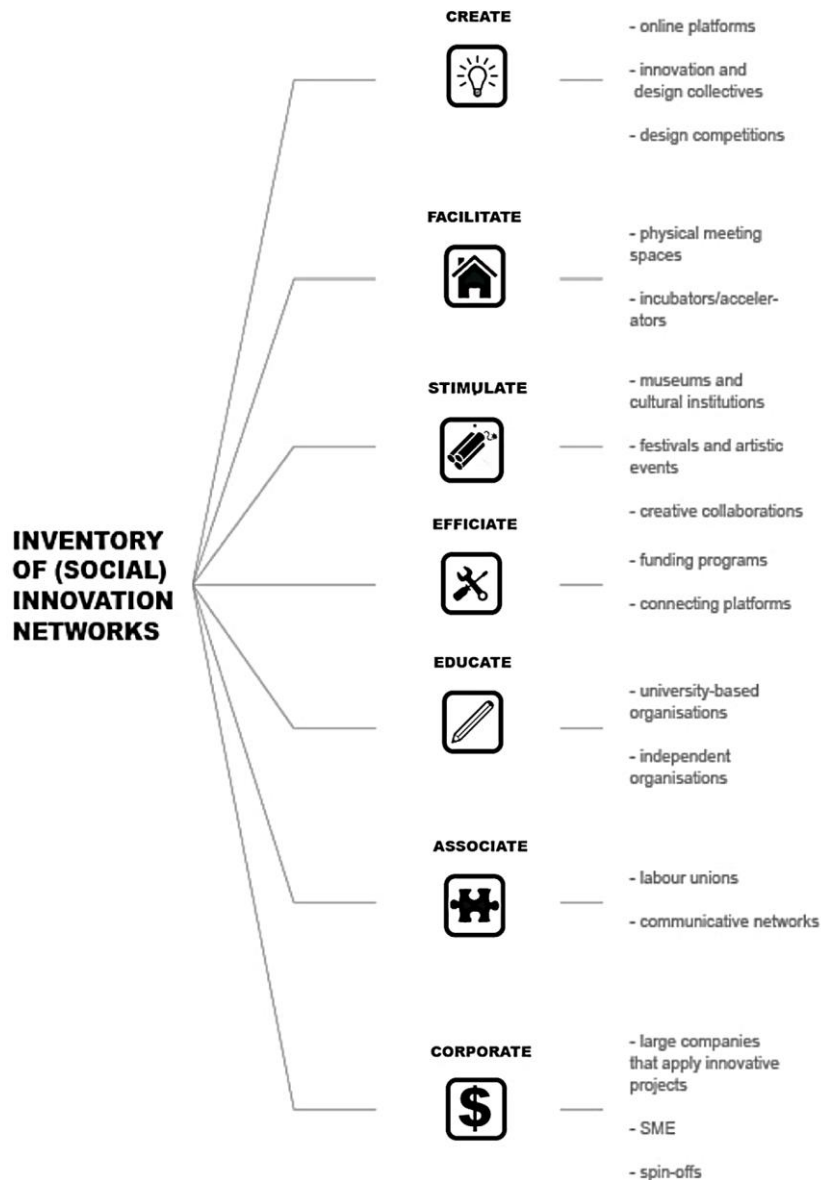


Figure 4. A functional categorization of collaborative social innovation networks (Source: Celik et al 2014).

The first category (*'Create'*) of the inventory by Celik et al (2014) covers organizations that have an impact on society by using creativity as a tool. Examples of these networks include an online platform enabling partnership between government and public to find solutions to mostly technical challenges, a group that aims to bring active citizens together to make their city more attractive, and a design competition that stimulates technically oriented students to work with renewable energy (solar energy).

The second category (*'Facilitate'*) of innovation networks is linked to the rising need of physical spaces to bring initiators together and facilitate the idea generation process. Examples of this category include physical meeting spaces connecting the users virtually and physically, as well as an accelerator organization that helps young entrepreneurs to realize their innovative ideas in many ways.

Art and culture that enable inspiration and indirectly trigger the innovation process are in the core of the third category of innovation (*'Stimulate'*). Examples of these networks include a technology museum where visitors can familiarize with new materials and fabrication technologies and a festival implementing new energy, clean-tech and recycling solutions in cooperation with universities, and an initiative that aims to cross-fertilize the creative minds of artists with various fields of business by bringing the two worlds together.

The fourth category (*'Efficiate'*) concentrates on initiatives that help the innovators financially or make the development and delivery of the results more effective through establishing right connections. Examples of these include specific funding programs and matchmaking platforms that aim to connect correct customer with correct designer. The next category of collaborative innovation networks (*'Educate'*) consist of both university-based and independent organisations that identify and promote the results of their research and innovations worldwide that could be part of a sustainable future.

There are also groups interested in innovation who are not actively coming together to develop or design but who form a network of expertise together. The organisations in this category (*'Associate'*) organize events where members share experiences and educate each other, which enables the flow of knowledge between relevant people and fields. Professional groups (labour unions) and international communicative networks can be major examples of this category.

In the seventh category (*'Corporate'*), the purpose of innovation is defined by the firm. In addition to large companies and fresh entrepreneurs, spin-offs from traditional companies are considered as well. Examples of such networks include a large food industry company asking customers to develop new tastes for its products, and an SME producing flip-flops made of car tires from South Africa where tires are dumped massively. Orphans of South African villages are creating part of the design and profits go to these orphans as well.

There appear to be a large amount of different types of networks involved in eco- and social innovation. Celik et al (2014) have presented one of the first efforts that aims at clustering and classifying various collaborative (social) innovation networks in a systematic manner. However, the different networks will not have to operate in isolation of each other. The real effectiveness of these different collaborative innovation networks is how *the primary functions cross-over or hybridise*. For example, university-based organisations that typically would have the functional categorization of *'Educate'*, would have positions in *'Create'* and *'Facilitate'* as well.

2.3 Promotor Theory and Champion Research in relation to innovation

This chapter section presents a specific perspective on innovation promotion and overcoming of certain barriers related to that. Specialized promotor roles and power bases may be relevant in different challenges in innovation processes. Instead of one role and power base, *'universal promotors'* may combine two or even more of the promotor roles.

Promotor theory (Fichter 2012 in Fichter & Beucker 2012) is based on the notion that the success of innovation processes depends on overcoming certain barriers; it requires promoters or champions who commit enthusiastically to specific innovation projects, new product or the new process idea (Hauschildt & Kirchmann 2001) and help overcome those barriers. Witte (1973, 15) defined *promoters as 'individuals who actively and intensively support the innovation process'*. With regard to barriers, Witte (1977) differentiates between two kinds of specialisation, the 'power promotor' and the 'expert promotor', and assumes that there is a correspondence between specific barriers and specialised roles. The 'power promotor' contributes through hierarchical power and the 'expert promotor' contributes through expert knowledge (Witte 1973, 17). Another assumption of promotor theory is that the innovation process will be more successful if both types of specialised promotors work closely together (Hauschildt and Kirchmann 1997, 68). Witte's original two-centre theory of power and knowledge has been extended since its introduction in the 1970s. In the 1980s, Hauschildt and Chakrabarti (1988, 385 f) described a third barrier that can hinder economic progress: administrative barriers. For this reason, they introduced the role of a 'process promotor', who actively arbitrates between the technical and the economic world by means of organizational knowledge (Hauschildt 1999, 174). Gemünden and Walter (1995) developed a fourth type of specialised promotor: 'relationship promotors' actively encourage an innovation process by means of innovation-related business relationships inside and between the organization and its external partners. The defining characteristic of relationship promotors is their extensive network competence, i.e. powerful relationships with other parties (Table 2).

Table 2. Barriers, power bases and promotor roles in innovation processes (source: Fichter 2012).

Barrier type	Power base	Promotor role
Knowledge	Specialized knowledge	Expert promotor
Ignorance, opposition, resources	Hierarchical potential, control of resources	Power promotor
Administrative	Organizational know-how, communication skills	Process promotor
Cooperation dependency	Networking skills, potential for interaction	Relationship promotor

Promotor theory stresses that the *different specialised promotor roles do not have to be played by different individuals, but can also be combined in one person, the 'universal promotor'*. Promotor theory offers a consistent and elaborate base for describing and explaining the role of transformational leaders in innovation processes; its conceptual focus on a single organization is, however, too limited in scope (Fichter 2005). For this reason, the original theory has to be extended, by adding two new assumptions:

1. Cross-boundary cooperation of promotors: In cases of open innovation and complex technologies, the innovation process will be successful only if universal or specialized promotors from cooperating organizations work closely together.
2. Promotor roles on all levels of innovation systems: *Promotor roles are not limited to those organizations involved in "producing" innovations, but can also be played by innovation intermediates* (Howells 2006) or individuals from organizations of the superstructure of the innovation system (Lynn et al. 1996; Lynn 1998).

The construct of “innovation communities” will draw on the concept of multi-level innovation systems, because it helps to clarify and configure crossboundary relationships and allows systematic connections to the research on “superstructures” of regional, national and international innovation systems (Lynn et al. 1996; Lynn 1998). In contrast to promotor theory, the Anglo-Saxon research has, so far, mainly been focused on the “champion” concept introduced by Schon (1963). Although Rost et al. (2007) propose that champions and promoters differ with respect to the kind of knowledge they possess, a closer look at the various specifications of the term “champion” reveals that innovation champions can in fact be conceptualized as “universal promoters”, as they combine two or more of the promotor’s roles in one (Sand and Rese 2011, 235).

On the basis of extended promotor theory and the concept of three-level innovation system, the term ‘*innovation communities*’ was defined as follows:

An innovation community is an informal network of likeminded individuals, acting as universal or specialised promoters, often from more than one company and different organizations that team up in a project related fashion, and commonly promote a specific innovation, either on one or across different levels of an innovation system. (Fichter 2012, 13)

2.4 The capacities and functions of intermediation within innovation

Role of intermediary in innovation and technology can be traced back to ‘middlemen’ in the agricultural, wool and textile industries of 16th-18th century Britain. They not only plied their trade, but were important informal disseminators of knowledge about technical improvements (Howells 2006b). The discussion on intermediation within innovation that in practice already started in the previous section with focus on promoters and innovation communities, will continue in this chapter with an overview of types and functions of intermediaries in (eco-)innovation. Howell’s (2006a) analysis of different innovation intermediaries on business level is in the core of this chapter, but previous research also opens perspectives on ‘systemic intermediaries’ that emerge in long-term transitions.

2.4.1 Intermediaries supporting innovation, SMEs and transition

According to Klewitz et al. (2012), an **intermediary** can be seen as a third-party organisation with the purpose to achieve desired objectives. They found that SMEs may need facilitation for eco-innovation from different types of intermediaries (both public and private) with different levels of support, which can range *from customized and individual to more loosely held support, such as networks*. Evidence by O’Rafferty et al (2009) also suggests that SMEs require a flexible and evolving intervention model to support ecodesign that can compensate for a lack of structured coordination of ecodesign activities. The research reinforces the need *to break old social and organizational ‘silos’ while creating new collaborative contexts* for design and innovation.

In the context of systems innovation research, Van Lente et al (2003) have described how ‘**systemic intermediaries**’ emerge *in long-term transitions towards a sustainable future* as actors who are useful and necessary but not sufficient. They concluded that appropriate *policy support was lacking* for the important task intermediaries were performing. Additional insights into the role of intermediaries in system

transitions can be found in research on intermediaries in sustainable water management of Europe (Moss et al 2009). The intermediaries were able to translate regulation into practice, transcend organizational and regional boundaries and reconfigure relationships between actors in order to facilitate changes. Backhaus (2010), who has studied the transition to a sustainable energy system, concluded that in large sociotechnical systems, intermediary organisations can emerge as mediators in between several actor groups and facilitate collaboration towards common goals. They can support the establishment of new actor networks and the articulation and alignment of interests to bring about desired changes. The innovative role of intermediaries in the environmental and energy sectors could be described as one of bottom-up policy implementers (Backhaus 2010). The intermediary work also calls for better policy support (Van Lente et al 2003).

In a recent empirical analysis of two Finnish *government-affiliated intermediary* organisations linked to *strategic niche management (SNM)*, see WP1 report) literature, Kivimaa (2014) concluded that these intermediaries can make an important contribution to sustainability transitions by initiating and managing new policy or market processes and by acting as impartial contact point or voice for new networks of actors. The analysis of two intermediaries also demonstrated the *variety of activities* that intermediation in for example energy regime change involves.

Lee et al. (2010) placed the concept of *open innovation* in the SME context. They also analysed Korean SMEs' success in working with an intermediary facilitating innovation. The results support the potential of open innovation for SMEs and indicate that *networking is an effective way to facilitate open innovation in SMEs*. Similarly, Halila (2007) has developed a model of collaborating in a network for SMEs that should help them as a basis for initiating environmental work, such as the adoption of an ISO 14001 EMS.

2.4.2 The various definitions and roles of innovation intermediaries

Based on previous literature, Howells (2006a) investigated the issue of intermediation and the role of intermediaries in the innovation process. He defined an *innovation intermediary* as an organization or body, which *acts as an agent or broker in any aspect of innovation process between two or more parties*. Such intermediary activities include: helping to provide information about potential collaborators, brokering a transaction between two or more parties, acting as a mediator, or go-between, bodies or organisations that are already collaborating; and helping find advice, funding and support for the innovation outcomes of such collaborations (Howells 2006a,720).

Howells concluded that the *support from the intermediaries is more holistic and varied* than previously viewed in the literature of this field, and that their *functions are also of a much wider range*. He developed a typology and framework of the different roles and functions of the intermediation process within innovation. Howells (2006a) found several types of intermediating organisations' roles or actions in innovation process. The case organisations of his study covered ten such intermediating function types, and they also included functions that had been unrecognized or undervalued. See Table 3 below.

Table 3. A summary of studies examining intermediaries and the intermediation process in innovation is presented in the table below (source: Howells 2006a, 718).

Summary of studies examining intermediaries and the intermediation process in innovation

Term	Study	Definition/role
Organizations		
Intermediaries	Watkins and Horley (1986)	Explores role of intermediary agencies support technology transfer to small firms
Third parties	Mantel and Rosegger (1987)	Persons or organizations that intervene in the adoption decisions of others
Brokers	Aldrich and von Glinow (1992)	Agents facilitating the diffusion of in a social systems of new ideas from outside the system
Intermediaries	Seaton and Cordey-Hayes (1993)	Examines the role of intermediaries in technology exploitation
Intermediary agencies	Braun (1993)	Role of mission agencies in formulating research policy
Intermediaries	Callon (1994)	Role of intermediaries in effecting change within science networks and local collectives
Consultants as bridge builders	Bessant and Rush (1995)	Role of independent consultants as bridge builders in the innovation process
Intermediary firms	Stankiewicz (1995)	Adapt solutions available in the market to the needs of the individual user
Intermediaries	Shohert and Prevezer (1996)	Public and private organizations that act as agents transferring technology between hosts and users
Bricoleurs	Turpin et al. (1996)	Agents seeking to develop new applications for new technologies outside their initial development field
Superstructure organizations	Lynn et al. (1996)	Organizations that help to facilitate and coordinate the flow of information to substructure firms
Knowledge brokers	Hargadon (1998)	Agents that help innovation by combining existing technologies in new ways
Intermediary level bodies	Van der Meulen and Rip (1998)	Help orient the science system to socio-economic objectives
Innovation intermediaries	Howells (1999b)	Proactive role that certain types of service firms play as intermediaries within innovation systems
Technology brokers	Provan and Human (1999)	Actors filling gaps in information and knowledge in industrial networks
Regional institutions	McEvily and Zaheer (1999)	Provide 'surrogate ties' by serving as functional substitutes for a firm's lack of 'bridging ties' in a network
Boundary organizations	Guston (1999)	Role of boundary organizations in technology transfer and 'co-production' of technology
Boundary organizations	Cash (2001)	Role of boundary organizations in technology transfer
Knowledge intermediaries	Millar and Choi (2003)	Organizations that facilitate a recipient's measurement of the intangible value of knowledge received
Processes/activities		
Innovation consultancy services	Pilorget (1993)	Role of consultancy firms specifically to promote innovation; involves a variety of actors including consultancy firms and intermediary agencies
Technology brokering	Hargadon and Sutton (1997)	Technology brokering is where an organization routinely creates new products by making connections between existing solutions in other sectors or technologies
Innovation bridging	Czarnitski and Spielkamp (2000)	Provision of knowledge or services that are complimentary to firms
Knowledge brokering	Wolpert (2002)	Intermediaries that facilitate the exchange of information about innovation amongst companies

The types of intermediary organizations by Howells (2006a) from the studies examining intermediaries and the intermediation process in innovation are described below briefly in chronological order.

Watkins and Horley (1986, pp. 244–245) were the early users of the concept 'intermediary'. They looked into what *intermediaries* might do to help the technology *transfer process between large and small firms* as part of a policy initiative. They identify the role that such intermediaries could play in: identifying partners in the first place; helping package the technology to be transferred between the two firms; selecting suppliers to make components for the technology; providing support in making the deal between the firms concerned.

Mantel and Rosegger (1987, p. 127) highlighted other roles that *such third parties* played in the *(technology) diffusion process*, including: support in decision-making of whether to adopt or not; as a specification writer or standard setter; and, as an evaluator of the technology once it was in the market.

Aldrich and von Glinow (1992) took a more involved role for *intermediaries (brokers)* by focusing on *specific technologies* which intermediaries *help transfer* between firms and organizations. The emphasis here is on existing technologies finding new uses and applications in different sectors and industries.

Seaton and Cordey-Hayes (1993, pp. 49–50), reviewing a number of projects covering technology transfer, highlighted the role of the Defence Technology Enterprise (DTE) as an *intermediary* involved in *technology exploitation*. The study evolved into exploring how intermediaries, such as the DTE, interact with their clients in the technology transfer process.

Callon (1994, 1980) identified the important role of *intermediaries in initiating change* within science networks and more localized configurations, local collectives.

Bessant and Rush (1995) emphasized how many KIBS (knowledge intensive business services) firms such as *consultants* have close and continuous interactions with their clients which can involve crucial, but largely hidden, functions in supporting *innovative change* within their client companies.

Stankiewicz (1995, p. 174) in his analysis of industrial automation in Sweden identified the role of *'intermediary firms'* that help adapt specialised solutions on the market to the needs of individual user firms. On a broader level, *Stankiewicz* (1995, p. 198) also recognises the existence of *'bridging institutions'* that help link players within a technological system.

Shohert and Prevezer (1996, p. 293) also took a more prospective examination of what intermediaries might become more involved in. More specifically, the *provision of specialist negotiation and contractual skills in knowledge processes* was seen as a key attribute and role they should develop.

Turpin et al. (1996) emphasized existing technologies finding new uses and applications in different sectors and industries. They bring up the term *bricoleur* for agents seeking to develop *new applications for new technologies outside their initial development field*. *Bricolage* has been studied from different management perspectives in the 2000s. *Baker et al.'s* (2003) analysis of *bricolage in an entrepreneurial setting* marked an important step in the development of the concept. Entrepreneurial firms recombine and make *creative use of existing resources*, and share a capacity to mobilize practical knowledge in a way that challenges general theoretical approaches that specify a priori how resources should be utilized (*Baker & Nelson 2005, Di Domenico et al. 2010, Duymedjian & Rüling 2010, Halme et al. 2012*).

Lynn et al. (1996, p. 97) in their study of 'innovation communities' also identified a group of organizations that *help to link and transform relations* within an innovation network or system. These types of organizations would form what *Lynn et al.* (1996, p. 98) would term 'superstructure' organizations, which act to provide collective goods to their members and *help to facilitate and coordinate the flow of information* to 'substructure' firms (those actually producing the 'innovation' or its technological complementaries). Both studies also highlight that such organizations may be both public and private in nature.

Hargadon and Sutton in their study focused on how knowledge *brokers*, as agents, facilitate the process of knowledge and technology transfer "across people, organizations and industries." (1997, p. 716) In their

study of one technology broker (IDEO, U.S. design consultancy) they also stress that *brokering is more than just a linking role*, but also helps transform the ideas and knowledge being transferred. They identify the role of broker as not just supporting a linkage role but as a knowledge repository whose knowledge its workers use to provide solutions that are *new combinations of existing ideas* to their clients.

Van der Meulen and Rip (1998, pp. 757–758) also identified a much wider institutional role for *intermediary level bodies* (centred on research councils, other funding bodies, universities and research organizations) which are in the strategic level between the policy level and the operational level (research performers) and how they form an ‘ecology’ of influences on other agents within the system.

Howells (1999, p. 125) seeks to highlight the *proactive role* that certain types of service (KIBS) firms play as innovation intermediaries within innovation systems.

Provan and Human (1999) brought up the *technology brokers* as actors *filling gaps in information and knowledge* in industrial networks.

McEvily and Zaheer (1999) highlighted the role of *regional institutions* (such as regional industrial extension centres) provide in *helping to compensate firms which have a poor advice network and lack bridging ties* (i.e., unique, non-redundant ties in a network); i.e., such regional institutions provide important compensatory links to a firm’s linkage network.

Guston (1996, 1999) and *Cash* (2001) emphasized the role of *boundary organizations* in technology transfer and ‘co-production’ of technology.

Millar and Choi (2003) defined *knowledge intermediaries* as organizations that facilitate a recipient’s *measurement of the intangible value of knowledge* received.

Consequently, the potential roles of intermediaries (or interagents) in supporting eco-innovation and start-ups are many. Several studies show how they may help the **technology transfer** process between companies as third parties in the technology diffusion process or like brokers focusing on specific technologies, or filling gaps in knowledge. The role of intermediaries may involve **bridging**, such as linking players within a (technological) system or network, thus **facilitating** the flow of information. Some studies also emphasize the role of intermediaries in **initiating** and **supporting** innovative change in client companies or larger networks. They may also help in **recombining** or making creative or new use of existing resources, and **making new combinations of existing ideas**. The role of intermediaries may involve the provision of **specialist skills** like negotiation and contractual skills as well. In certain regions, they may have the role of **helping to compensate firms** which have a poor public advice network and lack bridging ties. The archetype of an intermediary organization in supporting (eco-)innovation might in practice include a combination or all of the roles mentioned above.

In terms of functions, the typology of intermediation in the innovation process presented by Howells (2006a, 721-722) consists of ten types of innovation intermediation functions throughout the value chain of the innovations (products or services). Each of these ten types of intermediary includes further 2-5 sub functions (Howells, 2006b):

1. Foresight and diagnostics (forecasting and technology roadmapping)
2. Scanning and information processing (information scanning and technology intelligence, selection and clearing)

3. Knowledge processing, generation and combination (helping to combine knowledge of two or more partners, and also generating in-house research)
4. Gatekeeping and brokering (negotiation and deal making and contractual advice)
5. Testing, validation and training (prototyping, pilot facilities, scale-up etc.)
6. Accreditation and standards (providing standards advice, formal standard setting and verification)
7. Regulation and arbitration
8. Intellectual property – protecting the results / the outcomes of collaboration
9. Commercialisation – exploiting the outcomes (market research and business planning, support in the selling and commercialization process, early stage capital, venture capital, Initial Public Offering)
10. Assessment and evaluation (general assessment of performance and technologies, specific evaluation of products in the market).

As mentioned above, Howell's work has revealed that intermediaries provide a much wider, more varied and holistic role for their clients in the innovation process than has been generally been acknowledged (Howells 2006b). However, the list of ten innovation intermediation functions reflects the nature of the science and technology based businesses and organizations that participated in Howell's (2006a) survey. Thus, it *brings up intermediating function types in a context of a typical technology based entrepreneurship, but it may leave some other functions undervalued or even unrecognized that might be relevant to eco-innovation of a different origin.*

2.5 Perspectives on social capital

This section focuses on one aspect of collaboration that has been said to both form the structure of networks and facilitate their operation, namely social capital. The theory of social capital is strongly linked to interunit resource exchange as well as formation of start-up firms, entrepreneurship and innovation.

There are several definitions available of the concept Social capital. It has strong roots in sociological research and the theory of it was initially used to explain the survival and functionality of cities' neighbourhoods (Nahapiet and Ghoshal 1998, 243). Today the concept is well-known among organizational researchers, too, and there is a growing number of sociologists, political scientists, and economists who apply social capital to seek answers for problems arising in their field of study (Adler and Kwon 2002, 17).

Bourdieu's definition has been the basis for the majority of later studies: *“Social capital is the entity of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition, or in other words, to membership with the backing of the collectively-owned capital, a credential which entitles them to credit, in the various senses of the word.”* (Bourdieu 1986, 51)

Healy and Côté (2001, 41) provide a compact definition of social capital, which also emphasizes the significance of networks: “[Social capital consists of] *networks together with shared norms, values and understandings that facilitate co-operation* within or among groups.” This definition retains the assumption that a network in itself does not generate social capital; on the other hand, social capital can neither be created nor maintained without network.

The social capital has been said to be both *glue, which forms the structure of networks*, and at the same time *a lubricant that facilitates the operation of networks* (e.g. Anderson & Jack 2002, Maak 2007). Most conceptual perspectives on social capital can be grouped to “*bonding*” and “*bridging*” social capital (cf. De Carolis & Saporito 2006). The bonding views (e.g. Coleman 1988, Putnam 1993) emphasize the social capital inherent in the social structure and they focus on actual or potential internal resources. They focus on benefits of social glue and thus the internal relations of an organization or a community. The bridging views by contrast (e.g. Bourdieu 1985, and most network theorists) stress the benefits of tying into external resources inherent in the relations of a social network. The bridging views try to explain how the activation of existing or potential external social relations may facilitate successful action (Maak 2007, 333).

Adler and Kwon (2002, 29-30) have identified three benefits of social capital. The first benefit is that social capital provides information through access to broader sources and improves information’s quality, relevance and timeliness. The second benefit is that influence, control, and power can be accessed by exchanging the resources. Individuals who hold power can influence a social network’s norms. Finally, strong social norms and beliefs provide solidarity which encourages adaptation with the norms of the network and reduces the need for formal contracts. As regards *start-ups and innovation*, social capital has been found to *facilitate interunit resource exchange and product innovation, entrepreneurship, formation of start-up companies, and strengthen supplier relations as well as regional production networks* (Adler & Kwon 2002, 17). Bridging and bonding social capital, consisting of strong and weak ties, has been found a robust predictor for nascent entrepreneurs, as well as advancing through the start-up process (Davidsson & Honig 2003). This suggests that one of the key roles of e.g. interagents and unusual collaborators might be to build social capital within and across multiple layers (including micro, meso and macro levels) of the society.

While there are benefits of establishing social capital, also risks are involved. Adler and Kwon (2002, 30-31) remind that there can sometimes occur risks that might outweigh social capital’s benefits. They argue that high investments in establishing and maintaining relationships may not be cost efficient in certain circumstances, as is the case in other investment decisions also. Another risk relates to power benefits. These benefits might in some cases be contradictory with the information benefits of social capital.

Social capital *tends to increase with use*. Thus it is important for people to interact with each other in order to produce social capital. Organization members need to *have time and space for conversation, action and interaction* in order to code and language to develop. This way new intellectual capital can be produced. Organizations are designed to bring their members together to undertake their primary task. Meetings, social events and conferences are organized and they can be viewed as collective investment strategies to create and maintain social relationships. These meetings and events provide opportunities to bring ideas together and accessible for other members of the organizations. The opportunities may lead to development of new intellectual capital. (Nahapiet and Ghoshal 1998, 258)

Trust and trustworthiness are perceived by many authors to be important elements of social capital (Adler and Kwon 2002, 22; Avery and Swafford 2009, 10; Coleman 1988, 102; Nahapiet and Ghoshal 1998, 254; Putnam 1993, 38) Trust is the *key in the willingness of network actors to share knowledge*. It is based on social judgments and assessment of the cost. Trust diminishes opportunism and the need for monitoring. It also encourages people to cooperate, which again facilitates the development of new products and processes (Avery and Swafford 2009, 10). Trustworthiness means that “*obligations will be repaid, and the actual extent of obligations held*” (Coleman 1988, 102). If a person does something for another party, he or

she can expect this party to do something in return. In terms of support to innovative start-ups and SMEs, it is essential the support actors should have a positive role in building trust both in public support actors and between businesses.

