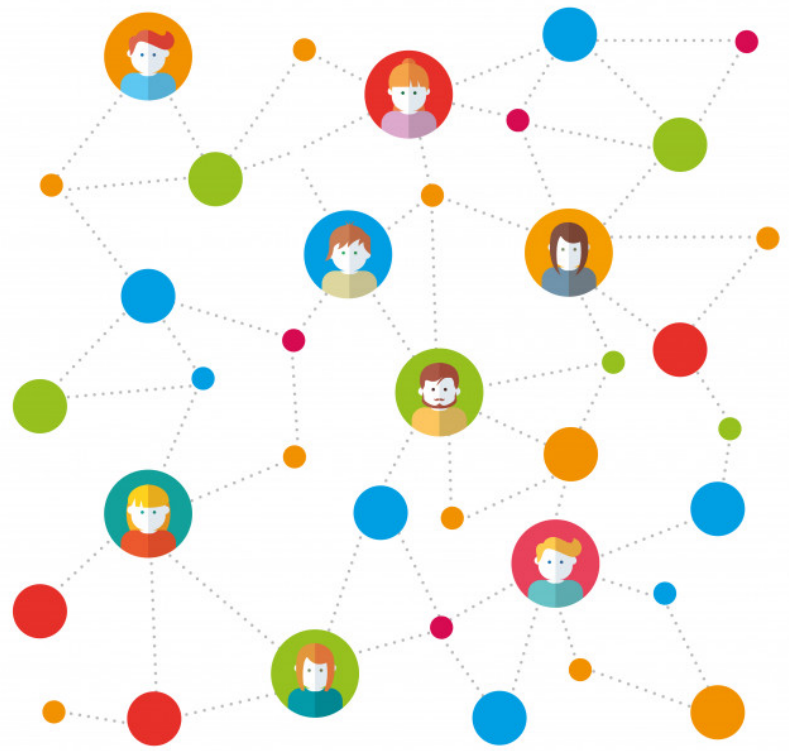
The relation between Proximity and Transnational Learning in Pan-European Networks: A Case Study on the URMA project



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by

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To be surprised, to wonder,
is to begin to understand.
José Ortega y Gasset

(1883 – 1955, Spanish liberal philosopher and essayist)

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Abstract

The EU's motto: "United in Diversity" plays a central role in Pan-European Networks, as it is assumed that diversity in these networks will stimulate learning between partners. Nevertheless, theory shows that more proximity between partners will generate more learning (Boschma, 2005). This thesis examines the above by investigating the relation between proximity and knowledge transfer. Proximity is operationalized by employing an adapted version of Boschma's five-fold proximity framework covering geographical, institutional, cognitive and organizational proximity. On the other hand, learning is operationalized through a version of Nonaka and Takeuchi's (2005) SECI model based on the identification of four modes of knowledge conversion. The case study chosen to research this relationship is the following: Urban-Rural Partnerships in Metropolitan Areas (URMA). URMA is a European Regional Initiative Project which consists of seven regions, namely: Hamburg (Germany), the Tuscany Region (Italy), the Lombardy Region (Italy), Krakow (Poland), Szczecin (Poland), Borne (the Netherlands), Enschede (the Netherlands). Between 2012 and 2014 these seven regions have come together to exchange knowledge and experiences on the topic of Urban-Rural Partnerships. This research demonstrates that there is no relation between proximity and learning. Yet, another variable is apparent, which is strength. In this context strength may be seen as experience, expertise on the topic in question and the welfare level of partners. It has been determined that partners with lower strength levels are able to learn from partners with higher strength levels and partners with higher strength levels are able to learn from each other. This means selecting partners with different strength levels will stimulate learning

Key words: proximity, learning, knowledge transfer, SECI, networks, projects, Europe, Urban-Rural Partnerships in Metropolitan Areas (URMA), INTERREG

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1. Introduction

1.1 Learning and knowledge transfer within European Regional Innovation Networks

Learning across borders, also known as transnational learning, has become highly valuable to identify best practices of good governance. In the past years the emphasis has been laid on bringing together heterogeneous coalitions of partners from very different backgrounds in order to optimize the range of experiences that can be shared (Rodan & Galunic, 2004). In the literature, in the majority of the cases it is argued that the more proximity that exists between partners, the more they will interact and learn from each other (Boschma, 2005). Nevertheless, learning theory also shows that heterogeneity between partners can exemplify a substantive barrier to learning (Boschma, 2005). The European Union is likewise an institution that promotes and enables transnational learning by providing funding to member states through a broad range of programs and projects. The aim is to strengthen the competitive position of Europe in the global economy. A wide range of actors from different European countries collaborate in these projects to seek solutions for current and future challenges. Yet, the focus on transnational learning and gradually knowledge transfer linked to proximity is not taken into account in the scientific research on EU innovation networks and if so, only to a very limited degree. This thesis will explore to which extent learning in heterogeneous transnational networks is affected by the closeness of partners, hence described in this thesis as *proximity* between partners.

1.2 Scientific relevance

Within Pan European Networks, transnational learning and knowledge transfer are central phenomena (Marraocu et al. 2013; Colomb, 2007). On the one hand heterogeneous partnerships bring a large amount of variety of experiences together. However, too much proximity between partners may hinder learning; if partners are very similar there is no space to learn. Yet, at the same time, too much heterogeneity will undermine learning experiences as well; if partners are very proximate they will have no affiliation to one another (Fritsch & Kauffeld-Monz, 2010). In this context, proximity plays a vital role in reaching an optimal level of learning and knowledge transfer. Moreover, transnational learning does not happen automatically. The interpretation of information is not a neutral process because knowledge transfer involves the recipient to assess the relevance of the information for his or her own context (Hachmann, 2016). For this reason, I will use proximity to address and explore the extent to which transnational partnerships depend on the degree of cognateness between partners in order to learn from each other. In this case, transnational learning and knowledge

transfer may be seen as an interactive process where knowledge is made accessible between international partners who all have their own geographic, institutional, cognitive and organizational setting (Hachmann, 2008).

Taking the above into account, this thesis will investigate to what extent transnational learning and knowledge transfer has taken place on basis of proximity between partners through analysis of a specific case study: Urban-Rural Partnerships in Metropolitan Areas (URMA) (Dej, 2014). This project has been funded by the European Regional Development Fund through the INTERREG IVC program (URMA, n.d-a.). INTERREG IVC's overall objective is to help regions share solutions and to enable public institutions all over Europe to learn through cooperation (Interreg, n.d.). This case study has been chosen because it contains a relatively rich data source in which both learning and proximity can be explored in order to provide a deeper understanding of this important theoretical question on the effect of proximity to learning. Furthermore, the diversity in location between the partners of the URMA network yields a solid basis to study proximity (URMA, n.d.-c). The prime focus will be to understand the effect proximity has on transnational learning and knowledge transfer. In such a way, proximity may be used as a tool that allows cities and regions to determine what opportunities there are for learning and knowledge transfer with future partners in advance. In this thesis proximity will be operationalized into a number of dimensions, namely: geographic, institutional, cognitive and organizational proximity. Whereas learning will be assessed through a version of Nonaka and Takeuchi's (2005) SECI model.

1.3 Social relevance

The social relevance of this thesis is of great interest to policy makers who are engaged in setting up transnational networks. In general, the notion of proximity has not been thoroughly reflected upon by European institutions. It is assumed that diversity in Pan European Networks will stimulate learning between partners. as also can be deducted from the motto of the EU: "United in Diversity" (Knieling & Othengrafen, 2009). Yet, it is unclear where to draw the line between diversity and the ability to learn. In this thesis interesting learning moments will be addressed for partners wishing to seek other partners for collaboration but also for the European Commission to rethink its INTERREG framework (Hachmann, 2008).

1.4 Research question

The following research question has been set out: "*To what extent does geographical, institutional, cognitive and organizational proximity affect knowledge transfer between partners of the URMA network?*"

The aim of the research question is to identify to what extent proximity affects knowledge transfer between project partners. The dependent variable is transnational learning and the independent variables entail geographic, institutional, cognitive and organizational proximity. This thesis will take on a mixed approach of both quantitative and qualitative research. accurate levels of geographic, institutional and cognitive proximity according to statistics (quantitative data) of the regions themselves will be utilized. For organizational proximity it will be investigated if partners have worked together before and/or have had prior communications. Additionally, semi in-depth interviews will be conducted with project partners and other contacts, which were active in the project (qualitative data). Accordingly, the method of comparing cases (i.e.: comparing project partners) has been chosen as research approach. This research is of exploratory nature because it will be investigated in which way proximity and learning function within the URMA network.

In order to address the research question, multiple sub-questions have been formulated:

- SQ1: How was the URMA network constructed?
- SQ2: To what degree has proximity been apparent between partners within the network?
- SQ3: To what degree has learning taken place between the transnational partners?
- SQ4: Is there a relation between proximity and learning?

The first sub-question aims to provide a general understanding on how the URMA network came into being and how partners came together. The second sub-question will evaluate the difference of geographical, institutional, cognitive and organizational proximity between partners in the network, matters such as: which partner in the network is the most proximate to other partners, if perhaps certain proximity dimension are more relevant than others will be discussed. The third sub-question will assess learning according to the SECI model; which types of knowledge have been transferred between partners.

The fourth sub-question seeks to identify if there is a relation between proximity and knowledge transfer from the results of the gathered data from sub questions 3 and 4.

2. Literature Review

2.1 The Origins and Importance of Proximity

Within the scientific literature, in the majority of the cases it is argued that the more proximity that exists between partners, the more they will interact and learn from each other (Boschma, 2005). Proximity is a multifaceted concept, which in recent times, often is used for developing theoretical and empirical analyses (Carrincazeaux, Lund & Vincete, 2008). Proximity can be seen as the 'closeness' or 'homophily' between actors, thus in how far actors actually are similar and are able to relate to one another. The first institution to propose and discover various proximity dimensions was the French School of Proximity (Balland, Boschma & Frenken, 2015). In the early 1990s French regional scientists made an attempt to develop a new conceptual and methodological avenue to study spatial dynamics (Carrincazeaux et al., 2008). The principal idea is that various forms of proximity reduce the coordination costs in interactive knowledge creation (Hansen, 2015). A crucial development for studying proximity took place in 1997, i.e.: the death of distance argument arose, in which Cairncross (1997) argues that distance will become less important in the future. "The death of distance will transform the availability of information and knowledge, the fundamentals of economic growth" (p.230). The significant rise of temporary transnational cooperation and the rise of projects is a consequence of the death of distance argument. Likewise, Crevoisier (2009) states that it is no longer possible to understand innovation independent from space. The territory characterizes innovation by means of its relations with others, this includes those which are located at a greater distance. Actors which are far apart (e.g.: from different countries or from different continents) are now able to work with each other, for instance, by being situated in the same network. Over time partners will become acquainted with the others way of working, which, in turn will impact proximity in a way that partners are likely to grow closer together. Hence, proximity still matters but is changing concept.

