Know-who? Know-what? Know-how?

Investigating learning in a multi-actor partnership for urban freight transport in the city of Gothenburg

Sophie Baar

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LUCSUS
Lund University Centre for Sustainability Studies

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Supervisor: David Harnesk, LUCSUS, Lund University

Abstract

People's ability to learn holds a promise for sustainability as learning is seen to enable change ; yet, the prevalence of norms and values in society that reinforce unsustainability may severely challenge this process. The debate on what role learning can play is centered around the question whether people can learn from others and if so, how to enhance it. More precisely, who has to learn what from whom if to achieve sustainability?

This thesis takes a multi-actor partnership for urban freight transport in the city of Gothenburg as a case. The partnership consists of actors from the private sector, public sector, and academia. It was formed with the aim to further develop and implement mitigation options in urban freight transport. Through an EU funded project, individuals in Gothenburg engaged in an exchange of knowledge and experience between seven other European sites. Organizational learning through individual representatives was envisaged to further enhance the development and implementation of mitigation options on local scale.

The aim of this thesis is to explore what factors influence individual, inter- and intra-organizational learning. I used a deductive approach based on learning theories. I developed an analytical framework to investigate the participants in the partnership (*know-who*), the content they share (*know-what*), and the process in which knowledge was shared and learning enhanced (*know-how*). Data was retrieved from a document analysis of the project reports, a qualitative online questionnaire, and semi-structured interviews.

The overall findings show the relation between the individual participant and their organization influence what of the shared knowledge can be received and used. In this, the intent and ability of the corresponding organizations to learn can be influential factor. Further, even though information is available, acting on knowledge learned was shown to be more complex. Knowledge on urban freight transport is often connected to a specific geographical, political and infrastructural context which limits the transferability. However, creating a network between practitioners on a local scale supports a dialogue and can be the basis for a creating a common understanding.

Finally, the application for learning as an analytical framework has been proven to be useful to provide an overview of the actors involved and the solutions that are introduced under the umbrella of achieving sustainable urban freight. This will give a foundation to further investigate the governance dimension of the partnership in regards to steering for sustainability and the specific mitigation options that are being introduced.

Current Word Count: 13745

Keywords: urban freight transport, urban freight committees, multi-actor partnership, organizational learning, mitigation

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This part of the thesis is the beginning and the end and often seen to be the right moment to write a love letter to friends and family.

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Abbreviations

CU	Chalmers University
GGN	Göteborgs Godsnätverk (Gothenburgs Freight Network)
TAG	Traffic Administration Gothenburg (Trafikkontoret Göteborgs Stad)
UCC	Urban Consolidation Center
UFT	Urban Freight Transport
UG	University of Gothenburg
VK	Vasakronen AB
VTG	Volvo Trucks Group

Key terms

Urban Consolidation Center	Urban consolidation centers are a form of freight terminal or storage facility in which goods are collected to consolidate the further transport.
Last-mile distribution	Last-mile distribution accounts for the freight transport from the urban consolidation center to the end consumer.

1. Introduction

I know how to tie my shoes and how to ride a bike. I know that three times three is nine. I know these things because somebody taught me. I accepted their advice and acquired skills. I also know that climate change is happening. I heard about it, I read about it, but still it is difficult to say I experienced it. I perceived, reviewed and acquired information on climate change. I internalized this, and learned. I changed my perceptions and how to address it. In some cases I changed my behavior. Still, I am bothered with a question: Are people able to collaborate and learn from each other in order to reduce unsustainable practices, and if so, in what ways? This question has formed my academic interest around two specific topics: the role of networks and partnerships to enhance collaboration and dialogue between the public and private sector, academia and civil society; and learning to change unsustainable patterns.

Literature on learning and sustainability purports that we can change our current behavior, practices and approaches (Glasser, 2009; Tilbury, 2009; Wals & Van der Leij, 2009). We can challenge the ideas, norms, and values which have led to our current environmental problems by enabling change trough learning (Tilbury, 2009; Wals & Van der Leij, 2009). In her essay on the role of social learning for achieving sustainability, Danielle Tilbury writes: "Sustainability is about challenging our mental models, policies and practices [...]." (Tilbury, 2009, p. 119) Two assumptions are present in her essay: individuals, institutions and organizations have the ability to learn and change, and sustainability can be achieved through "learning-based change" (Tilbury, 2009). But who has to learn what, and from whom? And what potentially limits the learning processes?

To better understand what factors influence the learning process that should help to achieve sustainability, I chose to conduct a case study in a partnership for urban freight transport (UFT) in the city of Gothenburg, Sweden. UFT significantly contributes to negative environmental impacts in form of greenhouse gas emissions, as well as air and noise pollution in urban areas (Behrends, Lindholm, & Woxenius, 2008). UFT causes congestion and requires infrastructure that reduces the availability of urban space for other purposes (Behrends et al., 2008). To develop and implement strategies to address these negative impacts the Göteborgs Godsnätverk (GGN) was formed. The GGN is a "local freight network" (Browne, Lindholm, & Allen, 2015) bringing together representatives from the traffic administration office, local transport service providers, real estate owners, shop keepers in the inner city, and representatives from academia. It is a platform that aims for a dialogue between the actors in regards to urban freight transport issues (Browne et al., 2015). Together with these local actors, Gothenburg became part of the three-year European project SMARTSET (Sustainable Market-

driven Terminal Solutions for Efficient Freight Transport). Eight European cities engaged in several activities with the aim to share knowledge and experience between practitioners. The project presented three solutions, in the following called strategies, that help reduce the impacts of UFT. Urban consolidation centers (UCC) and distribution services that consolidate goods should help to reduce the number of transport vehicles that are usually used for freight transport in and out of the inner city. In using low-emission vehicles (hybrid, biofuel, or electric vehicles) the greenhouse gas emission rates were aimed to be further reduced. Regulative and incentivizing instruments introduced by the local authorities were identified as tools to influence both the amount of freight vehicles used and to promote the use of consolidation services.

1.1. Research aim and questions

The general aim of the SMARTSET project was to enable the sharing and transfer of knowledge between practitioners in the field of urban freight transport on a local level in Gothenburg and a trans-national level with other European cities (D7.1). The partnership intended to support mutual understanding between the involved actors. It aimed to improve the consolidation services and lead to better informed local traffic policies. A central approach of the project was that knowledge-sharing between the involved actors can contribute towards organizational learning as a basis to further develop or strengthen strategies that improve urban freight transport.

The aim of this thesis is to contribute to a better understanding of individual, inter- and intra-organizational learning processes in a multi-actor partnership aiming to improve UFT. Through this endeavor, I discuss the potential of these learning processes to develop mitigation strategies for UFT. In this, I contribute to a larger debate about the implication of learning to achieve sustainability. With this research I aim to satisfy the following research question:

In the context of a multi-actor partnership for urban freight: *What factors influence individual, intra- and inter-organizational learning processes?*

To answer this, the data collection and analysis is guided by the following sub-research questions:

1. Who are the different participants that engage in learning processes?
2. What is identified as knowledge and shared between the participants?
3. How do participants share knowledge and how is learning between them facilitated?
4. What do participants think about the aim of knowledge-sharing and –transfer?

To answer my research questions, I first reviewed theoretical literature on individual learning (Illeris, 2009; Kolb, 1984), organizational learning (Argyris & Schön, 1995; Senge, 2006) and social learning (Glasser, 2009; Loeber, Mierlo, Grin, & Leeuwis, 2009). These learning theories formed the

theoretical framework for exploring learning processes and the factors that influence these. I develop an analytical framework which seeks to reveal the *actors* involved in the learning processes, the *content* they share and the *process*es in which knowledge was shared. I am guided by a critical perspective on the idea that knowledge sharing – as in providing knowledge – will immediately lead to learning processes. Yet, I started my data collection and analysis with the assumption that learning processes took place in the partnership. I later refined this assumption by focusing on the factors that influence the learning processes. I retrieved my own empirical data from a document analysis, a qualitative online questionnaire, and semi-structured interviews. Through this, I analyze how the multi-actor partnership aims for and facilitates individual, intra- and inter-organizational learning and how participants viewed this project objective of knowledge-sharing and -transfer in retro-perspective to the project.

1.2. Relevance for sustainability science

This thesis will contribute to sustainability science in two ways. First, my study provides a better understanding of the factors that influence learning processes that aim to introduce more sustainable practices. As the studied partnership assumes to enable change in the current UFT system through facilitating learning among practitioners, this research allows for identifying potential limitations of this approach. It gives room for further examination in a methodology that helps to address the limiting factors but also to promote the enabling factors of learning processes.

Second, I develop an analytical approach investigating the partnership from a perspective on the actors, the content and the process in which knowledge is shared. This can be useful for further research as it presents the relation between actors in the partnership and their interests in changing the negative impacts of UFT. It also reveals who possess knowledge, who receives knowledge and who is identified to act. Future research can therefore examine what strategies are proposed and what actors are involved in the development of a concept of sustainable urban freight transport. Against the backdrop that UFT has negative environmental and social impacts which need to be addressed, especially as freight transport will increase in the future, an understanding of a multi-actor partnership is useful for the potential and limitations of its deliberative character. It allows for opening up the debate on how learning can help to develop and implement mitigation strategies in UFT, but also about the general promise of learning to introduce change to achieve sustainability.