2.6 Start-ups and intermediation within eco-innovation on national and EU contexts

Several of previous empirical studies related to (eco-)innovation and intermediation focus on a specific geographic area. However, these do not often cover the focus area of SHIFT project, namely Finland, Sweden and Germany. On the other hand, many of the studies have been carried out in the area of EU as well as in other parts of the world. Our sample of previous national and regional research provides empirical findings of intermediation and / or (eco)innovation with *diverse functional and theoretical perspectives*, covering regionally e.g.

- Austria (Klewitz and Hansen 2012),
- Baltic Sea Region (Vasilenko et al. 2011),
- Canada (Clarke and Roome 1999),
- Finland (Kivimaa 2014),
- France (Callon 1994),
- Germany (Hauschildt and Kirchmann 2001),
- Italy (Battaglia et al. 2010),
- Korea (Lee et al. 2010),
- the Netherlands (van Hemel and Cramer 2002, Kolk et al. 2008),
- New Zealand (Lewis et al. 2014),
- Sweden (Halila 2007, Halila and Rundquist 2011, Palmén and Åslund 2013, Stankiewicz 1995),
- the UK (Jenkins 2009, O'Rafferty et al. 2009, Seaton and Cordey-Hayes 1993, Shohert and Prevezer 1996), and
- the USA (Baker et al. 2003, Hargadon and Sutton 1997, McEwen 2013, van Lente et al. 2003).

International perspectives on collaboration and intermediation within innovation are provided by the works of e.g. Backhaus (2010), Bessant and Rush (1993), Carrillo-Hermosilla et al. (2009), Celik et al. (2014), Duymedjian and Rüling (2010), Fichter (2012), Howells (2006a), Moss et al. (2009), Triguero et al. (2013), Velamuri et al. (2011), and Yarahmadi and Higgins (2012). Although collaboration, intermediation and/or eco-innovation is in the core of these studies, they are based on diverse functional and theoretical perspectives. The findings of these studies were already reflected in previous parts of this literature review.

In the Finnish innovation support system context, there are numerous previous studies available. Their focus is typically more on the mainstream conventional innovation support supply and policy level rather than on collaboration and intermediaries to support start-ups and eco-innovation, or on firm level demand. Thus, the relationship between policies and policy instruments and their role in the development of markets, technology, and economic growth has been studied widely (Kivimaa and Mickwitz, 2006; Fuad-Luke, 2009; Lovio et al., 2011; Panapanaan et al., 2013). Less attention has been devoted to the actors in innovation networks and their influence on other networks, policies and the eventual greening of the economy. The national innovation support system in Finland has been charted and analyzed already in the beginning of the millennium by Georghiou et al. (2003). The Finnish innovation policy has been also evaluated from the point of view of fostering entrepreneurship by Toivanen (2009). Intermediaries of the Finnish innovation environment were analysed in a regional context by Ståhle et al. (2004). They have

described the links between knowledge intermediaries and the environment in a way that might prove useful also as a basis for an analytical framework of this study.

In general, The Finnish innovation system in general has been considered successful, and according to recent assessment by World Economic Forum (2013), the country had one of the most innovative business environments in the world. Additionally, Finland was ranked second in the global Cleantech Innovation Index in 2014 (Cleantech Group et al. 2014) and ranks in the top EU countries on the Eco-innovation Scoreboard (Eco-Innovation Observatory 2013). In the cleantech index, 40 countries were evaluated on 15 indicators related to the creation, commercialization and growth of cleantech start-ups. Sweden and Germany, the two other countries in the core of SHIFT project, were also among the Top10 nations of the world in this ranking, and together with Finland they were in the Top3 nations of EU 28 Eco-innovation scoreboard. Consequently, the empirical of focus of SHIFT project is in areas with potentially best level of creation, commercialization and growth of eco-innovative start-ups in the world.

2.7 Emerging typology of interagents and unusual collaborators, and their exchanges

The previous studies on collaboration and intermediation bring up a long list of names of actors that could potentially be considered interagents or constituents of unusual collaboration. In Table 4 we have picked up the terms and concepts that were used in the literature. Naturally, some of them are overlapping or sometimes almost synonyms for each other. In addition, we have reviewed each potential interagent or collaboration concept based on actor type, i.e. whether it can be considered an individual, an organization or a combination of these. Interagency and collaboration always involve bringing people and other resources together, and thus it is relevant to consider what kind of exchange is taking place in each case: is it about the exchange of knowledge, resources, relationships, processes or something else (cf. Fichter 2012). In terms of support supply and needs, the exchanges reflect mostly the supply side.

Table 4. An emerging typology of interagents, unusual collaborators and their exchanges.
 (“V” indicates the primary focus of exchanges available to start-ups and (M)SMEs).

Reference in WP7 literature review (page numbers refer to this report)	Potential type of Interagent (I) or Unusual collaborator (C) mentioned in literature -the primary means of support (not mentioned in all types)	Type of actor: Individual (I) Type of actor: Organisation (O) Type of actor: Other (Ot)	EXCHANGE made by Interagent or Unusual collaborator				
			Specialized knowledge – financial, technical, other	Resources – financial, technical, supplies, other	Relationships – networking skills, interaction	Processes – admin, decision-making in hierarchies	Other
Several (p.12)	Network	Ot	√	√	√		√
Dubini & Aldrich (p.12)	Entrepreneur	I	√	√	√		
Several (p.13)	Peer group	Ot	√	√	√	(v)	
Several (p.13)	Expert	I	√				
Several (p.13)	Service provider	I/O					√
Several (p.13)	Producer/supplier	I/O		√			
Birley (p.13)	Family	I/Ot		√	√		√
Birley (p.13)	Friend	I					√
Birley (p.13)	Business contact	I	√	√	√	√	√
Kolk et al (p.13)	Public organisation	O	√	√		√	
Kolk et al (p.13)	Private organisation	O	√	√			
Kolk et al (p.13)	Not-for-profit organisation	O	√	√	√		
Several (pp. 13-14)	Incumbent, ‘Goliath’ – large firm	O	√	√			
Several (pp. 13-14)	‘David’ – small firm	I/O	√	√			
Battaglia et al (pp. 15-16)	Industrial cluster	Ot	√	√	√		
Jenkins (p.16)	CSR champion	I	√				
Jenkins (p.16)	CEO / Founder of sustainability rooted SME	I	√				
Palmén & Åslund (p.16)	BDO	O	√	√	√	√	
Halila & Rundqvist (p.17)	Technology expert	I	√	√			
Halila & Rundqvist (p.17)	Venture capitalist	I/O	√	√			
Triguero et al (p. 17)	Researcher	I/O	√				
McEwen (p.17)	Eco-preneur	i/O	√	√	√		
Klewitz et al (p.17)	Innovation intermediary	I/O	√	√	√	√	√
Yarahmadi & Higgins (p.17)	Regulatory interagent	I/O				√	
Yarahmadi & Higgins (p.17)	Resource interagent	I/O		√			
Celik et al (p.17)	(Social) innovation network	Ot			√		√
Fichter (p.21), Lynn et al (p.24)	Innovation community	Ot	√	√	√		√
Van Lente et al (p.21)	Systemic intermediary	I/O/Ot	√	√	√	√	√
Backhaus (pp. 21-22)	Network facilitator / host	I/Ot			√		

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Watkins & Horley (p.23); Seaton & Cordey-Hayes; Callon; Shohert & Prevezer (p.24)	Intermediaries	I/O	√ technology transfer & exploitation, research, policy	√ service firms as intermediaries in innovation system	√ science networks & local collectives	√ orientate science system to socio-economic objectives	
Braun (p.23)	intermediary agencies						
Van der Meulen & Rip (p.25)	intermediary level bodies						
Howells (p.22, 25) see Howells (2006a)	innovation intermediaries						
Mantel & Rosegger (p.24)	Third parties	I/O/Ot				√	
Aldrich & von Glinow (p.24)	Broker - diffusers in social systems	I/O/Ot			√		√
Bessant & Rush (p.24)	Consultant as bridge builder -innovation processes	I/O					√
Stankiewicz (p.24)	Intermediary firm -adapt solutions in market to users	O					√
Turpin et al (p.24)	Bricoleur -application of new technologies outside original field	I/O	√				
Lynn et al (p.24)	Superstructure organisation -flow of information to substructure firms	O	√				
Hargadon & Sutton (pp.24-25); Wolpert (p.23)	Knowledge/information broker -combine existing knowledge, information & technologies in new ways	I/O	√				
Provan & Human (p.25)	Technology broker/brokering -new products by making connections between existing solutions, sectors or technologies (knowledge) new products by making connections between existing solutions, sectors or technologies (resources)	I/O	√	√			
McEvily & Zaheer (p.25)	Regional institution -provide 'surrogate ties' for organisations lacking bridging ties	O			√		
Guston (p.25), Cash (p.25)	Boundary organisation -technology transfer (knowledge) -co-production of technologies (resources)	O	√	√			
Millard & Choi (p.25)	Knowledge intermediary -measurement of intangible value of knowledge received	O	√				
Pilorget (p.23)	Innovation consultancy (firm) offering services	O	√	√			
De Carolis & Saporito (p.26)	Bonding interagent	I/O			√		√
Maak (p.27)	Bridging interagent	I/O	√	√			√
Total number observed			29	24	17	8	14

In terms of actor type, some of the potential interagents or unusual collaborators mentioned in Table 4 are clearly individuals. These include Business contact, CSR champion, Entrepreneur, Expert (and technology expert), Founder (or CEO) of sustainability rooted SME, and Friend. On the other hand, actor types that are obviously organizations are many: Boundary organization, Business development organization, Incumbent

(‘Goliath’), Innovation consultancy, Intermediary firm, Knowledge intermediary, Not-for-profit organization, Private organization, Public organization, Regional institution, and Superstructure organization.

In addition, there is a considerable amount of actor types with interagent or collaborator potential that might be considered individuals, but organizations as well. These include Bonding interagent, Bricoleur, Bridging interagent, Broker, Consultant as bridge builder, ‘David’ (small firm), Eco-preneur, Innovation intermediary, Intermediary, Intermediary agency, Intermediary level body, Knowledge broker, Network facilitator, Regulatory interagent, Researcher, Resource interagent, Systemic intermediary, Technology broker, and Venture capitalist. Some of the actor types can be considered to be based on a more complex structure consisting of individuals and organizations. These include Family, Industrial cluster, Innovation community, Network, Peer group, Social innovation network, Systemic intermediary, and Third parties.

As regards the potential exchange made by such an interagent or unusual collaborator to support (eco)-innovation and start-ups, it seems that *knowledge* (e.g. technology transfer) is most often in the core of exchange, especially in relation to the intermediation process in innovation (cf. Howells 2006a). Also the exchange of resources (financial, technological, supplier, etc.) other than knowledge is quite frequently involved, but the knowledge exchange related to collaboration is clearly most important. It looks like the exchange related to relationships and processes have been less frequently present in collaboration in practice.

Multi-level perspective (including micro, meso and macro levels) might bring in an interesting addition to the analysis. Howell’s (2006a) analysis of different innovation intermediaries that has been in the core of this literature review seems to focus on business (micro) level. Previous research also opened some perspectives on macro level, e.g. ‘*systemic intermediaries*’ that emerge in long-term transitions (Van Lente et al. 2003).

The typology of interagents and unusual collaborators needs further analysis and discussion. At this section of the report, we leave the analysis and discussion here. It would be interesting to consider, which kind of interagents might support radical innovation, and which might support more incremental innovation. Another interesting perspective to consider would be the roles and modes of action of the interagents by level of operation (and impact), i.e. where and how do they operate in multi-level perspective (micro, meso or macro levels). We might also further define the potential types of interagent or unusual collaborator as formal or informal etc. The various types of potential interagent and collaborator types will be briefly revisited during the case analysis in this report.

3 Key findings on inter-organizational collaboration to support innovative start-up business in the literature

This chapter presents brief summary and conclusions from our literature study. The aim of the literature study was to get an overview as regards *collaboration of small (start-up) businesses* and the role of diverse interagent organisations, especially *in terms of support for start-ups and SMEs in the field of eco-innovation*.

3.1 Perspectives on inter-organisational collaboration to support innovative start-up business in brief

In the previous chapter we first reflected general perspectives on collaboration between businesses from existing empirical research on the collaboration in general as well as in the specific area of sustainable innovation. We started with the concept of networking and types of alliances, and continued to motives of collaborating as well as different types of partnerships between organizations. Then we discussed shortly two specific types of collaboration that are relevant to small new businesses, namely collaboration between incumbents and start-ups, and new business networks. After that we concentrated on partnerships and networks for environmental engagement and eco-innovation, including social innovation.

There are typically many opportunities available to businesses in a network, and there are no constraints in the formation of business networks as regards company size. *The role and influence of informal networks (family, friends, professional contacts) is essential in the process of starting a business*, in addition to more formal networks. The social and personal networks of entrepreneurs can be a cost-effective means of obtaining valuable information for business, and *more extended networks allows entrepreneurs to expand the access to resources*. Thus, active participation in network partnerships is often an opportunity to creating value and growth. In fact, access to resources has been recognized as a motivator for collaboration for a long time. In addition to partnerships between private organisations, such as collaboration between start-ups and incumbents, also other types of partnerships exist between different organisations. Examples of these are partnerships between public and private organisations, private and non-profit organisations (NGOs), and tripartite, i.e. partnerships between private, public, and non-profit organisations. Incumbent – start-up collaboration is typically linked to commercialization strategies for start-ups, but on the other hand, innovative start-ups may help the incumbents in adapting to radical (technological) change, and even transforming industries. For example, when transforming industries towards sustainable development, the initial phase is characterized by sustainability initiatives of small firms (idealistic ‘Davids’ vs. slowly greening ‘Goliaths’). Unfortunately the business environment is then often characterized by tight competition between start-ups and incumbents rather than collaboration for mutual benefit.

Several studies on environmental or CSR activities of SMEs in general and specifically green innovation have shown that *collaboration with other firms or organisations contributes to awareness, enhance environmental engagement, overcome barriers and even lead to eco-innovation*. Sustainability-rooted SMEs’ interaction with external actors is often extensive compared to other types of SMEs. In SMEs however the real change agent or business champion for CSR is often the owner-manager or the founding team, and their willingness to draw on external knowledge and networks. The reasons to decide to be involved in networks differ between actors. Some use them in order to solve technical issues whereas others have taken advantage of their network to overcome market barriers. A recent study of European

SMEs also showed that private companies involved in networks with universities and research institutes are more likely to come up with all kinds of eco-innovations (Triguero et al. 2013). Several recent studies (e.g. Klewitz et al. 2012, Triguero et al. 2013) also suggest that public policy and society should facilitate and promote the creation of these networks between eco-innovative firms (or ecopreneurs), universities, consumers and innovation intermediaries.

An international inventory of collaborative social innovation network (Celik et al 2014) developed a typology containing seven main categories. It was one of the first efforts that aims at clustering and classifying various collaborative (eco-/social) innovation networks systematically. However, those different types of networks will not have to operate in isolation of each other. *The real value and impact of the different collaborative innovation networks is how their primary functions cross-over or hybridise.*

We also presented theoretical findings on innovation promotion and overcoming of certain barriers related to that in the specific context of promotor theory (Fichter 2012). Specialized promotor roles and power bases may be relevant in different challenges in innovation processes. Instead of one role and power base, 'universal promoters' may combine two or even more of the promotor roles. The extended promoter theory defined also a relevant concept, innovation community, which refers to an informal network of likeminded individuals who act as universal or specialized promoters and commonly promote a specific innovation.

The review of discussion on intermediation within innovation continued with an overview of types and functions of intermediaries in (eco-)innovation. Howell's (2006a) analysis of different innovation intermediaries on business level was in the core of the review. Previous research also opened perspectives on 'systemic intermediaries' that emerge in long-term transitions. The potential roles of intermediaries (or interagents) are many in supporting eco-innovation and start-ups. Several studies have shown how they may help to *transfer technology* between companies as third parties in the technology diffusion process or like brokers focusing on specific technologies, filling gaps in knowledge. The role of intermediaries may involve *bridging*, such as linking players within a (technological) system or network, thus facilitating the flow of information. Some studies also emphasize the role of intermediaries in *initiating and supporting innovative change* in client companies or larger networks. They may also help in *recombining or making creative or new use of existing* resources, and making new combinations of existing ideas. The role of intermediaries may involve the provision of specialist skills like negotiation and contractual skills as well. In certain regions, they may have the role of helping to *compensate firms which have a poor public advice network* and lack bridging ties. An intermediary organization might in practice include a combination or all of the roles mentioned above in supporting (eco-)innovation.

One section of our literature review focused on an aspect of collaboration that has been said to both form the structure of networks and facilitate their operation, namely social capital. The theory of social capital is strongly linked to interunit resource exchange as well as formation of start-up firms, entrepreneurship and innovation. The bonding views of social capital emphasize the actual or potential internal resources and relations. The bridging views of social capital explain how external relations facilitate successful action. As regards start-ups and innovation, social capital has been found to facilitate resource exchange and product innovation, entrepreneurship and formation of start-ups, as well as strengthen value chain and regional networks. Social capital increases in use, which in turn needs time and space for conversation and interaction. Trust is perceived a key element of producing social capital, encouraging people to cooperate.

Many of the previous empirical studies related to (eco-)innovation and intermediation focused on a specific geographic area. However, only some of them cover the focus area of SHIFT project, namely Finland, Sweden and Germany. On the other hand, many of the studies have been carried out in the area of European Union with to certain extent harmonized legislation and policies in terms of entrepreneurship and eco-innovation promotion, as well as in OECD countries with mainly common economic systems and shared goals in terms of entrepreneurship and innovation. Thus, the relevance of findings can be considered rather high independent of the origin of the empirical data in the previous literature. We should also keep in mind that Finland, Sweden and Germany, the countries in the core of SHIFT project, were among the Top10 nations of the world in a global cleantech innovation and entrepreneurship ranking in 2014 (Cleantech Group et al. 2014). Consequently, the empirical focus of SHIFT project is in areas with potentially best level of creation, commercialization and growth of eco-innovative start-ups in the world.

In order to build up an emerging typology of interagents, collaborators and their exchanges, we also collected a long list of terms of actors that were mentioned in the literature and that could represent potential types of interagents or unusual collaborators. Some of the terms were overlapping and almost synonyms to each other. Depending on the term, a specific actor can be classified as an individual, an organization, or an actor type based on a more complex structure of individuals and organizations. As interagency and collaboration always involve bringing people and other resources together, we also considered what kind of exchange would be taking place. Knowledge (e.g. technology transfer) seems to be most often in the core of exchange, especially in relation to the intermediation process in innovation. Also the exchange of other resources than knowledge was quite frequently involved.

3.2 Conclusions of literature review for empirical case studies

According to our definition of the term, an *interagent* is an independent actor or player who has an agenda as intermediary, interceder, mediator or middle person to *bring people and other key resources together* for their self-interest and the interests of others in the innovation support system. Thus, the interagent is a key role in promoting and *organising collaboration* that brings the necessary key resources together. The literature study presented an overview as regards collaboration of small businesses in general, and specifically the roles of interagent organisations. Existing empirical research on the collaboration of businesses generally and especially in the area of sustainable innovation presents several typologies based on a variety of theories.

The various perspectives on collaboration and support for start-ups in sustainable innovation are reflected in Figure 5 below. One perspective on collaboration and intermediation was already presented in the introduction of this report: collaboration and intermediation may serve specific changes in behaviour and/or technology or they may impact on value creation related to a certain business function along the value chain. The major part of previous literature can be divided in three groups in terms of perspectives on collaboration. They can be considered to form the current mainstream of collaboration literature. First, there are studies related to motives: what are the driving forces behind collaboration activities. Second, there are studies that focus on types of collaboration. Thirdly, a growing number of studies have analysed the outcome of collaboration.

Categorization of collaboration and innovation networks based on their delivered functionality represent findings from a rather fresh perspective that could be called Innovation network category. A more traditional perspective in terms of collaboration is presented by social capital view. Many of the studies have taken, in addition to another specific conceptual focus on collaboration and intermediation, regional perspectives. Most of these studies are based on findings and literature from EU or at least OECD countries.

The most interesting and relevant frameworks in terms of intermediation and support for sustainable innovation are presented by the perspectives of promotor power and role, intermediary role and function as well as intermediary level. As regards promotor power and role perspective, when building up the emergent typology of interagents and unusual collaboration in the previous chapter we already considered types of exchanges taking place: is it about knowledge, resources, relationships, processes or something else (cf. Fichter 2012). The summary of studies examining intermediaries in innovation (Howells 2006a) forms the core of intermediary role and function perspective. Finally, intermediary level perspective that emphasizes the different levels of the socio-technical system is interesting in terms of analyzing the collaboration, support needs and supply as well as transformation.

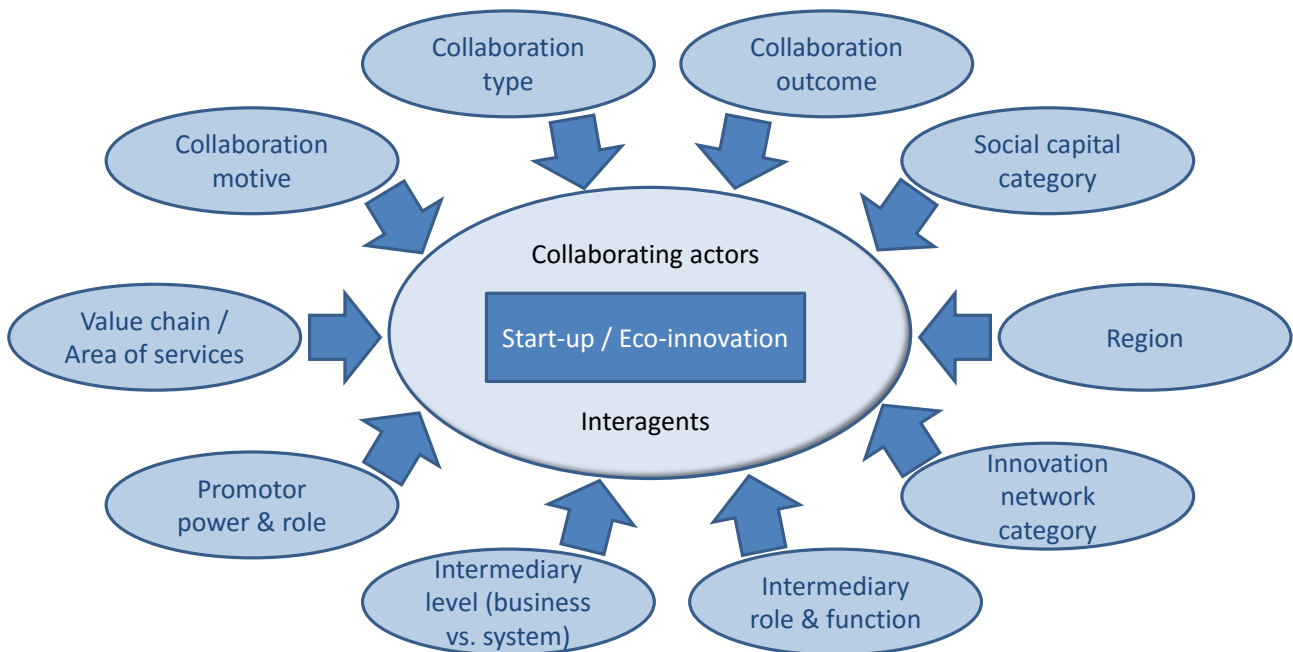


Figure 5. Perspectives on collaboration and support for start-ups in sustainable innovation.

The key findings from the literature as regards different perspectives on collaboration and intermediation are presented in Table 5. The potential dimensions to analyse collaboration and interagents to support eco-innovation in start-ups are many. Most of them would be interesting and relevant to include in the analysis of specific interagent cases. As mentioned above, the most interesting and relevant frameworks in terms of intermediation and support for sustainable innovation are presented by the perspectives of promotor power and role, intermediary role and function as well as intermediary level. Additionally, innovation network category view with its categorization of delivered functionalities might be useful in case analysis, together with area of services perspective.

Table 5. Findings from the literature as regards different perspectives on collaboration and intermediation (The shading refers to the higher relevance of specific perspectives to the present study).

Perspective	Key findings	Authors
Area of services	Focus on changes in behavior and/or technology; Organizational function or view of business activity	Sherwin & Bhamra 2000, IfM 2014 Velamuri et al 2011
Collaboration motive	Access to resources and skills discrepancies; Complementary assets; Usual link to commercialization strategies of start-ups The driving forces behind environmental cooperative activities of firms behind green innovation	Birley 1985, Hamel 1991 Rothaermel 2001 Gans & Stern 2003, Belleflamme 2012 Yarahmadi & Higgins 2012
Collaboration type	Types of alliances by small firms Three types of partnerships (public – private, private – non-profit, tripartite) in addition to private – private partnerships; Incumbent start-up collaboration; New business networks; Industrial clusters	Welch 1991 Kolk et al 2008 Gans & Stern 2003, Rothaermel 2002 Delaney 2013 Battaglia et al 2010
Collaboration outcome	Greater awareness (educate and engage); Instruments to overcome barriers that prevent SMEs from developing CSR initiatives or taking advantage of CSR opportunities; Competency to develop and adapt eco-innovation Networks with universities and research institutes more likely to come up with eco-innovations for SMEs Facilitating open innovation in SMEs	Lewis et al 2014 Battaglia et al 2010, Braun & Hadwiger 2011, Vasilenko et al 2011, van Hemel & Cramer 2002, Palmén & Åslund 2013, Jenkins 2009, McEwen 2013 Carrillo-Hermosilla et al 2009, Klewitz et al 2012, Halila & Rundqvist 2011, Triguero et al 2013, Triguero et al 2013 Lee et al 2010
Innovation network category	Categorization of collaborative social innovation networks based on the functionality that they deliver (preliminarily seven categories)	Celik et al 2014
Promotor role	Four types and roles of individuals who actively and intensively support the innovation process	Fichter 2012
Intermediary level	Facilitation of SMEs for eco-innovation (business level); Systemic intermediaries in long-term transitions	Klewitz et al 2012, Howells 2006a Van Lente et al 2003, Backhaus 2010
Intermediary role & function	Summary of studies examining intermediaries in innovation; The roles of intermediaries in supporting eco-innovation; Ten types of innovation intermediation functions throughout the value chains of innovations	Howells 2006a Howells 2006a, 2006b Howells 2006a, 2006b
Social capital category	Bonding social capital (glue); Bridging social capital (lubricant); The benefits of social capital	Coleman 1988, Putnam 1993 Bourdieu 1985 Adler & Kwon 2002
Region	Empirical data from projects/organisations on national level International (EU/OECD level) data and/or literature	e.g. Ståhle et al. (2004) (Finland) See Chapter 2.6 for details

For the purposes of starting to build up an emerging typology of interagents, collaborators and their exchanges, we also collected a long list of terms of actors in the literature review of this study. As reflected above, some of the terms were overlapping and almost synonyms to each other. Depending on the term, a specific actor can be classified as an individual, an organization, or an actor type based on a more complex structure of individuals and organizations (see Table 6 below).

Table 6. A classification of potential interagent and collaborator actors according to their organizational background (see also Table 4 in Chapter 2.7 for authors and more details).