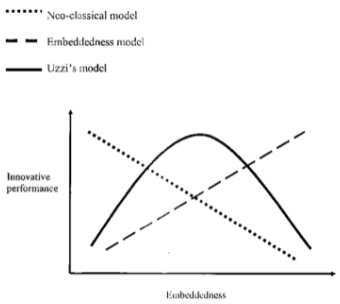


Figure 1. Relationship between degree of embeddedness and innovative performance. Source: Adapted from Boschma (2005, p. 67)

Boschma (2005) asserts that there is relationship between the degree of embeddedness[1] and the innovative performance of regions. A network must have the appropriate mixture of the degree of embeddedness (lowering transaction costs and to facilitate inter organizational learning) and keeping partners within the network alert, open-minded and flexible. In such a way, the network will be able to function effective (and efficient) as possible. This is illustrated in an inverted U-shape. This U-shape illustrates that too little proximity (being too far apart) or too much proximity (being too close) are both disadvantageous to learning and innovation. Likewise, the 'Goldilocks principle' affirms that when partners "involved in the network are located at the 'right' distance, i.e. 'not too close and not too far' from one another, across non-geographical proximity dimensions" (Fitjar, Franz Huber & Rodríguez-Pose, 2016, p.465) an optimal distance can be achieved. Thus, both variation and heterogeneity are needed to reach an optimal level of learning. If the difference in proximity between partners is too large, this will lead to a lack of understanding between partners in which one's experience cannot be applied and transferred to another partner's context. If the difference in proximity between partners is too small, partners will not be likely to learn from each other because they are too similar.

In total Boschma (2005) sets out five sorts of proximity: cognitive, organizational, social, institutional and geographical proximity. As a matter of fact, it is not necessary for all proximity variables to be present to reach learning and innovation. Proximity variables may act as substitutes to one another (Boschma, 2005). Balland (2012) has illustrated empirical evidence that proximity dimensions influence the evolution of collaboration networks. This is essential to take into account because in this way, proximity can shape and influence the structure of a network. I will specifically focus on four types of proximity, namely: geographic, institutional, cognitive and organizational proximity[2]. Firstly, I will describe the proximity variables in the way that other scholars have produced them. Secondly, it will be examined in which way the different proximity variables can act as substitutes to one another. Thirdly, I will explain the concept of transnational learning and knowledge transfer and how these concepts relate. Lastly,

[1] In this context embeddedness means that economic relations are often embedded in a social context (Boschma, 2005)
[2] Social proximity will not be included in this analysis because this dimension interferes with the dependent variable transnational learning, also known as knowledge transfer, as well as with the variable organizational proximity

the SECI model[3] will be elaborated upon, which will – further on in this thesis – be linked to the four proximity variables set out. The SECI model will be used to categorize knowledge transfers, which have taken place in the network. The theoretical approach of Boschma (2005) will be taken as the underlying theoretical framework within this literature review due to the fact that Boschma's framework provides the foundation on the relationship between proximity and innovation.

2.2 The Dimensions of Proximity

In this section the various dimensions of proximity will be elaborated upon. It will be accentuated how other scholars have defined and produced the variables of proximity. This is of crucial importance in order to solely understand the variables and see how they may function within a network. Finally, it will also be investigated in which way proximity dimensions can act as substitutes to one another, so in which way one proximity variable may compensate to another.

Geographic Proximity

Geographic proximity is defined as "the spatial distance between actors" (Boschma, 2005, p. 63)

Balland (2012) explains geographic proximity by: "the physical distance that separates two organizations, and it can be measured by a metric system (miles or kilometres) or by using travel times" (Balland, 2012, p.743). Knoben & Oerlemans (2006) highlight the fact that some studies define geographic proximity by the absolute geographic distance between separate actors, whereas others view the distance as relative to the means of travel time or the perceptions of these distances by actors themselves. Short geographic distances bring actors together, favor interaction with a high level of information and facilitate the exchange of notably tacit knowledge between actors (Knoben et al., 2006). Hence, short distances may accommodate social interaction and trust building. The larger the geographic distance between partners, the less the intensity of positive externalities, and the more difficult it is to transfer tacit knowledge and sometimes even codified knowledge (Boschma 2005; Howells, 2002). Yet, due to the advanced communication technologies nowadays, networks in which learning takes place are not inevitably spatially de-limited (Boschma, 2005). The death of distance argument fits in this situation, i.e.: through advanced communication methods (long distance phone calls, email, the Internet), which arose in the 20th century it is easier to communicate over

[3] A model in which knowledge is categorized by different phases of knowledge conversion (socialization, externalization, combination and internalization)

long distances. Thus, distance significantly plays a lesser role in society today (Cairncross, 1997). In 1997 Cairncross wrote: "the death of distance as a determinant of the cost of communicating will probably be the single most important force shaping society" (p.1).

Temporary geographical proximity

As illustrated in the above, geographical proximity does not essentially have to be in place for interactive learning to take place (Boschma, 2005). The transfer of knowledge (tacit knowledge in particular) is often associated with geographical proximity. However, within the dimension of geographic proximity there is also the notion of temporary geographical proximity. This belief implies that actors do not need to be in constant geographical proximity when collaborating with one another. As a matter of fact, meetings, study visits and temporary co-location might be adequate for actors to build up other forms of proximity, which allows collaboration over a larger geographical distance (Knoben et al., 2006). EU innovation projects are characterized by partners coming together to exchange experiences and best practices with one another over a certain amount of years. Partners are encouraged to come together because they are striving for a collective purpose as well as striving towards their own objectives within the scope of the project. Torre (2008) also questions the relevance role of geographical proximity. Within temporary geographical proximity a few requirements must be taken into account, such as the need for face-to-face contact, trips and visits in order to be able to exchange certain types of knowledge. Bunnell & Coe (2001) refer to this as the "de-territorialisation of closeness" (Fuchs & Shapira, 2005). Partners will come together few times a year over the project lifetime of two years. Hence, embeddedness, as well as innovative performance are able to be developed within the geographic dimension. In this thesis geographical proximity is defined as the exact distance in kilometers.

Institutional Proximity

Institutional proximity involves that "interactions between players are influenced, shaped and constrained by the institutional environment" (Boschma, 2005, p. 63; Kirat & Lung, 1999)

Marrocu, Paci & Usai (2013) affirm that institutional proximity entails the effective transmission of knowledge and that a common institutional framework must facilitate this. Carrincazeaux et al. (2008) advocate that institutional proximity "rests on the players' sticking to shared rules of actions –explicit or implicit rules (habituses) – and, in some cases, to a shared system of representations, and even values" (p. 619). Hansen (2015) describes institutional proximity as: "the extent of shared norms, habits, rules

and laws between economic agents" (p. 1674). Capello (1999) and Kirat & Lung (1999) believe institutional proximity "facilitates collective learning by allowing free knowledge transfer among agents based on a common space of representations, models, norms, procedures and rules being applied to thought and action" as cited by Knoben et al., (2006, p. 76). Broekel (2015) examines institutional proximity as the degree to which organizations are subject to an identical institutional framework at the macro-level. Torre & Gilly (2000) believe institutional proximity to be "the adhesion of agents to a common space of representation, of patterns, and of rules of thought and action (p. 174)". Knoben et al. (2006) find that "the concept of institutional proximity is generally based on similarities between the institutional frameworks of countries and regions, such as legislative conditions, labor relations" (p. 76). The theory of Knoben is taken as guideline for defining institutional proximity in this thesis. Formal institutions can be conceived as laws and rules and informal institutions can be conceived as cultural norms and habits. Taking this into account, institutions are enabling and/or constraining mechanisms that affect the level of knowledge transfer and interactive learning.

Cognitive Proximity

Cognitive proximity withholds that "people sharing the same knowledge base and expertise may learn from each other" (Boschma, 2005, p. 63; Nooteboom, 2000)

In order for cognitive proximity to be high actors must have a shared knowledge base in order to communicate, understand and process new information in a successful way (Boschma, 2005, p. 63; Lambooy, 1999). Hansen (2015) explains that cognitive proximity may be associated with "the similarities and capabilities of economic agents" (p. 1674). Knoben et al. (2006) reveal that in order for actors to transfer new knowledge in an effective way, actors need to have a similar frame of reference. Marrocu et al. (2013) illustrate that knowledge transfer calls for a specific and an appropriate absorptive capacity, which requires a homogenous cognitive base in order to process and understand new incoming knowledge effectively, in this case, there is a necessity to effectively transfer knowledge by identifying, interpreting and exploiting the new knowledge. It must be taken into account that there is a localized nature to knowledge because of this cognitive differences tend to exist (Antonelli, 1995; cited in Marrocu et al. 2013). Balland et al. (2015) specifically look at the co-evolutionary dynamics between proximity and knowledge networks. For effective knowledge networking to take place, a minimum level of cognitive proximity is necessary (Balland, 2015).

Organizational Proximity

Organizational proximity may be defined as "the capacity to coordinate the exchange of complementary pieces of knowledge owned by a variety of actors within and between organizations" (Boschma 2005, p. 64)

Torre et al. (2000) define organizational proximity by "the same space of relations" (p. 174). This can be specified by the fact that there are two types of logic to space. Firstly there are actors that belong to the same space of relations (firm, network, etc.) and secondly there are actors, which have the same, reference space (i.e.: in how far actors can relate to one another concerning knowledge on specific topics) (Torre et al, 2000). Marrocu et al. (2013) perceive that organizational proximity concerns the relations within the same organization or group. Similarly, Davids & Frenken (2017) affirm that organizational proximity refers to the membership to the same organizational body (Balland, 2012). Hansen (2015) articulates that organizational proximity may be expressed through "the extent of control of relations through intra- or inter-organizational arrangements. The degree of hierarchy has a great impact on the ability to coordinate economic activity and avoid uncertainty and opportunism" (p. 1674). Carrincazeaux et al. (2008) believe organizational proximity relates to "complementary resources held by players that could potentially participate in a common productive process, within the same organization (firm, group), or within a set of interacting organizations (cooperation network, industry, local productive system)" (p.619). When organizational cultures are similar, organizations and/or actors are expected to interact more easily because common interpretations and routines allow actors to easily communicate with on another (Knoben et al., 2006). Following Knoben et al. (2006) we regard cultural proximity in its broadest sense as being a subset of organizational proximity and for the remainder of this thesis it will be treated as such. For organizational proximity it depends which definition is taken to decide if an inverted U-shape is expected. In this thesis, organizational proximity is primarily seen as having membership to the same organizational body (Balland, 2012). The embeddedness literature suggests that the more socially embedded the relationships of a firm are, the more interactive learning, and the better innovative performance will be (Boschma, 2005).