2. Sustainable urban freight transport

Why should we be concerned with learning processes in relation to urban freight transport (UFT) and new forms for developing and implementing transport mitigation strategies in urban areas? Cities depend on energy and resource inflows and resources, products and waste outflows. Both require the transport of goods into, within and out of cities (Behrends et al., 2008; Hodson & Marvin, 2010). UFT is interlinked with the city economy and viewed as a means for flourishing urban areas (Behrends, 2011). Yet, it is also responsible for numerous negative impacts. If not transported with low-emission vehicles, freight transport contributes to greenhouse gas (GHG) emissions, air pollution (NOx and particles), noise pollution, congestion, road accidents and limits available urban space (Behrends et al., 2008). Cities have started to recognize the necessity and the potential of reducing GHG emission (Hodson & Marvin, 2010). At the same they have to account for spatial and population growth and economic prosperity (Hodson & Marvin, 2010). Behrends et al. criticize that cities increasingly focus on reducing the negative impacts from personal transport, while "[f]reight transport is considered to be a private sector phenomenon on both the supplier and user sides, and it is driven by commercial imperative." (Behrends et al., 2008, p. 703) They propose one conceptualization of sustainable urban freight transport that emphasizes the negative impacts of UFT in three areas: environmental, social and economic impacts (Behrends et al., 2008).[1] It is based on the idea of sustainable development. It summarizes the aims to reduce the environmental and social impacts of urban freight transport while providing an infrastructure that does not minimize the possibility for economic activity (Behrends, 2011). While the negative impacts are recognized, clear solution pathways are not evident. The reduction of emission levels from transport are desired (European Commission, 2011), but the volume of transport is expected to increase due to population growth and densification in urban areas (Pålsson, Lundquist, Olander, Eng Larsson, & Hiselius, 2014). Solutions are requested that increase the energy efficiency of transport services (measured in the ration between vehicle/kilometers and tonne/kilometer) and lower the overall emissions emitted from transport vehicles (measured in emissions/vehicle and emissions/tonne/kilometer) (Lindholm, 2012). A strong optimism towards vehicle technology and alternative fuels will not be sufficient in reducing the environmental impacts of freight transport in a long term perspective (Behrends et al., 2008). Changes in the overall logistic system are needed (Behrends, 2011; Waisman, Guivarch, & Lecocq, 2013) whereof consolidating goods through urban freight terminals or consolidation centers can be one possible solution. It can help to increase the load efficiency of vehicles, but also requires new forms of collaborations between transport service providers and local authorities (Behrends et al., 2008).

[1] The concept of sustainable urban freight as proposed by Behrends et al. (2008) forms an entry point for this thesis, but I hereby recognize that other possible concepts for sustainable UFT exist.

These collaborations in cities are still lacking (Browne et al., 2015; Crainic, Ricciardi, & Storchi, 2004; Lindholm & Browne, 2013). Dablanc (2007) has criticized that the "[…]changes [in urban freight transport] are slow, and on the whole, it appears as though none of the stakeholders are willing to make fast progress" (Dablanc, 2007, p. 280). Macharis & Milan (2015) further criticize that current technical and infrastructural solutions are ineffective as do not yet include all involved and affected actors. A lack of integration of urban freight transport management in urban planning practices is evident (Lindholm & Browne, 2013). In 2007 the European Union emphasized that local authorities, transport operators, retailers and citizens would envisage to be consulted to improve urban mobility policies (European Commission, 2007). In the "Green Paper - Towards a new culture for urban mobility" they proposed the concept of integrated sustainable urban mobility plans in which personal and freight transport strategies and policies are considered jointly (European Commission, 2007). One possible approach that allows this form of dialogue and consultancy are urban freight committees or networks (Browne et al., 2015) of which one case will be investigated in this thesis.

2.1. City of Gothenburg – A case study

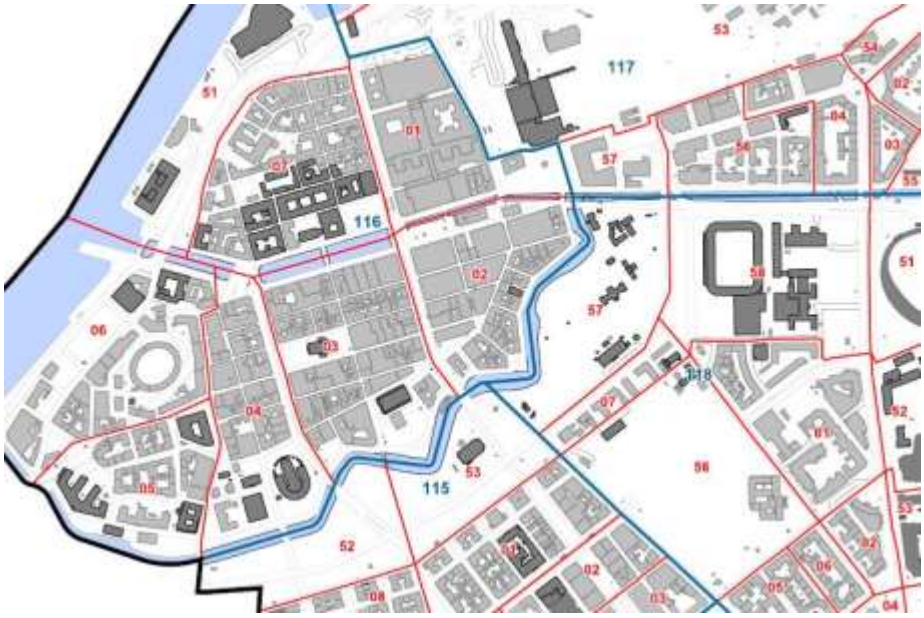

Figure 1: Map of the inner-city of Gothenburg (Göteborgs Stad Stadsledningskontoret, 2016b).

The city of Gothenburg is the second largest city in Sweden with around 550 000 inhabitants working and living in an approximately 450 km^2 wide area (Göteborgs Stad Stadsledningskontoret, 2016a). Since 2006 the city of Gothenburg has an urban freight network called Göteborgs Godsnätverk (GGN)

(D6. 4)[2]. The GGN has the purpose of "[…] discussing, networking and sharing knowledge and experience about the cities freight distribution and management." (D2.2., p. 9) It has currently 25-30 active members who meet four times per year. Two members are affiliated with academia from Chalmers University (CU) and University of Gothenburg (UG). Three members are working for the municipal traffic administration office (TAG) and 20 members represent the private sector, including numerous local and national transport providers, inner city real estate owners, shopkeepers, retailers and a vehicle manufacturer (D2.2., p. 10). According to TAG the GGN creates a dialogue between actors on a variety of topics, including current challenges and possible solutions (Inf_11). For TAG specifically, it enables a discussion on traffic policies, i.e. regulations on the time windows of loading and unloading or restrictions for certain vehicles in specific city areas (TAG Inf_11).

Since 2012 Gothenburg has an existing urban consolidation center (UCC) and the pilot consolidation service "Stadsleveransen", both implemented by the municipality. It is managed and owned by an agglomeration of retailers, real estate owners in the inner city and the municipality (D2.1., p. 18). The service uses three electrical vehicles and delivers parcels to 8-10 shopkeepers in the inner city of Gothenburg in the area around the cathedral (see Figure 1, areas number two, three and four).

In 2013 Gothenburg became part of the European project SMARTSET "Sustainable Market-driven Terminal Solutions for Efficient Freight Transport" funded by the European Commission's Program Intelligent Energy Europe. It was running between May 2013 and April 2016 and engaged practitioners in the field of UFT from eight different European sites: in Sweden the cities of Gothenburg and Sundsvall; in Italy, the cities of Forlí and Rome and Interporto Padova, an existing consolidation service; the city of Berlin, Germany; the city of Graz, Austria, and Newcastle University in Newcastle upon Tyne, United Kingdom. The project aimed to "[…] reduce energy consumption and emissions from freight transport by introducing freight delivery schemes on Urban Freight Terminals" (D1.1, p. 5). It aimed to contribute to the European target in reducing the GHG emissions and increasing the use of renewable energy and energy efficiency by 2020 (D1.1). In the participating sites the implementation and expansion of UCCs and consolidation services was fostered and the project gave room to test different low-emission vehicles (hybrid, biofuel, and electrical vehicles) for last mile-distribution. Central aim was that the consolidation services are financially sustainable in long term perspective without assistance of public funding (D2.1). Local authorities were advised to use regulative and incentivizing instruments that would support the service. Possible examples are

[2] All SMARTSET project reports reviewed are listed in the appendix B. In-text abbreviations are used and the abbreviations can be retrieved there. Appendix A is a list of all informants. Although they are treated anonymous, the in-text citation indicates the organization they represented.

exceptions to regulations for electrical vehicles or offering different load- and unloading times for consolidation services (D3.1). The formation of local freight networks like the GGN should further ensure "informed policy development" at the municipal level (D5.2, p. 7).

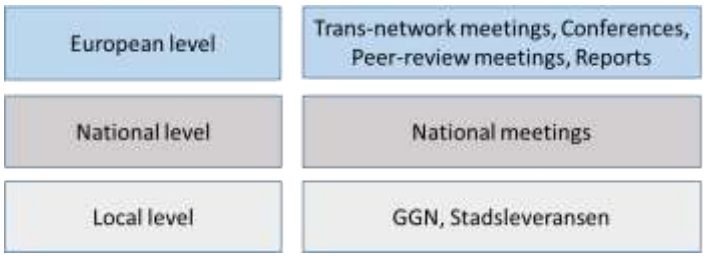

Figure 2: The collaborative approach of SMARTSET.

The starting point of this thesis is the collaboration approach taken by SMARTSET (Figure 2). In local, national but also in trans-national meetings practitioners were invited to share and "[t]ransfer knowledge on various aspects of [urban consolidation centers] and [their] business models […]" (D1.1, p.5). SMARTSET relied on the idea of gathering, sharing, and transferring existing "know-how" and enhancing "mutual learning" between the partners (D7.1, p. 14). This should help to gather knowledge on available solutions and implementation strategies. According to SMARTSET the implementation of UCCs can only be successful with the acceptance and input from other local actors (D5.2). The overall approach that was taken in SMARTSET reveals that knowledge sharing and learning was desired through three different interaction-levels: between individual participants; from the individual participant to its represented organization; and on abstract level from organization to organization.

2.2. The urban freight transport system

This thesis takes a system-approach and argues that the actors are connected outside of the partnership by means of their daily work and operations as well. Lindholm & Behrends (2012) describe this particular interconnectedness as an "urban freight transport system". Based on case studies in the Baltic Sea region they developed a heuristic to investigate connections between actors in an UFT system (Lindholm & Behrends, 2012). It is based on four pillars: the goods transported, the facilities where goods are distributed from and to, the city infrastructure, and vehicles used for the transport (Lindholm & Behrends, 2012). These pillars enable an identification of the connections between the actors and shows how their operations are intertwined. I applied a system perspective to the actors involved in Gothenburg and developed a simplified representation of their interest (Figure 3). It visualizes where the actors contribute to the problems and challenges and were they can interfere through their own operations (Lindholm & Behrends, 2012). This is of use to

understand in which specific areas the actors support a change but also in which they can contribute toward changing the current situation. A more detailed examination of the specific interest areas follows in chapter 6.1.2.