Background	Actor type			
	Individuals	Organisations	Individuals or organizations	(More complex) Multi-actor structure
Term mentioned in the literature on collaboration and innovation support	Business contact CSR champion Entrepreneur Expert Founder / CEO Friend	Boundary organization Business Development Organization Incumbent ('Goliath') Innovation consultancy Intermediary firm Knowledge intermediary Not-for-profit organization Private organization Public organization Regional institution Superstructure organization	Bonding interagent Bricoleur Bridging interagent Broker Consultant 'David' (small firm) Ecopreneur (Innovation) intermediary Intermediary (agency) Intermediary level body Knowledge broker Network facilitator Regulatory interagent Researcher Resource interagent Systemic intermediary Technology broker Venture capitalist	Family Industrial cluster Innovation community Network Peer group Social innovation network Systemic intermediary Third parties

This listing of actor concepts and terms forms an excellent 'vocabulary' that can be used during the case analysis. As mentioned above, interagency and collaboration always involve bringing people and other resources together, and thus we also considered what kind of exchange would be taking place in relation to each actor type. Knowledge (e.g. technology transfer) seems to be most often in the core of exchange, especially in relation to the intermediation process in innovation. Also the exchange of other resources than knowledge was quite frequently involved (see Chapter 2.7 for more details).

Most of the actor types mentioned in the listing are well-known and widely used. Thus, we will not define them in detail here. One of the interesting in terms of unusual collaboration and eco-innovation, and also less frequently mentioned actor type is *bricoleur*. Turpin et al. (1996) brought up this term for agents seeking to develop *new applications for new technologies outside their initial development field*. More recently, the term has been used in more entrepreneurial and business setting e.g. in social enterprises (Di Domenico et al. 2010) and in developing base-of-the-pyramid markets (Halme et al. 2012).

Before moving on to the analytical framework of this study, we will revisit the fundamental question of what makes collaboration or intermediation practices unusual? Collaboration of eco-innovative start-ups with and support from the focal areas of other SHIFT WPs, i.e. universities, incubators, business development organisations, design service providers, and funding certainly exist, but would collaboration be considered 'unusual' if support from several or all of these 'usual suspects' hybridise? Previous literature neither offers a clear nor a systematic view what might be considered 'unusual' in terms of collaboration or intermediation. As already discussed in the introduction of this report, our view of the nature of unusual collaboration consist of (at least) nine features, most of which should be present in our specific cases in Finland (see p6 of this report).

4 Framework for the analysis of interagents and unusual collaboration in supporting sustainable start-ups

In this chapter we will present the analytical multi-level framework to be utilized in the empirical part of SHIFT WP7. Based on the findings from the various perspectives presented in the literature study as well as our early empirical findings from this field during the first phase of the project (WP1), we first discuss very briefly and show the key dimensions of the framework of analysis, and after that we will present the analytical framework for the case studies.

4.1 Building up the framework of analysis

Supply, demand and the gap between them

The WP1 of SHIFT project summed up three major aspects of a business support system, the demand side (firms and entrepreneurs), the supply side (organisations that support businesses) and a gap that might exist between these two. Whether this gap exists, depends on a possible mismatch between the supply and demand sides in business support activities (cf. Gibb 1992, Klosthen and Mikaelsson 1996). It often happens that the support that is given does not correspond to the real needs within businesses in general, or small firms in particular (see Figure 6).

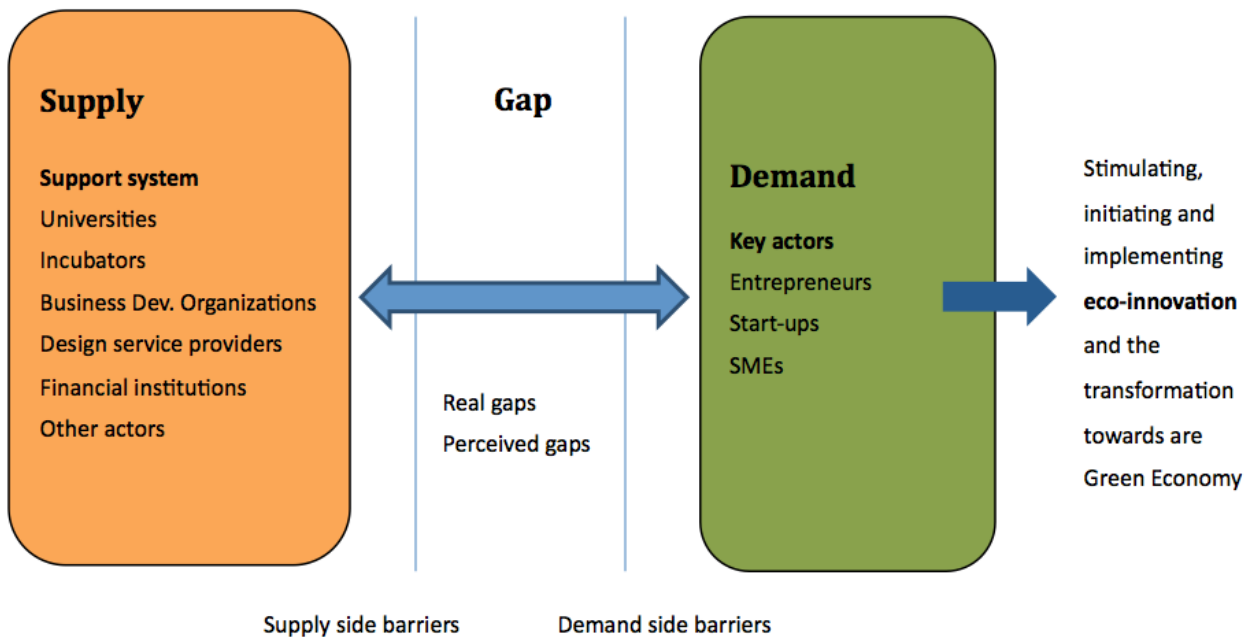


Figure 6. The gap approach of the project (Hjelm et al. (2013) in SHIFT Work Package 1: Theoretical Foundation by Fichter et al. 2013).

Gibb (1992) has argued that there are several barriers associated with business support, for example a scepticism from the small business manager regarding the value of support, inability to pay to take part in support, lack of time and the preference to be engaged in activities that seem to give a more direct return on investments rather than indirect activities such as business support activities. Kanda et al. (2012) in their study of public support for cleantech MSMEs have highlighted some challenges on the demand side, such

as unawareness of such support programmes among some MSMEs, and also the difficulty in accessing such programmes stemming from amongst others the confusingly large number of initiatives and organisations.

The exchanges / components of support

As mentioned in the conclusions of the literature study, one of the most interesting and relevant frameworks in terms of intermediation, unusual collaboration and support for sustainable innovation are presented by the perspectives of promotor power and role. Linked to the promotor theory, the emergent typology of interagents and unusual collaboration in the previous chapter already considered types of exchanges taking place: is it about knowledge (expertise), resources, relationships, processes or something else (cf. Fichter 2012).

Multi-level perspective (MLP)

Transition management approach has presented a model of co-evolution of innovations at different (product and system) levels, as sustainable development requires changes in socio-technical systems and wider societal change in beliefs, values and governance (Kemp et al. 2007, Loorbach 2007). On the micro level, inside the so-called niches, novelties are created, tested and diffused. Examples of such novelties are new technologies, rules and legislation, organizations or even new concepts and ideas. The macro (landscape) level is the overall societal setting consisting of social values, political cultures, built environment and economic development and trends. The processes of change occur on the macro level, and directly influences the meso (regime) level as well as the micro level (niches) by defining the room and direction for change.

Intermediaries of the Finnish innovation environment were analysed in a regional context (Stähle et al. 2004). The study described the links between knowledge intermediaries and the environment in a way that sort of combines the three perspectives described above. According to this view, the basic aims, responsibilities and roles of the intermediaries depend on the level. The macro, meso and micro level intermediaries have different influence in the success of the environment. (National or international) macro level focuses on the structural components of the innovation environment, i.e. building control and development mechanisms. Examples of such macro level actors in the Finnish context are Sitra, Tekes, and the Academy of Finland. The (regional) meso level aims at uniform strategies. Examples of such actors are incubators and business development organizations. (Local) micro level takes in turn responsibility of developing know-how and substance. Knowledge intensive public and private service companies have been mentioned as examples of this level. The visualization of this innovation policy and management related multi-level approach is presented in Figure 7. It is also useful as a basis for the analytical framework of this study.

SHIFT WP7 report

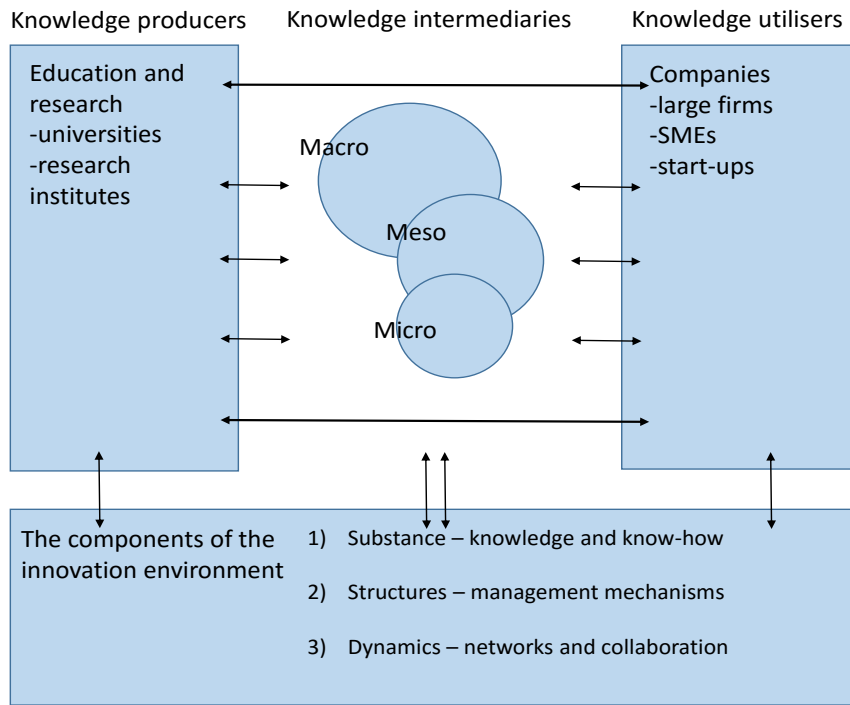
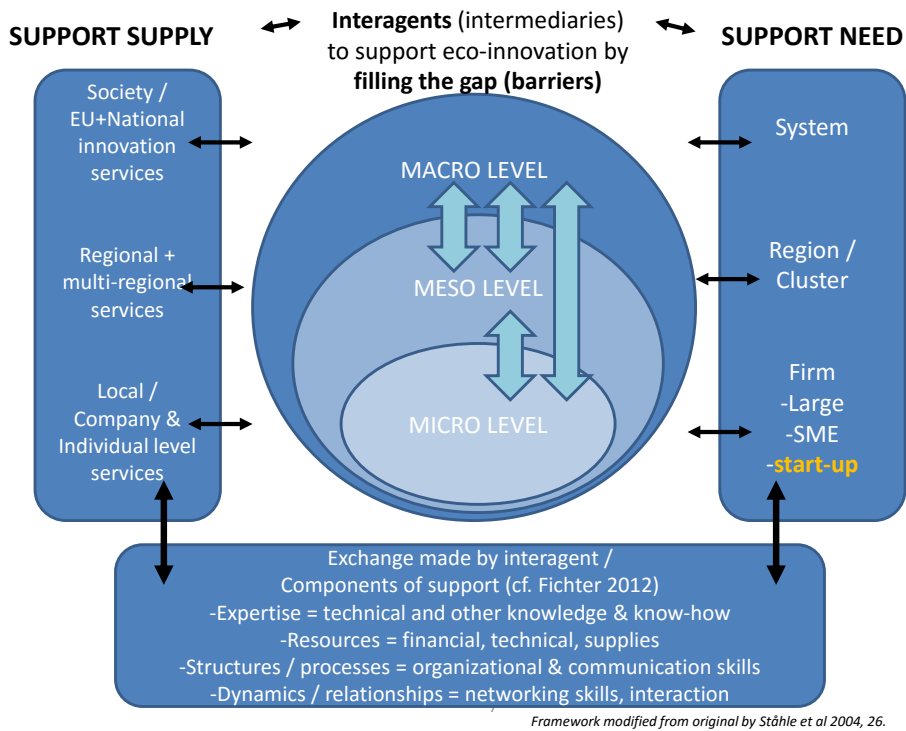


Figure 7. The innovation environment approach (Ståhle et al. 2004).

After this brief description of the conceptual building blocks we will present a simplified visualization of the conceptual framework for this study in Figure 8 below. It was developed by NODUS team of Aalto University in collaboration with the SHIFT project consortium partners.



Framework modified from original by Ståhle et al 2004, 26.

Figure 8. The basic conceptual framework behind the study.

The framework strives to illustrate what interagents (and unusual collaboration) might act to fill the potential *gap* between support needs and support supply. Support (in form of various types of exchanges) flows not only on a specific level of the system, but between the macro, meso and micro levels as well. The core of the framework consists of the potential gap between support supply and demand (Hjelm et al 2013 / SHIFT WP1), the exchanges and promotor roles (Fichter 2012), and interagent level (multi-level perspective / e.g. Loorbach 2007, Ståhle et al. 2004).

4.2 Description of the analytical framework for the case studies

The analytical framework used in the case studies was developed further from the basic conceptual framework behind the study by adding *the innovation (or entrepreneurial) life-cycle stages* in the chart. This allows the research team to make conclusions that reflect also the interagency and collaboration in proportion to life-cycle stages in a start-up or young SME. See Figure 9.

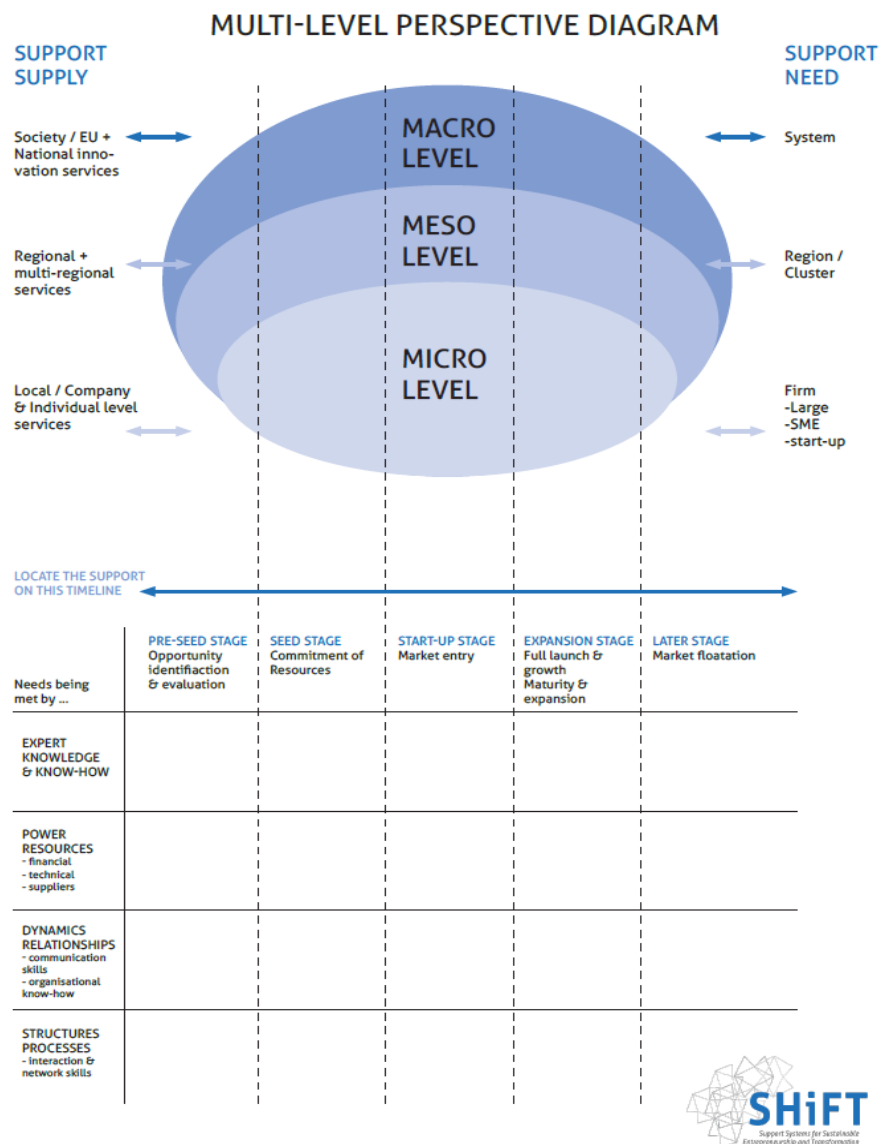


Figure 9. The framework used in WP7 case analysis.

Before starting the field work with the cases, we tested the framework in a specific event with a group from our industrial partners consisting of Finnish MSMEs. This test showed that it was easy to adapt and understand by business people who were not familiar with all the theoretical foundations behind the framework.

Naturally, when selecting and analysing the interagent and collaboration cases, we must also consider the features of unusual collaboration. Our own listing of the constituents of unusual collaboration was presented in Chapter 1.4 of this report (see Table 1). Additionally, relevant literature perspectives to be utilized during the case studies include Intermediary role and function (e.g. Howells 2006a-b, see also our own 'vocabulary' of interagents and unusual collaborators in Table 6), Innovation network category (Celik et al. 2014, see Chapter 1.5 and 2.2.5), and Area of services perspective (Sherwin & Bhamra 2000, IfM Design Management Group 2014, see Chapter 1.5).

In the next chapter we present the interagent and unusual collaboration organizations used as case studies and reflect the findings from these. The presentation will also include a brief discussion on the findings in the light of the literature on collaboration.

5 The interagents and unusual collaboration in supporting sustainable start-ups – analyzing three cases from Finland

This chapter first revisits the research aims and describes briefly some methodological considerations. After the presentation of the selection of cases for this multiple case study, the analysis of the cases will follow based on the framework developed in the previous chapter of this report. Finally, we will consider the added value provided by the interagent and collaboration cases for startups and SMEs, as well as the impact and challenges of unusual collaboration and the problems especially in the Finnish support system for start-ups and eco-innovation in general as reflected by the case studies.

5.1 Introduction

As already noted in the beginning of this report, the ‘official’ view of entrepreneurship and innovation support does not necessarily recognize the ‘unusual suspects’ or ‘wild cards’ that are also contributing in the overall support system. When discussing with the Finnish industrial partners (except for two BDOs, all of them were MSMEs – see Appendix 5 for a list of collaborating partners) in the beginning of the project, we soon realized that remarkable support can also be provided by persons or organizations with a lot of tacit knowledge and large contact networks, personal everyday circle as well as specialists and committed experts outside of the institutionalized support infrastructure. Figure 10 shows an example diagram of the support system of an eco-fashion agency that participated in the first partner event of the project in March 2013. Public support actors seem to be located far away from the core, but instead, an interagent with good international contacts worldwide seems to play a key support role.

Finland

MSMEs view of eco-innovation support systems

Mari Himmanen, First Crush – an eco-fashion agency

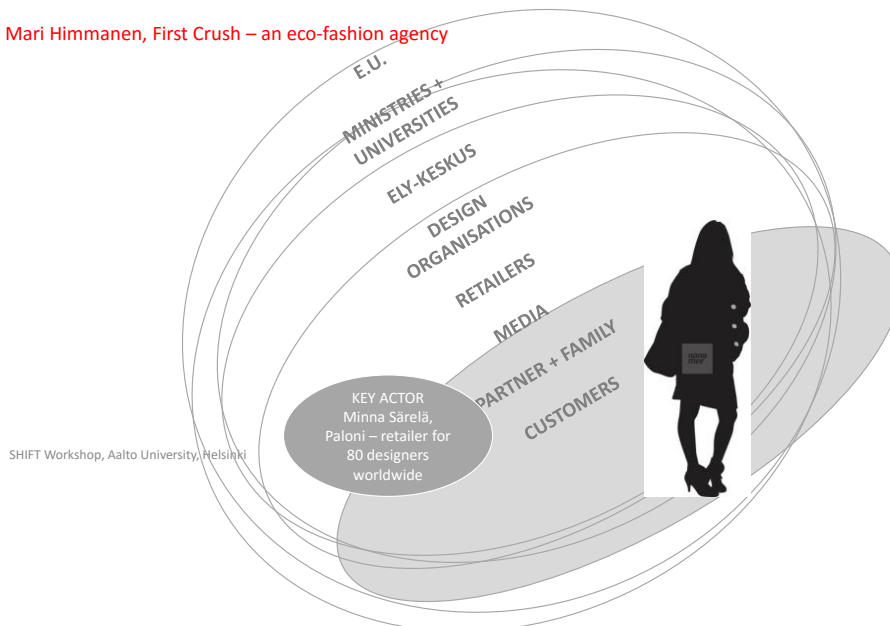


Figure 10. Visualization of a specific support system of an individual SME. Key support actors include family, customers and an interagent. The institutionalized support system is not located in the core.

These preliminary findings from the networks of our own national sample of start-ups and SMEs did not include any relevant examples of collaboration between incumbents and emerging eco-businesses, but instead examples of 'other' or unusual collaboration emerged. Thus, we decided to focus on 'other' actors in the core of supportive collaboration. We decided to call these 'other' actors in the core of collaboration bringing people and other resources together as interagents.

The first aim of the study (WP7) included identifying what kind of 'unusual collaborating support actors' exist and making a special reference to actors supporting eco-innovation in start-ups and SMEs. This part of the study was already partly covered by the literature review. Secondly, by analysing the contents of specific unusual collaboration cases, the study strives to show how these services complement or overlap with the mainstream support services (cf. WPs 2-6 of the SHIFT project) and how these services are related to overlapping concepts that promote entrepreneurship, such as cluster initiative, innovation community and business accelerator. Thirdly, the study aims to assess the potential that such unusual collaboration approaches have in terms of positive impacts to serve the sustainable transformation in the society. Consequently, we formulated the research questions as follows:

RQ1 - What emergent and innovative types of bringing people and other resources together to support eco-oriented innovation and start-ups exist in the current support system (in addition to those of specific actors in focus in WPs 2-6 of the SHIFT project, i.e. universities, incubators, BDOs, DSPs and funding)?

RQ2 - What kind of added value do these support services create (and how) compared to the 'mainstream' support system and what challenges are involved (in terms of technological and behavioural change)?

RQ3 - How should the eco-innovation support infrastructure / policies be developed to better serve the transformation of society (technological and behavioural perspectives)?

Research strategy of the study is based on qualitative method (limited number of cases). Due to the novelty of the phenomenon, and the difficulties in identifying interagents and/or getting others to identify themselves as interagents, we have decided not to initiate quantitative surveys. At this stage, it is important to describe and to understand the nature of interagency and unusual collaboration, and qualitative case method serves these purposes better now that we do not aim at generalizations yet. It would also be difficult to design justified survey questionnaires before first understanding the background of unusual collaboration and potential challenges related to it. It is also unclear whether e.g. entrepreneurs would understand the conceptual framework of the study and potential survey questions derived from it. It would be essential to be able to speak same language with them. However, we tested the conceptual and analytical framework of the study with some of our Finnish industrial partners in a specific partner event in Helsinki in May 2014 and November 2014. After some minor elaborations brought up by the comments from the testing of the framework we could proceed to apply the framework during the expert interviews related to cases in 2015.

We interviewed one interagent (i.e. expert playing a central role in the collaboration to support start-ups and eco-innovation) per case, and each interview lasted 1 – 1.5 hours. All the expert interviews were undertaken in Finnish language (to facilitate dialogue), recorded and transcribed. In addition to interviews, data from other relevant sources have been used in the analysis. The researcher of the project was also offered an opportunity to observe a club event of one case and a fair organized by another case. Each interviewee was given an opportunity to see the interview themes and questions in advance. The interview

questions were slightly modified according to the case and interviewee, but basically the themes and structure of questions remained the same from one interview to another. A copy of the basic interview guide document sent to the interviewees before each interview is attached to this report as Appendix 2, and the list of interviewees in Appendix 3.

5.2 The case selection

The case studies of the work package WP7 were restricted to three interagent and unusual collaboration cases from Finland only. Originally the research team aimed at finding relevant interagent and collaboration cases in Sweden and Germany, too, but due to difficulty in finding relevant cases, potential cultural and language issues, and time constraints, the empirical work focused in Finnish cases only. Thus, the findings may partly *reflect country and also industry specific conditions in the Finnish business context*. Despite of that, the findings from this geographically limited case analysis may reflect relevant issues and challenges on other markets, too. We start by presenting the cases then analyse their basic characteristics.

5.2.1 The presentation of the cases

Our case selection reflects the fact that, for example, in the EU the significance of housing (energy), transport (energy), and food as contributors to the environmental footprint of the society is big. Food and drink, private transport and housing together account for 70-80% of Europe's environmental impacts stemming from final consumption (Tukker et al 2006). Thus, mobility, housing as well as private consumption in general can be considered the hot spots to enable innovations and behavior change, i.e. transform everyday lifestyles and decrease environmental footprints (ANPED 2013). The interagents and collaboration in our cases strive to support the emergence and development of innovations and start-ups that would contribute to the reduction of environmental burden of consumption in diverse ways. Two of the cases focus to a large extent on energy and mobility clean-tech business, whereas one case aims at supporting more sustainable business models in a specific consumer goods sector, namely fashion.

Local Energy & FinSolar

Suomen Lähienergialiitto (Local Energy Association) is a fairly new actor in the energy business field in Finland. It was founded in April 2013. The association represents both technology suppliers, member associations of renewable energy, and consumers. The aim of this collaboration is to give a common voice for the sector that combines sustainable local energy production, energy efficiency and smart use of energy. Representing solar, bio, geothermal, hydro, wind etc. technologies the collaboration strives to promote energy businesses focusing on local energy production and efficient use of energy in Finland. The association also strives to influence political decision makers, and to communicate, i.e. provide consumers with reliable information on sustainable energy. Linked to the promotion and support of local renewable energy technologies, FinSolar project started in 2014, aiming also to promote the agenda of the Local Energy Association. Key goal is to create and promote favourable conditions to build up domestic market for solar energy technology to utilise the potential of Finnish know-how. Thus, it is more like collaboration

and ecosystem development work than a conventional academic research project. A key interagent in both Local Energy and FinSolar has been *professor Raimo Lovio of Aalto University School of Business, Finland*.

TELAKKA®

Started in the 2010s, TELAKKA® is a rather new actor in fashion business support in Finland. Previously also calling itself a platform, this collaboration organization is providing specific support to (eco)fashion startups in a way that did not exist before. Thus, there was a clear demand for such a support service. The support service model of TELAKKA® is based on the long-term experience and views of the fashion business by interagent *designer-entrepreneur Kirsimari Kärkkäinen* in her own company and her personal experience as a chairperson of Ornamo MTO fashion designers in 2000s. It is a pioneer in offering such collaborative support services to fashion startups in Finland. The designers involved in TELAKKA® cooperation can benefit from the brand and other business development support provided by the business accelerator, maintaining however decision making over her/his own design work.

Peloton Club

Peloton was launched in 2009, and began as a series of workshops where organisations from different industries developed environmentally friendly products and services into easy and desirable choices, while creating new business opportunities for themselves. In 2011, the first Peloton *Innovation Camps* bred entirely new energy smart businesses. The Peloton Club *peer-incubator* came into being in the autumn of 2012. In Peloton Club, startups and innovators spur each other to create the business ideas that change the world for the better – formerly it was about energy smart, but now resource smart solutions. The organisation behind Peloton, Demos Helsinki is Finland's leading independent think tank with 12 permanent and more than 10 part-time employees, focusing on "co-creation and research to help communities and companies to succeed in the future". Interagent *Maria Ritola of Demos Helsinki* has lead the Peloton activities in practice, but also executive director Tuuli Kaskinen, as well as the rest of Demos team has been involved.