Proximity dimensions: substitutes to one another

Proximity may be a driver for agents to connect as well as exchange knowledge. As seen from the inverted U-shape, too much proximity between agents might not automatically increase innovative performance and may possibly even harm it (Broekel & Boschma, 2012). It is important to realize that excessive proximity in one dimension may be

compensated by some degree of distance on another dimension and can still enhance the innovative performance (Broekel et al., 2012). In such a way proximity is additive, the more proximity, the better, because proximity variables may act as substitutes to one another. Besides geographical proximity, other proximity dimensions are key in understanding interactive learning and innovation (Bunnell et al., 2001). Thus, non-spatial proximity dimensions can be substitutes to geographic proximity (Boschma, 2005; Hansen & Mattes, 2017). Broekel (2015) asserts that geographic proximity is mainly seen as the facilitator of the other types of proximity in Boschma's framework. Nevertheless, Torre & Rallet (2005) highlight the fact that geographic proximity alone cannot create collaborations amongst (economic) actors at the local level. Gertler (2003) emphasizes that overall the main challenge for long-distance collaborations is to overcome institutional differences between partners (Hansen, 2015). Gertler (2003) further advocates that organizational proximity is insufficient for organizations to engage in effective interactive learning activities when organizations are situated in different institutional contexts (Boschma, 2005). Minin & Rossi (2016) express that trust is much easier achieved among actors who share a common background geographically and culturally as also demonstrated in the work of (Boschma, Balland, and de Vaan 2014, pp. 246–248; Schilling and Phelps 2007; Wong 2010). Broekel & Boschma (2011) present evidence in a case of small firms that the relation between geographic and cognitive proximity is complementary in character (Broekel, 2015). This is because links are more likely to be characterized by geographic and cognitive proximity than geographic proximity alone. Hence, geographical and non-geographical proximity tend to be positively correlated (Broekel, 2015). A reason for this can be explained by the fact that geographical proximity may facilitate the creation of other forms of proximity (Balland et al., 2015). Boschma (2005) believes that cognitive proximity is a prerequisite for an interactive learning process to take place. In this sense cognitive proximity weighs more than the other proximity dimensions.

2.3 Transnational learning & knowledge transfer

This thesis investigates the relationship of partner proximity and knowledge exchange between partners in European knowledge networks. Knowledge networks seek to promote learning between partners. Yet, a prime goal of knowledge networks is to actually exchange knowledge. Learning may be seen as the process, which enables new knowledge. Knowledge may be seen as the content, which in turn may impact future learning (Hachman, 2016). Knowledge transfer indicates that learning is taking place, in such a way; knowledge transfer is an activity that is associated with learning. In this

sense, I argue that for transnational knowledge exchange to take place, learning will be a dominant present factor.

In my research I will study in which way this process of learning takes place. Learning is a difficult concept to measure. For this reason, I will utilize the SECI model in order to examine the process of learning. This model recognizes that the learning process goes through different stages. When partners undertake learning together through (complex) activities, a process follows in which project partners generate shared understandings, also known as 'tacit knowledge' that are then codified and shared with others. Finally, this knowledge may be enacted by the project partners and become 'localized' knowledge. In this way, the SECI model can be seen as a practical tool to identify whether or not these complex forms of learning are taking place within the network, through the process of knowledge transformation, i.e.: from tacit, to codified, to tacit knowledge. For the purposes of this research I am going to look specifically at these transformation processes as the basis of understanding learning and in order to see when learning is taking place. Thus, the focus in this section will be on the SECI model and its four different types of knowledge conversion between tacit and codified knowledge, which will further be explained below.

2.4 SECI model

The SECI model emerged from research in knowledge management, has been presented by Ikujiro Nonako and has later been refined by Hirotaka Takeuchi (Xu, 2013). SECI stands for socialization, externalization, combination and internalization, these four stages are also better known as the four modes of knowledge conversion. Hence, the main aim of the SECI model has been to explain the interaction between tacit and codified knowledge, in this case interaction is defined as 'knowledge conversion'. As a result of this conversion process, explicit and tacit knowledge will expand both in quantity and quality, thus knowledge creation comes into being (Nonaka et al., 2000). Nonaka, Toyama & Konno (2000) assert that: "the organization is not merely an information processing machine, but an entity that creates knowledge through action and interaction" (p. 6). Knowledge is a dynamic concept because it is created among social interactions of individuals and organizations. Furthermore, knowledge depends on a particular time and space and therefore is context-specific (Nonaka et al., 2000). "Knowledge creation is a continuous, self-transcending process through which one transcends the boundary of the old self into a new self by acquiring a new context, a new view of the world, and new knowledge." (Nonaka et al., 2000, p. 8). In organizations

knowledge production is created through the interaction between explicit and tacit knowledge.

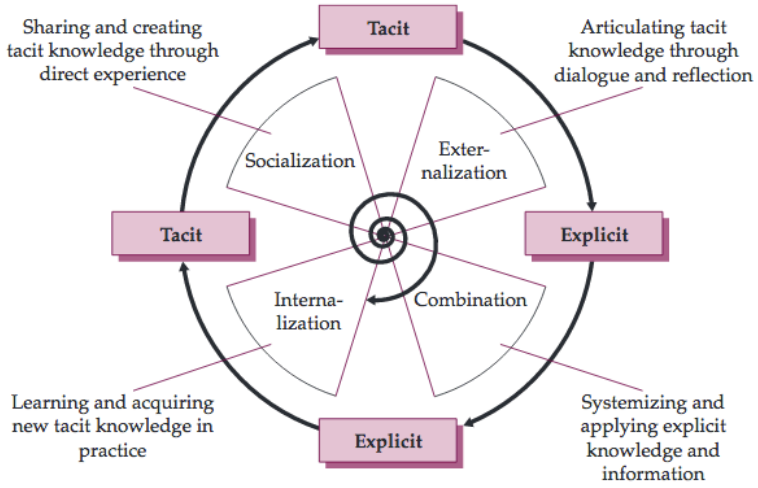


Figure 2. The SECI model (Socialization, Externalization, Combination, Internalization). Source: Adapted from Nonaka & Takeuchi (1995)

Tacit and codified knowledge

Table 1: Distinction between explicit and tacit knowledge

Explicit knowledge	*Tacit knowledge*
Explicit knowledge: "easily expressed and communicated in the form of written documents, such as reports or manuals" (Hau et al., 2012, p. 356, Nonaka & Takeuchi, 1995).	Tacit knowledge: "not easily codified or articulated because it is embedded in an individual's brain or experience, such as know-how or skill" (p.356) (Nonaka, 1994).
Explicit knowledge: "academic knowledge or know-what that is described in formal language, print or electronic media, often based on established work processes, use people-to-documents approach" (Smith, 2001, p. 314)	Tacit knowledge: "practical, action-oriented knowledge or know-how based on practice, acquired by personal experience, seldom expressed openly, often resembles intuition (Smith, 2001, p. 314)

Table 1 displays the definitions of the two central key terms, i.e. explicit and tacit knowledge. As defined, explicit knowledge is documented knowledge, which is now accessible for others. Explicit knowledge requires a certain level of academic knowledge or understanding, which is acquired through education or study. This explicit knowledge can be reused to solve problems or to connect people with valuable as well

as reusable knowledge. On the other hand, there is tacit knowledge, which is more difficult to share amongst partners than explicit knowledge due to the fact that sharing tacit knowledge costs significantly more time and effort (Nonaka, 2000). Tacit knowledge can be seen as knowledge, which cannot easily be expressed in words. The philosopher Polanyi (1967) compared tacit knowledge to riding a bicycle, in short knowing how to do something without actually thinking about it. Generally, tacit knowledge is likely to be of a local nature because the knowledge is not found in e.g. files, manuals or books (Smith, 2001). "Tacit knowledge is technical or cognitive and is made up of mental models, values, beliefs, perceptions, insights and assumptions." (Smith, 2001, p. 314).

Four modes of knowledge conversion set out in the SECI model

Phase 1: socialization (tacit to tacit)

Socialization takes place within a network when project partners are able to share newly, not easily articulated knowledge – tacit knowledge – with one another

Socialization involves tacit to tacit knowledge; the conversion of new tacit knowledge through shared experiences. "Tacit knowledge is difficult to formalize and communicate and it therefore quite personal and context-specific" (as cited in Polanyi, 1966). Tacit knowledge can transferred through observation, imitation and practice (North & Kumta, 2014). By observing, imitating or practicing one may become "socialized" into a particular way of doing things (Smith, 2001). Nonaka et. al (2000) state that in general, tacit knowledge is difficult to formalize and can only be obtained through shared experience, e.g.: spending time together/being situated in the same environment. Along the same lines Dubberly & Evenson (2011) define socialization as follows: "the process of converting new tacit knowledge through shared experiences in day-to-day social interaction" (p.76).

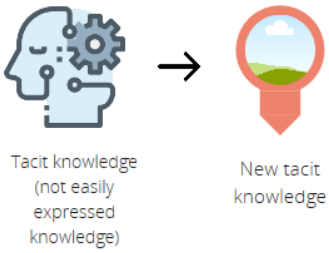


Figure 3. Socialization within the SECI model (Socialization, Externalization, Combination, Internalization)

Phase 2: externalization (tacit to explicit)

Externalization encompasses knowledge that first couldn't easily be expressed is now written down

Externalisation involves the process of expressing tacit knowledge into explicit knowledge. When tacit knowledge is made specific, knowledge is 'crystallised' and this knowledge is now able to be shared with others (Nonaka et al., 2000). Stewart (2997) states: "converting tacit knowledge into explicit knowledge means finding a way to express the inexpressible" as cited in Smith (2001, p. 316). These hidden concepts and or knowledge are directly made explicit through written documents. (Dubberly & Evenson, 2011).

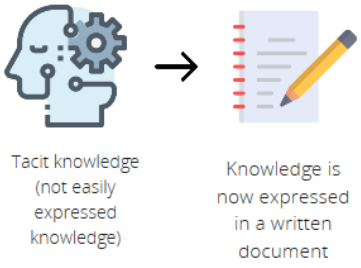


Figure 4. Externalization within the SECI model (Socialization, Externalization, Combination, Internalization)

Phase 3: combination (explicit to explicit)

Concepts are improved by combining or breaking down different types of explicit information

Combination involves the process of converting explicit knowledge into more complex form of explicit knowledge in a systematic way (Nonaka et al., 2000). In other words: "combination synthesizes knowledge from many different concepts in one concept". Hence separate pieces of explicit knowledge are combined into a whole (Smith, 2001). Nevertheless, combination may also include the breakdown of concepts, breaking down concepts likewise generates systematic, explicit knowledge (Dubberly & Evenson, 2011). The combination phase takes place when explicit knowledge is sorted, added, combined and categorized. In proper sequence this may lead to new information (Mariussen & Virkkala, 2013). When the combination phase is in place, it may be concluded that "explicit knowledge has been collected from inside or outside the organization (from one partner region to another) and then combined, edited, or processed to form more complex and systematic form of explicit knowledge" (Chou & He, 2016, p. 150).

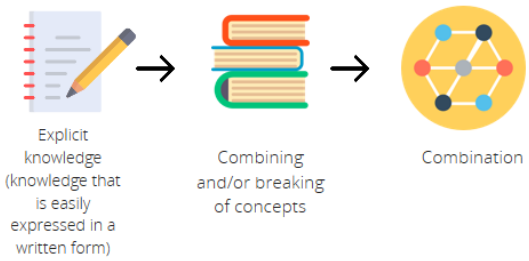


Figure 5. Combination within the SECI model (Socialization, Externalization, Combination, Internalization)

Phase 4: internalisation (explicit to tacit)

By applying knowledge in a practical setting, from explicit to tacit, knowledge is brought to a higher-level knowledge creating entity (Dubberly & Evenson, 2011)

Internalization involves the process of incorporating explicit knowledge into tacit knowledge. Individuals are able to "reframe or interpret explicit knowledge using a person's frame of reference so that knowledge can be understood and then internalized", only then tacit knowledge become part of a person's knowledge base (Smith, 2001, p. 316). Explicit knowledge in this case may be seen as product concepts or manufacturing procedures (Smith, 2001). Nonako states that "explicit knowledge must be actualized through action, practice and reflection, so that it in turn can become knowledge of one's own" in the form of tacit knowledge as stated in Dubberly & Evenson (2011, p. 77).