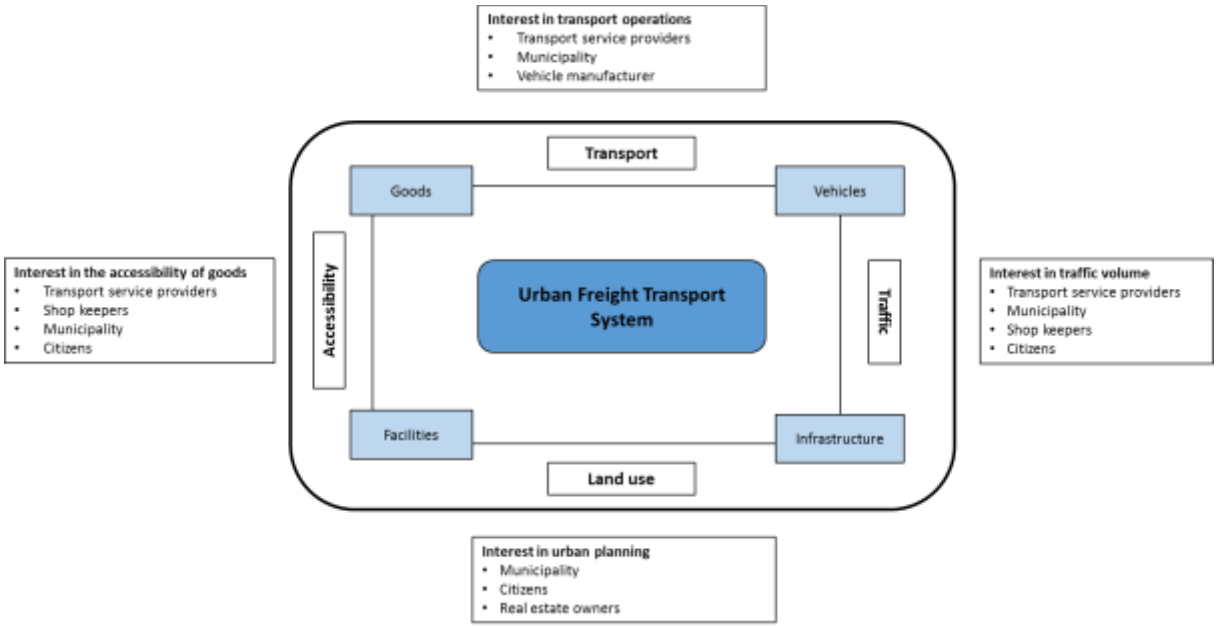

Figure 3: The urban freight transport system. Applied and further extended model of the urban freight system (Lindholm & Behrends, 2012, p. 131). This figure shows how the operations of actors are intertwined in an urban freight transport system and includes the specific interest areas identified by SMARTSET. These are displayed in the four quadrates toward the outside of the figure.

3. Theoretical and conceptual framework

The theoretical and conceptual framework of this is thesis is based on social scientific literature on learning theories, with a focus on individual learning (Illeris, 2004; Kolb, 1984), organizational learning (Argyris & Schön, 1995; Brandi & Elkjaer, 2013; Easterby-Smith, Lyles, & Tsang, 2008; Senge, 2006) and social learning (Brandi & Elkjaer, 2011; Glasser, 2009; Loeber et al., 2009; Wals & Van der Leij, 2009). The review was guided by the interest on how to empirically investigate the concepts of knowledge and learning in multi-actor partnership that consists of individuals representing a company or institution. Therefore the focus was given the theories on individual, inter- and intra-organizational and social learning.

3.1. Theoretical definitions of knowledge and learning

Learning as a concept and process has been part of research in e.g. the fields of cognitive science, psychology, education studies, management studies, and philosophy. They commonly share the view that humans possess the ability to learn. Knud Illeris even writes that humans have an internal desire to learn (2004). For Kolb it is an integral part of the development of an individual (Kolb, 1984). Due to the wealth of interpretations of learning and the various fields that approach the concept, the work of Illeris (2004; 2009) on learning theories guided my research. As the aim of this thesis is to examine learning processes on two levels – the individual and the organizational – I decided to therefore use a broader and open definition of the concepts of knowledge and learning. This broader definition was used for investigating learning theories that may be useful to later explain my case. Both terms – knowledge and learning – are ambiguous and differently defined among scholars and applied in learning theories (Illeris, 2009). Thus, I begin to conceptually explore these concepts, before assessing them in my own case.

The definition of what is knowledge has a broad spectrum and depends on what learning level is described or assessed. In the field of management studies and organizational learning knowledge is often described as “a commodity” which can be managed and shared(Brandi & Elkjaer, 2013). From a social learning theory perspective it is the "[...] the active process of knowing, the process and results of participation in organizational practices" (Brandi & Elkjaer, 2011, p. 28). The former refers to a form of knowledge that is often described as being more explicit and that can be shared. The latter indicates that knowledge in itself is not static, but part of a process in which people interact with others or a variety of materials and tools (Brandi & Elkjaer, 2013). It can therefore constantly be revised and changed and is developed in the interactional process (Brandi & Elkjaer, 2011, 2013). To be open and aware that both aspects exist simultaneously, I recognize the idea of knowledge as the

"content of learning" (Illeris, 2009). This allows for the conceptual opening of the term knowledge to include "[...] knowledge and skills, but also many other things such as opinions, insight, meaning, attitudes, values, ways of behavior, methods, strategies, etc." (Illeris, 2009, p. 10).

3.2. Individual learning

Learning is more than a mere cognitive but also a social process and involves "[…] thinking, feeling, perceiving, and behaving" (Kolb, 1984, p. 31). Each learning process has an external component, as it requires the interaction of an individual with its social, cultural and physical environment (Illeris, 2009). An attempt to explain the starting point of each learning process was made by the American philosopher John Dewey in the concept of "inquiry" which was further applied by Brandi & Elkjaer (2011). Learning is a process of "inquiry" which starts with the notion of some form of problem or obstacle the human encounters (Brandi & Elkjaer, 2011). This concept describes that the individual makes sense of things in a process that is embedded in everyday life experience of an individual (Brandi & Elkjaer, 2011). When the individual tries to make sense of a problem, a form of reflective thinking process starts in which the individual uses already possessed knowledge and acquires new (Brandi & Elkjaer, 2011). The pre-requisite is that the individual encounters a problem or challenge that requires learning, in the sense of acting and reflecting on the own actions (Brandi & Elkjaer, 2011).

The individual learning process is often explained by using Kolb's model of the learning cycle (Kolb, 1984), which consists of four phases: the "concrete experience", the "reflective observation", the "abstract conceptualization", and the "active experimentation" (Kolb, 1984, pp. 30-31). In the experience phase, and individual experiences that her or his actions have an effect (Kolb, 1984). During the reflective observation, the individual reflects on this (Kolb, 1984). It encounters or conceptualizes that they are caused by its own actions during the conceptualization phase (Kolb, 1984). In the active experimentation the individual decides on what to do and how to act (Kolb, 1984). Kolb names this process "experiential learning". It is an attempt to reveal the pre-requisite or abilities the individual needs to apply in order to engage in a learning process (Illeris, 2004; Loeber et al., 2009). In particular, the experience and reflection phases are interesting to consider when further investigating learning processes.

Kolb's learning cycle is being criticized to ignore the contextual and social setting of learning. It does not reveal how the values and norms of an individual influence the learning processes (Loeber et al., 2009). Other scholars have argued that the norms, beliefs, and values of an individual influence both

what and to which degree it learns (Argyris & Schön, 1995; Loeber et al., 2009). To account for that, Argyris & Schön (1995) proposed the conceptual model of "single- and double-loop learning". In the former, the individual learns by adding information to existing knowledge without challenging existing strategies or values (Argyris & Schön, 1995). The latter describes a form of learning where the individual changes these strategies and norms (Argyris & Schön, 1995). Essential in this perspective is the role of social concepts like assumptions, norms and values. They influence the learning process, but they can also be changed through the learning process.

3.3. Inter- and Intra-organizational learning

Initially, learning theories focused on the process of individual learning. Today, they are more open and view learning as a process that can occur on different levels: the individual, the organization, and the social. Organizational learning is prominently approached using two framings. The first is Argyris & Schön's (1995) concept of "organizational learning" and the second is Senge's (2006) concept of the "learning entity".

Argyris & Schön (1995) see learning in organizations as a form of relation between the individual and the organization. Organizational learning means "[...] to acquire explicit and abstract knowledge and integrate the acquired knowledge in organizational activities and routines." (Brandi, U., & Elkjær, 2011, p. 27) It occurs when an individual translates newly acquired knowledge in to the organization practices and organizational decision making or action (Argyris & Schön, 1995). At the same time, the individual learning process is guided and affected by organizational practices. This aspect is explained by the concept of "theories-of-use" (Argyris & Schön, 1995). A person working in an organization uses a set of different factors like norms and strategies as a map to guide its actions and decisions (Argyris & Schön, 1995).

Peter Senge (2006) sees an organization as a "learning entity" that has to show the need and the capacity in order to adapt and learn. He formalizes his idea in the concept of the "five learning disciplines"(Senge, 2006). The important aspect of Senge's concept is his emphasis on "systems thinking" as the "fifth discipline". It describes the capability of an organization and all its members to view themselves as interconnected in a system that has the ability to learn (Loeber et al., 2009; Senge, 2006).

There are conceptual differences between intra-organizational, as a learning process of employees or between employees, and inter-organizational learning, where two or more organizations engage in a learning process. Both require the interaction between individuals in the work environment or in a

different setting where representatives of the organizations interact (Brandi & Elkjaer, 2013; Easterby-Smith et al., 2008). Especially intra-organizational learning has been studied more closely in the field of management studies. Research in this area emphasizes the idea of knowledge sharing to enhance learning and what tools, methods and organizational set-ups support or undermine learning processes (Ambos & Schlegelmilch, 2009; Brandi & Elkjaer, 2013; Easterby-Smith et al., 2008).