5.2.2 The characteristics of unusual collaboration

The origins: sector focus, orientation, and drivers of collaboration

Each of the cases represents collaboration to support entrepreneurship and innovation with to some extent different sector focus. Case TELAKKA® is focused on design entrepreneurship in fashion and textile sector. The other two cases slightly overlap in terms of sector focus, as Local Energy collaboration takes place in the renewables business (with FinSolar especially in solar energy), and the main sectorial focus of Peloton Club collaboration has been in consumer clean tech, also including smart energy solutions. As Finland is a small and heavily export dependent economy, the market orientation of the collaboration cases naturally covers not only Finland but also international markets. Especially among the start-ups participating in Peloton Club activities, many of the innovation driven teams can be considered 'born globals' - business organizations that, from inception, seek to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries (e.g. Tanev 2012).

Typical businesses involved in the collaboration in case Peloton Club have been innovation driven teams on seed stage but also start-ups, whereas in the two other collaboration cases typical participating businesses have been either technology or design driven SMEs. Naturally, this might bring function or life cycle stage specific emphasis in each collaboration case, in addition to industry sector specific considerations.

The company (micro) level challenges experienced by the businesses looking for support are largely shared by all collaboration cases. Lack of finance and related to that weak financial condition of the businesses are common challenges in all three cases. Lack of other resources such as time and know-how seem to come up especially in two cases, whereas fierce competition between actors in the new field was named as one potential reason behind weak financial condition of the collaborating SMEs. In the cases, also macro level constraints of growth of participating businesses are involved. In Local Energy case, unfavorable conditions in the home market due to national legislation has been a hindrance of market potential growth. In TELAKKA® case, the Finnish fashion business in general is suffering from a lack of trust. In Peloton Club case, the collaborating businesses on their seed or start-up phase would benefit much from behavioral changes in the market that would increase the implementation of the ideas of e.g. sharing economy and resource smart society.

Consequently, the drivers of collaboration in different cases is related to organizing support that would build up more favorable conditions as well as better opportunities and accelerate change in legislation, in behavior, etc. In Local Energy case a key driver has been the emergence of unfavorable market conditions and related to that the need to build up an ecosystem that would promote alternative energy technologies and through lobbying for legislation and regulation changes create better opportunities in domestic energy market. Likewise, the drivers of collaboration in TELAKKA® case have included the potential better opportunities for all businesses in sustainable fashion in Finland. In terms of social transformation, the most radical drivers of collaboration are linked to Peloton Club case. The ultimate aim of the collaboration has been to accelerate change and first build niche markets and better opportunities for ‘smartups’ in clean tech sector. The background of the cases is summarized in Table 7 below.

Table 7. The background of collaboration in the cases.

<i>Perceived gap in the support system on which the interagent is focusing</i>	CASE Local Energy / FinSolar	CASE TELAKKA®	CASE Peloton Club
Sector focus	Renewables / Solar Energy	Fashion and textile (design)	Consumer clean tech
Market orientation	Finland + exports	Finland + exports	Nordic ‘born globals’
Typical businesses involved	Technology driven SMEs (including startups)	Design driven SMEs (including startups)	Innovation driven teams on seed stage (and startups too)
Micro level challenges of business development	Weak financial condition of the SMEs, fierce competition between actors	Weak financial condition, lack of time & other resources	Business model generation; lack of finance, know-how, personnel
Macro level constraints of growth	National legislation, unfavorable conditions in the home market	Lack of trust in the business sector in general (Finland)	The behavioral changes necessary in the market (sharing economy etc.)
Drivers of collaboration	Building up an ecosystem to promote more favorable conditions and create better opportunities in domestic market	Building up an ecosystem to create better opportunities for all in sustainable fashion	Building niche markets / accelerating social change towards resource smart economy and opportunities for smartups in clean tech

The cases of 'unusual' collaboration in relation to overlapping other entrepreneurship support collaboration concepts

As mentioned in Chapter 1 of this report, there might be to a certain extent overlap between the cases of interagency and unusual collaboration and other existing support and collaboration concepts related to business development and innovation in SMEs. In our view, such potential overlapping collaborative business support concepts include e.g. cluster initiative, innovation community, strategic networking, business ecosystem and business accelerator. The potential overlap of the support provided by the collaboration cases in focus of this study with specific entrepreneurship and innovation support collaboration concepts is reflected in Table 8 below.

Business accelerators are considered to prepare companies for growth by providing guidance and mentorship primarily for SMEs that have already passed the start-up stage in the life of the business. As regards the cases of this study, the support provided by TELAKKA® is closest to an ideal business accelerator. There are similar advisory services available also related to case Local Energy, but in case Peloton the support is aimed for earlier (pre-seed and seed) phases of the business life-cycle, and thus it is closer to business incubation support than accelerator service.

In the loose networks of *business ecosystems*, each business such as suppliers, distributors, outsourcing firms, makers of related products or services, technology providers, and a host of other organizations affect, and are affected by the others, creating a constantly evolving relationship (e.g. Iansiti and Levien 2004). Thus, companies need to become proactive in developing mutually beneficial relationships. As for the cases of this study, the support provided by case Local Energy is close to the idea of business ecosystem development, and to some extent the case TELAKKA®, too.

Clusters have become a way of cooperation of both profit and non-profit organizations. The purpose of *cluster initiatives* is to promote economic development within the cluster by improving the competitiveness of one or several specific business sectors. Cluster initiatives are organized as collaborations between a diverse number of public and private sector actors, such as firms, government agencies, and academic institutions. Cluster initiatives generally are involved in a broad range of activities, e.g. market intelligence, incubator services, attraction of foreign direct investment, management training, joint R&D projects, marketing of the region, and lobbying policymakers may also be one of the cluster initiative's activities. As regards the cases of this study, the support provided by case Local Energy overlaps to some extent with cluster initiative development, for example through lobbying policymakers and plans of management training.

Based on the promotor theory and the three-level concept of innovation system, the *innovation community* has been defined as an informal collaboration of likeminded individuals teaming up in project related fashion, and commonly promoting a specific innovation, either on one or across different levels of an innovation system (Fichter 2012). As for the cases of this study, the support provided by case Local Energy is close to the ideas of innovation community, and to some extent the case Peloton Club reflects the characteristics of an innovation community, too.

Strategic networks involve typically relations between companies and serve economic activities with the intention to reach defined business-related goals (e.g. Eckenhofer 2011, Gulati et al. 2000). The effects of

networks lie in the synergy effects, economies of scope and innovation that are the primary targets of many companies. Positive influences depend on trust (also perceived by many authors to be important element of social capital), as trust is the key in the willingness of network actors to share knowledge (e.g. Adler and Kwon 2002). As regards the cases of this study, the support provided by case Local Energy and TELAKKA® seem to overlap to some extent with the idea of strategic network development, as existing businesses in the same industry strive to collaborate to reach specific business related goals. Also in the case Peloton, the business teams that are typically in the seed or early start-up stages may find goals to be achieved through a more intense collaboration.

Table 8. The cases of unusual collaboration in relation to specific business collaboration concepts.

The overlap with specific entrepreneurship and innovation support collaboration concepts				
	The concept defined in brief	Local Energy / FinSolar	TELAKKA®	Peloton Club
Business accelerator	Holistic business advisory service adjusted to fit small and medium sized business organizations	YES to some extent	YES	NO
Business ecosystem	Network of organizations involved in the delivery of a specific offering through both competition and cooperation	YES to some extent	YES to some extent	NO
Cluster initiative	Effort of interconnected companies and institutions in a particular field to increase growth and competitiveness	YES to some extent	NO	NO
Innovation community	Network of likeminded individuals, acting as universal or specialized promoters, often from more than one company	YES to some extent	NO	YES to some extent
Strategic network	Inter-organizational network on the basis of trust, with the intention to reach certain business goals	YES to some extent	YES to some extent	YES to some extent

The implications of this comparison to other entrepreneurship support collaboration concepts is that interagent or unusual collaboration approach does not only fit one mode of operation, but it seems to span several.

The 'unusual' nature of collaboration

We have already discussed the fundamental question of what makes collaboration or intermediation practices unusual in this report. Previous literature neither offers a clear nor a systematic view what might be considered 'unusual' in terms of collaboration or intermediation. As already presented in this report, our view of the nature of unusual collaboration consist of nine features, most of which should be present in a specific collaboration case (see p6 of this report).

First, these collaborations seem to have innovative, *different or even unique* organizational design for bringing people and other resources together to support eco-oriented innovation and start-ups, in addition to or instead of those of forms and actors that are in focus in WPs 2-6. As regards the support that unusual collaboration is offering, their services are to a certain extent different from existing (mainstream) support

system or they build up to some extent *tailored (hybrid) combination* of services. They also have a more *informal institutional setting* in the eco-innovation support infrastructure compared to the more established (mainstream) services. Consequently, the aims which are served by peculiar collaboration are typically *less standardised and more case specific* than in the mainstream support services.

Further, the support provided by interagents and unusual collaboration is more of a *proactive* nature - the mainstream services have a tendency to provide more like reactive support. The collaboration approach also includes a *multi-actor support as well as multi-level perspective* – the mainstream support services tend to focus on more limited perspectives. One important feature in such collaboration might be their explicit focus on *supporting sustainable innovation and/or entrepreneurship*. Further, the rather explicit aim of the services is also to make *changes on system (macro / policy) level* to promote transformation in the society as well as support new business models based on the principles of sustainable development. Finally, collaboration seems to be offering easily accessible, and highly relevant, understandable and useful support to ‘like-minded’ SMEs.

All of these nine unusual features of support service are at least to some extent present in Local Energy & FinSolar, TELAKKA® and Peloton Club collaboration cases.

The ingredients of unusual collaboration

Before starting the analysis of the findings case by case, we will review some key factors such as size, finance bases, support aims and support provided by each case in practice. During the data collection of the study, the collaboration organizations had only 1-5 years’ experience of activities behind them. Thus, many of the activities were fairly young and it might be slightly premature to jump to conclusions of the achievements and impact of each collaboration case. However, towards the end of Chapter 5 we will also draw some conclusions on the added value, impact and problems related to unusual collaboration based on the findings from cases.

The role of sustainability and eco-innovation is central in each of the three cases. We can say that sustainability is already built inside the activities by nature. In Local Energy and Peloton Club sustainability is heavily integrated through the products and solutions offered by the collaborating businesses (renewables, especially solar energy, and consumer cleantech, especially resource smart solutions). In TELAKKA®, sustainability is integrated through the vision of the collaboration, and more concretely in key criteria of businesses to be selected as partners in the collaboration.

In each of the cases, there was at least one person who can be considered to have the key role of interagent, contributing with his/her long professional experience in the emergence and/or implementation of collaboration. For example in FinSolar, professor Raimo Lovio’s academic experience on innovation and environmental management has been complemented by local and especially solar energy related contacts and substance expertise of project manager Karoliina Auvinen. Similarly, Maria Ritola has played the key interagent role in Peloton, together with director Tuuli Kaskinen and occasionally the whole Demos Helsinki think tank team. Kirsimari Kärkkäinen, CEO of DesignPlus, has definitely played the interagent role in the foundation and implementation of TELAKKA® collaboration.

The financing of the collaboration cases have come from both public and private sources in cases Local Energy / FinSolar and TELAKKA®, but the funding of Peloton Club has been predominantly dependent on

the project funding from public sources. It is noteworthy that public innovation funding actors (The Finnish Innovation Fund Sitra and the Finnish Funding Agency for Innovation Tekes) have allocated a quite remarkable financial input during the first years of collaboration. In two of the cases, also the private financing by collaborating SMEs and incumbents (FinSolar) or founder and investors (TELAKKA®) has been critical.

The number of companies involved in the collaboration is changing continuously. The smallest number of companies has been involved in TELAKKA®, whereas the number of businesses that have participated in Peloton collaboration, depending on how to add the number up, is as many as 100. The key background facts of the cases are summed up in Table 9.

Table 9. Key background facts of the cases.

<i>Key factors</i>	Local Energy / FinSolar	T E L A K K A ®	Peloton Club
Start year	2013 / 2014	2011	2009
Role of sustainability and eco-innovation	Integrated (Renewables)	Integrated (Key selection criteria)	Integrated (Resource smart solutions)
Key persons with long experience	Prof. Raimo Lovio / Karoliina Auvinen	Kirsimari Kärkkäinen (CEO of DesignPlus)	Maria Ritola (and dir. Tuuli Kaskinen)
Finance bases	Public (Sitra, Tekes) + private (the collaborating SMEs and incumbents)	Private (founder & investors) + public (Tekes)	Public (Sitra, ministry of the environment)
Number of companies involved	Over 40 (mostly SMEs)	6 showroom + brand development partners and more designers outside of this core	50 – 100 emerging and existing businesses in club events (some of these also in camps)

The support needs and support supply

The demand side of the start-up and eco-innovation support was also surveyed during the interviews. The interagents seemed to have a clear view of the typical support needs of the start-ups and SMEs in their network of collaborating businesses. Not surprisingly, the most frequently rising need in terms of unusual collaboration seems to be *meeting peers* in the same industry (FinSolar and TELAKKA®) and/or in a similar situation (Peloton Club and TELAKKA®). Depending on the entrepreneurial life cycle stage of business, also basic (Peloton Club and TELAKKA®) or more advanced sector specific (FinSolar) business know-how is requested. *Funding* is among the most typical needs of any innovative start-up or SME. However, in Peloton Club collaboration funding services have played a minor role, even though recently more collaboration has emerged in the direction of investors, especially during SLUSH events (Slush is the focal point for entrepreneurs to meet with top-tier international investors. The two-day event has taken place every fall in Helsinki, Finland – see <http://www.slush.org/about/media/>). In TELAKKA®, collaboration with the crowdfunding service Invesdor was a fresh part of services, opening lots of positive expectations. In two of the cases, also the need of *advocacy* was clearly visible. Local Energy / FinSolar had an important role to advocate renewables for political decision makers (the entrepreneurs were not able to do that alone), and similarly TELAKKA® had a role as advocate to help improve the image of the fashion design and business.

The support provided by the interagent and collaboration in practice were quite similar in all cases. Helping with contacts, networking and publicity were involved in all cases – collaborative network contexts are analysed further in chapter 5.3.3 below. Knowledge exchange in the form of business planning (Peloton Club and TELAKKA®) or training (TELAKKA® and upcoming also in Local Energy) was a typical support provided by each collaboration case as well. Creating credibility and lobbying for the business in order to overcome hindrances and build up better opportunities were explicitly present in the cases of Local Energy / FinSolar and TELAKKA®. Local Energy / FinSolar had even shown remarkable political action e.g. by publishing a specific ‘Solar energy proposal’ in the Finnish Parliament in November 2014. The typical support needs and support means provided by the cases are summed up in Table 10.

Table 10. Support needs and means by case.

<i>Support aims & focus</i>	Local Energy / FinSolar	TELAKKA®	Peloton Club
Support needs typically requested by SMEs	Meeting industry peers, advocate to meet decision makers, business know-how, funding	Meeting peers in the same situation as well as support actors, advocate to help to improve the image of the business, basic business know-how, funding	Basic business know-how (business plan, story to tell to investors and customers), meeting peers in the same situation, funding is in minor role in practice
Support provided by the interagent and collaboration in practice	-networking, -lobbying, political action (e.g. <i>Solar policy proposal</i> in November 2014), -publicity, -training (upcoming in collaboration with Aalto) -excursions/visits	-networking, -business planning, -funding (private funding actors / crowdfunding), -publicity, -training, -creating credibility	-networking, -business planning, -helping on contacts (potential first references and investors as well as incumbents), -publicity (e.g. SLUSH event)

It looks like the most typical support needs are quite well met by the support provided by the cases. Networking seems to contribute in filling the need to meet industry peers in the same situation, and helping on contacts, and even lobbying, facilitate the meeting of right people and improving the image of the businesses. Additionally, training as well as business planning add to business know-how of the SMEs. As the case organisations are quite recently founded, it would be naïve to think that they were able to fulfill all kinds of support needs of the SMEs participating in the collaboration. Weaknesses exist, and gaps remain in the support system. A light SWOT exercise for each case is included in chapter 5.3.

5.3 The findings of the case analysis

In this chapter we first analyse the unusual collaboration cases one by one. After the case specific views, we present a general analysis of the case using the framework developed for this study (chapter 5.3.2) and some other relevant theoretical perspectives (chapter 5.3.3).

5.3.1 Case specific views

Several factors in the background of each collaboration case were already presented above. In this chapter

we will present more analysis of the collaboration case by case, including simplified actor-network charts of each case. In the end of each case presentation, we also strive to sum up a SWOT analysis with the strengths, challenges, opportunities and threats of a specific unusual collaboration. We will first present our findings from case Local Energy & FinSolar, and after that we will continue to cases TELAKKA®, and Peloton Club.

Local Energy / FinSolar

Suomen Lähienergialiitto (Local Energy Association) is a fairly new actor in the energy business in Finland. Founded in 2013, the association represents both technology suppliers, member associations of renewable energy, and consumers (the members include Association of Solar Technology ATY, Finnish Biogas Association, Finnish Wind Power Association, Small Hydro Association in Finland, Finnish Heat Pump Association, and Tulisija- ja Savupiippuyhdistys TSY). Linked to the promotion and support of local renewable energy technologies, FinSolar project started in 2014, aiming also to promote the agenda of the Local Energy Association. Key goal is to create and promote favourable conditions to build up domestic market for solar energy technology to utilise the potential of Finnish know-how. It is noteworthy that in addition to start-ups and SMEs, also incumbents, including Caverion (listed company offering energy efficient solutions to businesses and buildings in Europe), Helsingin Energia (one of the biggest players in the Finnish electricity market) and S-Group (the biggest retail chain in Finland), participate in the FinSolar project. An interagent between both of these collaborative ventures and also linking to many of the actors involved in the network is professor Raimo Lovio (see box below).

The interagent – Professor Dr. Raimo Lovio

- Professor of innovation and environmental management in Aalto University School of Business (BIZ) since 1999, and founder of Sustainability in Business SUB (formerly CESR) research group at Aalto University in 1993
- Member of the board from the start of the Local Energy Association (founded in 2013), and chair of the board since September 2013
- Leading FinSolar project at Aalto BIZ that started in autumn 2014

The scope of specific local energy promoting organisations collaborating in Local Energy Association altogether is wide, but in the case analysis we will consider mostly the collaboration in solar energy businesses that are in the core of FinSolar project as well. The background for collaboration in Finnish solar energy business is described briefly in the box below.

Background for collaboration – Solar energy business in Finland

- The sector is dominated by SMEs (including start-ups), and many of the companies financially in a quite poor condition
- Current constraints in legislation related to use and costs of renewables in the market which are hindering business development and growth, and also fierce competition between small actors exists
- Collaboration needed to build up the business ecosystem for firms representing renewable energy businesses and create better opportunities for all through collaboration, communication and lobbying

In terms of support aims, the collaboration focus is not only on micro level business (model) development, but also on macro level political action (lobbying) by especially Local Energy association. Throughout the

levels, FinSolar collaboration promotes the local energy agenda by facilitating e.g. collaboration between SMEs and incumbents. At the time of the case data collection, there were over 40 companies involved in FinSolar collaboration, 25 of which were start-ups and SMEs. In addition to these small companies contributing in kind, and 12 bigger companies contributing in cash as well as specific energy technology associations, there were also eight municipalities (public organisations) involved. A simplified visualization of the 'actor-network' within Local Energy / FinSolar collaboration is presented in Figure 11a. The visualization of the outcome of the collaboration Figure 11b) is discussed more in detail in chapter section 5.3.2.

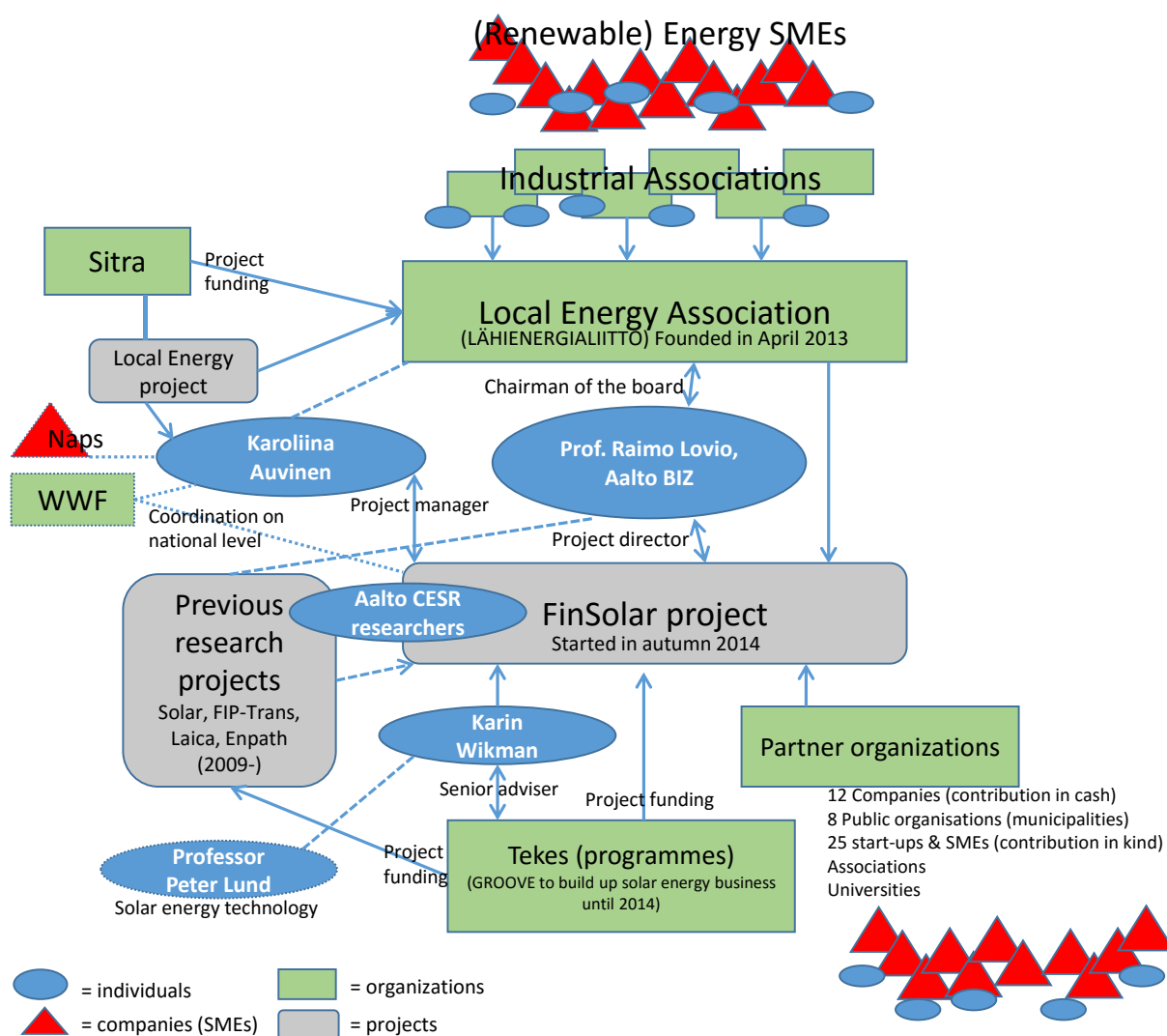


Figure 11a. Simplified visualization of actors in the collaboration network of case Local Energy and FinSolar. The dotted lines refer to less extensive (typically previously existing) relationships.

Through their membership in specific industrial associations focusing on renewable energy and smart energy saving solutions, there are in principle even more companies loosely connected to this collaboration. Previous local energy related project funded by The Finnish Innovation Fund Sitra as well as previous energy business research projects funded by the Finnish Funding Agency for Innovation Tekes have provided a remarkable knowledge base as well as individuals with necessary interagent capabilities for this collaboration. We might conclude that without the previous funding and other support by two government funded key innovation promotion organizations in Finland, this collaboration might probably

not exist. Even if the organizational structures in Local Energy Association and FinSolar project are quite formal, the spirit inside the collaboration appears more informal, energetic and youthful.

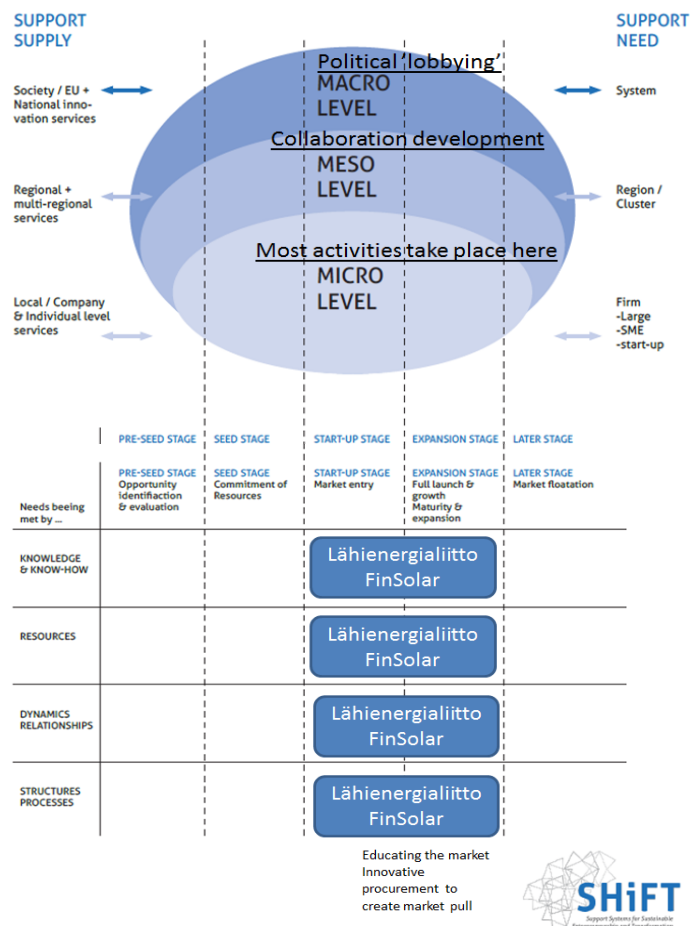


Figure 11b. Simplified visualization of the outcome in the collaboration network of case Local Energy and FinSolar.

Despite of the novelty of Local Energy & FinSolar collaboration, they already have quite a few references of positive outcome in striving to support start-ups and entrepreneurship in the renewable energy business. On macro level, contributing to system level changes in the society, the collaboration has not only organized meetings with high-level decision makers, but also contributed to a resolution in the national (Finnish) parliament and thus development of more favorable conditions for the business. On micro level, a good example of recent collaboration to promote local energy business in practice and providing information on sustainable energy to consumers was the Local Energy Market in the centre of Helsinki, Finland. The whole day event took place in May 2015 (see Figure 12). The outcome of Local Energy & FinSolar collaboration is analysed according to types of exchanges and by system level as well as by entrepreneurial life-cycle stage of collaborating businesses in Chapter 5.3.2 below.



Figure 12. Täällä tehdään tulevaisuutta - “The Future is Being Made Here”. Lähienergiatori (Local Energy Market) in the centre of Helsinki on 22 May 2015 (Photos by Mika Kuisma).

When a new business sector is born, basically all companies (SMEs) are competitors, the competition may be so fierce that it is even killing many of the businesses too early – too much competition is also hindering market growth. This has also been the reality behind local (and solar) energy businesses in Finland before the start of collaboration. Instead of too fierce competition, good team spirit is needed, as well as openness and cooperation to prepare market growth together. Local Energy & FinSolar case shows that also individuals (experts, entrepreneurs) who see the bigger picture of the business are valuable to provide right direction for collaboration. In the beginning, as one interviewee put it, it is the people who act and make results, not the organisations. Thus, you should chase people who have specific networking skills. However, competent experts often find it difficult to adapt themselves to ready-made support solutions. Thus, fruitful collaboration may start spontaneously (case-by-case). Thus it is difficult to place (unusual) collaboration in an institutionalized environment with ready-made solutions, such as university start-up center. However, skilled experts should be involved in the development of this kind of supportive collaboration.