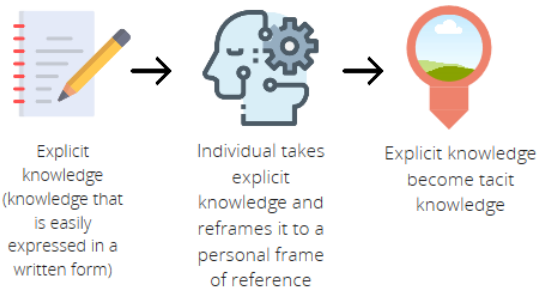


Figure 6. Internalization within the SECI model (Socialization, Externalization, Combination, Internalization)

As seen from the above the SECI model comprises of four transformation processes, namely: from tacit to tacit (socialization), from tacit to explicit (externalization), from explicit to explicit (combination) and from explicit to tacit (internalization). When a transformation takes place, learning takes place.

Combination of the four phases of the SECI model

When knowledge is created within an organization it moves from individual tacit knowledge to explicit knowledge and again back to individual tacit knowledge. This may be seen as a circular movement between the four modes of knowledge conversion. With each step made in this circular movement there is an increase in tacit or explicit knowledge and hence an increase in knowledge complexity.

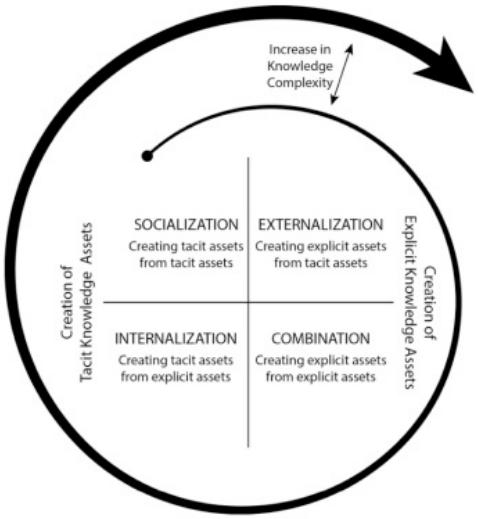


Figure 7. SECI Model of Dynamic Knowledge Creation. Source: Adapted from (Bandera, Keshktar, Bartolacci, Neerudu, Passerini, 2017; Nonaka, 1994)

In this way, knowledge conversion can only be optimal if the four modes of knowledge conversion all interact with one another in a spiral way – as is illustrated in figure 7. Socialization may be seen as the first step in the learning process and internalization may be seen as the last step of learning. In the sense that in this phase knowledge subsequently is incorporated within an organization (Van den Brink, 2003).

The aim of this research will be to trace the tacit (socialization and internalization) as well as codified knowledge flows (externalization and combination) within the network as set out in the SECI model. Learning moments within the network will be categorized by the four phases of the SECI model. The SECI model will distinguish between the different learning activities (study visits, pilot implementations, conferences) in the network. This way, I will evaluate to what extent (transnational) learning has taken place. Whilst taking the above into account, the following hypothesis has been set out*:* "*high levels of proximity will also generate high levels of learning".* In this research it is expected that there will be more transnational learning evident between more proximate partners.

3. Methodology & Case Study Overview

3.1 Research Design

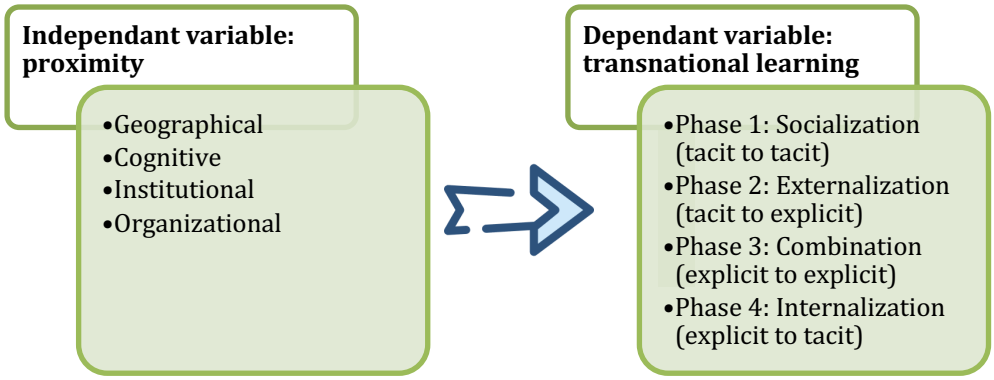


Figure 8. Relationship between independent variable proximity and dependent variable learning

In this section the independent variable proximity and the dependent variable transnational learning will be further elaborated upon. In order to understand the relationship between the variables it is crucial to gather data on both the dependent and independent variables. The choice was made for a single case study in which mixes of both qualitative and quantitative data have been used. The research question set out in this thesis: *"to what extent does geographical, institutional, cognitive and organizational proximity affect knowledge transfer between partners of the URMA network?"* will be answered by comparing partners on proximity and on learning. Hence the independent variable will be compared to the dependent variable (see figure 8). Because partners are compared to one another they may be regarded as subcases within this single case study. By comparing project partners it may be seen in how far proximity has influenced learning. Proximity levels between partners (regions) will be measured and ranked according to quantitative data. I.e. regional data will be gathered in order to investigate the proximity between employees working in different regional administrations. Transnational learning will be explored by doing qualitative research; by means of interviews with project partners learning processes will be examined. These learning processes will later be categorized according to the SECI model.

Deductive research

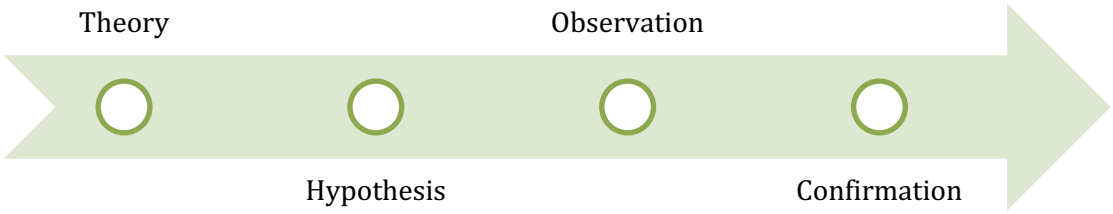


Figure 9. Deductive research. Source: Adapted from (Babbie, 2016)

In the literature, in the majority of the cases it is argued that the more proximity that exists between partners, the more they will interact and learn from each other (Boschma, 2005). This research is of deductive nature due to the fact that it is assumed that more proximity between partners will generate more learning. For this reason the following hypothesis has been set out: : "*high levels of proximity will also generate a high level of learning".*

The following figure exemplifies the research approach and demonstrates the steps that will be taken:

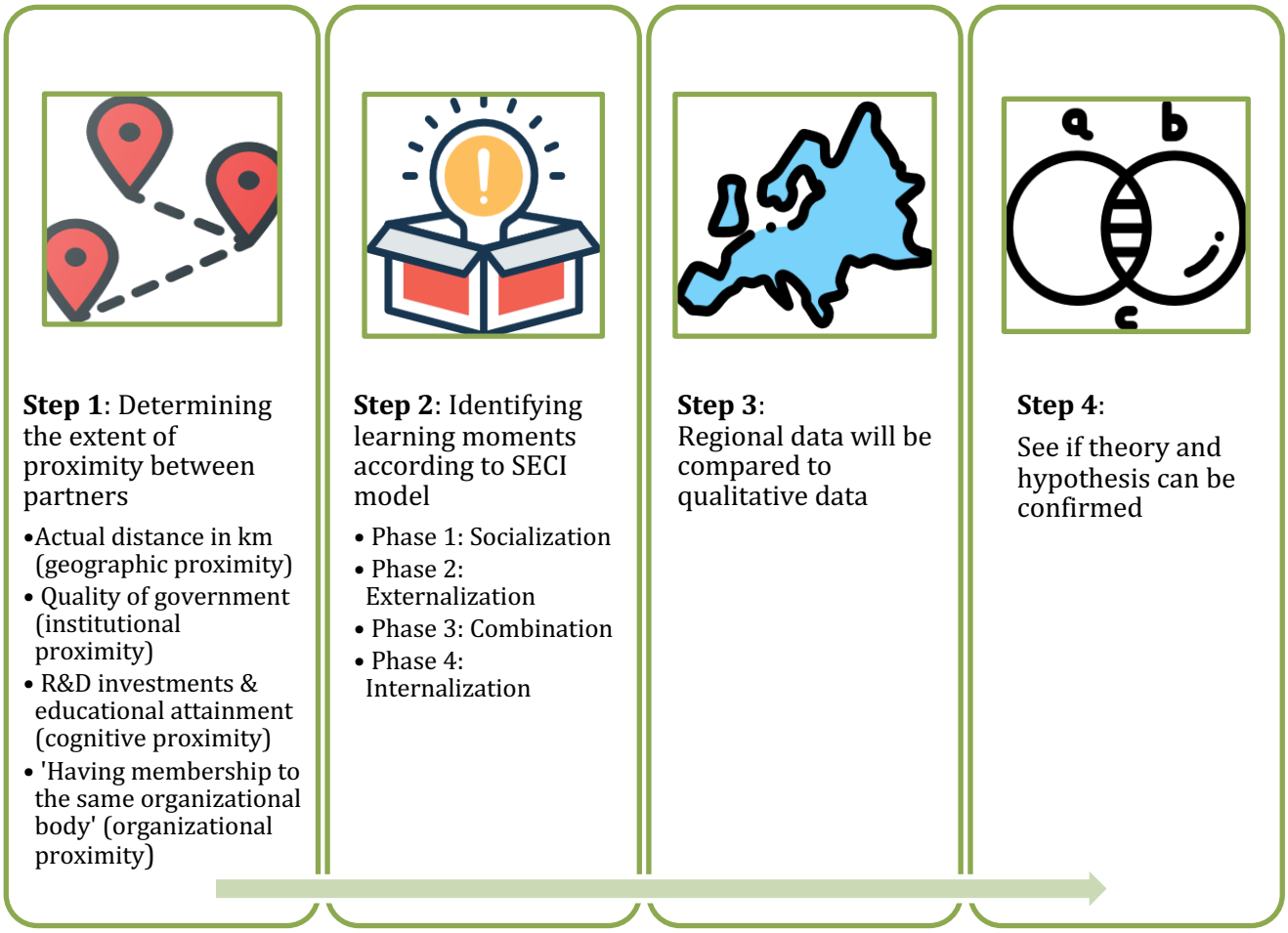


Figure 10. Research approach

Figure 10 displays the research approach which will be utilized in this thesis. Firstly, it will be determined to which extent proximity is apparent between partners in the URMA network. Secondly, learning moments according to the SECI model will be exemplified. Thirdly, regional data will be compared to qualitative data. Finally, the hypothesis will be tested.

Validity & Reliability

This research takes on a mixed approach of both quantitative and qualitative research. Concerning the quantitative research (regional) data[4] will be collected per proximity dimension in order to determine the level of proximity between partners. In order to research this representable indicators to measure proximity have been constructed: geographical distance, quality of government, R&D investments and educational attainment as well as examining if partners have worked and/or been in contact with each other before. In order to measure and understand the differences proximity variables will be coded into variables which range from 1-5. 5 indicates that partners are very proximate, whilst 1 implies that partners are further apart.