3.4. Social learning

As a result of my engagement with literature, this thesis asserts that all forms of learning require individual learning. Learning processes always occur in a social context (Glasser, 2009) as a "relational practices" in the interaction between people or people with material and their surroundings (Brandi & Elkjaer, 2013, p. 3). Thus, it can be argued that they are influenced by social concepts among others norms, values, and beliefs, which are taken up by the concept of theories-of-use (Argyris & Schön, 1995).

Social learning occurs if individuals, groups or organizations use, or build on, knowledge produced and shared by others. On a conceptual level there is a difference between "passive and active social learning" (Glasser, 2009, pp. 50-51). Passive social learning refers to the acquisition of knowledge produced by others in the absence of interaction and reflection (Glasser, 2009). Active social learning requires individuals to interact. It can appear in different forms: "hierarchal" (with an informant and learner), "non-hierarchal" (when both or several participants share knowledge on the same level and or are experts in their field) and "co-learning" (Glasser, 2009, p. 51). Co-learning is non-hierarchal learning and builds on aspects of "collaboration, trust, full participation and shared exploitation" (Glasser, 2009, p. 51). Only if all participants are committed and engaged in the learning process, contribute and mutually receive, reflect and use the knowledge provided by others, then co-learning is ensured (Glasser, 2009). The advantage of the concept of co-learning is that it emphasizes a reflection and critical analysis about the knowledge that is shared and also the possibility to co-create knowledge and apply it (Glasser, 2009). Co-learning on a theoretical-conceptual level then opens the focus on the process, integration and reflection and action part of learning processes (Glasser, 2009).

3.5. Learning for sustainability

Social learning, co-learning and the idea of double-loop learning gained attention in sustainability science in the past. Two themes are reoccurring in literature about learning to achieve sustainability. The idea that learning is the basis for action and change (Glasser, 2009; Tilbury, 2009) and that

“transformative learning” can enhance critical thinking (Sterling, 2009). Sustainability is linked to social learning in the concept of "learning based change" (Tilbury, 2009, p. 117). According to Glasser change towards sustainability can be planned when applying learning (Glasser, 2009). Central questions are where learning processes take place, who has to learn and how this learning processes for sustainability can be enhanced. The promise lies in the idea that knowledge on sustainability can be learned and co-produced and knowledge sharing and learning will make individuals, entities, organizations and institutions change strategies, actions and behavior to become more sustainable. Therefore, the idea of learning for sustainability requires the assumption that changes through learning are possible, both on an individual, organizational and societal level.

4. Methodology

4.1. Ontology and epistemology

The ontological foundation of this study is structuration theory as proposed by Anthony Giddens (Giddens, 1976). According to Giddens social systems are composed through structuration, a process of production and reproduction (Giddens, 1976). Structures in a social system are processual and are influenced by human action (*reproduction*) (Giddens, 1976). Simultaneously these structures can be seen as form of "rules and resources" that influence human action (*production*) (Giddens, 1976, p. 127). Giddens calls this "duality of structure" (Giddens, 1976, p. 127). A central aim of Giddens in developing the structuration theory was to find a way to theoretically and empirically explore human action by finding a middle ground between e.g. Althusser's structuralism and Goffman's symbolic interactionism (Baber, 1991; Bryant & Jary, 1991). While the former almost denies the possibility of human action influencing social systems, the latter may ignore the role of social systems influencing human action (Baber, 1991). It is important to clarify that Giddens makes a distinction between the concept of "structure" and "system" (Bryant & Jary, 1991). Structures define social systems and social systems affect human action (Baber, 1991). Nevertheless, there is a possibility for change in social systems through human actions that influence the structures (Baber, 1991). For this research I complement this argument further by using the ontological perspective on organization proposed by Elder-Vass. According to Elder-Vass (2010) each member of an organization has an assigned role which is influenced by the norms and values of the organization. The roles create a specific relation between its members (Elder-Vass, 2010). Yet, organizations are flexible in the norms and roles they assign and put upon their members and thus can adapt and change (Elder-Vass, 2010).

Translating structuration theory into the given case study, together with my theoretical framework, enables me to understand that learning processes are socially embedded and contextual. They are influenced by social systems (i.e. norms, values and beliefs of both the individual and the organization). It highlights that there is a specific relation between the individual and its organization which can influence learning processes.

In my epistemological basis I draw again on the work of Elder-Vass. In chapter 2 I argued for a more open definition of knowledge to investigate a learning process. According to Elder-Vass, (2012) knowledge is what people regard as knowledge. In comparison to a mere belief, it needs to be justifiable to be considered as knowledge. "Knowledge […] is a variety of belief and thus a property of individuals, but there are social reasons why we credit some of our beliefs (and not others) with the quality of being knowledge" (Elder-Vass, 2012, p. 208). Therefore there is a dependency between individual beliefs and the accreditation of this belief by others (Elder-Vass, 2012). The accreditation is

subsequently influenced by of e.g. norms, values and structures and in itself a social process (Elder-Vass, 2012).

4.2. Research design

This thesis is a qualitative case study and follows a deductive approach. The data collection is guided by the previous review of literature on learning theories. At the broad level (Yin, 2011) my units of analysis are the SMARTSET project and the local freight network Göteborgs Godsnätverk (Figure 4). At a smaller level my units of analysis are the documents produced in the project (appendix B), and the participants of the partnership. Gothenburg is one of a few cities that have a local freight network established, which justifies the case selection (Browne et al., 2015). As the SMARTSET project finished at the end of March 2016 it allowed me to assess how participants have viewed learning processes in retro-perspective to the project.

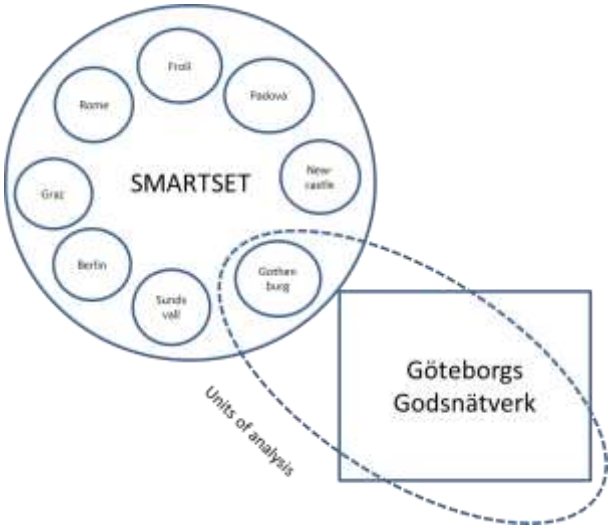

Figure 4: Visualization of the connection between SMARTSET and the GGN.

4.3. Data collection

The data collection of this study is guided by the idea of triangulation (Yin, 2011). It relies on three sources of data: the project documents published on the SMARTSET webpage (Appendix B), the data retrieved from a qualitative online questionnaire (Appendix C) and semi-structured interviews. It is further complemented by my participation in the final conference. All data sets are used reciprocal to verify the findings retrieved.

1. Document analysis

For this thesis I reviewed 26 reports and documents provided by the SMARTSET project documenting the project aims and process. Documents have been reviewed to get an overall understanding of the

project set-up, the actors involved, but also to investigate their relation. I further focused on how the communication and knowledge transfer process was organized and how learning processes have been facilitated.

2. Qualitative online questionnaire

The second data set is a qualitative online questionnaire investigating the individual's perspective on the process of knowledge sharing and learning (Appendix C). It consists of a set of open and scale-questions. I previously had planned to conduct interviews with participants from SMARTSET and the GGN, but the response rate was low and establishing the contacts difficult. To still complement the document analysis with personal perspectives from participants, I developed an online questionnaire. I received eight responses. Four of them are provided by employees of TAG. The other four questionnaire participants are from Chalmers University (CU), Vasakronen (VK) (a real estate company), the Volvo Trucks Group (VTG) and Pling (a bicycle currier service in Gothenburg). All have been involved in the GGN. This sampling shows a variety of actors and interest groups from the municipality (TAG), transport service provider (Stadsleveransen, Pling), academia (CU) and the private sector (VTG, VK).

3. Semi-structured interviews

I conducted five semi-structured interviews. One interviewee is an employee from TAG who has been one of the initiators of the GGN. He is working in TAG specifically on urban freight transport related topics. The second interviewee is an employee who works for the pilot service Stadsleveransen. Both became an important source for this research, because they gave insights into the actual process and relation between the actors in the GGN. I was not able to identify these aspects through the document analysis and questionnaire only. I further interviewed a researcher from Chalmers University (CU) working on the topic of sustainable urban freight from a logistic and energy perspective and an employee of Closer Lindholmen, a forum in Gothenburg that tries to connect local authorities, companies and researchers working on transport issues. The fifth interviewee is an employee from Trivector Trafik AB, a traffic consultancy in Lund, Sweden, which was responsible for the evaluation of the SMARTSET project.

4. Other sources

I also participated in the final conference of the SMARTSET project and informally talked to several participants personally and via E-Mail.

4.4. Data analysis

All data sources have been reviewed using qualitative coding. I developed a code-book (Appendix D) through several cycles (Saldaña, 2013). The first stage shows common themes from the literature review on learning theories, which were further connected to my analytical framework. In a second stage I reviewed the documents and added a third and fourth level of codes, which I revised throughout the coding process of documents, questionnaire and interviews. The aim of the coding process was to identify examples of factors that influence the learning processes.

The questionnaire was filled out by eight participants. The answers retrieved were treated as qualitative data with a specific focus on presenting the individual answers instead of trying to draw general connections through a quantitative analysis. The answers given are always analyzed with a perspective on the organization the informant is representing. I previously argued that it is important to view the given answers with a perspective of the context the participant is working in and the organization she or he is representing.

4.5. Limitations

My research approach has methodological limitations. In my data collection there has been a vast input from the traffic administration, almost becoming one of my main informants in this research. No transport service provider besides the alternatives of Stadsleveransen and Pling has been consulted. This may cause a bias in the data retrieved and therefore the analysis does not present the perspectives of all participants and interest groups involved. Further, this research relies on a small number of participants, both in the questionnaire and the interviews.