As regards the impact of collaboration in the case(s), the concrete measurable impacts are seen to be still ‘hidden’ in the collaboration development process. Local Energy Association often thinks of itself also as a start-up (founded in 2013). Thus, 2015 might be critical for the success of collaboration within the association. In order to improve the impact, quite a lot of results should be produced in 2015. The SMEs are now brought together, but if they start to think that not so much beneficial results are produced, they may start to withdraw from the collaboration. One of the risks in this kind of collaboration is that they remain temporary solutions, and in practice no long-term support exist.

A SWOT exercise in Table 11 sums up many of the favorable and challenging aspects already discussed above for this case study which is a work-in-progress. Key strength of the case seem to be the combination of expertise and good team spirit. However, temporary project nature of collaboration might decrease the commitment by members. Support and collaboration by industrial associations and political decision

makers' interest are clearly opportunities for the collaboration. Withdrawal or unavailability of key contributors e.g. from funding constitute a threat for the success of the collaboration.

Table 11. The SWOT for collaboration case Local Energy and FinSolar.

Favorable aspects		Challenging aspects
Internal	<p><i>Strengths</i></p> <p>Combination of academic business research and practical technology expertise in the background helping to see the bigger picture Team spirit Wider finance basis (public + private funding) xxx</p>	<p><i>Weaknesses</i></p> <p>Concrete impacts not yet delivered Temporary project-based nature of collaboration xxx</p>
External	<p><i>Opportunities</i></p> <p>Collaboration instead of too fierce competition in the market Interest by political (macro level) decision makers Support by industrial associations xxx</p>	<p><i>Threats</i></p> <p>Withdrawal and availability of key resource contributors (expertise, funding) xxx</p>

TELAKKA®

Started in the 2010s, TELAKKA® is a rather new actor in fashion business support in Finland. This collaboration organization is providing specific support to (eco)fashion startups in a way that did not exist before. The collaborative support service model of TELAKKA® is based on the long-term experience and views of the fashion business by interagent designer-entrepreneur Kirsimari Kärkkäinen (see box below) in her own company and her personal experience as a chairperson of Ornamo MTO fashion designers in the 2000s. It is a pioneer in offering such collaborative support services to fashion startups in Finland.

The interagent – Designer CEO Kirsimari Kärkkäinen

- 20 years of experience in textile and apparel business, from design to production management, sales, marketing – everything else included in the business - Design experience mainly in work clothing
- Design references include both national (State Railways VR, hotel and retail chains of S-Group, Finnish Evangelical Church, Konecranes, etc.) and international customers
- During the past few years has started to create a designer ecosystem to help design driven firms and brands to grow and internationalize

The background for collaboration in sustainability oriented fashion and textile design is described briefly in the box below.

Background for collaboration – Sustainably oriented fashion and textile design in Finland

- Dominated by SMEs (including start-ups) looking for growth and internationalization, and many of the companies are financially in a quite poor condition, even if also successful examples are available, such as Globe Hope
- Also other hindrances to growth exist, such as lack of time and other resources, as most of the firms are designer-driven companies employing only the designer her/himself
- The problems are acknowledged, but hardly any action to support the SMEs exist in practice – thus, collaboration is necessary to create better opportunities for all

The support aims at facilitating business and brand development. In practice, this is reached by increasing business management competence among designers through meetings with mentors and funding experts.

The designer involved in TELAKKA® cooperation can benefit from the brand and other business development support provided by the business accelerator. These include a specific map of support services (Palvelukartasto). The support services consist of premises (showroom, studio); funding (public & private); production (management, procurement); branding (brand identity, materials); and sales (resources, growth). At the time of the case data collection, six showroom and development partners have been involved in TELAKKA®, but also other companies outside of this core. The six designers involved in the core of collaboration could also be called TELAKKA® business team. A simplified visualization of the ‘actor-network’ within TELAKKA® collaboration is presented in Figure 13a. The visualization of the outcome of the collaboration (Figure 13b) is discussed more in detail in chapter section 5.3.2.

TELAKKA® business accelerator collaboration can be considered as a project based on the dream or vision and personal professional experience of the interagent designer-entrepreneur. The ideas behind the collaboration have not only matured in business relationships with her clients, but they have also grown up in peer-level collaboration with other fashion designers through membership and positions of trust in professional associations. The commitment and belief of the interagent in the collaboration is demonstrated by her personal investment in the project. TELAKKA® not only has offered support to finance, networking and growth towards internationalization, but it also offers a physical space, showroom, where designers can present their creations. In terms of mentoring, the know-how of experienced professionals and business experts is also available within the network of collaborators. The contribution of crowdfunding service Invesdor with its expertise in fashion is a remarkable addition in the support provided by TELAKKA®. The peer-level support by the designers to each other in the TELAKKA® business team should not be ignored either.

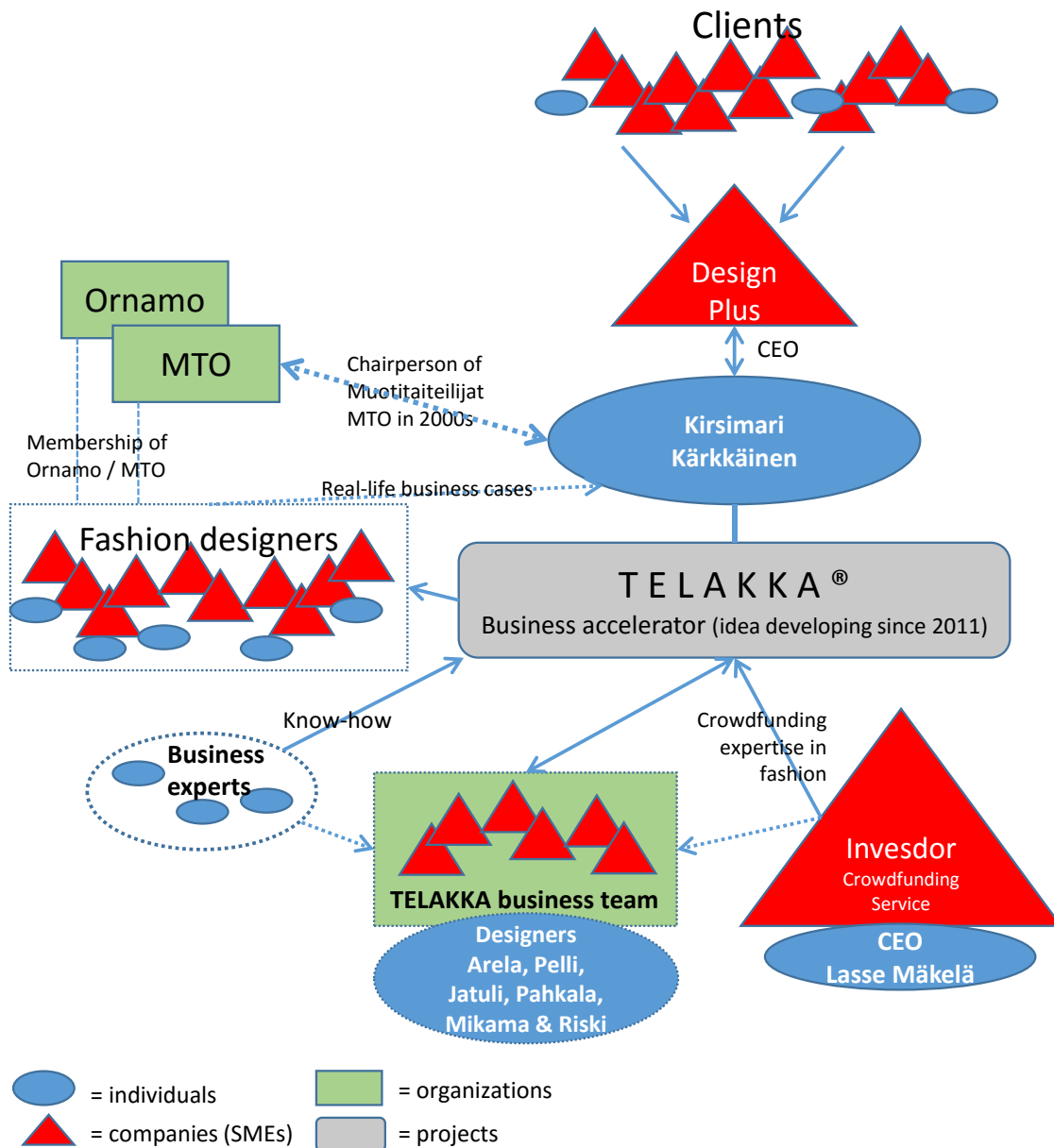


Figure 13a. Simplified visualization of actors in the collaboration network of TELAKKA®. In order to make the chart less complicated, the B2B and B2C clients of the design start-ups of the business team are left out from the chart. The dotted lines in the map refer to potential or previously existing relationships (not so active at the time of the case study).

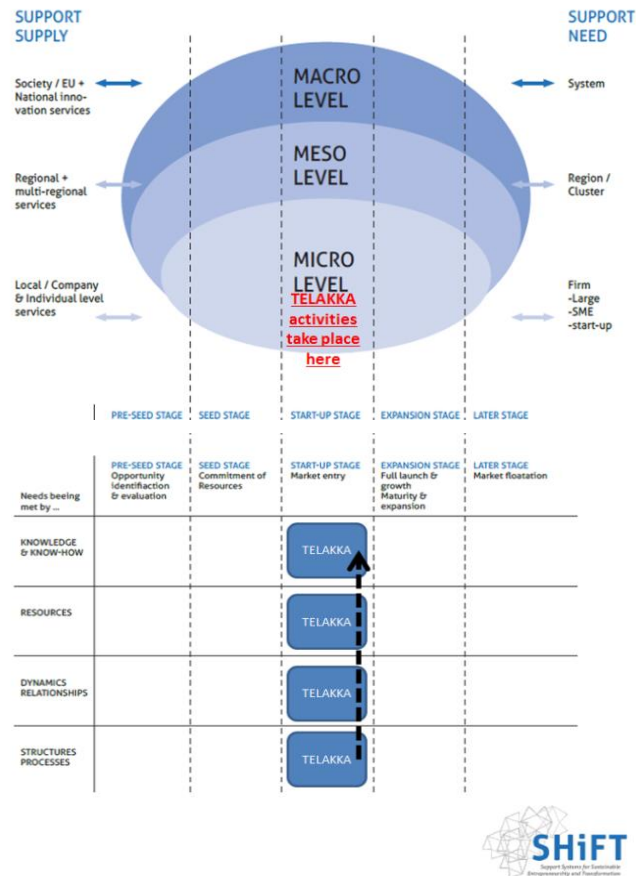


Figure 13b. Simplified visualization of outcome in the collaboration network of TELAKKA®.

In terms of multi-level perspective, the support activities by TELAKKA® collaboration have focused on micro level, dominated by networking, business planning, funding and publicity services for fashion design businesses at start-up stage. No explicit contribution on macro level has been available, but specific sustainability integrating visions of the collaboration certainly aim also at transformation on macro level, too. A good example of publicity to create credibility in the business and to promote collaboration of fashion design business by TELAKKA® in practice is an article in the leading Finnish business newspaper Kauppalehti in November 2014 (see Figure 14). The outcome of TELAKKA® collaboration is analysed according to types of exchanges and by system level as well as by entrepreneurial life-cycle stage of collaborating businesses in Chapter 5.3.2 below.

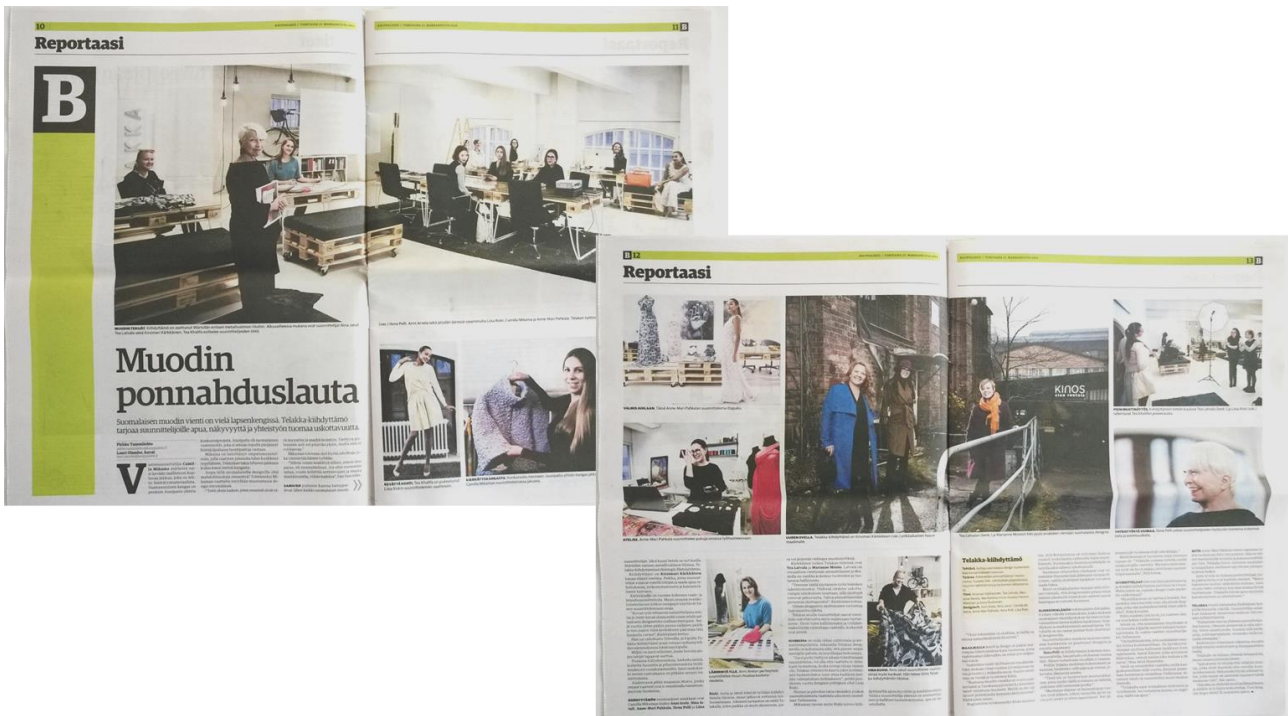


Figure 14. Muodin ponnahduslauta - “The Springboard of Fashion”. TELAKKA® was presented impressively on four pages of the leading Finnish daily business newspaper Kauppalehti on 13 November 2014 (Photos of the double-page spreads by Mika Kuisma).

Concrete impact measurements in the collaboration case are still ‘hidden’ in the thoughts of the founder-manager. Ecological (and other responsibility) considerations have been included when making decisions about including or excluding designers in the collaboration – no explicit indicators are available, but the criteria are based on the personal experience and views of CEO Kirsimari Kärkkäinen. Started in 2010s, TELAKKA® also thinks of itself as a start-up. According to the founder-manager, quite a lot of potential activities included in the beginning has been removed and the focus of the collaboration can be considered sharper now than in the beginning. Sales and investor relations are the key development issues at the moment in the collaboration between TELAKKA as business accelerator and the designers. How to make TELAKKA a successful business itself is also in consideration, e.g. how to make it more attractive among designers as well as funding professionals, and what might be the potential development needs in order to export and scale up the service in other countries.

An outline SWOT exercise (Table 12) sums up many of the favorable and challenging aspects already discussed above.

Table 12. The SWOT for collaboration case TELAKKA®.

Favorable aspects		Challenging aspects
Internal	<p><i>Strengths</i></p> <p>Availability of various relevant support tools for target group Long experience, expertise and strong vision of the business by the interagent Sharpened focus (not trying to include everything in one package) Team spirit Wider finance basis (public + private funding) xxx</p>	<p><i>Weaknesses</i></p> <p>Concrete impacts not yet come up Small size (sometimes might also prove beneficial) Strong dependence on the expertise and other resources from the interagent xxx</p>
External	<p><i>Opportunities</i></p> <p>Improving investor relations (crowdfunding) Increasing credibility and visibility of the industry, especially eco-fashion Scaling up the service in other countries xxx</p>	<p><i>Threats</i></p> <p>Availability of experts to contribute in the support Lack of attractiveness among designers and funding services xxx</p>

Peloton Club

Peloton concept was launched in 2009, and began as a series of workshops where organisations from different industries developed environmentally friendly products and services. In 2011, the first Peloton *Innovation Camps* bred entirely new energy smart businesses. The Peloton Club *peer-incubator* came into being in the autumn of 2012. In this collaboration, startups and innovators spur each other to create the business ideas that aim to change the world for the better – formerly energy smart, but now resource smart solutions. Interagent Maria Ritola of Demos Helsinki has lead the Peloton activities in practice, but also executive director Tuuli Kaskinen (see box below) as well as the rest of Demos team has been involved.

The interagent – Director Tuuli Kaskinen

- Executive director of think tank Demos Helsinki for two years (with six years of experience at Demos), and responsible also for developing services for business related to Demos Effect with academic background in economics
- Professional experience mainly in expert roles related to climate and energy issues, especially in NGOs (The Finnish Association for Nature Conservation) but also to some extent in private businesses
- During the past few years she has also been involved in helping eco-innovation driven firms and business ideas (consumer cleantech) to start business and internationalize in Peloton Club support activities organized by Demos Helsinki

The background for collaboration in consumer cleantech sector in Finland is described briefly in the box below. In their rhetoric, Peloton as well as its parent organization Demos have started to call their typical collaborating businesses ‘*smartups*’ instead of start-ups. Smartups are said to utilize one or more of the four major ways to circumvent natural resource scarcity by using predominantly digital technologies. These four ways include sharing, optimization, upcycling and refurbishment, and dematerialization and smart

substitution. The real impact is to lie in combinatory models of these four ways (Demos Helsinki 2014).

Background for collaboration – emerging Consumer cleantech sector in Finland

- Majority of typical participants consists of individuals and teams on pre-seed or seed stage (including some start-ups) looking for more elaborated business models, and further, growth and internationalization
- The innovators and startups participating in Peloton are typically not as technology-driven as 'mainstream cleantech' companies in Finland and it is often also more difficult for them to penetrate to market due to certain cultural and behavioral constraints among consumers and societies (most of the firms in cleantech business in Finland – both SMEs and large companies – are traditionally more focused on professional investment (B2B) goods and services than resource-smart B2C consumer solutions)
- Other hindrances to growth in consumer cleantech exist, such as lack of resources (know-how, finance, personnel etc.)
- Collaboration is needed to create better opportunities for 'smartups' in consumer cleantech, sharing economy, and further social change in terms of resource smart economy and new types of communities in well-being

The support for businesses provided by Peloton aims especially at facilitating networking and developing business plans and ideas. Monthly club evenings in the centre of Helsinki focus on networking, and specific innovation camps with a limited number of participants concentrate on business development. Additionally, there are also meetings with incumbents and business angels available, such as pitching during SLUSH and other events.

The number of supported businesses in Peloton context was estimated to 50-100 emerging and existing businesses in club events (the wide range of the estimation refers to the fact that some of the start-ups have been more committed to the different collaborative support events than others, and thus it challenging to estimate the exact number of the participating businesses). This estimate includes also the smaller amount of businesses that have participated in innovation camps. Additionally, several partners from a range of fields have participated in the collaboration network of Peloton. These include e.g. The Finnish Innovation Fund (Sitra) – the initial funding partner, Ministry of the Environment, Ministry of Employment and the Economy, Ministry of Agriculture and Forestry, the Central Union of Agricultural Producers and Forest Owners (MTK), food producers Fazer and Anton & Anton, Bonnier Publications, the S-Group network of retail and service companies, hardware stores Starkki and Puukeskus, retail store Stockmann, gardening and farming tool producer Biolan, and the Foundation for Student housing in the Helsinki Region (HOAS). Thus, both public and private organizations have been involved. A simplified visualization of the 'actor-network' within Peloton Club collaboration is presented in Figure 15a. The visualization of the outcome of the collaboration (Figure 15b) is discussed more in detail in chapter section 5.3.2.

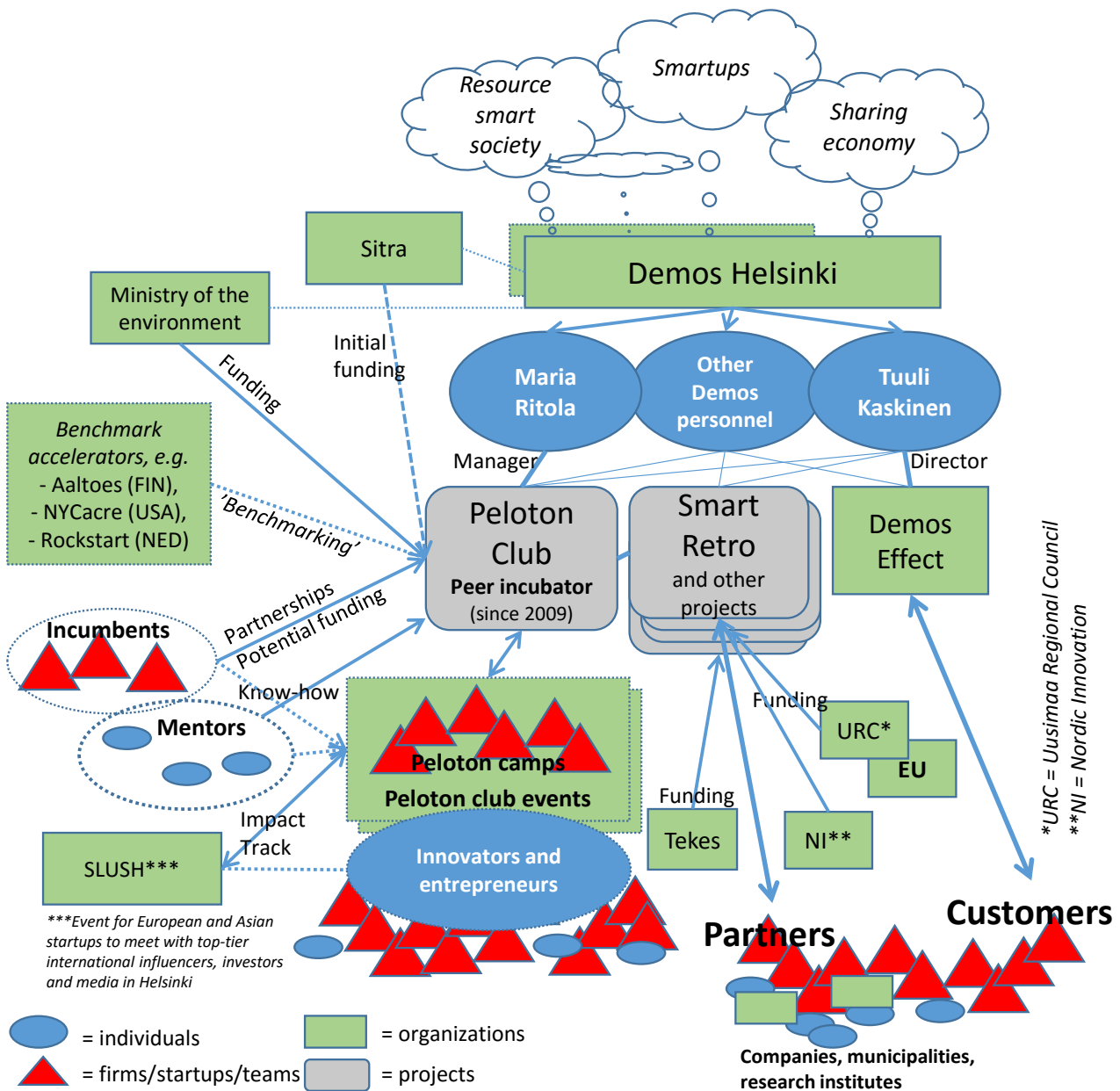


Figure 15a. Simplified visualization of actors in the collaboration network of Peloton Club.

Demos Helsinki, the organization behind project based Peloton Club collaboration is a Nordic think tank. It has focused on smarter use of natural resources and human capabilities, combining foresight with co-creation. This is reflected not only in Peloton support practices, but also in the rhetoric used that is expected to make change happen in companies (micro level) and in the society (macro level). Smartups, sharing economy, resource smart society and impact start-ups are examples of such key terms.

Peloton began as a series of workshops where organisations from different industries developed environmentally friendly products and services into easy and desirable choices, while creating new business opportunities for themselves. Sitra, the Finnish Innovation Fund, seems to be an important contributor behind Peloton with an initial funding for the activities. Another public organization with remarkable input has been the Finnish Ministry of the Environment with its continuous funding for the collaboration project. At the time of the case data collection, also partnerships with incumbents were evolving with a potential aim to contribute to funding.

The large collaboration network within Peloton has consisted not only of innovators and entrepreneurs, Demos expert interagents and funding actors, but mentors as well. As mentioned earlier, funding of businesses has been in a minor role in practice, but it seems that through SLUSH event and other contacts, the role of funding support might be growing as part of services in the future.

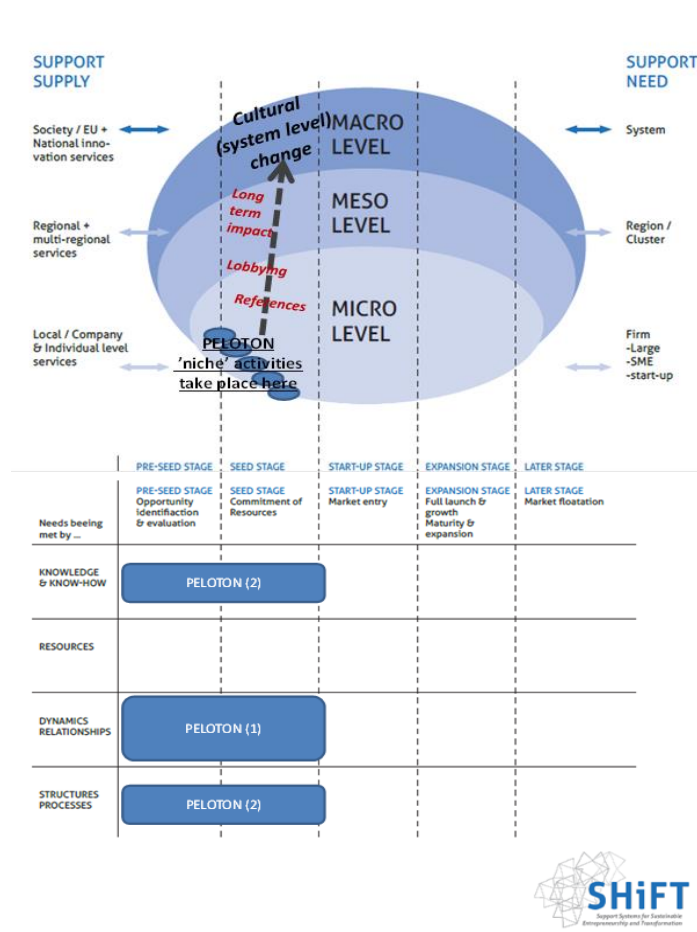


Figure 15b. Simplified visualization of outcome in the collaboration network of Peloton Club.

As regards the analytical multi-level perspective of the case study, the support activities by Peloton collaboration have focused on micro level, dominated by networking, business planning and publicity services for resource smart niche businesses at their seed or even pre-seed stage. Less explicit contribution on macro level has been available yet, but through references and also lobbying the long-term aim of the collaboration is at transformation through cultural change on macro level, too. Peloton activities explicitly promote the vision of a more resource smart society built on sharing economy and innovations by smart-ups. The outcome of Peloton collaboration will be analysed according to types of exchanges and by system level as well as by entrepreneurial life-cycle stage of collaborating businesses in Chapter 5.3.2.

An example of the latest developments in Peloton camp support as well as the internationalization of Peloton collaboration is the Peloton Smart Retro Acceleration Programme in the Nordic countries. It included a Peloton Innovation Camp in two parts, in Lahti in December 2014 and in Stockholm in January 2015. At the innovation camps the start-ups worked with potential corporate and public sector partners from Finland, Norway and Sweden. After the camp, a testbed phase followed where the developed services were tested with real users in testbeds of Lahti and Stockholm in spring 2015 (Figure 16).