The following theories have been applied to gain more insights in the working of proximity:

- Theory of Boschma (2005) for geographical proximity
- Theory of Hansen (2015) for cognitive proximity
- Theory of Knoben et al. (2006) for institutional proximity
- Theory of Davids & Frenken (2017) for organizational proximity

Interviews with project participants will be held in a confidential setting and results are anonymous. In order to enhance the reliability of this research interviews will be recorded and transcribed. Additionally, a list of interview questions will be set up in order to evaluate learning within the network. Although, interviews are semi-structured, this list will be taken as a guideline and in all interviews the same topics will be the objective of discussion[5].

[4] For the obtainment of regional data the year 2012 was chosen due to the fact that the project started in 2012

[5] Most interviews were held via Skype because project partners are located throughout Europe. The interviews for the Twente region have been conducted face-to-face

3.2 Method for data collection

The aim of this methodology section is to illustrate which method and measures have been chosen in order to provide a good answer to the research question. As figure 10 demonstrates, in order to examine the casual relationship between proximity and transnational learning the method of comparing cases (i.e.: comparing project partners) has been chosen. To answer the research question effectively, in-depth information about a specific learning network involving heterogeneous partners will be inquired. The dependent and independent variables that will be analyzed will illustrate meaningful differences between partners.

Independent variable: proximity

Quantitative data

In order to obtain information about proximity of project partners, relevant regional data needs to be utilized. Databases such as ESPON, but also the Quality of Government Index (QoG) set out in a working paper by the European Commission have been examined. Statistics of the following measures have been collected:

- The actual distance between partners in kilometers (geographic proximity)
- The quality of government index (institutional proximity)
- R&D investments and tertiary educational attainment (cognitive proximity)
- 'Having membership to the same organizational body' (organizational proximity)

Finally, it will be determined to what extent proximity is apparent between partners. Data will exemplify central and peripheral actors on basis of their geographic, institutional, cognitive and organizational proximity.

Dependent variable: transnational learning

Qualitative data

In order to trace learning within the network, in-depth interviews will be held with project participants. Additionally to this policy document of the network will be investigated. The interviews will be able to give more background information on the personal experiences of all the individual partners and serve as explanatory measure to interpret processes of learning which have taken place within the network.

Selection of participants

Purposive but also snowball sampling has been applied to select participants for the in-depth interviews. The method purposive sampling is applicable because only participants and/or experts of the URMA network have been consulted. In the matter of snow ball sampling: the URMA website provides information on all parties that have been active in the project; contact persons are listed on the website, as well as in the policy documents. Firstly, the experts which are stated on the website have been contacted; nevertheless a snowball approach was used for selecting other participants. Namely, if interviewees recommended other colleagues within the network, which were not listed on the website or in documents, these people were also contacted. Naturally, the aim has been to have an interview with every partner, in order to get a complete picture about the relationship between proximity and knowledge transfer. Some partner countries had two regions involved, in this case an interview with both regions has been executed.

Approximately 10 experts in the network will be consulted for an interview. Experts may have had a different working experience in the network, namely:

1) *Management of the project*: experts coming from lead partner Germany
2) *REM (Research, Development & Management) consultancy*: experts from a German-based consultancy that accompanied the lead partner in the organization of the URMA project
3) *Project partners themselves*: all countries and regions that have taken part in the project, aiming to improve urban-rural cooperation to territorial cohesion

Altogether, interviews were held with all parties ranging from the management of the project, the REM consultancy and the project partners themselves.

3.3 Method for data analysis

Independent variable: proximity
Selection of quantitative data

Figure 11 illustrates the quantitative data sources that have been selected in order to give a representative view of geographic, institutional, cognitive and organizational proximity.

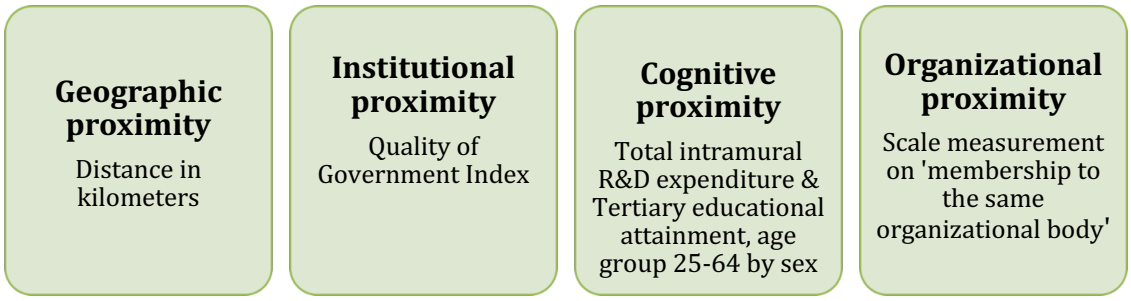


Figure 11. Proximity measures of study

Geographic proximity

Measure

For geographical proximity the definition of Boschma (2005) will be taken as guideline, in which geographical proximity is defined as: "the spatial distance between actors" (Boschma, 2005, p. 63).

The measure instrument that will be used for geographic proximity will be My Maps from Google: this instrument will be used to calculate the actual distances between partners in kilometers. In this way it can be demonstrated in how far partners are distant from each other geographically.

This parameter has been chosen because regions can easily be compared with each other.

Cognitive proximity

Measure

In the case of cognitive proximity the definition by Hansen (2015) will be taken as reference, in which cognitive proximity may be associated with "the similarities and capabilities of economic agents[6]" (p.1674).

Cognitive proximity will be measured by looking at investments in R&D (NUTS 2 level) and education level of citizens in the regions (NUTS 2 level)[7].

[6] In this case the economic agents are the regions themselves
[7] NUTS is a hierarchical system for the division of economic territory in the EU and stands for: nomenclature of territorial units for statistics. NUTS 2 encompasses the basic regions for the application of regional policies (Eurostat, n.d.-b)

Data on R&D investments will be utilized from the European Spatial Planning Observation Network (ESPON) data base[8]:

- Economic
    - Intramural R&D expenditure (GERD[9]) by sectors of performance and NUTS 2 regions, year 2012

The total intramural R&D expenditure is defined as all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period (in this case the year 2012), whatever the source of funds" (Frascati Manual, OECD 2002, p. 112). The statistical unit in this case is the NUTS 2 level (GOV), also known as local units compiled at regional level (Eurostat, n.d.-a).

- Education
    - Tertiary educational attainment, age group 25-64 by sex, year 2012

The tertiary educational attainment illustrates the percentages of the population aged 25-64 who have completed their tertiary studies[10] successfully (e.g.: university level or a higher technical institution). Educational attainment refers to the ISCED which stands for the International Standard Classification of Education (EU Open Data Portal, n.d.-a). The statistical unit here comprises of individuals in private households. The unit of measure circumscribes number of persons (thousands), percentages (Eurostat, n.d.-c)

The two quantitative data sources explained above will be able to illustrate how much knowledge a region possesses. This data exemplifies in how far the citizens in these regions are 'used to innovation' through R&D investments and to what extent citizens belong to the third level of education. Considering the above, these data sources give an accurate view on the level of knowledge a region holds and therefore good criteria to measure cognitive proximity.

[8] ESPON is a research program which has been designed to support the interpretation of territorial development policies in Europe. It provides and produces a wide-range of data on territorial trends regarding economic, social and environmental facets. The main aim of ESPON is to give regions and cities
[9] Gross domestic expenditure on R&D
[10] Highest level of education (Eurostat, n.d.-c)

Institutional proximity

Measure

In order to measure institutional proximity the choice was made to examine the Quality of Government Index (QoG). This data exemplifies the quality of each government structure aka institutional structure, hence making it a good criterion to research institutional proximity. This index focuses on the following themes:

- Rules of law
- Government effectiveness
- Voice & accountability
- Corruption

The QoG has resulted from data coming from surveys on governance and corruption at the regional level of the EU. The focus lies on perceptions as well as experiences regarding public sector corruption, together with the extent to which citizens believe public sector services are of good quality and impartially allocated. This index has also been translated on European level, which has been based on 16 survey questions, which are aggregated from the individual to the regional level and later combined into a single number for each region in the study Charron, Nicholas, Dahlberg, Holmberg, Rothstein, Khomenko & Svensson (2016).

The definition of Knoben et al. (2006) will be taken as guideline in order to understand institutional proximity: "the concept of institutional proximity is generally based on similarities between the institutional frameworks of countries and regions, such as legislative conditions, labor relations" (p. 76). I follow Knoben et al. (2006), however, I add the measure of the QoG index, I believe that institutional proximity is also based on similarities between rules of law, government effectiveness, voice & accountability and corruption. Hence, the QoG covers a wide range of qualitative indicators which can be seen as an integral part of the institutional environment for a well-functioning government. Hence, the QoG will be able to give a good illustration on how proximate partners are regarding their institutional frameworks.

Organizational proximity

Measure

For measuring organizational proximity a scale measurement will be utilized. This scale measurement will assess if partners have been in contact before the establishment of the network and to what extent. Additionally the scale will measure if project partners have been member of a same organization or network before.

1) Have worked together in (an)other EU project(s) before establishment URMA project
2) Part of same network before establishment of URMA project
3) Have worked together in some way of cooperation before establishment URMA project
4) Existing communications before establishment URMA but haven't worked together prior to URMA project
5) Have not worked together before establishment URMA and no existing communications prior to the URMA project

In this case, the definition of Davids & Frenken (2017) will be taken as point of reference. The authors affirm that organizational proximity refers to 'the membership to the same organizational body'. The scale measurement explained above is a good criteria to measure organizational proximity in order to see if partners knew each other before the establishment of the network. This way, it can be seen if partners were close or further apart organizationally-wise, e.g.: if partners have been affiliated with each other's manner of working.

Dependent variable: transnational learning

Qualitative research

Qualitative data will be analyzed according to the SECI model. In order to answer the research questions accordingly knowledge transfer (transformation) moments will be underlined and categorized under the four phases of the SECI model:

- Socialization (tacit to tacit)
- Externalization (tacit to explicit)
- Combination (explicit to explicit)
- Internalization (explicit to tacit)

The SECI model provides a framework to understand the exchange processes between explicit and tacit knowledge, hence to comprehend in how far actual knowledge transfer has taken place within a network of heterogeneous partners.

As explained in the literature, knowledge transfer takes place when a change is seen between tacit and explicit knowledge. When one undergoes the whole process of the SECI model, from socialization, externalization, combination and finally to internalization knowledge is brought to the next level – or so-to-say *learning* takes place. Within the SECI model a difference is made between tacit and explicit knowledge. In this research both tacit knowledge as well as explicit knowledge will be looked into. Explicit knowledge will be extracted from the published policy documents. This entails the externalization and combination phase of the SECI model. On the other hand, tacit knowledge will derived from the in-depth interviews. This is also because tacit knowledge is more difficult to obtain. The in-depth interviews may serve as tool in order to examine which partners learned most from who and the other way around which partners learned least from who. I will seek for information on direct experiences (how knowledge has been used in practical settings), dialogue (which different facets of knowledge partners have discussed within the project) and reflection (in how far partners have been able to learn and exchange knowledge). Particularly, the socialization and internalization phase of the SECI model will be examined through these in-depth interviews.