Due to time constraints and the problematic of getting the participants to agree to an interview, I was not able to provide a closer investigation of the background of the participants and the organizations they represented. This includes a lack of understanding of their organizational operations and set-ups that may enable or limit learning processes which literature has shown to be a factor that influences learning processes. Assessing organizational learning by focusing on the usefulness and dissemination of knowledge from the participant' perspective proofs to have further limitations.

The methods of a document analysis and qualitative online questionnaire may not be appropriate to investigate a topic that has previously been identified to be socially embedded. The initially planned interviews could have provided a better sensitivity for the individual's perspectives, including experiences and feelings which may be revealed in their speech.

The triangulation approach taken made the process of both retrieving and analyzing data more complex and may limit the replicability of the research approach taken. Further analytical

limitations occur in the coding process. The strict coding theme and focus on factors that influence learning from a theoretical perspective limits the flexibility of having diverse answers. Coding in itself is a subjective way of analyzing data. The first level of codes in my code book can be reconstructed and verified by consulting the theoretical literature used in this study. The third and fourth level codes and the coding process are more personally developed throughout the research process. Another person could use the same codes and still code the assessed data differently.

5. Analytical framework

The SMARTSET project follows a learning-approach that requires three different levels of interaction. The partnership consists of individuals representing a company or institution but in the first instance enables the exchange of knowledge between individual participants (*individual and social learning*). Through these representatives who engage in learning processes, knowledge from the partnership is aimed to be transferred into the organization and between organizations (*intra- and inter-organizational learning*).

To investigate the factors that influence individual and organizational learning processes, I use a framework by Brandi, U., & Elkjær (2011). In a conducted literature review they focused on the content, the process and the individual-organization relation as three important themes for understanding organizational learning processes. I expand this by further drawing on the theoretical literature described in chapter 3. My framework departs from the argument that any given learning process involves one or more *actors* that interact in a *process* in which they reflect on or internalize a specific *content*. This includes a perspective on the interactive and reflective aspects of learning processes and aims to recognize the relation between actors and individuals and their represented organization. I therefore focus on:

Know-Who: The actors who ought to learn individually or from each other.

Know-What: The content they share.

Know-How: The process and context that enables learning.

The aim of this thesis is to contribute to an understanding of what factors influence the individual, inter- and intra-organizational learning processes. The context is given by the partnership aiming to improve UFT. To operationalize this, I structure the subsequent analysis after the following guiding questions:

(1) *Who are the different participants that engage in learning processes?* By answering this, I provide an overview of the different actors in the partnership and how they are relate to each other. I will explore what interest they have in both changing the current UFT system and engaging in a learning process.

(2) *What is identified as knowledge and shared between the participants?* This question will help to better understand what has been shared and identified as knowledge. It will provide a better understanding of the envisioned solutions and what needs to be improved to further implement these. It allows examining what is regarded as useful knowledge, who appears as possessing knowledge and who as receiving it.

(3) *How do participants share knowledge and how is learning between them facilitated?* Studying the application of the tools and methods directs attention to the context and process in which knowledge is to be shared. It serves as another basis for the study of how participants interact with, and possibly learn from each other.

(4) *What do participant think about the aim of knowledge-sharing and –transfer?* Learning processes are investigated in connection to the participant's perspective in both the usefulness of the partnership for their own work and whether they shared or applied some of the knowledge provided in the partnership.

6. Results

6.1. Know-Who

The first guiding question examines the group of actors that collectively form a partnership [3] around a common interest concerning UFT and city logistics in Gothenburg. The data was retrieved from the document analysis, the questionnaire and interviews. In some cases it is further complemented by scientific articles that support or explain the findings.

6.1.1. The actors

As explained in chapter 2.1, the GGN is a public-private partnership between the City of Gothenburg, represented by the traffic administration office (TAG) and includes a variety of private actors (i.e. transport service providers, retailers, real estate owner etc.), and is also attended by two members from academia. According to TAG these actors are included because they have the ability and the "mandate" to influence UFT (Inf_11). "The companies, they can buy for example vehicles and the municipality has a mandate to change, for example through local regulations" (TAG Inf_11). The researchers are the independent facilitator, "[…] like a satellite that puts in expertise. They have no mandate to change the environment in the cities." (Inf_11).

The majority of participants in the GGN are transport service providers. Although the number of attendees occasionally varies, GGN has a stable group of members since the beginning (Inf_11). According to TAG this is a sign of trust and commitment (Inf_11). The meetings are generally open for other actors, but TAG as facilitator is not actively looking for more members (Inf_11). One TAG employee fears that a too large group comprises the effective exchange and discussions. A closer group can help to establish better trust and cooperation between the members (TAG Inf_11). Besides the municipality, every organization is only represented by one participant. This participant has the role to take part in the meetings and be a representative of the organization's interest, experiences and operations.

Between the SMARTSET project level and the local GGN the TAG employees are "the connectors" (FGM-AMOR, TAG). They are a focal point on both the local and the European level in representing and initiating the partnership. During SMARTSET meetings they engaged with other participants from European sites, including other municipality employees, other consolidation service providers and initiators of local freight networks. Their role was to disseminate information from the SMARTSET

[3] If any given information is only applicable for either the SMARTSET project or the GGN, this will be indicated to add clarity. To ensure anonymity but still give the possibility to draw connections to the answer given the organization will be included in the in-text citations.

level to the local GGN, but also vice versa. The city of Gothenburg was a "leader" (D6.4, p.6) in the project. It was identified as being already more advanced than other European sites (D6.4).

6.1.2. Their interest(s)

The document analysis revealed two themes. Engaging with other participants through the partnership is seen as beneficial for the represented organization to improve their own operations. The partnership in itself is seen as a means to address problems and challenges for UFT in Gothenburg. According to a stakeholder analysis conducted within the SMARTSET project (D2.2) reducing congestion is a common interest, but it also shows that opposing interests exist.

The *municipality*'s interests are to reduce congestion, to increase road safety and more pronounced to reduce the environmental and health impacts of UFT, including a reduction in greenhouse gas emissions and noise and air pollution (D2.2., p. 10). On a more general level, it has an interest in increasing or maintaining the economic activity in the city (Hodson & Marvin, 2010; Lindholm & Behrends, 2012). Therefore it is concerned with well-functioning UFT as it serves as an integral component of the economic sector of a city in distributing goods from and to consumers, producers, retailers (Behrends, 2011; Hesse & Rodrigue, 2004). Yet, the municipality's responsibilities concerning urban city planning is even more dynamic, since it is obligated to address and consider social, economic and environmental impacts simultaneously. Congestion is a problem for *transport service providers*. The spatial characteristics and traffic policies of a city influences the economic efficiency of UFT, and congestion can increase the time for the delivery which translates into transport costs for the service providers (Hesse & Rodrigue, 2004). However, their interest in urban consolidation services is seen as limited. A stakeholder analysis revealed that "transport and logistic operators are more watchful on the profitability of operations and on the costs of [the consolidation] service, than on the acceptance of a model envisaging consolidated deliveries" (D2.6, p. 15). They are included in the GGN to be informed about and to discuss potential regulative instruments introduced by local authorities, i.e. street access, speed limitation, vehicle length or time zones of loading and unloading, as these influence their operations (D3.2). The dialogue should allow "[…] for informed policy development" (D5.2, p. 7). The *real estate owners* are interested in the "attractiveness" of the inner city (D7.1). SMARTSET aims to reduce the number of vehicles in the inner city to "[…] [create] a more attractive urban space, which supports commerce and economic growth" (D7.1, p. 10). Shop keepers are dependent on receiving and the distribution of goods. Therefore the accessibility of goods (Lindholm & Behrends, 2012) is crucial together with improving the attractiveness of the inner city (D7.1, p.10). Both interest groups engage in the local partnership to be informed about municipal planning. Although the *citizens* are not consulted or directly involved neither on SMARTSET level nor

in the GGN they are identified as stakeholders (D2.6, p.9) as they benefit from the project through "reduction of pollution […], reduction of congestion […] and road safety […]" (D2.6, p. 9). The interest of the *academy* is specifically defined. A researcher from CU explained that the GGN meetings helped him to establish contacts to the freight operators which are useful for his research, but often difficult to establish (CU Inf_1).

The traffic administration in the given case has shown a strong intent to learn, as being a central initiator and connector. The incentive for TAG to engage in the partnership is the aim to further develop Stadsleveransen, so the service becomes independent from public funding. On a local level, they also receive feedback from transport service providers and can establish a relation with them, which can contribute to the municipal policy development. At the same time only two people are working with issues of urban freight transport and an overall connection between other the employees working on personal mobility in TAG but also other municipal departments is seen as lacking (TAG Inf_10, Inf_11).

Overall, the partnership creates a platform to discuss the problems UFT is causing and the challenges that impact its efficiency (TAG Inf_8, Inf_11). Each actor is viewed to have expertise in its own field and is therefore a source of information and knowledge. From organizational learning perspective, one possible incentive for the partnership is therefore that the knowledge shared is a resource which is useful for other participants (Easterby-Smith et al., 2008). At the same time the multitude of interests can invoke both conflicting and complementary relations between actors. For example, the accessibility of goods for shopkeepers and a reduction in the number of vehicles aimed by the municipality can create a conflicting situation. The reduction of congestion as interest of both the municipality and traffic service providers provides the possibility for collaboration. The questionnaire has shown that reducing the environmental impacts is mainly advocated by the municipality and the transport providers Stadsleveransen and Pling.

6.2. Know-What

The second guiding question examines what is identified as knowledge in the given partnership, and what is intended to be shared between the members. SMARTSET provides a frame for the content of learning by providing a pre-determined problem definition (congestion and emissions) and solutions (UCCs and low-emission vehicles). Overall, I identified two themes for what is described as knowledge: concrete strategies, and personal or organizational experiences. To support the implementation of the proposed solutions existing strategies (i.e. regulative instruments or vehicles

used) are shared between participants in SMARTSET. The project operates in four work packages. The first focuses on the concept of the "cooperative market-driven business models" and tries to develop strategies to make consolidation services self-sustaining and independent from public funding. In the second, municipal instruments for improving existing consolidation services and incentivizing the usage of cleaner vehicles are examined. Experience in using clean vehicles and current vehicle technology is shared and discussed. And networking opportunities between the European sites and on local level are enhanced (D1.1). These fore areas offer a frame for the content of the learning processes. It defines what knowledge exists that needs to be shared and learned in order to implement the proposed solutions.