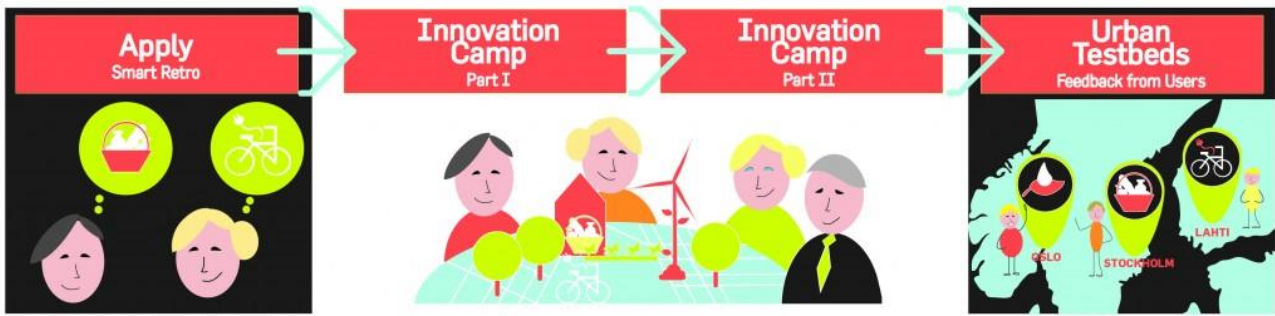


Figure 16. “Making our cities radically smarter, more sustainable and attractive” – The phases of the first international Peloton camp in 2014-2015. (Source: Peloton Smart Retro Acceleration Programme)

The impact of support for eco-innovative seed businesses and start-ups by the collaboration in the Peloton case was being analysed for the first time at the time of the case analysis, and the assessment report was due to be finalized by Demos in late 2015. Ecological (energy and resource efficiency) considerations have been a natural part of making decisions about including or excluding innovators or entrepreneurial teams in Peloton camps, and thus eco-innovation promotion is practically built in the collaboration. The legitimacy of Peloton and several other Demos projects (funded by e.g. the Finnish Innovation Agency Tekes and Nordic Innovation) seems to be good compared to the activities that have been supported by the public funding organisations on the average.

At Demos/Peloton, the management has been considering for whom the activities have been adding value (and how) so that it would be reasonable to continue funding, and even broaden the financial footing in the future. The attractiveness of Peloton and the collaborating start-ups is a major challenge: Peloton and the startups involved should become more attractive to both incumbents and investors. A positive sign is that investors have already frequently visited the club evenings and other events.

Innovator teams and start-ups also need more support on how to proceed after Peloton Club. Clear channels or steps should be made available for the startups after they have left the Peloton stage, to make them more successful at later entrepreneurial life-cycle stages. Some success stories are already available: e.g. Sharetribe, the winner team of one Peloton Summer Camp, is now financed by a private investor. Sharetribe makes it easy for anyone to create their own marketplace website without any programming knowledge in a few minutes. Sharetribe works all over the world, in multiple languages and currencies, see <https://www.sharetribe.com/>.

Peloton also seems to consider itself located on sort of a start-up stage of the learning curve as a support actor, with a need to learn more and develop as regards the quality and practices of the support service, although the first project started in 2009, and the innovation camps in 2011. At the moment, Demos has also been considering whether the peer incubator services of Peloton should be organized as a separate unit (business to be kept apart from think tank) or could the think tank be even merged to Peloton. At the time of the case analysis, the relationship and hierarchy between Demos and Peloton sometimes appeared confusing.

We will end the specific description and analysis of Peloton Club case with a small SWOT exercise (Table 13). Challenges related to Peloton collaboration (as well as consumer cleantech) are related to the financing of Peloton activities in the long run. Broader financial footing, i.e. less reliance on public

temporary project funding (Sitra, ministries, Tekes), and gradually increasing long-term private funding (from collaborating companies, incumbents) would remove one of the weaknesses and threats. In consumer cleantech there should be also 'how to change the world' aspects involved, in addition to financial results and business success, when assessing the opportunities, risks and success of the startup businesses. Availability of sustainability oriented teams is an opportunity for Peloton. Support services such as Peloton should also be able to show its impact, e.g. the amount or share of teams or startups that have been able to continue and succeed after the support was received. The weakness related to the ability to show impacts is likely to be removed soon.

Table 13. The SWOT for collaboration case Peloton Club.

Favorable aspects		Challenging aspects
Internal	<p><i>Strengths</i></p> <p>Informal and innovative nature of collaboration Team spirit The expertise and visions of Demos personnel Vision of a more sustainable future xxx</p>	<p><i>Weaknesses</i></p> <p>Ability to show impacts of collaboration Strong dependence on public funding xxx</p>
External	<p><i>Opportunities</i></p> <p>Availability of smart business ideas and potential 'how to change the world' oriented entrepreneurs Internationalization and scaling up of the collaboration concept (Sweden already included) xxx</p>	<p><i>Threats</i></p> <p>Financing of Peloton in the long run (availability of public funding) xxx</p>

5.3.2 General analysis of the cases using the 'gap-stages-level-exchanges' framework

Our observation on the current reality in the eco-innovation support system is that 'interagents' and 'unusual collaboration' exist to meet a gap (or gaps) in the system. As presented in Chapter 4, we developed a specific analytical framework that allowed the research team to find similarities and show differences between the cases, and make conclusions that reflect interagency and collaboration in proportion to firm life-cycle stages (see Figure 9).

The framework strives to illustrate in which ways the interagents (and unusual collaboration) are filling the assumed potential *gap* between support needs and support supply. Support (in form of various types of exchanges) flows not only on a specific level of the system, but between the macro, meso and micro levels as well. The core of the framework consists of the potential gap between support supply and demand (cf. Hjelm et al 2013 / SHIFT WP1), the exchanges and promotor roles (e.g. Fichter 2012), and interagent level (multi-level perspective / e.g. Loorbach 2007, Ståhle et al. 2004).

We will start with the analysis of the support services and outcome in relation to multi-level perspective and innovation life-cycles, and after that we will analyse the support outcome as regards the types of exchanges and innovation life-cycles.

Support services and outcome in relation to MLP levels and life-cycle stages

As regards innovation life-cycle stages, the support activities by TELAKKA® collaboration focus most clearly on firms at their start-up stages. The collaborating SMEs in Local Energy / FinSolar are in turn in later start-up stage or even expansion stage, whereas Peloton support focuses on businesses that are mostly at their seed or even pre-seed stages, but sometimes also at their early start-up stages. Apparently there is difference between the cases in terms of focus along life-cycle dimension, but it didn't reflect clearly in the support needs typically requested by SMEs or support provided by the collaboration in practice. Thus, it seems that the basic support needs remain rather similar throughout the first business life-cycle stages until full launch and growth has been achieved.

When using the multi-level perspective in the analysis, we find that the support activities of all collaboration cases clearly concentrate on the micro level, to respond to the needs of the businesses and to help SMEs to grow and even internationalize. However, in FinSolar and Peloton cases there was also a clear long-term aim to bring about changes on meso and macro system levels, contributing to behavioral and cultural changes. This long term impact was due to be materialized by lobbying, influencing decision making and also by providing references, pilot business cases to increase the attractiveness of new, more sustainable solutions in the market. The collaboration development by FinSolar, including also municipalities and other regional level public and private actors, was the only case in the sample that – in addition to micro and macro levels – included activities on meso level as well.

A simplified visualization of the support provided by the collaboration cases as regards life-cycle stages and multi-level perspective is presented in Figure 17 below. This summary helps to distinguish how the different interagents work within an MLP.

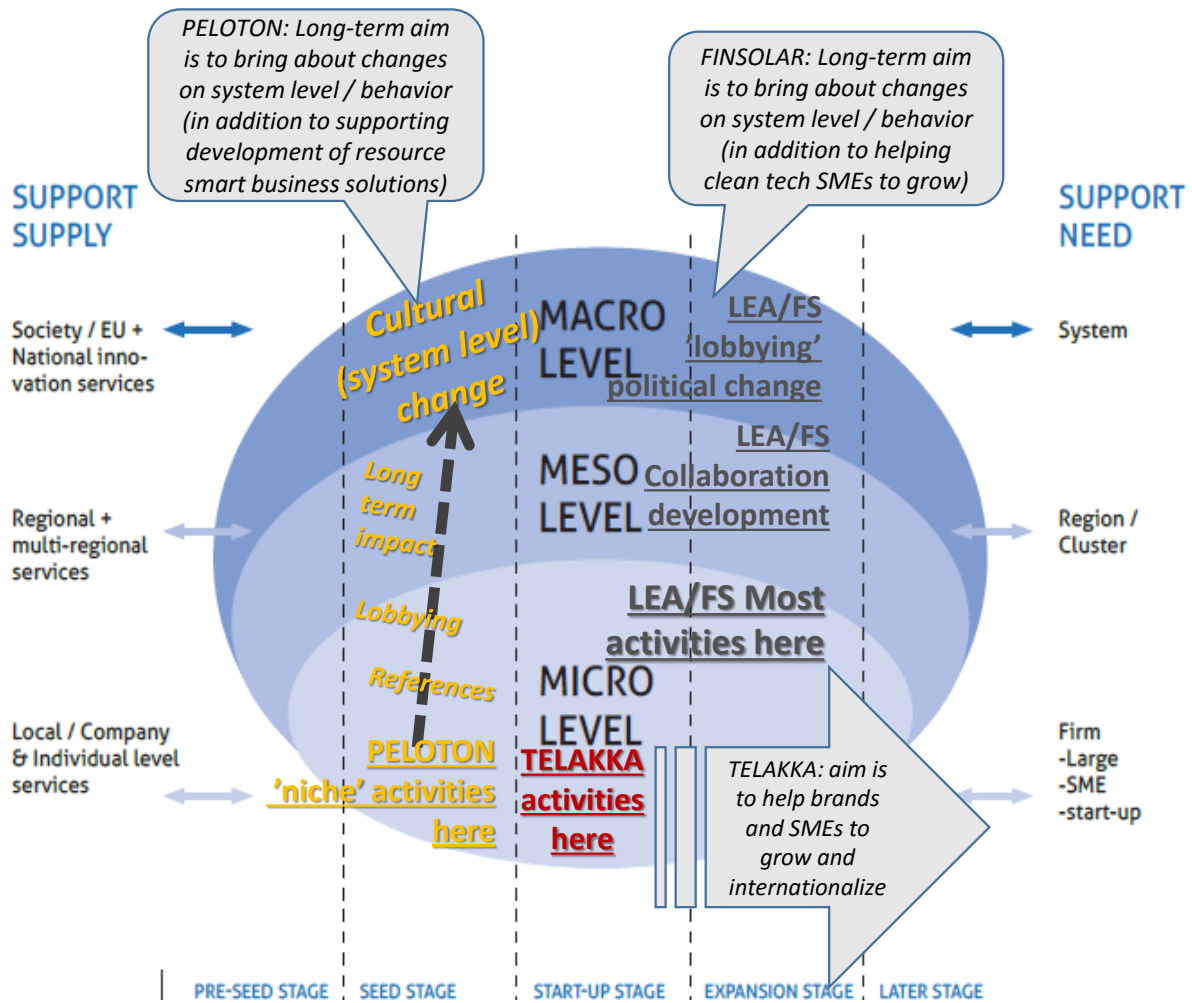


Figure 17. The support outcome in the collaboration networks of the cases by system level and entrepreneurial life-cycle stage (LEA/FS refers to Local Energy Association / FinSolar project).

Support services in relation to types of exchanges and innovation life-cycle stages

As presented above, the cases seem to focus on slightly different stages of entrepreneurial life-cycle. TELAKKA® collaboration has focused mostly on firms at their start-up stage. The collaborating SMEs in Local Energy / FinSolar in turn have been existing businesses in later start-up stage or even expansion stage. Peloton support focus has been on businesses that are mostly at their seed or even pre-seed stages.

At FinSolar, many categories of exchanges have been involved in the collaboration, from the exchange of expert knowledge and know-how to financial and technical resources, and communication skills as well as interaction and network skills. At TELAKKA®, all the four categories of exchanges have been available, too, but there appears to be a specific sequence involved so that support starts with network skills, progressing step by step towards know-how exchange. At Peloton, the exchange of organization and communication skills have dominated the collaboration, whereas the exchange of knowledge and know-how has had a less important position, and the exchange of funding and other resources has been missing in the collaboration.

A visualization of the support provided by the collaboration cases as regards life-cycle stages and the exchanges related to collaboration is presented in Figure 18. The figure shows how the interagents and

unusual collaboration in our cases is tailored to start-ups and SMEs on a specific innovation life-cycle stage (and also in a specific industry, as already mentioned above). As service providers, they seem to be complimentary and not competing with each other.

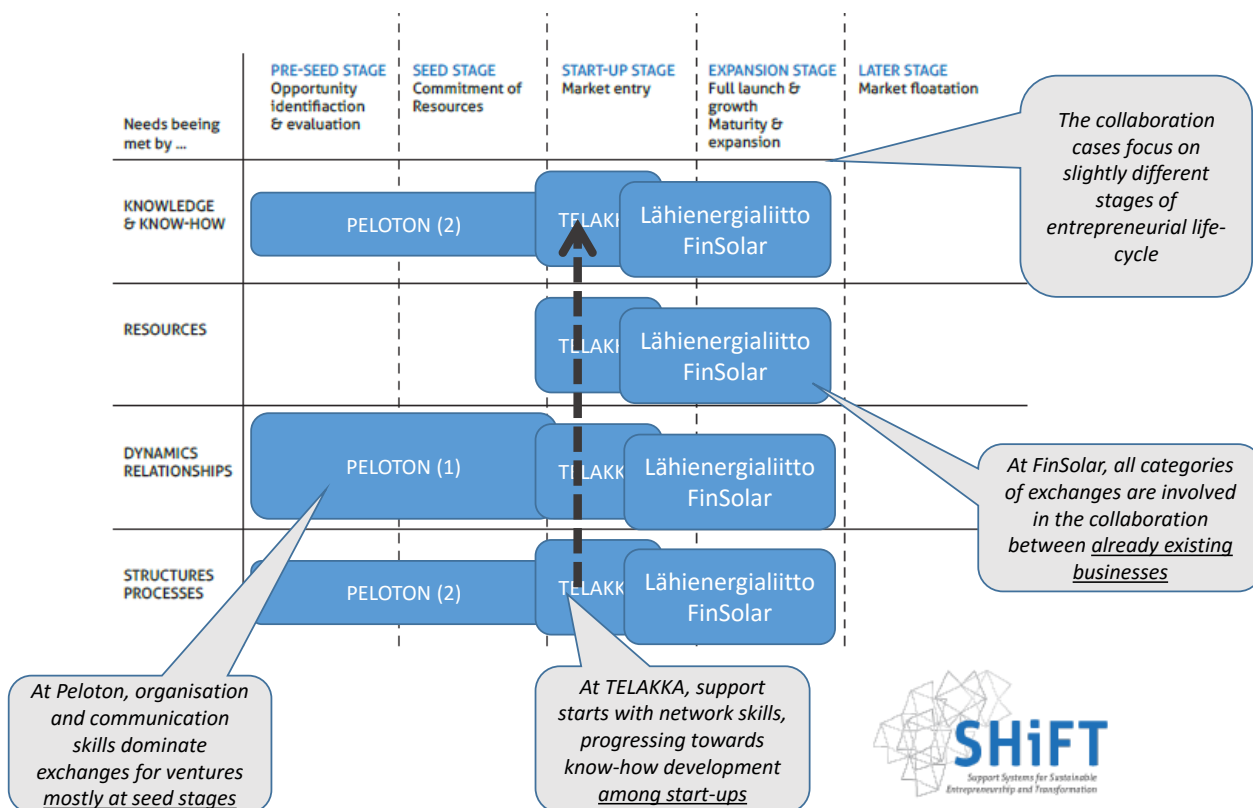


Figure 18. The support outcome in the collaboration networks of the cases according to type of exchanges and entrepreneurial life-cycle stage.

5.3.3 Other theoretical perspectives

In the following, we present a brief discussion on the findings from the case studies in the light of other models and perspectives in the literature on collaboration and business development. Relevant literature perspectives include Innovation network category (Celik et al. 2014, see Chapter 1.5 and 2.2.5), Intermediary role and function (e.g. Howells 2006a-b, see also our own ‘vocabulary’ of interagents and unusual collaborators in Table 6), and Area of services perspective (Velamuri et al. 2011, Sherwin & Bhamra 2000, IfM Design Management Group 2014, see Chapter 1.5).

Contexts of collaboration

As reviewed in the literature study above, a preliminary typology of collaborative innovation networks by Celik et al. (2014) included seven main categories. Their presentation was among the first efforts aiming at classifying collaborative innovation networks systematically. In accordance with this classification, the collaborative contexts provided by the cases in this study are summed up in Table 14.

In case Local Energy / FinSolar, five collaborative contexts have been available. These include facilitating (physical meeting spaces, accelerators) – meeting rooms offered by Aalto University, stimulation (events, creative collaborations) – political contacts, fairs, etc., educating – a specific working group and planned training provided by Aalto University Executive Education AEE, and associating (communicative networks). To some extent also corporate context (large companies applying innovative projects, spin-offs) is relevant, as the S-Group, Ruukki, ABB, Helsingin Energia and other big players are also involved in FinSolar collaboration network.

In case TELAKKA®, also five collaboration contexts were clearly visible. These included creating (innovation collectives, platforms), facilitating (physical meeting spaces, accelerators – showrooms and studios offered by TELAKKA), stimulation (events, creative collaborations – contacts, bazaar, fairs, etc.), efficiating (funding programmes – collaboration with funding experts), and associating (communicative networks). Educating (in addition to mentoring) however has not been involved much so far, but training is planned to be part of the collaboration. Corporate context (large companies applying innovative projects, spin-offs) has not been available yet, although potentially in the future.

In case Peloton Club, six collaborative contexts were available. They include creating (innovation collectives, platforms), facilitating (physical meeting spaces, accelerators – especially Peloton camps even if no permanent meeting spaces have been available), stimulation (events, creative collaborations – contacts, club evenings, etc.), efficiating (funding programmes not yet available but some less structured collaboration with funding experts already exists), associating (communicative networks), and corporate context (large companies applying innovative projects) – large companies have already been involved in innovative projects, and the activity is growing. Educating (in addition to mentoring) however has not been involved much so far.

Table 14. The collaborative network contexts (after Celik et al., 2014) as they appear in the collaboration cases.

<i>Collaborative contexts</i>	Local Energy / FinSolar	TELAKKA®	Peloton Club
<i>Creating</i>		Innovation collective	Innovation collective, competitions (camps)
<i>Facilitating</i>	Physical meeting spaces	Showrooms and studios	Peloton camps, but no specific physical spaces
<i>Stimulating</i>	Political contacts, fairs, etc.	Contacts, regular events, bazaar, fairs	Contacts, monthly events, pitching
<i>Efficiating</i>	(Visits to public funding agencies)	Collaboration with funding experts (esp. Crowdfunding)	Sporadic contacts to funding experts (minor role in practice)
<i>Educating</i>	Specific working group, upcoming professional development course	(Mentoring)	(Mentoring)
<i>Associating</i>	Communicative networks	Communicative networks	Communicative networks
<i>Corporate context</i>	Several incumbents involved in FinSolar	(Incumbents potentially included in the future)	Incumbents involved in innovative projects

Associating, facilitating and stimulating collaborative contexts were emphasized by the findings of this study. The corporate context with incumbents participating in the collaboration was clearly growing. The contexts of educating and efficiating had clearly taken their first steps in the cases, and professional development and funding were starting to become more important parts of the support offered by the case collaborations.

Intermediary roles and functions

Inspired by the studies on intermediary role and function (Howells 2006a-b), we also collected a long list of terms of actors in the literature review of the study. Depending on the term, a specific actor can be classified as an individual, an organization, or an actor type based on a more complex structure of individuals and organizations, see Table 6, p38, of this report.

The roles and functions of the interagents in the collaboration cases of the study seemed to be strongly related to facilitation by bringing peer groups together, knowledge exchange and combination as well as support in commercialization of innovations (especially business planning). Information scanning and training have also been to a less extent present in the collaboration. On the other hand, several intermediation types related to innovation process, such as prototyping, standards advice, and intellectual property seem to be absent, at least explicitly. Thus, the typical roles of interagents in the cases would be network facilitator, including bridging and bonding, and knowledge intermediary. In one case the interagent also had an explicit researcher role, and in another case the collaboration even included features of the role of bricoleur, seeking to develop new applications for new technologies outside their initial development fields. Our findings of the actor types and functions in the three case studies are reflected in the table below.

Table 15. The intermediary roles and functions as they appear in the cases.

	Local Energy / FinSolar	TELAKKA®	Peloton Club
Role(s) and actor type(s)	Bridging interagent Bonding interagent Expert Knowledge intermediary Network facilitator Researcher	Consultant Expert Network facilitator Knowledge broker Peer group Resource interagent	Bonding interagent Bricoleur Innovation consultancy Knowledge intermediary Network facilitator Peer group
Functions	Facilitation (bringing peer groups together) Information scanning Knowledge exchange and combination Training Commercialisation	Facilitation (bringing peer groups together) Knowledge exchange and combination Training Commercialisation	Facilitation (bringing peer groups together) Information scanning Knowledge exchange and combination Commercialisation

Focus and sustainability potential

As reflected in Chapter 1, also focus area of support services, target level of support and sustainability potential of collaboration from business as usual to efficiency, sufficiency and efficacy can provide

interesting alternative perspectives in the case analysis (e.g. Velamuri et al. 2011, Sherwin & Bhamra 2000, IfM Design Management Group 2014; see Figures 1a-b and 2 of this report). We will still have a look at the support focus in the collaboration cases by levels of activity, business views and sustainability potential. The findings are summed up in Table 16 below.

In case Local Energy / FinSolar, and as regards activity levels, support focus is on Vision and Operations and processes (business model), in addition to political lobbying that strives to change the business environment in a more favourable direction. As for views of the business, the support focus is most clearly on marketing and visibility – the Local Energy Association is like a communication consultancy for the SMEs. Related to marketing, FinSolar is also striving to 'educate' the market, so that the (potential) customers of solar technology companies would better understand the requirements and options available, i.e. the support as regards sustainability potential is first and foremost related to new behavior but also to new technologies, 'creating new scenarios'.

As regards case TELAKKA® activity levels, support focus has been on Vision and Operations and processes (business model). As for views of the business, the support focus was most clearly on strategic entrepreneurship, as well as sales (not so much marketing). The support as regards sustainability potential is first and foremost related to new behavior, 'designing new production-consumption systems'.

In case Peloton Club, support as regards levels of activity has focused on product or service Vision with a B2B or B2C customer as a starting point. As for views of the business, the support focus is on Innovation to build up solutions by means of strategic entrepreneurship. Support as regards sustainability potential is related to new behavior but also to new technologies, 'creating new scenarios'.

Table 16. The support focus in the collaboration cases by levels of activity, business views and sustainability potential.

	Local Energy / FinSolar	TELAKKA®	Peloton Club
Support focus as regards levels of activity	Vision Operations and processes (business model)	Vision Operations and processes (business model)	Product or service vision (consumer as a starting point)
Support focus as regards area of services (business views)	Marketing and visibility	Strategic entrepreneurship Sales (less marketing)	Innovation to build up solutions by means of strategic entrepreneurship
Support focus as regards sustainability potential (cf. IfM Design Management Group 2014)	1. New behavior 2. New technology "Creating new scenarios"	1. New behavior "Designing new production-consumption systems"	1. New behavior 2. New technology "Creating new scenarios"

It seems that having a vision and communicating it are tied to focusing on new sustainability behaviours and technologies. The interagent and collaboration support services may even help in seeking a balance between vision and changes of behavior in the society.

5.4 The added value for start-ups and SMEs

The second research question of the study focuses on the added value, impact and challenges of the unusual collaboration organizations and practices. As previously reflected in this report, there certainly is to some extent overlap in the added value of these recently started collaborative support concepts, if compared to the mainstream institutionalized entrepreneurship and innovation support services. Unusual collaboration may hybridise existing support, combining or including support from 'usual suspects' as well.

We start with the considerations on added value for start-ups and SMEs. Note that our findings from the collaboration cases are presented according to type of exchanges, reflecting the exchanges dimension of the analytical framework of the study based partly on promotor theory. Accordingly, we will reflect added value first in terms of interaction and interaction skills based on our findings on level of structures and processes of the framework (cf. the concept of relationship promotor). After that we will continue to communication skills (cf. process promotor), financial and other resources (cf. power promotor), and finally expert knowledge (cf. expert promotor).

Interaction and network skills

Networking with like-minded people and innovators/entrepreneurs in a similar situation is certainly one of the biggest benefits resulting from collaboration. Peer-level interaction on micro level existed in all three cases in various forms, from regular (monthly) meetings to seminars, fairs and other less often organized events.

The collaboration also included interaction with other relevant actors (and potential stakeholders) in the society. In one of the cases (Local Energy / FinSolar), the collaboration had also clearly made political level contacts possible to improve interaction with the national level decision making concerning relevant issues in the business. To a less extent, interaction with political macro level decision makers was involved in another case (Peloton Club), too. Contacts to incumbents were explicit in these two collaboration cases, too, and they were starting to evolve in the third case as well (TELAKKA®).

Communication skills and organizational know-how

'Branding' and related to that business plan co-creation were an important benefit to collaborating businesses especially in two cases (TELAKKA® and Peloton). Exercises for (co)creating a credible story to tell to investors and customers was included in both of these cases, and the outcome had been tested in pitching events and showroom activities. Co-creation of ideas and plans with peers in a relaxed atmosphere would be a remarkable added value for entrepreneurs compared to 'mainstream' support services.

Business model development was not so relevant for the SMEs participating in one collaboration case (Local Energy / FinSolar), as most of them had passed their start-up stage. However, the communication skills of the participating SMEs were improved in the diverse events organized in collaboration, e.g. the Local Energy Market exhibition.

Resources (financial, technical, political, etc.)

Building and improving contacts to funding professionals was at least to some extent included in all cases. Naturally, this is overlapping with public and private funding support services. The genuine added value comes from the model that investors, including crowdfunding, business angels, clean tech investors, public venture capital, etc. are invited to visit or even participate the collaborative organization, or the collaborating SMEs visit the funding agencies in groups without the traditional tension of face-to-face contacts alone. Financial micro-level support was most integrated in the support services of one case (TELAKKA®), but funding services were starting to become lightly connected in the other two cases as well.

Peer-level technical support was more implicitly present in the cases. Often rather similar industrial background of the collaborating businesses gives rise to this kind of micro-level interaction, although sometimes also fierce competition exists, as noted in one case from the time before collaboration was commenced.

Discussions on political level with macro-level decision makers were clearly a value adding aspect of one case. The ambitious goal and potential of accelerating change in the system through direct contacts to macro-level decision making is rather seldom available in the entrepreneurship support system.

Expert knowledge

Business know-how and advice especially related to vision and business model are often available through different services in the entrepreneurship and innovation support system. Such know-how services were also available in all three cases of the study. However, co-creation and development of ideas in collaboration supported by expert mentor contacts was clearly a value adding aspect of the support services in two cases (TELAKKA® and Peloton Club). Business expertise related to strategic entrepreneurship and sales and marketing was also offered by the cases. In two of the cases with collaborating businesses on their seed and start-up stage (TELAKKA® and Peloton), support focus was more on strategic entrepreneurship. In one case with more mature collaborating businesses (Local Energy / FinSolar), the expert support focused more on marketing and visibility of the businesses and their offerings.

Training and excursions provided by the collaboration include value adding features to the participating SMEs in terms of expert knowledge. All the three case collaborations offered tailored professional development courses and events. Especially one of the cases (Local Energy / FinSolar) also organized study trips and visits to the participating SMEs. The added value available for SMEs is summarized in Table 17.

Table 17. The added value for start-ups and SMEs by case.