Content of the interview protocol

The interviewees will be asked in-depth questions about their background, e.g.: work and study experiences, how the URMA network came into being and what types of knowledge transfers took place. The type of interview will entail a semi-structured interview. This particular type of interview is chosen because questions can be prepared ahead of time and this type of interview also allows the interviewee to express their views in their own terms. In the end all results will be carefully be analyzed. Since all interviewees have different backgrounds, e.g.: come from different countries or had a different role within the project the interview protocol may differ slightly in questioning, nevertheless, the basis is the same. The interviews will mainly serve to identify and trace the socialization and internalization phase of the SECI model.

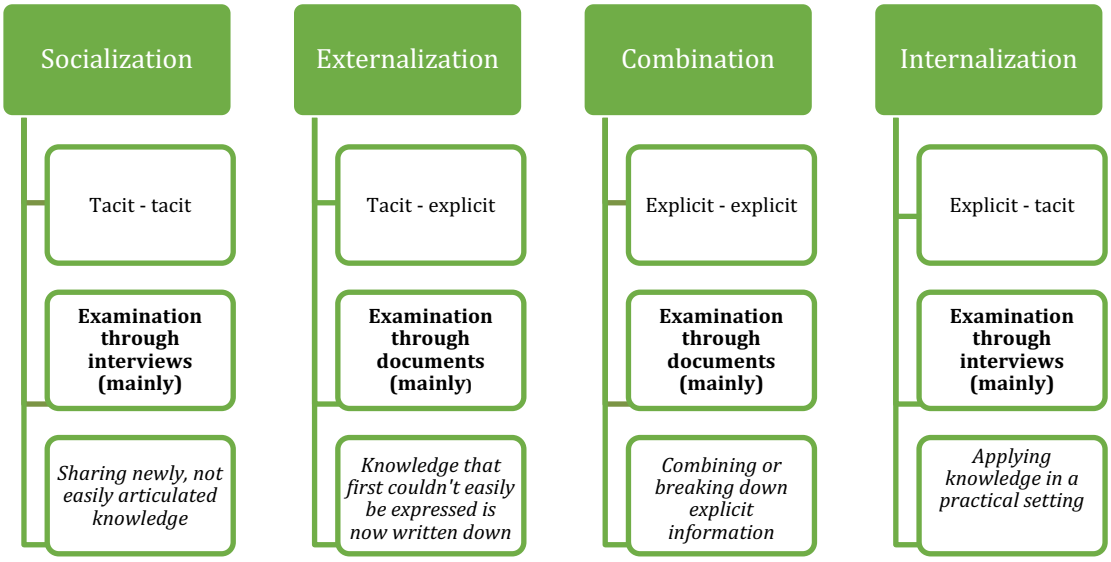


Figure 12. Applying the SECI model

Overall, the following themes and questions were addressed in the interviews:

Table 2: Interview questions linked to research questions and variables

Background and work experience of interviewee	
Interview Question 1 Can you tell me something about your background and your knowledge in European projects?	• Provides background information • Linked to no specific variable • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?"
Establishment of the URMA project	
Interview Question 2 How did partners in the URMA network meet/on which basis were partners within the network selected?	• Provides background information • Linked to no specific variable • Linked to sub question: 1) "How was the URMA network constructed?" • Gives general background information
Learning within the URMA project	
Interview Question 3 Which knowledge activities were in your view most beneficial for transnational learning?	• Linked to variable 'transnational learning', *the socialization phase of the SECI model* • Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview Question 4	• Linked to variable: 'transnational learning', *the socialization phase of the SECI model*

In your point of view – which partners has (*partner being interviewed*) learned most from?	• Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview Question 5 In your point of view – which partners have learned the most from (*partner being interviewed*)?	• Linked to variable: 'transnational learning', *the socialization phase of the SECI model* • Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview Question 6 Could you describe if any knowledge transfer took place between (partner being interviewed) and other partners?	• Linked to variable: 'transnational learning', *the internalization phase of the SECI model* • Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview Question 7 Overall, how did you experience the composition and effectiveness of the network?	• Linked to variable: 'transnational learning', *the internalization phase of the SECI model* • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview question 8 To what extent do you believe there was an overlap of knowledge base concerning Urban-Rural Partnerships between URMA partners?	• Provides background information • Linked to no specific variable: • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?" • Linked to sub question: 3) "To what degree has learning taken place between transnational partners?"
Interview question 9 Have you worked together before with any other of the URMA partners?	• Linked to variable: 'organizational proximity' • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?"
Interview question 10 Have you been in contact before with any other of the URMA partners?	• Linked to variable: 'organizational proximity' • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?"
Interview question 11 Have you been in contact after the URMA project?	• Linked to variable: 'organizational proximity' • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?"

Interview question 12 Have you worked together with other URMA partners?	• Linked to variable: 'organizational proximity' • Linked to sub question: 1) "How was the URMA network constructed?" • Linked to sub question: 2) "To what degree has proximity been apparent between partners within the network?"
Pilot implementations	
Interview question 13 Why have only three regions been chosen for a pilot implementation in the project?	• Provides background information • Linked to 'transnational learning', *the internalization phase of the SECI model* • Linked to first part of sub question 1) "how was the URMA network constructed"
Interview question 14 Which pilot implementation have you learned the most from and why?	• Linked to the variable 'learning' • Linked to sub question: 2) "to what degree was knowledge transmitted between the transnational partners?"

Please note: the goal of the interview questions is to evaluate how and to what extent learning (the dependent variable) has taken place. In this study proximity variables are set numbers retrieved from regional data. The questions that are asked on organizational proximity in this interview list are *only* asked in an objective manner. This way, the quantitative and qualitative data will not intertwine with one another and giving a proper assessment of the data is possible.

Document analysis

The analysis of policy documents will mainly serve to identify and trace the externalization and combination phase of the SECI model. In such a way these documents will also be used in order to also compare knowledge flows between partners. Document analysis may be seen as a systematic process for reviewing and evaluating printed and/or electronic documents. Bowen (2009) states that by analyzing documents the researcher will gain (more) understanding and acquire empirical knowledge as cited from Corbin & Strauss (2008); Rapley (2007). The goal of document analysis is to select the relevant documents, make sense of the data and select and accentuate information that is important for the respected research.

There are multiple documents, which have been analyzed (URMA, n.d.-b). The documents have been classified into four groups which range from important to low(er) important documents:

Table 3: Relevance of documents

Important documents
Important documents are documents which are of direct essence to the SECI model. Direct and more indirect flows of learning are cited. • Good Practice Guide • Interim Pilot Implementation Report • Implementation Plan Hamburg • Implementation Plan West Pomerania (Szczecin) • Implementation Plan Lombardy • Implementation Plan Lesser Poland Region (Krakow) • Implementation Plan Twente • Implementation Plan Pleven
Medium important documents
Medium important document are documents which enable a better understanding of the structure and workings of the URMA project. • Fact sheets on Pilots • Concise Dictionary • URMA approach • Documentation of project events • URMA publication OECD West Pomerania • Newsletters
Low(er) important documents
Low(er) important documents are documents which are not of high relevance, these documents mainly give information on the concept of Urban-Rural Partnerships in a general context. • Project Flyer

Besides the interviews, these documents will give an accurate representation on the learning flows according to the SECI model within the network.

3.4 Case study on INTERREG IVC project: Urban-Rural Partnerships in Metropolitan Areas (URMA)

"The mindset behind URMA is that globalization enforces cities as well as regions to position themselves in international competition. If regions want to remain globally visible metropolitan areas must think of new ways to cooperate with their rural hinterlands" (URMA approach, n.d., p. 2)

Background of Urban-Rural Partnerships in Metropolitan Areas (URMA)

In order to explain the relation between proximity and knowledge transfer The Urban-Rural Partnerships in Metropolitan Areas (URMA) network will be examined as case study. Partners within the URMA network are largely spread throughout Europe, i.e. located in Germany, the Netherlands, Poland, Italy and Bulgaria. All partners have diverse proximity levels as the geographic, institutional, cognitive and organizational basis of each partner is different (URMA, n.d.-c).

Figure 13. Partners within the URMA project
Source: retrieved from http://www.urma-project.eu/partner-map.html

URMA is as a regional innovation network, which focuses on the exchange of experiences on the topic of urban-rural cooperation in metropolitan areas. The overall objective of the URMA network is to improve urban-rural cooperation to territorial cohesion through these exchanges of experiences. In more detail, the project accentuates the importance of rural areas while at the same time not wanting to diminish the importance of cities in economic development in the field of sustainable development (Dej et al., 2014). In this manner: making European regions more globally visible and thinking of ways to connect urban and rural areas (Urma approach, n.d.). This may be done specifically through Urban-Rural Partnerships which can be seen as "project-orientated cooperation on the basis of mutual benefit" (Concise Dictionary, 2013, p.5). HafenCity University in Germany has been lead partner throughout the URMA project. Between January 2012 and December 2014 learning has taken place at public and project internal workshops, conferences, pilot implementations and study visits in all regions. The concept of urban-rural collaboration was designed to serve the European Union's cohesion policy goals (Dej et al., 2014).

EU INTERREG IVC

The URMA network was developed in 2012 by the Metropolitan Regions network in Europe and is part of the EU INTERREG program. More specifically, URMA belongs to the EU INTERREG IVC generation. A specific characteristic of INTERREG IVC is that it is of a truly European nature: partners originate from all corners of the European continent (Interreg, n.d.). INTERREG IVC (alias URMA) brings partners together from various countries, in which project partners work in cross-cultural environments. This cross-cultural environment is created by a basic socio-structural partnership setting, which characterizes that participants have various professional, institutional backgrounds and have different traditions in administrating, conceiving and delivering policy. Furthermore, there are various culturally rooted behaviors within the regional networks, which exemplify diverse mentalities and ways of thinking, perceiving and understanding certain issues (INTERREG IVC, European Regional Development Fund, 2013).

The European Commission determines that INTERREG regional projects have three levels of intensity, namely: basic, medium and high. The URMA project is classified under medium cooperation intensity due to the fact that various partners had to implement pilot implementations. Along these lines, the focus of the URMA project largely has been on exchanging of experiences and transferring knowledge (INTERREG IVC et al., 2013).

Focus areas of URMA partners

As illustrated in the above, the URMA project focuses on optimizing urban-rural relations: "there is a need to define, develop and test further fields of Urban-Rural Partnerships and to widen the territorial dimension of co-operation (Fact sheets on Pilots, 2014, p. 1).