6.2.1. Problem definition and envisioned solutions

The starting point of SMARTSET was the recognition that something in the current UFT systems is problematic and needs to be addressed, but solutions are available and can be strengthened by including a variety of actors in a partnership. SMARTSET identified the problems as: "Transport of goods […] contributes to a substantial part of the total emissions generated from the transport sectors, as well as congestion" (D6.4, p. 5). The project targeted to reduce the number of vehicles and promoted the use of low-emission vehicles to reduce both the environmental impact (measured in CO2 emissions reduction) and the economic impact of congestion (D1.1, p. 5). The solutions for both problems are urban consolidation centers. These are freight terminal in which goods can be consolidated and further distributed by using low-emission vehicles (including full-electrical, hybrid and bio-fuel vehicles). Consolidating goods transport should reduce the number of vehicles in the inner city and therefore contribute towards a reduction in both congestion and GHG emissions.

The questionnaire showed agreement among almost all participants that congestion is a central problem. The environmental and health impacts of UFT, however, i.e. to GHG emissions, NOx pollution and particles (PM), were only mentioned respectively by three and two participants. Aside of the negative impacts of UFT in general, a lack in the competence of local authorities and insufficient urban planning was identified to make UFT less efficient in Gothenburg (TAG Inf_8, Inf_10, Inf_11; CU Inf_4; VTG Inf_13). One participant specifically complained about "almost no restrictions of motor traffic […] and no incentives to do small deliveries with small vehicles" (Pling Inf_9). The limited amount of municipal employees working in the field of UFT at TAG was criticized and connected to "not enough attention from local politicians" (TAG Inf_11).

6.2.2. Economic and technological aspects

Essential knowledge source for SMARTSET is Stadsleveransen. As a pilot project the service is a basis for experimenting with the possible solution of consolidating goods, and the use of the UCC and the vehicles. During the project timespan of SMARTSET, the municipality aimed to further develop the service to make it independent from funding. Other participants of SMARTSET and GGN level were consulted to set a price for the service and the GGN was a platform to find potential customers, e.g. shopkeepers but also other transport service providers (TAG Inf_8 & Inf_11). At the same time Stadsleveransen was also a role model for other European sites, being an already running and established service (D3.1). An employee of Stadsleveransen and the TAG shared their experiences through presentations and reports with other participants in the SMARTSET network, including insights into providing the service, customer relations and the challenges that were encountered in the process (TAG, Inf_8 & Inf_11).

6.2.3. Regulative and incentivizing instrument

In the SMARTSET project "regulations and incentives" are regulating and incentivizing instruments that can be imposed by national and local authorities to influence the traffic in urban areas. In SMARTSET they were identified as leverage points that could promote the use of consolidation services. Examples for regulative instruments are environmental zones that restrict the vehicle type that is permitted to be used in the city (D3.1., 12ff.); Pedestrian streets limits that prohibit the vehide traffic in inner-city walking areas (D3.1., 12ff.); Time windows that restrict the loading and un-loading in the pedestrian streets (D3.1., 12ff.); Restrictions for the length of vehicles used in the inner-city to prevent congestion and problematic traffic situations (D3.1., 12ff.) Incentivizing instruments to promote the consolidation service and cleaner vehicles are e.g. exceptions from time windows (D3.1, p. 14). The use of low-emission vehicles becomes economically interesting for transport service providers when the use allows for more flexible delivery times. Also for the customers it would allow access to deliveries outside of the current time windows.

Municipalities were enhanced to give advice and insights from their own operations on how to improve local regulations in trans-network meetings (D3.1; D3.2). However, regulations and incentivizing strategies appeared to be context-dependent. As "[…] the general political framework [of the cities] differs greatly […] (D3.1, p. 5) and "[…] every city has a cultural background and different experiences design solutions can differ […]" (D3.2, p. 99). This aspect was further highlighted by one of the TAG employees in the interview (Inf_11). The regulative instruments that are used in other European cities were therefore not directly applicable in the local context of Gothenburg. On local level the perspectives from transport service providers about their daily

operations and difficulties they encounter was identified to help creating better regulative strategies (Inf_8 & Inf_11).

6.3. Know-How

The third guiding question examines how participants interact, and what methods, tools and processes are used to share and transfer knowledge.

6.3.1. Creating a dialogue

On a SMARTSET level exchange between participants was fostered through consortium meetings, two conferences and six peer review meetings. In peer review meetings one site was asked to present their case and others had the chance to ask questions and give feedback based on their own experience. The discussions were documented in small reports (D5.1.1 – D5.1.6). The conferences invited a wider public where the different European sites were able to present their local case. Guest speakers from universities, transport service providers and vehicle manufacturers were invited to provide input on various topics of freight transport.

The GGN main form of interaction is meetings. The TAG employees explained that every meeting is guided by a specific topic, e.g. a problem that one of the participants encounters or a new vehicle technology that is available (TAG Inf_8 & Inf_11). To keep the network running, problems are not only discussed, but more pro-active solutions and ideas are presented (TAG Inf_11). The discussions are less centered on what actually causes the problems, but more focus on how to minimize or change them (TAG Inf_11). The local level meetings are a platform to create a dialogue and understanding between local actors and allow the recognition on how the local actors operations are intertwined (TAG Inf_8 & Inf_11, UG Inf_3). Especially TAG highlights that the meetings help them to inform other actors about new regulations while simultaneously receiving feedback from other actors. According to TAG the direct dialogue should help to strengthen the acceptance of regulations.

6.3.2. Developing strategies

Reports and analyses in written form are accessible through the SMARTSET webpage. They were used to share information between participants in the project, and to promote the work to an outside audience. Each report focuses on a specific topic, e.g. the business model canvas for identifying how to make the UCC services economically independent from funding (D2.3); descriptions of the incentives and regulations used (D3.1, D3.2); and the set up process and experience of the local networks the actors involved (D2.2). Reports mainly rely on presenting the

different sites separately, ending with a conclusions and syntheses to present "a common approach" (D3.1). These common approaches should form a guide that can help other European cities to implement consolidation services and local freight networks based on the experience and strategies of the SMARTSET members.

6.3.3. Testing solutions

The Stadsleveransen was integral aspect of the partnership. As a pilot project it gives room for testing the services as it still receives funding. Stadsleveransen can enable learning processes on several levels. By performing the service the providers receive feedback through experience in providing the service and using vehicles.

6.4. Participants' perspective

With my fourth sub-research question I examine the participant's perspective on learning processes in the partnership. Data from the questionnaire supports the claim that knowledge is context-dependent. The transferability of knowledge from one participant to another, from one actor to another, and especially from one European site to another is not inevitably given. Interaction in local network meetings has been perceived as more beneficial for the participants then on SMARTSET level. Four participants involved in the GGN have been highly positive about their learning experience. On SMARTSET level the TAG employees working with UFT issues explained that the input of other municipalities was not useful (Inf_10 & Inf_11). During the conference and round tables, it was evident that presenting local experiences was framed by indicating the context-dependency. Local strategies were presented with the reference to "this is how it is for us" or "our case may be unique" and "this can be different in your setting" etc. This draws attention to the question of whether approaches and insights taken by the same actor in a different geographic, cultural, and political system are directly applicable and transferable.

Two themes on the actor relations in the learning processes appeared. The participants explained that they learned from someone with similar experiences or from someone who was identified to possess knowledge which was useful for improving the operations of the receiver. Therefore, some participants are viewed to have knowledge that is useful to be acquired by another member. Yet, the interest in learning from other participants varies. Gothenburg was a "lead" in the SMARTSET project and therefore one employee of TAG emphasized that there was only little to learn from other not so advanced participants (Inf_11). This indicated a rather linear conceptualization of sharing knowledge

from one participant to another, rather than co-producing knowledge. This puts an emphasis on the role of the interest and intent of both the individual and the organization in learning processes.

Additionally, the idea of mutual understanding was highlighted. When being asked what specifically it was that the participants have learned from others in the partnership, answers commonly concerned "understanding". Participants mentioned "an understanding of how logistics operators work" (Inf_9), "different conditions for transport operators to do their job" (Inf_3), and "understanding of the transport situation in Gothenburg and in general" (Inf_4) as and outcome of the partnership. Establishing a connection and trust between the actors was seen as an essential contribution of the GGN (TAG Inf_8, Inf_11, Pling Inf_9). The Pling participant stated that meetings allowed him to establish contacts and the possibility to explore how traditional transport forwarders can collaborate with his service. "Without these meeting there would have been more competition and less co-operation with [other transport service providers]" (Inf_9).

Finally, the questionnaire indicated that the partnership may only gradually enhance inter-organizational learning. I asked participants to what extent they share information with their colleagues. The answers given proved a big variety not only among the organizations but also within the same organization, namely TAG. The two TAG employees, working in the same division, stated to nearly never (Inf_10) to always share information (Inf_11) with colleagues. Some participants stated that they have shared information with colleagues to a large extant while other indicated to share information with colleagues only occasionally.

7. Analysis

Chapter 6 provided answers to all four sub-research questions of this study. This analysis will focus on the main research question. *Which factors influence individual, intra- and inter-organizational learning processes?* It is important to highlight that these factors were retrieved from all three sources of data. They should be viewed as examples and are not generalizable for all forms of learning processes that occurred as part of or as an outcome of the partnership. Yet, they will give insights into what can possibly enable or limit learning processes in a multi-actor partnership. The document analysis provided a more optimistic perception that supporting a dialogue between different actors will enable learning processes. The questionnaire and interviews revealed that there are some factors that enable and some that limit learning processes. The presentation of the factors follows my analytical approach of know-who, know-how, know-what. Yet, some of these factors are interconnected and it is important to repeat the different interaction-levels presented on which knowledge sharing was envisaged: (1) in interaction between individual participants, (2) from the individual to its organization, and (3) between the organizations on an abstract level through the former two processes.