<i>Dimension of added value</i>	Local Energy / FinSolar	TELAKKA[®]	Peloton Club
<i>Expert knowledge</i>	Increasing business know-how and advice / Visibility and marketing Organizing study trips Tailored professional development	Increasing business know-how and advice / Strategic entrepreneurship Organizing mentor contacts Tailored professional development	Increasing business know-how and advice / Strategic entrepreneurship Organizing mentor contacts Tailored professional development
<i>Resources (financial, technical, political etc.)</i>	Improving contacts to diverse funding services Improving direct contacts to macro-level decision makers	Improving contacts to diverse funding services	Improving contacts to diverse funding services
<i>Communication skills and organizational know-how</i>	Improving marketing communication e.g. in diverse collaborative seminar and exhibition events	Improving branding and business plan co-creation Testing plans in showroom events	Improving branding and business plan co-creation Testing plans in pitching events
<i>Interaction and network skills</i>	Increasing peer-level interaction in many forms Direct contacts to policy-level decision makers Improving contacts to incumbents	Increasing peer-level interaction in many forms Improving contacts to incumbents	Increasing peer-level interaction in many forms Direct contacts to policy-level decision makers Improving contacts to incumbents

5.5 Considerations on the impact of unusual collaboration

Due to the short history of the collaboration cases, the assessment of the real impacts of support through collaboration is challenging. We know that the cases share the aspect of aiming at changing the society as a starting point. This also includes changing the mainstream investor and politician perspectives on the potential economic benefits of the green economy or circular economy. Naturally, they share a more traditional aim to create business success with the combination of more mainstream support services. The first systematic analysis of one of the case support activities, Peloton Club model, was in progress at the time of the case analysis.

Obviously the cases of unusual collaboration have shown success in bringing like-minded people with quite similar sector or social background together and providing them with additional resources. The strengths of the collaboration that might contribute to the positive impacts in terms of entrepreneurship and innovation include

- accelerating business development through diverse mechanisms of support and by bringing other support services more conveniently available to participants (dynamic tailoring of support offerings)
- generating favourable change on micro (business) – and gradually even macro (political) levels
- focusing on businesses on a rather similar stage of entrepreneurial life-cycle which might also facilitate interaction and improve the effectiveness of collaboration

However, long-term continuous positive impact might prove challenging due to the project-based short-term nature of the support. This is by no means a weakness shared to some extent by all cases.

In order to strengthen their legitimacy and attractiveness among funding agencies and clients, support collaborations should also be able to show concrete measurements of impact. No systematic impact assessments had been available in the collaboration cases yet. This could be considered as a weakness, too, even if it might reflect the informal side of collaboration and the novelty of collaboration. The impact and success of collaboration on eco-innovation might also need specific criteria of success in addition to standard criteria of success in business development and other support.

On the other hand, the interagents behind the unusual collaboration cases seemed to consider the services of collaboration as more like developing still in a start-up stage as well. Collaboration was characterized as being still 'in the process of developing'. In practice, this has become visible in some of the cases so that some of the activities included first have been removed from collaboration and others have been brought in during the process to complement the support supply.

At this rather early stage of the analysis of unusual collaboration, it may be too early to start speculating about the relevant impact indicators for interagents and collaboration. In addition to conventional perspectives of business development (e.g. increase in turnover or increase in market share of the collaborating SMEs), the indicators should also be able to reflect the contribution of the businesses to the sustainability and even other development goals in the society. In practice, for example WBCSD (2008) has provided ideas and information for organizations that are looking for ways to monitor their goals and impact in terms of international development issues.

5.6 The challenges of unusual collaboration

The analysis of interagent and unusual collaboration cases reveals some shortcomings or challenges that might hinder the success of support activities at least in the long run. These challenges are related to capital (funding), people, time and value creation.

As regards *funding*, it seems that the financial footing of the case collaborations is mostly depending on public innovation funding, although private investors are not totally absent. In the long run, it would be good to try to gradually increase the spectrum of funding sources.

In order to attract more funding, the collaborations should be able to show its benefits, *added value* to both potential customers (support receivers) and investors, and the society in general. This would also increase the legitimacy of unusual collaboration in the market.

In terms of *time*, several challenges seem to arise. At the moment, the collaborations in the cases seem to be maturing at their start-up stages, too. One of the strengths of the cases seems to be the spontaneous and informal nature of young organizations. Long-term availability of support would be secured e.g. with a broader financial footing, but would some of the spontaneous and informal good be lost with the introduction of more institutionalized collaboration?

At the same time, the businesses (support beneficiaries) and investors are expecting results rather soon, increasing pressure on the interagent who is mainly responsible for the organization and results of the collaboration. Additionally, related to time, the support in form of collaboration for an individual business is

not likely to go on for years, and thus it would be good if the support collaboration could show steps or channels through which to continue when the collaboration is over. At least in case Peloton Club, such recommendations for the future of the supported business would be already necessary – and they have also been considered.

People are in the core of the success of any collaboration. Team spirit doesn't seem to be a major challenge in the cases of this study. However, inability to see the benefits of collaboration and lack of trust from the side of SMEs might prove challenging in any collaborative project related to small businesses and their innovation development. The expectations of individual entrepreneurs may also show broad variance. Thus, the interagent will have to consider, what might be a realistic amount of support activity that could be expected from the unusual collaboration. The amount and quality of support activity depends also on finding competent experts who might even contribute in the design and development of collaboration. It might not be easy to find experienced and visionary experts and get them committed to the goals and practices of collaboration.

The challenges related to unusual collaboration with practical examples are summed up in Table 18 below.

Table 18. The challenges in unusual collaboration with examples in practice.

Challenges	Examples in practice
Ability to show benefits	The collaboration should be able to show concrete benefits to the startups and MSMEs rather soon, otherwise they may start to withdraw
Financing	How to broaden financial footing in the long run (cf. long-term availability of the collaboration) and decrease reliance on temporary public project funding? How to gradually increase private funding (incumbents, collaborating companies, etc.) for collaboration?
Finding competent experts	Skilled and experienced experts should be involved in the development of collaboration People with specific networking skills combined to the ability to see the bigger picture of a sector and businesses are not necessarily easy to find and to get them committed
Further steps	The availability of clear steps or channels to continue after the collaboration ends - For example, innovator teams and startups need support on how to proceed after they leave a collaboration like Peloton Club
Intensity	What is the optimal (minimum/maximum) amount of support and activity to be realistically expected from unusual collaboration compared to resources available?
Legitimacy	For whom and how does the collaboration add value? Is the value addition and business potential enough to make the startups involved in the (unusual) collaboration attractive partners to incumbents and investors? Is there enough muscle and channels to promote system-level changes?
Spontaneous vs. Long-term availability	Fruitful collaboration often starts spontaneously (case by case), thus it might be difficult to place (unusual) collaboration in an institutionalized environment with ready-made solutions, such as a start-up center. Risk that unusual collaboration remain temporary unique project solutions, and no similar longer-term (institutionalized) support will exist (+ how to transfer the knowledge further)
Team spirit	Openness and willingness to cooperate necessary to prepare system change and growth together - Even if in an emerging industry many of the SMEs are competitors, they should be able to see the benefits of collaboration and learn to trust and cooperate

5.7 Problems in the (Finnish) support system for start-ups and eco-innovation

The weak points in the present (2015) entrepreneurship and innovation support system were also explicitly discussed during the expert interviews in the three cases in Finland. The interviewees seemed to share views on several problems that they have experienced or noticed in the present national support system. One of the major problems seems to be an overlap of support supply, and related to that, lack of

coordination. The industry specific and sustainability expertise of many support services was also questioned. Even the accessibility of a specific support service might prove impossible, if the service providers' language (vocabulary) is different from that of the entrepreneur or if an SME is unable to find the support at all. In the following, we will shortly review the perceived problems in the support case by case.

The experiences of the interagent from Local Energy / FinSolar case brought up the *overlap* in the service supply by local, regional, sector-specific support actors. Thus, actors on different levels or corners of the support system were often reinventing the wheel (sometimes this had also been the feeling in case Local Energy Association and FinSolar itself). On the other hand, more centralized service structure and reallocation of funds might mean losing local control and potentially also interest by certain key individuals. Related to overlap comes up the problem resulting from lack of *coordination* and unity. In practice, this would mean difficulties for startups and SMEs to perceive the support system and service supply. To overcome this problem, for example as regards solar technology business in Finland, a non-profit organization (World Wildlife Fund, WWF) has organised a coordination group with representatives from WWF, FinSolar, HINKU (The Carbon Neutral Municipalities project bringing municipalities, businesses, citizens and experts together to create and carry out solutions to reduce greenhouse gas emissions), and other organisations promoting solar energy business. In addition to overlap and coordination of support services, also *time perspective* (short time) seems to have become a challenge in Finland. Temporary nature of many of the support projects seems to be the rule resulting in a lot of short-time projects with very limited funding.

Further, also *people and collaboration* may prove challenging in the support system. Lack of interest by key actors (individuals) in an industry may hinder collaboration. Thus, cooperation between support actors and organisations in a certain industry could be more intense than it seems to have been, to support innovation and start-ups. The nature of eco-innovative startup business may be different from mainstream so that more cooperation would be beneficial especially to support sustainably oriented new businesses and startups. In addition, also incumbents (large companies) should be more interested to offer opportunities (like references) for innovative start-ups in Finland – new business is seldom born in incumbents, but in startups. Team Finland (network that brings together all services offered by state-funded actors which work for the internationalisation of Finnish enterprises, advance investment in Finland and promote Finland's country brand) and Tekes programmes (such as Green Growth) were considered a good starting point to the right direction on macro level.

The views by TELAKKA® interagent also brought up the concern that there is unnecessary *overlap* in the national entrepreneurship support system, although e.g. Team Finland was now aiming at a more easily perceivable and accessible support service system. From a start-up entrepreneur's perspective the support system looks unclear and complicated, difficult to access. Despite of all the existing support services, questions related to the *accessibility* of the services remain: Are entrepreneurs able to find and utilise 'right' services and/or can the entrepreneurs speak the language of the support infrastructure – or vice versa? Thus, a gap between support supply and specific support needs obviously exists. This is also one of the main reasons for the existence of TELAKKA® collaboration, and the other two cases as well.

The *expertise* and thus benefits from the mainstream support services for start-ups were often considered insufficient. The existing services seem to be often too generic, i.e. there is a lack of industry or business specific expertise in the service infrastructure. In practice this may mean that support providers' ability to

understand the real problems and potential of a certain business or an individual entrepreneur is limited or nonexistent. The system seems to be designed more for the needs of larger firms. On the other hand, the support is most critical in the start-up phase, as the first years of the business are critical for the later success of the business. We have heard similar views and experiences in discussions with the industrial SME partners of this project in Finland. Consequently, there seems to be need to adjust the system so that it would be more easily understood, accessed and utilized by startups and SMEs, too.

The views by Peloton Club interagent shared the opinion of other expert interviewees that the support system for entrepreneurship seems comprehensive (and also overlapping) in general, but it is scattered and difficult to perceive by entrepreneurs and starting business teams. As a result of this, the receiving of support might often depend on 'luck' and coincidence, i.e. depending on which projects or programmes are starting in a specific region on a certain time, and when a team or start-up is looking for support. The support is not systematic. These observations suggest that at least the Finnish support system needs visualizing and then communicating the support better.

One important and interesting aspect that came up from the views of one interagent was the *quality* control of the support services. Not only businesses in need of support, but also support providers themselves as well as taxpayers (in case of publicly funded support services) should be interested to see what is the quality (and further impact) of the support, i.e. which of the service providers might be 'good' and which not. Obviously this has not been objectively and exhaustively assessed yet, but more benchmark and more comprehensive selection of indicators should be made available to evaluate quality and success of support. The most influential (public) actors, such as Sitra and Tekes on national level, and EU on international level, could show better coordination here. According to the practical experience of Demos (the organisation involved in Peloton Club collaboration), for example the quality of support related to some EU-level programmes for start-ups looks poor. Not only in Finland, but also on European level in general, perhaps there is a need to consider, for example, whether and where in the start-up and innovation support system a major quality gap between Europe and USA (and even China and India) exist.

Based on the findings from the case studies, an overview of considerations of the challenges in entrepreneurship and eco-innovation support on general level (and especially in Finland) is presented in Table 19.

Table 19. The challenging factors in the present start-up support system according to the findings of the case studies.

Factors	Challenges in the present system brought up in the cases
Accessibility / Availability	Can entrepreneurs 'speak the language' of the support infrastructure? Are entrepreneurs able to find and utilise 'right' services for them? Receiving support may depend on good luck and coincidence depending on projects starting in a specific region on a certain time >>How to adjust the system to be more easily accessed and utilized by startups and SMEs?
Coordination	Lack of coordination and unity in the support system mean difficulties for startups and SMEs to perceive the support system and the service supply Influential actors like EU (and Sitra or Tekes on national level) have not shown enough coordination here >>How to 'standardize' and coordinate the support system without making it inflexible?
Evaluation of the business looking for support	Too narrow selection of indicators to evaluate the potential and risks of the ventures, i.e. also 'how to change the world' aspects should be involved in addition to conventional financial indicators >>How to integrate the sustainability aspects in the decision making concerning business support?
Expertise in sustainability	Too generic (mainstream) services available: lack of business sector and/or sustainability expertise >>How to improve the ability of support services to see the potential and the real needs of an eco-SME?
Overlap vs. centralization	Reinventing the wheel by local, regional, national, and sector-specific support actors. On the other hand, more centralized reallocation of funds might mean losing local control and interest by important key individuals >>How to prevent unnecessary overlap without losing control and interest on micro level?
People's interests	Lack of interest by key actors (individuals) in an industry to promote the eco-innovative businesses >>How to increase the awareness of influential people in incumbents and in the political decision making?
Presumed target group	The public support system seems to be designed more for the needs of larger firms than startups and MSMEs (in Finland) >>How to redesign the support system in favor of the eco-innovative start-ups and MSMEs?
Quality control	The quality and effectiveness (impact) of the support services are not uniformly evaluated and ranked: more benchmark should be available >>How to implement a smart quality control of the support system?
Scheduling / timing	Short timeframes: temporary nature of many support projects, i.e. lot of short-time projects with very limited funding exist >>How to ensure continuity without compromising flexibility and spontaneity?

According to the long professional experience and views of the national entrepreneurship and innovation support system by the expert interviewees, the major bottlenecks and challenges seem to be linked to coordination (overlap) and expertise (industry specific and sustainability related business views) as well as focus (support target group) on the supply side. As regards the demand side, receiving of specific support may depend on coincidence, and perceiving as well as accessing the support system may seem too difficult. Along with random best practice cases from the findings of previous studies, the cases of this study show that the problems of support supply could be at least partly tackled through industry specific and sustainability focused 'unusual' collaboration.

5.8 Conclusions of the support for start-ups and eco-innovation by interagents and unusual collaboration

In this final section of Chapter 5, we present brief concluding remarks of the added value for start-ups and eco-innovation (cf. Chapter 5.4) and the impact of unusual collaboration (cf. Chapter 5.5), as well as considerations of the challenges and threats observed by the interagents in collaboration (cf. Chapter 5.6). We also briefly consider the potential strengths, weaknesses, opportunities and threats of interagency and unusual collaboration when supporting sustainable start-ups and innovation.

The added value of unusual collaboration when compared to most of the conventional support services has been their ability to combine or recombine existing support mechanisms and other exchanges into an

industry-specific, tailored combination of resources and collaborative contexts to help brands, start-ups and SMEs to grow and even internationalize. Even if the support focus has been on micro level, where also the support needs come from, unusual collaboration seems to be able to promote interaction and information flow between different system levels. For example, bottom-up lobbying of changes in the regulation and society that would improve the business environment in favor of sustainable start-ups and SMEs has been part of the collaboration in practice (see Figure 17 and Figure 19). We should keep in mind that this *reflects the Finnish experience in a small country* with obviously easier access to meso and macro level organizations than in bigger economies.

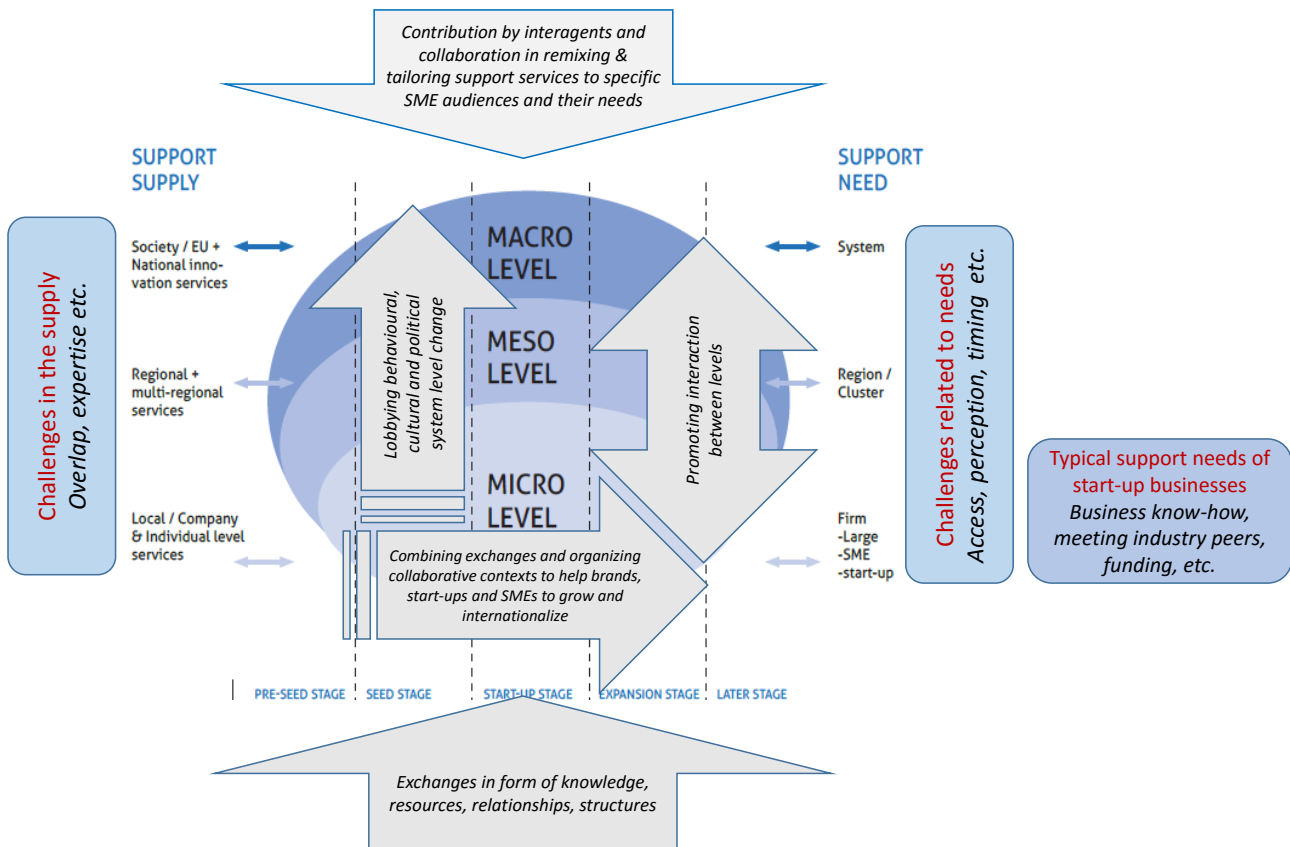


Figure 19. The value adding contributions of interagents and unusual collaboration in filling the gap between start-up support supply and support needs.

As regards the impact of unusual collaboration, the assessment of real (mid and long-term) impacts of support through collaboration in the case organizations is not possible, due to the short history of collaboration cases. As mentioned above, the cases have shown success in bringing entrepreneurs and innovators with rather similar sector background together, and accelerated business development through diverse combined mechanisms of support brought more conveniently available to participants. Due to the project-based nature of the support, however, a long-term continuous positive impact might prove challenging, especially if the financial footing would not become broader.

Our considerations of the challenges and threats based on the observations by the interagents in collaboration showed that factors probably hindering the success of support activities at least in the long run are related to funding, people, time and value creation. The financial footing is narrow and based

primarily on public innovation funding. In order to attract more funding, the collaborations should be able to show benefits, added value to both customers (support receivers) and investors. Despite of these rather serious challenges related to collaboration, our cases have shown several promising aspects. Considerations of the potential strengths and opportunities available in the collaboration, as well as the potential weaknesses and threats are presented in Table 20 below.

Table 20. Considerations of favorable and challenging aspects as regards interagents and unusual collaboration.

Favorable aspects		Challenging aspects
Internal	<p><i>Strengths</i></p> <ul style="list-style-type: none"> Accelerating business development through hybrid support mechanisms Bringing a diverse set of support services conveniently available to participants (dynamic tailoring) Bringing like-minded people with similar industrial background together Focusing on businesses on rather similar life-cycle stage Informal, innovative and spontaneous nature of collaboration Positive team spirit Shared vision of a more sustainable future The expertise and visions of the interagent <p>xxx</p>	<p><i>Weaknesses</i></p> <ul style="list-style-type: none"> Ability to show impacts of collaboration Dependence on the contribution and interest of the interagent (and key persons) Strong dependence on public funding (Often) temporary project-based nature of collaboration Systematic impact assessment missing <p>xxx</p>
External	<p><i>Opportunities</i></p> <ul style="list-style-type: none"> Emerging favorable gradual change on macro level (behavioral, cultural, social change) Interest by political decision makers Internationalization and scaling up of the collaboration concept <p>xxx</p>	<p><i>Threats</i></p> <ul style="list-style-type: none"> Financing collaboration in the long run (availability of public funding) Withdrawal and availability of key contributors <p>xxx</p>

At least in the innovation and entrepreneurship support context of Finland, the pivotal role of public innovation funding agencies (The Finnish Innovation Fund Sitra and the Finnish Funding Agency for Innovation Tekes) and government (e.g. Ministry of the Environment in Finland) during the start and early years of unusual collaboration should not be ignored. Private venture capital and informal seed funding (e.g. crowdfunding) might also prove important for the start of collaboration. In addition to motivated and visionary interagents, securing sufficient initial funding and other practical support to the collaboration might be essential for the later success of the collaboration – and support as well. Consequently, we should consider, how the 'motivated and visionary interagents' themselves could be better supported, so that they can improve their support and increase added-value inputs.

6 Conclusions from the case studies on interagents and unusual collaboration to transform the current support system of entrepreneurship, sustainable start-ups and eco-innovation

6.1 Introduction

In this report we first presented a brief review of perspectives on collaboration for start-up (and SME) support as well as sustainable innovation and conclusions of the literature study (Chapters 2 and 3). Based on the findings from previous literature we developed a specific framework for the analysis of interagents and unusual collaboration in supporting sustainable start-ups to be used in this study. An overview of the framework is presented in Chapter 4. An analysis of interagency and unusual collaboration with three cases from Finland is presented in Chapter 5.

This chapter strives to contribute in the synthesis of the findings of SHIFT project. According to the original research plan, in the final phase (WP8) of the work "The aim is to a) evaluate any discrepancies between the current support systems for entrepreneurship and the requirements of adapted systems for sustainable entrepreneurship; and b) develop a holistic model for a paradigm shift in support systems adapted for sustainable entrepreneurship at national and EU-levels." Thus, the findings and conclusions from WP7 as regards the elaboration of current support system of entrepreneurship and eco-innovation are presented below.

6.2 Gaps

According to the gap approach adopted in the project, a business support system consists of the demand side (the needs of firms and entrepreneurs), the supply side (organisations that support businesses) and a gap that might exist between these two. Whether this gap exists, depends on a possible mismatch between the supply and demand sides in business support activities. Thus, we can ask *what were the real and perceived gaps found between supply in the support system and the demand from the key actors, SMEs developing eco-innovation and green start-ups?*

Unusual collaboration is typically started with long term system change in mind, also trying to fill some of the obvious gaps in the existing support system by working intensively and collaborating at the micro level. The potential gaps (that seem to exist and could become even larger in the future) especially related to interagents and unusual collaboration, but probably also to other forms of support, include, e.g.

- Receiving relevant support may heavily depend on good luck and coincidence (mismatch between the timing from supply and demand side)
- Peer-level and other support by like-minded people is often difficult to find, and networking is challenging to organize for various reasons
- It is really challenging to bring about system level change (paradigm shifts will take time) in cooperation with financially weak startup players in a non-permanent organization based upon short-term collaborative projects

6.3 System discrepancies

As regards *the discrepancies between the current support systems for entrepreneurship and the requirements of (adapted) systems for sustainable entrepreneurship* we can conclude that the supply and demand sides of the support do not generally understand each other's perspectives (in practice, they do not seem to speak the same language). Two of the highly relevant discrepancies in the system are linked to business assessment methods and specific expertise in the support system.

In terms of evaluation of the businesses looking for support we may conclude that there seems to be too narrow selection of indicators to evaluate the potential opportunities and risks of the ventures in typical public entrepreneurship support services.

- Also sustainability ('how to change the world') aspects should be involved in addition to conventional financial indicators
- Mainstream business indicators may be suitable for 'greening enterprises', but insufficient especially in the analysis of 'eco-enterprises'
- Perhaps business start-ups and existing SMEs looking for support should be assessed on their sustainability futuring capability
- Sustainability assessment could also affect the businesses' eligibility for innovation support funding.

As for sector specific and sustainability related expertise provided by the support system, it seems that the support services currently available are often too generic (mainstream), i.e. they lack of business sector and/or sustainability expertise. At least in Finland, despite of all well-intentioned reforms of the public support system, it still appears to be designed more for the *needs and perspectives of larger firms* than startups and MSMEs.

- Both sector specific and sustainability type of expertise are essential for the support of both greening and eco-startups and SMEs
- The support service should be able to see and develop the business potential and understand the real needs of an 'eco-SME' and small business in general.

6.4 Redesigning support system

When thinking about the potential *need for substantially redesigning the existing support system for entrepreneurship*, the challenges that call for redesigning the support system are related to the coordination of decisions and support activities on and between all levels. The views by the Finnish industrial partners of the project as well as findings from the case studies reveal that

- Sometimes decisions on macro level water down the business development and support efforts on micro level – thus, more systematic views necessary when preparing decisions (e.g. regulation)
- There seems to be much overlap. *Reinventing the wheel* by local, regional, national, and sector-specific support actors is rather common and several parallel and even competing public support activities and initiatives are available

- Lack of coordination and unity in the support system mean difficulties for startups and SMEs to perceive the support system and benefit from the service supply
- Systematic evaluation of the quality and effectiveness (impact) and benchmark of the support services is not available

The most urgent redesign needs on macro level include the introduction of a more holistic (sustainability oriented) analysis on the impacts of decisions. On micro level, the support supply should be made more easily perceivable and understandable for start-ups and SMEs. On all levels, sustainability should be emphasized in addition to more conventional views of economic development.

6.5 Practical recommendations for policy makers and support actors

The *practical recommendations for policy makers, and support actors for improving the support start-ups and SMEs* are related to improving the assessment methodology of businesses, accessibility of services, coordination of political decisions and support services, quality control and impact assessment of support services, and also improving policy support for collaboration networks. We need innovation at ALL levels in the support system – micro, meso and macro. Actors need to spend time in different levels of the support system to understand how to vertically and horizontally integrate a more effective system.