The URMA project has set out three examples through pilot implementations, i.e. "an implementation carried out by one of the partners to test a new approach on its territory" (Concise Dictionary, 2013, p.9), these are:

1) Pilot Hamburg: strengthening cooperation along the Jutland Corridor (the passage between Hamburg, the Region of Southern Denmark and Schleswig-Holstein). In this manner, intensifying transnational cooperation and finding ways on how rural regions are able to benefit from a more intensified cooperation between the larger urban areas (Fact sheets on Pilots, 2014)

    - carried out by HafenCity University Hamburg & State Ministry of Urban Development and Environment, Free and Hanseatic City Hamburg
2) Pilot Lombardy region: activating dialogues among many diverse stakeholders that play an important role in the peri-urban areas[11]. In addition, the Lombardy region decided to take part in the EXPO 2015[12] , the purpose was to spread project results of URMA on Urban-Rural Partnerships during the exposition. During the project lifetime this was seen as a potential 'temporary' driver which could be converted to a more long term perspective (enlarged to the regional context)
    - carried out by the Lombardy Region (Fact sheets on Pilots, 2014)
3) Pilot Twente region: restoring local and regional linkages between producers and consumers due to the fact that agricultural business is primarily dominated by the world market in the Netherlands (Fact sheets on Pilots, 2014)
    - carried out by the municipality of Enschede & Borne

Notwithstanding, other URMA partners are able to learn from these pilots, but also had their own specific focus set out within the project with reference to Urban-Rural Partnerships:

- Tuscany region, Florence: improving the linkage between agricultural parks and urban areas by including the Parco della Piana – which is located outside the city center – in the regional territorial planning instrument (PIT) (Implementation Plan Tuscany Region, n.d.)
    - carried out by the Tuscany Region
- Krakow: creating a new metropolitan strategy for the city of Krakow which lays more focus on the urban-rural relationship (Implementation Plan Lesser Poland Region, n.d.)
    - carried out by Institute of Urban Development, Kraków
- Szczecin: developing a spatial development plan which also includes spatial tasks, which focus more on Urban-Rural Partnerships to strengthen the connection between rural areas and urban core (Interview-I)
    - carried out by the Regional Office for Spatial Planning of Westpomeranian Voivodeship

[11] "Areas in some form of transition from strictly rural to urban" (Concise Dictionary, 2013, p. 2)
[12] A universal exhibition which took place in Milan in 2015 (EXPO 2015, n.d.)

- Pleven: setting up multiple urban-rural like partnerships, with reference to the following topics: silk textile cluster, agriculture and food, construction of an inter-university campus with a technology park and the realization of complex projects under the Plan for the Management of the protected area "Kailaka" (a park which is situated in the Pleven area) (Implementation Plan Pleven, n.d.)
    - carried out by Pleven Regional Administration

Altogether, URMA will be taken as one case, i.e.: learning between partners within the whole network will be considered.

As seen from the above Urban-Rural Partnerships is quite a wide-ranging topic and this can be seen from all the different activities and focus areas of URMA partners. Nevertheless, the main goal for each partner is to create a cooperation on equal footing, in which functional coalitions for mutual benefits can be made which in turn will enhance cohesion between the urban metropolis and their connecting rural regions (Concise Dictionary, 2013).

Other projects related to the topic Urban-Rural Partnerships URMA partners have participated in

Various partners within the URMA network have been involved in other European urban-rural networks. Twente and Hamburg for example have been involved in URBAL (2000-2006) and SURF (Sustainable Urban Fringes, 2007-2013), which can be seen as the predecessors projects of URMA (Interview-A; Interview-F).

The SURF project focused on sustainable urban fringes and development instruments on how to manage urban fringes[13]. These specific areas are pressured and face unsustainable growth & expansion. During the project lifetime there was a necessity for for more integration between various policies and programs at local, regional & national level. For this reason the project aimed to communicate the importance of this topic towards national and regional governments at the EU level in order for this urban fringes to become a topic on the political agenda (Interact, n.d.-a).The SURF project consisted of 16 partners from 9 European countries.

The main objective of the URBAL project was to establish more balance between urban and rural areas. This was done by developing a less fragmented rural and urban

[13] Also referred to as urban hinterlands

approach by influencing regional planning (Interact, n.d.-b). 6 partners from 6 European countries were involved in the URBAL project.

Also, Milan has been involved in INTERREG IVC program PERIURBAN parks (2009-2012) as well as in RURBANCE (2007-2013), which stands for: Rural-Urban inclusive governance strategies an tools for the sustainable development of deeply transforming Alpine territories. PERIURBAN is a regional project which has functioned through interregional exchange of experiences in order to optimize policies on management of natural suburban areas. The project consisted of 14 partners from 11 European countries (Ikreativo, n.d.).

Milan also participated in the RURBANCE project which aimed to develop tools and governance strategies for the sustainable development of the Alpine territories, in which rural/mountain and urban communities can be considered as equal players. The RURBANCE project consisted of 14 partners from10 different European countries (Interact, n.d.-c).

4. Results

This chapter will present and investigate the construction of the URMA network as well as the results of proximity between partners. Chapter 4.1 illustrates how the URMA network was constructed. Chapter 4.2 covers the variable proximity and exemplifies in how far proximity has been apparent between partners in the network.

4.1 Construction of the URMA network

Establishment of URMA

The URMA initiative initially started in Germany by a German discussion on a new principal for spatial development on the federal level. A discussion took place to focus more on the core centers and on the metropolitan region. Others believed this posed a disadvantage for the rural area, because this approach only focuses on the centers. There was a parallel discussion in Germany at the HafenCity University on what could be done to adapt or what could be done to enhance strategies, so that all areas could be included. An instrument was set up: Urban-Rural Partnerships which intended to bring the metropolitan centers together with the rural areas (Interview-B). The idea was spread towards the Network of European Metropolitan Regions and Areas (METREX) (Interview-G).

Various German cities, including Hamburg are part of the METREX network. The METREX network provides a platform for members to exchange knowledge as well as expertise and experience on metropolitan affairs which are of common interest. The network consists out of politicians, officials and their advisors who are involved with the development on the metropolitan level and strategic spatial planning. The network includes approximately of 50 metropolitan regions and areas in Europe (Concise Dictionary, 2013) An expert working group was set up in the METREX network, which was named "URMA – urban/rural relationships in metropolitan areas of influence". The aim of this working group was to seek integrated approaches to cooperate amid different actors in the development and the implementation of common urban and rural ambitions (URMA approach, n.d.)

At that time the METREX working group did not have a lot of financial means while at the same time many people were really enthusiastic about the topic of Urban-Rural Partnerships. Then, the idea came up to participate in an INTERREG project in order to get more financing. An application was shaped, including partners, some of them

directly from the METREX network, but also partners who were not so closely connected (Interview-B). Hence, in 2012 the URMA project came forth out of the METREX network.

URMA: part of the INTERREG 4C program

The URMA network is part of the INTERREG IVC program. A specific characteristic of INTERREG IVC is that it is truly of a European nature: partners originate from all corners of the European continent (Interreg, n.d.). INTERREG IVC (likewise URMA) bring partners together from various countries, in which project partners work in cross-cultural environments. This cross-cultural environment is created by a basic socio-structural partnership setting, which characterizes that participants have various professional, institutional backgrounds and have different traditions in administrating, conceiving and delivering policy**.** Furthermore, there are various culturally rooted behaviors within the regional networks, which exemplify diverse mentalities and ways of thinking, perceiving and understanding certain issues (INTERREG IVC et al., 2013).

Various partners were chosen from the METREX network (Hamburg, Szczecin, Milan). Nevertheless due to the fact that partners had to come from all corners of Europe other partners needed to be included (Interview-C), such as Twente (through collaboration of previous projects with Hamburg), Krakow, Pleven and Tuscany.

Withdrawal of partners

Amsterdam and Madrid were both supposed to be project partners within the URMA network. Although Amsterdam was very active in the METREX network the actor withdrew due to internal reasons (Interview-B). Hereafter, Hamburg asked Enschede if they wanted to take the place of Amsterdam and special permission was given to replace Amsterdam by Enschede (Interview-A). Also Madrid was supposed to be a partner within the URMA network. Yet, when the URMA project had finally been approved it was not possible for Madrid to join the URMA network anymore due to the financial crisis at the time (Interview-C). In the end actually one partner from Southern Europe was missing, but during the time of the financial crisis it was very difficult to find a replacement (Interview-A; Interview-C).

Pilot implementations in URMA

When taking part in an INTERREG project some preconditions and structure are already given in form of a work package. It was optional to include pilot implementations within the URMA project. It would also have been satisfactory to meet and exchange, organize

events and have study visits. Thus, including pilot implementations was not a mandatory precondition but the lead partner Hamburg decided for this approach (Interview-C). The three pilots which have been set up demonstrated concrete examples of Urban-Rural Partnerships. The main purpose of this INTERREG 4C project was to learn from the others and learn from more experienced partners in order to obtain some new knowledge (Interview-C). Finally, pilot implementations have played an important role in the URMA project due to the fact that they develop and test new approaches (Learndoc-1). It is believed that the pilots play a crucial role as examples for other URMA partners as well as stakeholders by providing transferable models and best practices (Learndoc-1).

4.2 Proximity within the URMA network

This section will present and investigate to what extent proximity has been apparent in the URMA network. Data presented in this section will indicate the differences between actor's proximity regarding the four proximity variables. In order to measure and understand the differences between transnational partners, geographic, institutional, cognitive and organizational proximity variables have been coded into variables which range from 1-5. 5 indicates that partners are very proximate, whilst 1 implies that partners are further apart[14]. Accordingly, variables can easily be compared to one another and one can make sense of the data. In this analysis Florence (the Tuscany region) has been eliminated due to the fact that it was not possible to come into contact with the project partner(s) from this region. In addition, Borne and Enschede situated the Twente region, will be treated as one partner.

Geographic proximity

Measurement unit

Table 6 illustrates the differences between partners regarding geographical proximity. The measurement unit is illustrated in kilometers from one partner to another. On average Twente, Hamburg and Szczecin have the highest average score on geographical proximity in comparison to other partners. This illustrates that these three partner are all central actors in the network as they are most proximate towards other partners.

Table 6: Transformation of variables: Geographical Proximity

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	5	3	4	2	1
Hamburg	5	0	2	4	3	1
Milan	3	2	0	2	2	1
Szczecin	4	4	2	0	4	1
Krakow	2	3	2	4	0	2
Pleven	1	1	1	1	2	0
Sum	15	15	10	15	13	6
#partners	5	5	5	5	5	5
AvgD	3	3	2	3	2,6	1,2

[14] For exact calculations (coding of numbers) please consult the appendix

Krakow scores medially with a score of 2,6 followed by Milan who scores 2 out of 5 on geographical proximity. Whereas Pleven scores the lowest in relation to other partners. This makes Pleven the most distant and peripheral partner within the network with reference to geographic proximity.