7.1. The actors

Data has shown that the partnership identifies and assumes different actors that are to learn, from the individual that is representing the organization to the organizations themselves. The concept of "organizational learning" (Argyris & Schön, 1995), where the representative learns in the partnership and then feeds back the knowledge into the organization is present in the set-up of the partnership. At the same time, the idea of a "learning organization" (Senge, 2006) is present as well, with the focus on the municipality which is to learn in the local network to enable better municipal planning and transport policies.

- ***The relation between the individual and the organization***

The partnership is based on the idea the one individual can, and will, represent their organization. The results showed that individual learning is a cornerstone of organizational learning. The relation between the individual representative and its organization is an important factor contributing to the possibility of both inter- and intra- organizational learning processes (Easterby-Smith et al., 2008). There is significant responsibility on the individual participant, as representative of her or his organization, to learn and apply the new knowledge in organizational practices, if organizational learning is envied.

- ***The organization's ability to learn***

But the partnership does not account for the variety of organization set-ups or the role and position of the individual in the represented organization. Organizational learning as an outcome of a partnership between two or more organizations requires mechanisms at the organization level to enable learning processes (Easterby-Smith et al., 2008). The data retrieved showed one case in which this aspect was identified as lacking. The TAG employee explained that the limited cooperation within other TAG departments made it difficult for him to disseminate and apply input provided by other participants into organizational practices. It is therefore important to recognize the need for a mechanism that allows the individual representative to feed back the newly acquired knowledge to enhance intra-organizational learning. Easterby-Smith et al., (2008) call this the "absorptive capacity" of an organization in a partnership.

- ***The organization's intent to learn***

From a management perspective on inter-organizational learning both entities need to have an internal motivation to share and receive knowledge to increase their organizational performance (Easterby-Smith et al., 2008). The results provided some insights into potential motivations for the organizations to learn. Especially the TAG employees showed a willingness to learn. Further, the common interest in reducing congestion can be a motivational factor for learning processes. Yet, the pre-defined solutions in the partnership may limit the learning process, if these are not seen as useful or valid to address the problems an organization encounters (Easterby-Smith et al., 2008). This can further influence the intent to learn when knowledge provided may be correct but is not identified as useful (Easterby-Smith et al., 2008). It is therefore advised to further investigate if other organizations have shown the intent to learn.

- ***The relation of the actors in a system***

A contributing factor that can facilitate inter-organizational learning process in the partnership is the promotion of systems thinking (Tilbury, 2009). By making individuals aware that they are also connected outside the partnership through the system perspective may help to establish an understanding on how actors' actions are intertwined, and that the problems and challenges can only be addresses if actions are aligned (Tilbury 2009).

7.2. The content

- ***Problem definition and envisioned solution***

In the partnership the content was guided through the problem definition and envisioned solution. The aim of knowledge sharing and transfer was based on the identification that something in the current UFT system is problematic and needs to be addressed by implementing certain solutions. Applying Dewey's idea of the inquiry, it can be beneficial that the actors identified a problem or challenge. Learning can than appear as a strategy to formulating and finding a solution (Glasser, 2009; Tilbury, 2009).

Overall, in the partnership the problem and solution definition are pre-defined through both the project aims and the proposed solutions, but this does not mean that it covers what the individual participant actually identifies as both problem and solution. The interest of each actor can sometimes be conflicting. The likelihood of learning therefore can be influenced by what the participant's views as the problems of UFT and what is seen that needs to be changed.

- ***Context-dependency of knowledge***

With regards to the content that is shared in the partnership, much knowledge appeared to be context-dependent. This can decrease the transferability and applicability of knowledge provided by other participants. A phenomenon described by Brandi and Elkjær (2013) as "situated knowledge" may have been prevalent. A conducted case study in a Danish consultancy firm has shown that already within organizations it can be difficult to share knowledge from one employee to another (Brandi and Elkjaer, 2013), but sharing it from one organization to another through one representative may add another level of complexity. This raises a point in regards to the possible application of knowledge in solving problems and the question if knowing about certain problems but also possible solutions will make the individual and organization to act on it.

7.3. The process

When analyzing how the actors have engaged in the partnership, three aspects have shown to influence the learning process: creating a dialogue between actors, provide feedback to others actors, and testing and experimenting with different solutions.

- ***Creating a dialogue***

The GGN enables a dialogue between actors who would not necessarily engage with each outside of the partnership. This was identified beneficial by some of the GGN participants and expressed in the concept of creating a "common understanding". Loeber et al., (2009) found that the relationship between members in a partnership is important and trust and commitment are seen as two integral parts of learning in a partnership. The results showed a similar aspect in regards to the role of the

partnership in creating a “common understanding” and “establish trust”. Both can be identified as factors that enable learning processes. The partnership enabled participants to receiving feedback from other participants, both on SMARTSET and GGN level.

- ***Testing and experimenting***

The pilot project Stadsleveransen was presented in SMARTSET and GGN meeting. Participants had the chance to give feedback and advice. It is an active running service that provides a platform for testing and experimenting with the concept of a consolidation services. Further examination into the project itself is needed to provide a better understanding of the different learning process that can appear within this pilot project itself.

8. Discussion

In the introduction I emphasized that learning-induced change as a concept holds a promise for sustainability. According to Glasser (2009) "[…] any planned, directed change by individuals or collectives is built on learning." (p. 46) and Tilbury is optimistic about the potential or learning processes to introduce sustainability as well (Tilbury, 2009). My results show that there are factors that limit and factors that enable learning processes on individual- and organizational level. I do not aim to undermine the possibility of any learning process to take place, but want to emphasize the need for a methodology in the partnership. By this I mean strategies that recognize and account for the factors that influence learning processes. This includes awareness of the context-dependency of knowledge, and the intent and the ability of organizations to learn. More emphasis should be placed on the represented organizations to receive and act on newly acquired knowledge.

The factors that limit learning processes allow furthermore to critically explore the idea of learning in order to develop and implement mitigation strategies for urban freight transport. I argued that the partnership follows the assumption that knowledge sharing leads to learning and consequently to change. It builds on the idea that technological and strategic solutions are available. Learning processes at the individual and organizational levels can contribute to the development of strategies to reduce the negative environmental and social impacts of UFT. However, the actual implementation of the strategies rests on different actors. Although the partnership may enhance learning, it does not account for a potential discrepancy between learning and acting on the newly acquired knowledge. In the scientific literature review on learning, two different approaches on the relation between learning in action were present. Kolb's definition of the individual learning concludes that acting on the newly acquired knowledge is part of the learning process (Kolb, 1984). In the literature on learning for sustainability assessed, learning processes appear to be the basis for following action (Glasser, 2009; Tilbury, 2009). I argue that it is important to be more aware of the possibility that although participants may learn it does not account for actual changes to appear. It is important to open the debate about who has to learn and who has to act and implement the necessary changes.

The partnership is characterized by a variety of actors with different and common interests in changing the current UFT system. In the SMARTSET project the role of the traffic administration appeared to be central in facilitating the dialogue on local level and in developing and implementing regulative and incentivizing instruments that can support the implementation of consolidation services. Combined with complaints by participants about inefficient municipal planning and traffic

regulations it appears that the municipality is a central actor that needs to learn in order to provide better municipal planning and traffic policies.

The project has a rigid definition of the problems and the solutions. These can be potentially troublesome if solutions are proposed that are not viewed as useful or interesting for the different actors. Although the concept of consolidating goods transport should be applied by the transport service providers, SMARTSET itself recognized their limited interest in doing so. In the partnership the transport service providers are identified as important actors, but they do not appear as the ones that have to learn on how to reduce the negative impacts of UFT.

In my epistemology and ontology I established a perspective on organizations as being both defined by its members and its organizational practices. They are influenced by norms, values and structures (Elder-Vass, 2010). This aspect was taken up in the theoretical literature on individual and organizational learning alike. To better understand what may limit learning in a partnership, it is important to reveal the different individual's "theories-of-use" (Argyris & Schön, 1995) as they can influence that both individual and organizational learning take place (Loeber et al., 2009). The likelihood of learning may decrease if participants review information and input from others as wrong, inefficient or useless (Loeber et al., 2009). In this thesis I did not investigate the norms and values of the organizations presented in the partnership. I still recognize the impact they may have but will avoid to making false accusations. Therefore, I want to provide two opposing opinions on why norms and values may or may not decrease the possibility for inter-organizational learning in a partnership. According to Loeber et al. (2007) the fundamental problem is that individuals in a partnership are often not aware of the norms, values and assumptions that influence their actions. At the same time Loeber et al. give reference to Nils Röling's concept of "distributed cognition" (Röling, 2002). It describes how actors in a partnership even though having a different set of norms and values can still learn from each other and partly incorporating these opposing views (Loeber et al., 2009; Röling, 2002). This requires that the actors, although having different norms and values, to realize that they can only solve the problem by acting together and that they cannot achieve a solution on their own (Loeber et al., 2009). The partnership enables a systems thinking perspective which can help to promote that the problems can only be addressed jointly. At the same time the outline of the different interest present in the partnership allow a more pessimistic view on addressing the environmental impacts of UFT. Congestion was commonly identified as a problem that needs to be addressed. The environmental impacts however seemed to be more anticipated by the municipality and alternative transport providers like Stadsleveransen and Pling. This allows for

critically addressing whether the partnership can help to successfully address the negative environmental and social impacts of UFT.

It should be critically assessed who is included in the partnership and who is not. Although citizens were identified as stakeholders, they are not represented or consulted in the network. Looking at the partnership from participatory perspective on environmental governance it includes a variety of actors, but roles and responsibilities seem to be differently distributed. This aspect should be further investigated in regards to the claim of "better informed policy development". A strong responsibility was on both Stadsleveransen and the municipality to learn. This suggests a rather hierarchal learning relation where an entity provides input and the other receives it, rather than a form of co-learning where all actors learn with and from each other (Glasser, 2009).

Overall, I positively highlight that the municipality shows an interest in addressing the impacts of UFT in municipal urban and traffic planning. The partnership can promote a system's perspective that raises awareness among the different actors that their operations are intertwined. This can enhance a discussion on the possibility on profitability of consolidating goods. In conclusion, the partnership may enable individual and organizational learning processes, but a better understanding on how these learning processes help to implement solutions is required. More investigation and emphasis should be placed on who has to learn from whom in regards to the potential discrepancy between learning and action on the newly acquired knowledge.