As regards *the assessment methodology* of start-ups and business ideas

- The eligibility of businesses should be based on sustainability future proofing (including environmental and social factors in addition to economic performance indicators)

As for the *accessibility of services*

- The support system should be adjusted to be more easily perceived, understood, accessed and utilized by startups and SMEs

When improving the *coordination* of macro level political decisions and support services on all levels

- Policy makers could break old social and organizational ‘silos’ while creating new collaborative contexts for design and innovation
- The collaborative support services should be complimentary and not competing with each other
- Influential actors like EU and national ministries (and other relevant macro level actors, like Sitra or Tekes in Finland) should be able show more action to tackle sustainability constraints in support services and business as well

In terms of *quality control and impact assessment* of the (publicly funded) support services

- The real value and impact of the different collaborative innovation networks is how their primary functions cross-over or hybridise
- The services could be uniformly evaluated, for example current support systems might be reviewed looking at promoter roles, and even ranked, but we should avoid implementing a certification system (in addition to all those others that already exist)
- More benchmark and more comprehensive selection of indicators should be made available to evaluate quality and success of support

- It seems that the support actors and organizations are currently not easily assessed for the quality of support and the value they add to start-ups and SMEs

Last but not least, improving the *policy support for the collaboration networks* between eco-innovative firms and other actors.

- In our cases, the most frequently rising need in terms of unusual collaboration seems to be meeting peers in the same industry. Encouraging P2P inter-exchange of resources, e.g. P2P platform, network, events etc. is recommended. In addition, e.g. innovation policies should try to leverage cooperation and competition between Davids and Goliaths (Hockerts & Wüstenhagen, 2010). This would promote the diffusion of sustainable innovations in the society (see below).
- It might also be useful if key support actors/organisations had to define their vision and how it is underpinned by policies and also how they demonstrate ‘effective practice’ i.e. evidence the support meets real needs of start-ups/SMEs AND works!
- It seems that current ‘expert’ databases in support system providers need updating as the abilities of these experts to ‘talk the language of SMEs’ and have field experience with SMEs.
- Possibly making funding available for facilitators, platform creators and so on will help create new networks for the exchange of resources.

6.6 Recommendations for EC DGs and EU member states

In line with the multi-level focus of our analysis, we will present the short recommendations of elaborating the current support system for eco-innovative start-ups and SMEs below. Recommendations 1-3 focus on macro level developments, recommendations 4-7 reflect the improvement needs on meso level, and finally recommendation 8 is intended for micro level support practices.

Macro level

Recommendation 1: Develop systematic evaluation of the quality and effectiveness (sustainability impact) and benchmark the support services. Tackle sustainability constraints in support services and business in general (regulation etc.). Break old social and organizational ‘silos’ while creating new collaborative contexts for sustainable design and eco-innovation.

Recommendation 2: Harmonise assessment and monitoring to address the attributes of eco-innovators’ businesses and their long term sustainability impacts.

Recommendation 3: Benchmark primary functions in support systems by a set of agreed indicators, with special reference to how they add value for the (M)SMEs. Also enquire as to how existing key support actors/organisations benchmark their own effectiveness in relation to policies and how they demonstrate ‘effective practice’ (meeting real needs of SMEs).

Meso level

Recommendation 4: Make the eco-innovation support system visible and easily understood – talk *their* language - and easy to access by eco-startups and eco-(M)SMEs.

Recommendation 5: Identify the interagents and examples of unusual collaboration in EU member states i.e. those individuals and organisations that (a) offer fresh ways of exchanging knowledge, resources, relationships or structures at the micro-level that help start-ups and SMEs to grow and internationalise, (b) lobby for behavioural, cultural and political system change across micro, meso and macro levels, and (c) remix or tailor support services to specific (sectorial) SME audiences and their needs.

Recommendation 6: Provide more funding support for facilitators, platform creators and interagents building new networks and relationships that, in particular, facilitate the exchange of resources and knowledge. Promote the emergence and availability of tailored, industry-specific collaborative support solutions while simultaneously updating and adding to existing 'expert' databases in support system providers – define their ability to 'talk the language of SMEs' and how they 'add-value'.

Recommendation 7: There is a need for national support systems to encourage systemic 'intermediaries', 'interagents' and 'experts' who can see the whole support system(s) who might be better placed to understand how to get functional cross-overs and hybridisation of existing support services.

Micro level

Recommendation 8: Eco-innovators have to demonstrate their 'sustainability future proofing', but once they have they should be prioritised in the support system. This will ensure that genuine eco-preneurs, eco-enterprises and greening enterprises are prioritised over 'ordinary enterprises' (business-as-usual).

6.7 Recommendations for Finland

Despite of the international business environment of the start-ups and SMEs collaborating in the cases that were analysed in this study, the home location of the networks as well as the interagents in focus is Finland with its national innovation support structures. Thus, in addition to the macro, meso and micro level recommendations for EU member states in general (see above), we would like to very shortly reflect potential challenges and modification needs of the Finnish eco-innovation support system.

It is important to realise that sustainable innovation often takes place in systemic environments. This study has shown the potential and importance of capable individuals for the promotion of sustainable innovations in a network of hybrid tailored support supply for start-ups and SMEs. These individuals that we called interagents are visionary people who are willing and able to build up rather informal collaborative environments where start-ups and SMEs are able to network, absorb knowledge, and combine complementing resources to develop new business models or strengthen their existing supply of more sustainable products, services and solutions. The customers and even other key stakeholders have also been involved in the collaboration.

However, the Finnish support for start-ups and innovation has obviously focused primarily on specific firms, products and technologies. Both systemic and final customer perspectives seem to have largely been ignored or at least forgotten as contributors in innovation even if they are central in the adaption and diffusion of innovations, and ultimately sustainable transitions in the society. Finland should consider a *partial shift in innovation support emphasis from firms and their specific products and technologies to also individuals or business networks who are able to orchestrate collaboration in a more visionary and systemic context* to promote more flexible and more *user-oriented sustainable solutions* in the market. Right timing

of support might be one of the most critical success factors of collaboration. This would require flexibility and timeliness from the innovation funding infrastructure as well.

6.8 Relevant concluding thoughts

Paradigm shift in the existing support systems adapted for sustainable entrepreneurship would require at least to develop *expertise on sustainable entrepreneurship and relevant assessment methods*, better *coordination and systematic impact analysis* of decisions and support, as well as promotion of collaboration between eco-innovators and other relevant actors.

We need

- Better *understanding of the relevance and opportunities* linked to sustainable entrepreneurship, and *more elaborated tools to evaluate* the business potential and risks, as well as better coordination of the support at national levels and
- Systemic (holistic) *analysis of the societal impacts* of the macro level decisions and much *better coordination* of regulation and innovation and entrepreneurship support at EU-level
- Interagents (or intermediary organisations in general) who are able and willing to support the establishment of new actor-networks to bring about desired changes towards sustainability in sociotechnical systems (cf. Backhaus 2010). However, the work needs better policy support to promote the creation of these networks between eco-innovative firms and other actors (cf. Triguero et al 2013, Van Lente et al 2003). As Kivimaa (2014) concluded, the intermediaries can make an important contribution to sustainability transitions by initiating and managing new policy or market processes and by acting as impartial contact point or voice for new networks of actors.
- ‘systemic intermediaries’ or ‘experts’ who can see the whole support system(s)
- further research.

Thus, we should consider what might be the best / most convenient strategies to promote the emergent and innovative ways of bringing resources together and to measure the added value they create compared to mainstream support system. It remains to be considered, whether there are *best practice cases we would recommend to look at*.

In order to understand the construction, effectiveness and outcome of the innovation support by e.g. interagents we should further analyse their support practices. In Figure 20 we have outlined an example of a multidimensional framework that might be used in the classification of support services to be utilized in that task. Such a framework requires the development of appropriate criteria measuring how these support services meet SMEs’ needs and how they add value and have positive impacts on eco-innovation and sustainable entrepreneurship.

Qualities of Innovation Support

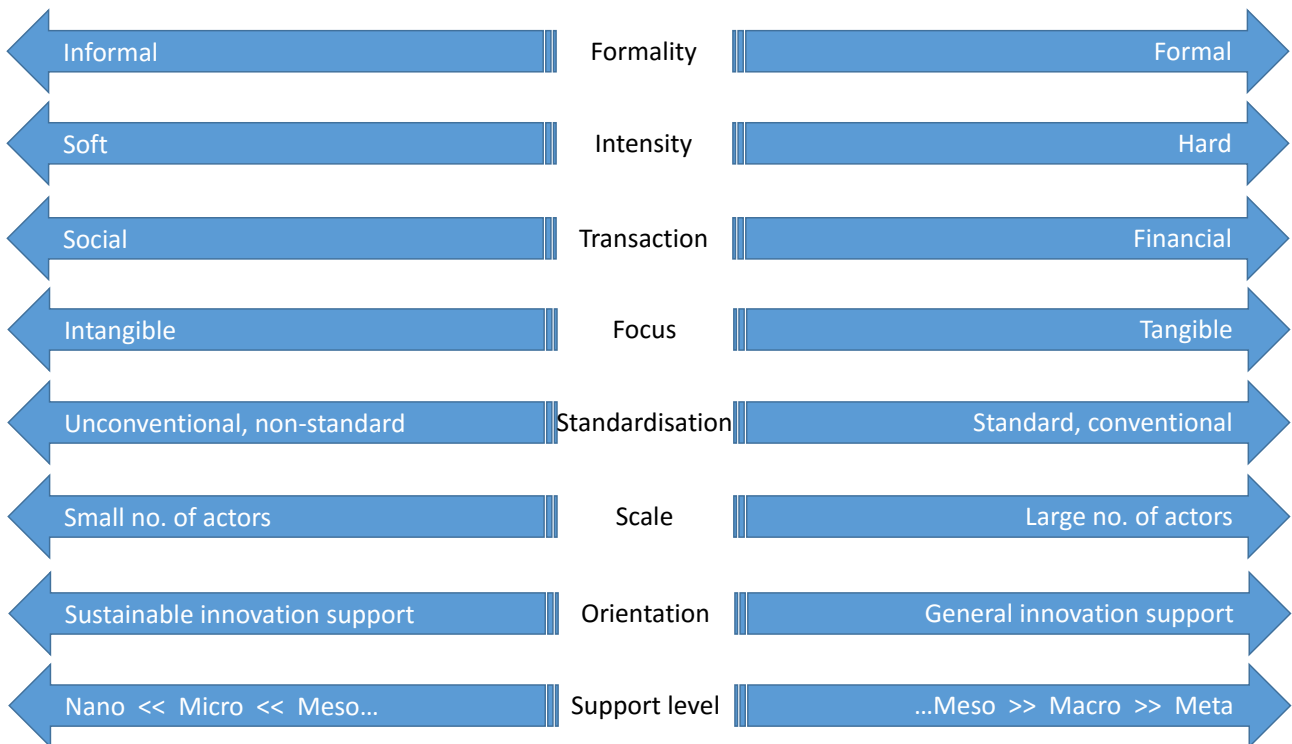


Figure 20. The various dimensions of innovation support by actors like interagents and unusual collaboration.

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APPENDIX 1 – Potential frameworks

In Appendix 1 we have added several examples of potential frameworks for the empirical analysis of the interagent-startup collaboration. These are preliminary framework examples some of which we have also tested in the partner events of the project. 'xxx' in each table refers to the names of the interagents that could be placed in the cell of the matrix when relevant.

Appendix Table 1. Framework for a basic typology of interagents and collaboration for start-ups within eco-innovation (cf. Figure 2) could look like this:

Level of business activity >>>	Vision	Operations / processes / management	Product / service / content	Several of these on the left
Area of services				
Eco-entrepreneurship (Strategic and business view)	xxx	xxx	xxx	xxx
Eco-innovation (Innovation view)	xxx	xxx	xxx	xxx
Eco-marketing (Marketing view)	xxx	xxx	xxx	xxx
Eco-design (Design view)	xxx	xxx	xxx	xxx
A combination of 2/3/4 of those above	xxx	xxx	xxx	xxx

Appendix Table 2. Framework for another typology for the analysis of interagents and collaboration for start-ups within eco-innovation (cf. Figures 1a-b and 4 / Celik & al's (2014) categorization of collaborative social innovation networks) could look like this:

Level of business activity >>> Area of services	(Redesign of) existing products and services (BUSINESS AS USUAL)	(Designing) new products and services (EFFICIENCY)	(Designing) new production-consumption systems (SUFFICIENCY)	Creating new scenarios (EFFICACY)
1 CREATE	xxx	xxx	xxx	xxx
2 FACILITATE	xxx	xxx	xxx	xxx
3 STIMULATE	xxx	xxx	xxx	xxx
4 EFFICIATE	xxx	xxx	xxx	xxx
5 EDUCATE	xxx	xxx	xxx	xxx
6 ASSOCIATE	xxx	xxx	xxx	xxx
7 CORPORATE	xxx	xxx	xxx	xxx
8 HYBRID / Combination of those above	xxx	xxx	xxx	xxx
<i>Dominating dimension of change</i>	<i>technology + behavior</i>	<i>technology</i>	<i>behavior</i>	<i>technology + behavior</i>

Appendix Table 3. Framework for another typology for the analysis of interagents and collaboration for start-ups within eco-innovation (cf. Figure 1 and Howells' (2006) typology of the intermediation in innovation) could look like this:

Level of business activity >>> Area of services	(Redesign of) existing products and services (BUSINESS AS USUAL)	(Designing) new products and services (EFFICIENCY)	(Designing) new production-consumption systems (SUFFICIENCY)	Creating new scenarios (EFFICACY)
1 Forecasting and technology roadmapping	xxx	xxx	xxx	xxx
2 Information scanning and technology intelligence	xxx	xxx	xxx	xxx
3 Knowledge processing, generation and combination	xxx	xxx	xxx	xxx
4 Negotiation and contractual advice	xxx	xxx	xxx	xxx
5 Prototyping, pilot facilities, scale-up	xxx	xxx	xxx	xxx
6 Providing standards advice and verification	xxx	xxx	xxx	xxx
7 Regulation and arbitration	xxx	xxx	xxx	xxx
8 Protecting the results of collaboration (IPR)	xxx	xxx	xxx	xxx
9 Market research and business planning, support in selling	xxx	xxx	xxx	xxx
10 Assessment of performance and products in the market	xxx	xxx	xxx	xxx
<i>Dominating dimension of change</i>	<i>technology + behavior</i>	<i>technology</i>	<i>behavior</i>	<i>technology + behavior</i>

Appendix Table 4. Framework for a typology of interagents as promoters and collaboration for start-ups within eco-innovation (cf. Figure 2 and Table 2) could look like this:

Promotor role and power base >>> Area of collaboration	Expert promotor (specialized knowledge)	Power promotor (control of resources)	Process promotor (organizational know-how, communication skills)	Relationship promotor (networking skills, potential for interaction)
Eco-entrepreneurship (Strategic and business view)	xxx	xxx	xxx	xxx
Eco-innovation (Innovation view)	xxx	xxx	xxx	xxx
Eco-marketing (Marketing view)	xxx	xxx	xxx	xxx
Eco-design (Design view)	xxx	xxx	xxx	xxx

Appendix 2 – The interview guide (WP7)



Interview of N.N., Organisation X, Helsinki / Case Y

by Mika Kuisma, Nodus, Aalto ARTS for the SHIFT project, date (2015)

Introduction

The project SHIFT – Support System for Sustainable Entrepreneurship and Transformation, is being carried out in 2013-2016. The goal of the project is to analyse how public, and private support systems for entrepreneurship might have to be improved in order to systematically boost the development and implementation of eco-innovation and sustainable entrepreneurship in eco-start-ups as well as eco-oriented Micro and Small Medium Enterprises (MSMEs), and make realistic recommendations for policy makers and important actors of the support system on how to initiate a paradigm change in their supporting schemes. The primary aims of *this part* of the project are to analyse what kind of emergent and innovative types of bringing people and resources together exist to support eco-oriented innovation and start-ups, and what kind of added value do these collaborative support services create compared to more traditional ‘mainstream’ support system. *For more information see: <http://www.shift-project.eu>*

Some definitions of key concepts we have adopted in the SHIFT project. We hope these will assist with understanding the interview questions:

Unusual collaboration

In this project, we focus on business collaboration dedicated specifically to partnerships and networks for environmental engagement and eco-innovation. By unusual collaboration we refer to such partnerships and networks that bring people and other key resources together in formal or informal unusual (innovative) organisational settings that are not considered an institutionalized part of conventional SME support system in the society (business development organisations, incubators, universities, funding institutions etc.).

Interagent

Interagent is an independent actor who has an agenda as intermediary, interceder, mediator or middle person to bring people and other key resources together for their self-interest and the interests of others in the innovation support system. Interagencies typically have less standardized informal organisational form (possible also inside an otherwise formal organisation / structure).

Exchanges

Access to resources and skills discrepancies have been recognized as a motivator for collaboration, i.e. certain exchanges take place also in collaboration aimed to support start-ups and SMEs. Such an exchange may include specialized expert knowledge, other resources (especially funding), organisational know-how and communication skills, or relationships and potential for interaction that help the innovative SMEs to overcome certain barriers in their innovation and growth processes.

QUESTIONS

SECTION A / Position and organisation

1. Could you briefly introduce yourself (professional background)?
2. Could you describe your involvement in your organisation? How did you end up in your current position?
3. How would you define the key goals of your work?

SECTION B / Reflecting your role in terms of SME support and collaboration

1. How do you see your role and the experience of your organisation in relation to supporting start-up businesses? Are you personally involved or through your organisation in providing SMEs with support?
2. In general terms, what is your role in bringing people and other key resources together for the benefit and interests of start-ups and SMEs?

SECTION C / Characterising the support offered by you (your organisation) generally

1. Is there any *specific* support for *eco-innovative* start-ups provided by you / your organisation? Or is the support oriented to mainstream SME market?
2. What kind of support is typically requested by (eco-innovative) start-ups and MSMEs?
3. What kind of new / different collaborative contexts for innovation and business support have been created?
 - How is the collaboration organised and implemented?
 - How would you categorise this collaborative context? *Is it about 1) creating (innovation collectives, competitions, platforms), 2) facilitating (physical meeting spaces, accelerators), 3) stimulation (events, creative collaborations), 4) efficiating (connecting platforms, funding programmes), 5) educating, 6) associating (communicative networks), 7) corporate context (large companies applying innovative projects, spin-offs), or several of these?*
4. As an interagent, how would you describe the support for (eco-innovative) start-ups and MSMEs provided by you and/or your organisation?
 - On which level of business activity is the focus of this support? *(1. Vision; 2. Operations and processes; 3. Product, service or content; 4. Several of these)*
 - Which view of the business is the support mainly focused on? *(1. Strategic (entrepreneurship); 2. Innovation; 3. Marketing; 4. Design; 5. Several of these)*

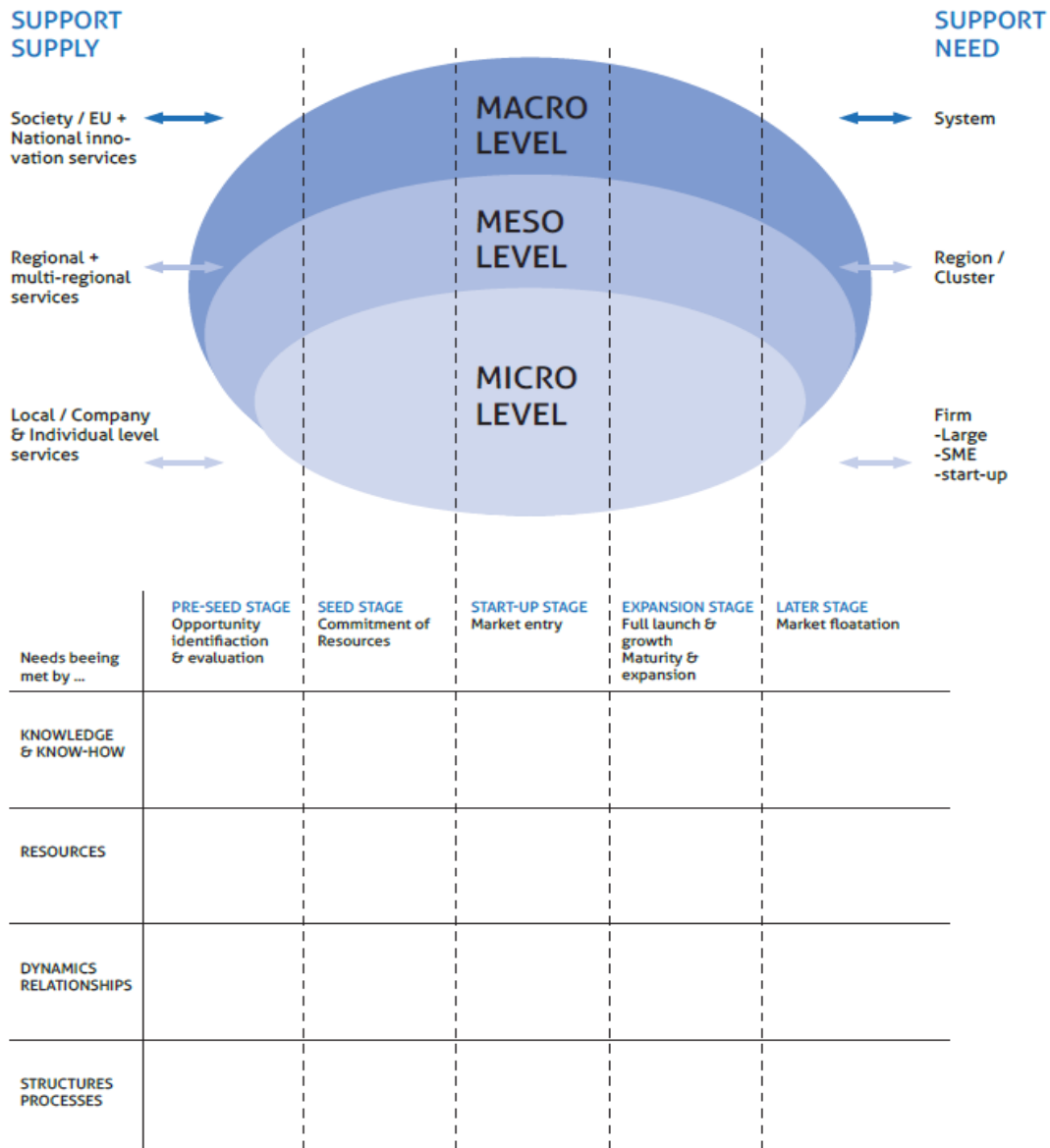
SECTION D / Locating the service in the support system

1. In our literature review we have found that e.g. promotor theory shows that different actors and organisations meet the needs of SMEs by offering different types of exchange.
 - What kind of exchanges are offered by you / from your organization as regards supporting start-up businesses? *(1. Specialized knowledge; 2. Other resources like funding; 3. Organizational know-how and communication skills; 4. Network skills and interaction power; 5. Several of these – which?)*
To whom?
 - On which stages of entrepreneurial / innovation lifecycle is your support for SMEs mainly focused

on (from pre-seed to seed to start-up to expansion stage)?

- How would you locate your support services on the matrix (see the lower part of the chart below)

- In our research we have found different activities happening within micro, meso, and macro levels of the support system. How would you locate your support on the map (see the upper part of the chart below)? (the diagram may also be completed after the interview)



- In the project, we are looking for ‘best practices’ of *unusual collaboration* linked to eco-innovation and SME support, i.e. collaborative practices for the benefit of eco-innovative start-ups that are provided by organisations mainly outside the conventional ‘mainstream’ SME support system (incubators, business development services, funding institutions, etc.). Can you provide examples

of other unusual collaborative frameworks aimed at supporting (eco)innovative start-up businesses in Finland (Sweden, Germany) / in EU / in the world? (Where and how would you locate them on the diagram?)

SECTION E / Proposing improvements to the present (eco)innovation support system

1. How is the support for *eco-innovative* start-ups provided by you / your organisation followed up (impacts)? Where are the potential deficits of the service?
2. In your opinion, are there service needs that seem to be missing or neglected in the current (Finnish) support system? Where can the overall system of support provision, and therefore impacts, be improved? (Where and how would you locate these spots on the diagram above?)
3. From your perspective where are the best leverage points to improve the support system in the EU for eco-SMEs and eco-start-ups?
4. Do you have any further comments or observations?

Thank you for your time and support!

APPENDIX 3 The interviewees

Name of the interviewee	Position	Organisation	Interview date	Case in focus
Tuuli Kaskinen	Executive director	Think tank Demos Helsinki	30.1.2015	Peloton Club
Kirsimari Kärkkäinen	Designer, CEO	Design Plus	19.1.2015	TELAKKA®
Dr. Raimo Lovio	Professor of innovation and environmental management	Aalto University School of Business	12.1.2015	Local Energy / FinSolar

APPENDIX 4

Glossary:

Definition of Central Terms and Concepts

Business accelerator

"**holistic business advisory service**, often bearing strong resemblance to traditional management consulting practices, but **adjusted to fit small and medium sized organizations**" (Sepulveda, 2012)

Business ecosystem

"**network of organizations involved in the delivery of a specific product or service through both competition and cooperation**" (Investopedia, 2015)

Business networking

A socioeconomic activity by which groups of like-minded businesspeople recognize, create, or act upon business opportunities.

Cluster initiative

"organised **effort to increase the growth and competitiveness** of a cluster " (Sölvell, Lindqvist and Ketels, 2003) of "**interconnected companies and associated institutions in a particular field**"(Porter, 2000)

Complementary assets

include infrastructure or capabilities necessary to support successful commercialization and marketing of an innovation.

Corporate social responsibility (CSR)

A form of corporate self-regulation integrated into a business model, "a company's sense of responsibility towards the community and environment (both ecological and social) in which it operates.

Impact start-ups

Start-ups (which aim at) making a positive sustainability impact in the society.

Incumbent

In business the term "incumbent" is used for the largest companies in a certain industry that are powerful and have a large amount of market share.

Innovation community

"**network of likeminded individuals, acting as universal or specialised promoters**, often from more than one company" (Fichter, 2012) and the aim to make changes on system (policy) level is not explicitly present

Innovation intermediary

"an organization or body, which acts as an agent or broker in any aspect of innovation process between two or more parties". Such intermediary activities include: helping to provide information about potential collaborators, brokering a transaction between two or more parties, acting as a mediator, or go-between, bodies or organisations that are already collaborating (Howells, 2006a).

Intermediary

A third-party organisation with the purpose to achieve desired objectives.

Network

A set of actors and nodes with a set of ties of a specified type that link them.

Promotor

“individual who actively and intensively support the innovation process” (Fichter, 2012). Depending on the specialization of the promotor, we may classify promotor as expert promotor, power promotor, process promotor or relationship promotor.

Resource smart society

Embedding resource-efficiency and sustainability in everything in the society.

Sharing economy

Peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services.

Smartups

are said to utilize one or more of the four major ways to circumvent natural resource scarcity by using predominantly digital technologies. These four ways include sharing, optimization, upcycling and refurbishment, and dematerialization and smart substitution. The real impact is to lie in combinatory models of these four ways (Demos Helsinki 2014).

Social capital

consists of networks together with shared norms, values and understandings that facilitate co-operation within or among groups.

Strategic alliance / strategic partnership

An arrangement between two (or more) companies that have decided to share resources to undertake a specific, mutually beneficial project.

Strategic network(ing)

“(inter- as well as intra-organizational) **networks on the basis of trust, with the intention to reach certain (organizational) goals.**” (Eckenhofner, 2009)

APPENDIX 5

The parties that started the collaboration between Aalto University, BDOs and SMEs for SHIFT project

(1) Aalto University Foundation, operating as Aalto University

Industry Parties:

(2) Added Value Design Oy (Design+),

(3) Ainokainen,

(4) Bravioz Oy (Greenriders),

(5) Coreorient Oy,

(6) Culminatum Innovation Oy Ltd,

(7) Design Kuu Oy,

(8) First Crush Design,

(9) Insinööritoimisto Ecobio Oy,

(10) Juni Design,

(11) Lahden Seudun Kehitys LADEC Oy,

(12) Makumaku Ltd Oy,

(13) Natural Interest Oy,

(14) Niin of Finland Oy,

(15) Nurmi Design Oy,

(16) Oliivi Autot Oy,

(17) Poklossi Oy,

(18) Poola Kataryna,

(19) Saana ja Olli avoin yhtiö (Saana ja Olli),

(20) Tmi Tirsokas,

(21) Tuneko Oy,

Some of these have withdrawn from the consortium before the project ended.