9. Conclusion

In this thesis I investigated the learning processes in a multi-actor partnership. The partnership aims to reduce the negative impacts of urban freight transport in the City of Gothenburg by introducing urban consolidation centers, freight consolidation services and low-emission vehicles for the last-mile distribution. By means of sharing and transferring knowledge between practitioners on local, national and European level, these solutions were envisaged to be further developed and implemented. I started this thesis with a critical perspective on learning process that should help to achieve sustainability. In this I asked, *which factors influence individual, intra- and inter-organizational learning processes.* I used a deductive research approach and retrieved data through applying multiple methods. In the first part of the results I provided an overview on the participants in the partnership and their interest in changing the current UFT system (know-who). This was complemented by examining the content they shared (know-what) and how they engaged in a learning process (know-how). The actors in the partnership are transport services providers, the traffic administration office, real estate owners, shop keepers, and researchers. Each of them has a different interest in changing the current urban freight system. Reducing congestion appeared to be an overarching interest. Through meetings, conferences and reports they shared information on the topics of urban consolidation services, municipal regulations and incentives and low-emission vehicles. This formed that basis for the following analysis of factors that influence individual and organizational learning processes.

One factor was the relation between the individual representative and its organization. The results showed a high responsibility for the individual participant to receive and provide knowledge. Further, the representative should disseminate and apply new acquired knowledge in the represented organization. This task is influenced by the role and position of the individual to influence change in organizational practices. Further, the intent and ability of organizations to learn were two factors that influence intra- but also inter-organizational learning processes. There is a need for a mechanism that allows the representative to apply newly acquired knowledge for organizational learning to take place. The relation between the actors in the partnership – who is identified to possess knowledge and who is identified to learn – was identified as both an enabling and limiting factor. The content that was shared was framed by the problem definition and envisioned solution, as proposed in the partnership. The study showed that knowledge is context-specific, which in some case minimized the transferability and applicability for the practitioners. Learning processes were fostered through creating a dialogue between actors that would usually not interact. Promoting an understanding that the actors are intertwined through their daily operations can eventually be a

factor that promotes learning processes. Receiving feedback from other participants was regarded useful. Stadsleveransen as a pilot allows for learning processes through experimenting with possible solutions.

I conclude with the advice that it is important to understand the factors that limit and factors that enable learning processes and that both individual and organizational learning are complex social processes. In regards to learning in a partnership it appears to be useful to further focus on the organizational level, for example the intent and ability of organizations to learn. I recognized in my limitations that no closer examination of the organizations themselves has been made. Literature on organizational learning and on learning to achieve sustainability highlighted that norms, values and structures of the represented organizations can affect learning processes. This requires further investigation.

In the discussion I pointed out that it is important to understand if the shared knowledge is actually applied. I highlighted that knowledge-sharing may enhance leading processes, but it is not given that these results in implementing strategies. This is especially relevant if the aim of the partnership is to introduce change through enabling learning. A more critical perspective on the potential for learning induced change is advised. Additionally, it is suggested that a better understanding of both the interaction between the actors and the organizations in these partnerships are pursued.

Lessons learned

Finally, I want to reflect on using learning as an analytical framework. Both the data and the time frame of this research were limited, but the developed analytical framework proofed to be useful. Exploring the partnership with a wide perspective on the different actors involved, the problems and solutions presented and the processes in which they interact allowed establishing a foundation from which future research can take off. This can be useful as the establishment of UFT networks and sustainable urban mobility plans, that address personal and freight transport jointly is politically fostered by the European Union. The actor analysis can be a basis for further research into the role of the network and stakeholder engagement in environmental governance. The solutions (UCCs, low-emission vehicles, regulating and incentivizing instruments) allow further investigation into the actual environmental benefits and other alternative mitigation strategies.

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Appendix

Appendix A: List of the informants

This table provides and overview of the informants consulted in this thesis. It indicates the organization and interest group they represent, their involvement in the project and how information was retrieved from them. For the purpose of anonymity, the names of all informants have been excluded from the document.

	Organization	Interest Group	SMARTSET	GGN	Communication		
					Questionnaire	Email enquiry	In person
Inf_1	Chalmers University	Academia	x				x
Inf_2	CLOSER	Academia					x
Inf_3	University of Gothenburg	Academia		x			x
Inf_4	CLOSER, Chalmers University	Academia	x	x	x		x
Inf_5	FGM-AMOR Graz	Consultancy				x	
Inf_6	FGM-AMOR Graz	Consultancy	x			x	
Inf_7	Trivector Traffic AB	Consultancy	x			x	x
Inf_8	Trafikkontoret Stadsleveransen	Municipality Transport service provider	x	x	x		x
Inf_9	Pling Transport	Transport service provider		x	x		
Inf_10	Trafikkontoret	Municipality	x	x	x		x
Inf_11	Trafikkontoret	Municipality	x	x	x		x
Inf_12	Trafikkontoret	Municipality	x		x	x	
Inf_13	Volvo Group	Truck manufacturer		x	x		
Inf_14	Vasakronan	Real estate company		x	x		
Inf_15	DHL	Transport service provider		x			x

Appendix B: List of SMARTSET documents

All documents can be retrieved from the SMARTSET webpage under the following link http://smartset-project.eu/downloads. The abbreviations used are defined by SMARTSET according to the work packages.

Abb.	Title	Author	Year
D1	Project Management		
D1.1	Project handbook	Gothenburg	08/2013
D1.2	Final publishable report	FGM-AMOR et al.	04/2016
D2	Cooperative market-driven business models		
D2.1	Key success factors and lessons learnt for main business models in use for urban logistics and urban terminals	Gruppo CLAS	10/2014
D2.2	Report on local freight committees	Gruppo CLAS	05/2015
D2.3	Small scale demonstrations - action plan and guide for demonstrators for start and organization of business model	Gruppo CLAS	10/2013
D2.6	Market-analysis in each terminal site	Gruppo CLAS	01/2014
D3	Incentives and Regulations		
D3.1	Regulations experiences; success stories and limitations	Roma Servizi per la Mobilità	04/2014
D3.2	Regulations and incentives to support market-driven business models for urban freight distribution	Roma Servizi per la Mobilità	04/2015
D3.3	Synergy report on strategies, action plans and key findings across all sites	Roma Servizi per la Mobilità	04/2016
D4	Clean vehicles in transport		
D4.1	Development of common assessment parameters and methodology for test of clean vehicles	University of Newcastle	04/2015
D4.2	Assessment of clean vehicle performance in relation to each market-driven freight terminal business model	University of Newcastle	03/206
D4.3	Guidelines on how to increase the existing potential of e-mobility in urban logistics	University of Newcastle	04/206
D5	Networking and exchange of experience		
D5.1.1.	Documentation of peer review meeting - Graz	FGM-AMOR	11/2013
D5.1.2	Documentation of peer review meeting - Berlin	FGM-AMOR	05/2015
D5.1.3	Documentation of peer review meeting - Padova	FGM-AMOR	10/2014
D5.1.4	Documentation of peer review meeting - Newcastle	FGM-AMOR	05/2015
D5.1.5	Documentation of peer review meeting - Rome	FGM-AMOR	02/2016
D5.1.6	Documentation of peer review meeting - Sundsvall	FGM-AMOR	03/2016
D5.2	Network cooperation plan	FGM-AMOR	12/2013
D5.5	Final report on networks and trans-network cooperation	FGM-AMOR	
D6	Project Evaluation and Recommendations		
D6.2	Common process evaluation plan	Trivector	10/2013

D6.3	Common and local impact evaluation plans	Trivector	01/2014
D6.4	Preliminary evaluation results and recommendations	Trivector	10/2014
D6.5	Final results, conclusions and recommendations	Trivector	04/2016
D7	Dissemination and Target Group Communication		
D7.1	SMARTSET project and local dissemination plans, including corporate design	FGM-AMOR	08/2015
D7.7	Final report on communication and dissemination	FGM-AMOR	04/2016

Appendix C: Qualitative online questionnaire

This is the list of all question asked in the online questionnaire. Answers to question number 6 until 11 were only answered by participants of SMARTSET.

1.	From the perspective of your company, institution or organization, what problems is urban freight transport causing in Gothenburg?	Multiple choice
2.	From the perspective of your company, institution or organization, what is making urban freight transport in Gothenburg less efficient?	Open question
3.	Are you part of the Gothenburg Freight Network?	Yes or no?
4.	Have you heard about the Smartset project before?	Yes or no?
5.	Did you participate in the Smartset project, e.g. by attending a Smartset conference and/or trans-network meeting?	Yes or no?
6.	Did your perception of the problems urban freight transport is causing change through your participation in the Smartset project?	Likert Scale
7.	Did your perception of the challenges urban freight transport is facing change through your participation in the Smartset project?	Likert Scale
8.	How beneficial were the trans-network meetings for your own work?	Likert Scale
9.	Please specify whose contribution in the meetings was the most useful for your own work, your organization or institution?	Multiple choice
10.	What activities in the Smartset project helped you to share and receive information?	Multiple choice
11.	To what extent do you think you have learned from other participants?	Likert scale
12.	What did you learn from other participants in the meetings that was useful for your own work?	Open optional question
13.	How beneficial was your participation in the Gothenburg Freight Network for your own work?	Likert Scale
14.	Please specify whose contribution in the meetings was the most useful for your organization or institution?	Multiple choice
15.	To what extent have you learned from other participants?	Likert Scale
16.	What did you learn from other participants in the meetings that was useful for your own work?	
17.	To what degree did you share information from the meetings with colleagues or other employees at your company, organization or	Likert Scale

	institution?	
18.	Did the information from other participants lead to any new operations, activities or plans in your organization, company or institution?	Open question
19.	If yes, please indicate which ones?	Open question
20.	From your perspective, what hinders and enables sharing information in the Gothenburg Freight Network and/or the Smartset project? How could it be improved?	Open question
21.	Please provide your name.	Open question
22.	Please indicate which organization you belong to.	Open question
23.	Please indicate your gender.	Open question
24.	Please indicate your age.	Open question
25.	Any further comments or questions?	Open question

Appendix D: Code Book

This is an extract of the initial code book. It was extended after the questionnaire.