Institutional proximity

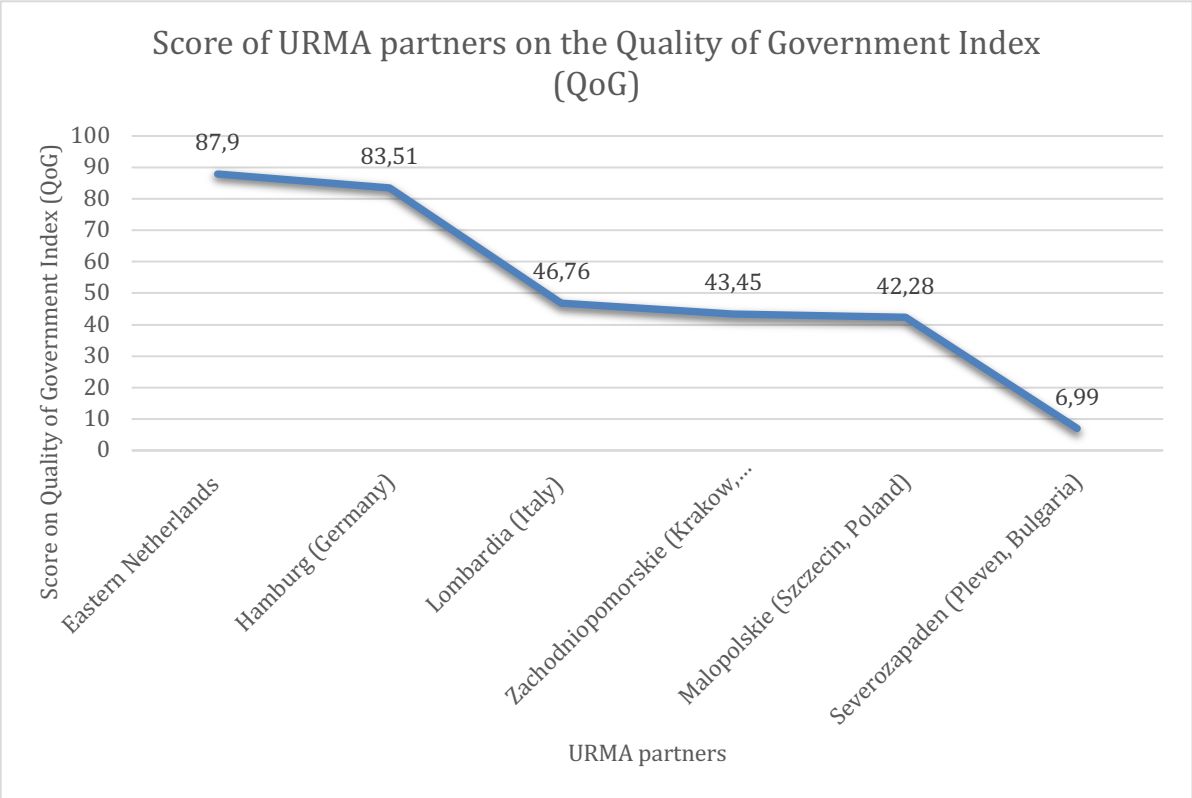


Figure 15. Score of URMA partners on the Quality of Government Index. Source: Charron et al., 2012)

Figure 15 illustrates the overall score URMA project partners have acquired on the Quality of Government's Index. If European regions score high on the QoG's Index this means that the region scores "low on corruption and high on protection of the rule of law, government effectiveness and accountability". A score of 100 (score of Central Denmark Region) is the maximal score on the Index and 0 is the lowest (score of the București - Ilfov development region in Romania). Whilst looking at the URMA participants, Eastern Netherlands scores the highest with a score of 87,9 out of 100. Hamburg also scores high with an average of 83,51 out of 100. Lombardy (Milan) who scores 46,76 out of 100. The region West Pomeranian Voivodeship (Szczecin) counts 43,45. The Lesser Poland Voivodeship (Krakow) followed closely by a score of 43,28. Pleven scored the lowest on the index with a score of 6,99.

As can been seen from this ranking is that the Northern European countries score the highest followed by Southern European countries, the Eastern European countries score the lowest on the index, particularly Pleven in Bulgaria who scores significantly lower than other partners with a score of 6,99.

Measurement unit

The measurement unit for institutional proximity is illustrated in the score of partners on the Quality of Government Index (0-100) and the differences between scores from one partner to another which have been converted to a scale from 5 to 1.

Table 9 illustrates the general differences between URMA partners in regard to institutional proximity. Overall Milan scores the highest on average for institutional proximity in comparison to other partners, this illustrates that Milan is the most central actor and hence the most proximate towards other partners concerning institutional proximity within the network. Whereas Twente and Pleven scores the lowest in relation to other partners which make Twente and Pleven the most distant and peripheral partners within the network with reference to institutional proximity.

Table 9: Transformation of variables: Institutional Proximity

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	5	3	3	3	1
Hamburg	5	0	4	3	3	2
Milan	3	4	0	5	5	4
Szczecin	3	3	5	0	5	4
Krakow	3	3	5	5	0	4
Pleven	1	2	4	4	4	0
Sum	15	17	21	20	20	15
#partners	5	5	5	5	5	5
AvgIP	3	3,4	4,2	4	4	3

Cognitive proximity

Educational attainment

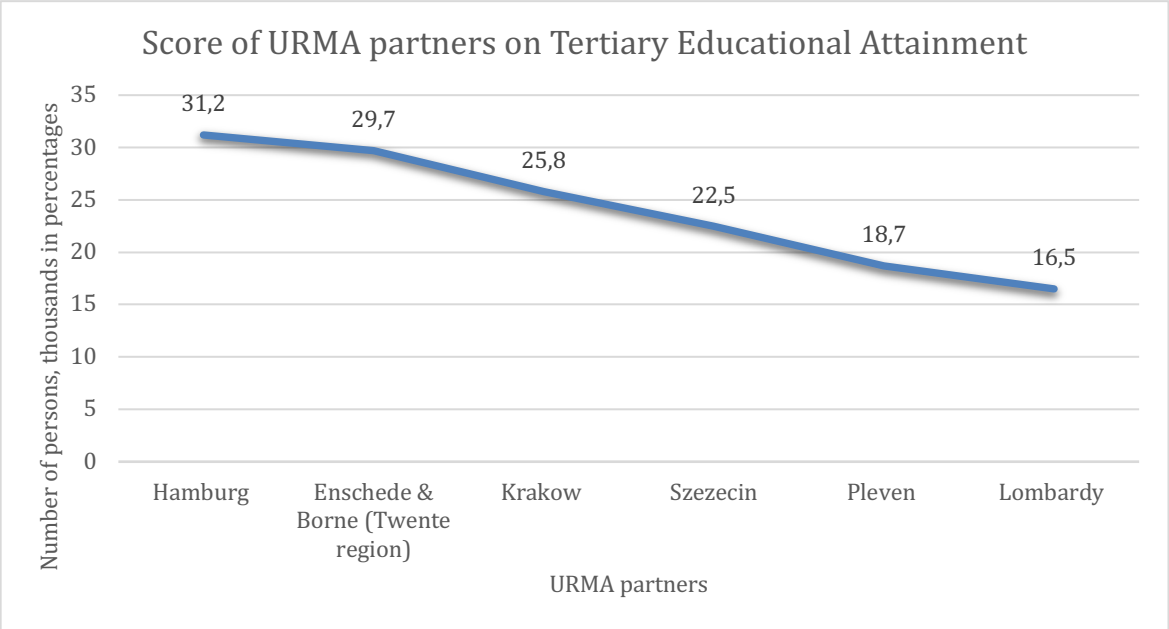


Figure 17. Cognitive Proximity between URMA partners (on tertiary educational attainment age group 25-64 by sex). Year 2012. Source: Adapted from: EU Open Data Portal (n.d.-a).

Figure 17 represents the number of persons (thousands) in percentages which have enjoyed tertiary educational attainment. Hamburg scores the highest with a score of 31,2% of the population engaging in tertiary educational attainment. The Twente region also scores high with a score of 29,7%. Krakow scores 25,8% followed by Szczecin who score 22,5% and Pleven counts 18,7%. Lombardy scores the lowest with a score of 16,5%.

Measurement unit

The following table illustrates the differences between partners regarding cognitive proximity. The measurement unit is illustrated in tertiary educational attainment.

Table 12: Transformation of variables: Cognitive Proximity (Tertiary Educational Attainment)

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	5	1	3	4	2
Hamburg	5	0	1	3	3	2
Milan	1	1	0	3	3	5
Szczecin	3	3	3	0	4	4
Krakow	4	3	3	4	0	3
Pleven	2	2	5	4	3	0
Sum	15	14	13	17	17	16
#partners	5	5	5	5	5	5
AvgCP	3	2,8	2,6	3,4	3,4	3,2

Cognitive proximity

R&D in the region

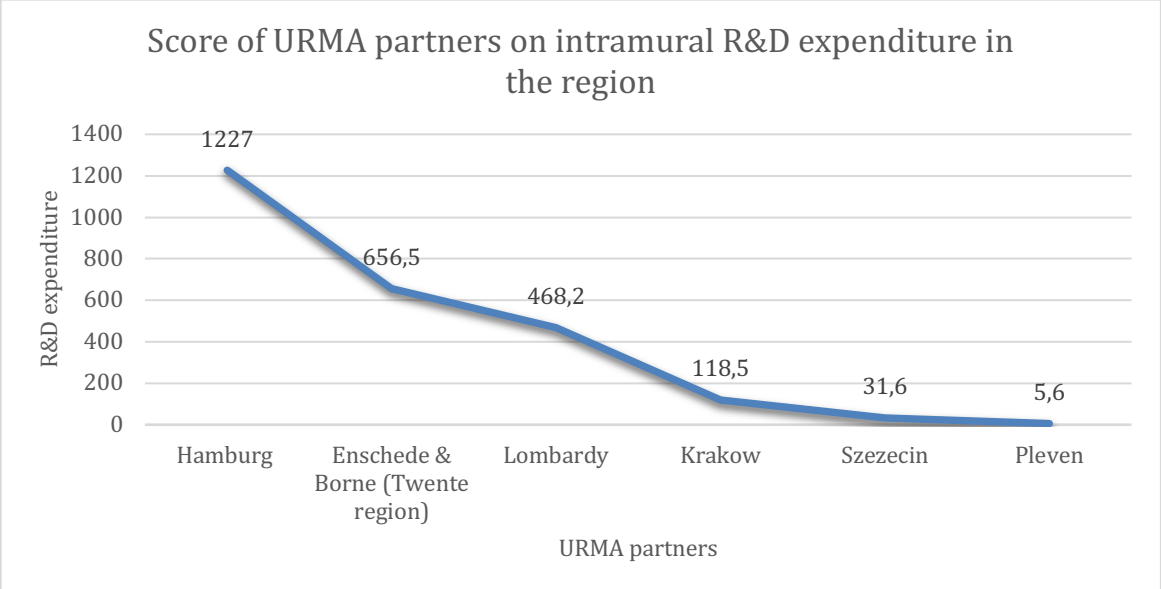


Figure 18. Cognitive Proximity between URMA partners (Intramural R&D expenditure (GERD) by sectors of performance and NUTS 2 regions). Year 2012. Source: Adapted from: EU Open Data Portal, (n.d.-b)

The differences in gross domestic R&D expenditure[15] by euro per inhabitant for the year 2012 is illustrated in figure 18. Hamburg scores by far the highest by spending 1227€ per inhabitant per year . Inhabitants of the Twente region spent 656,5€ in the year 2012, followed by 468,2€ in Lombardy. Partners that score significantly lower are Krakow (118,5€), Szczecin (31,6€) and Pleven (5,6€).

Measurement unit

Table 15 illustrates the differences between partners regarding cognitive proximity. The measurement unit is illustrated in R&D expenditure.

Table 15: Transformation of variables: Cognitive Proximity (R&D expenditure)

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	3	5	3	3	3
Hamburg	3	0	2	1	1	1
Milan	5	2	0	4	4	4
Szczecin	3	1	4	0	5	5
Krakow	3	1	4	5	0	5
Pleven	3	1	4	5	5	0
Sum	17	8	19	18	18	18
#partners	5	5	5	5	5	5
AvgCP	3,4	1,6	3,8	3,6	3,6	3,6

As seen in the above cognitive proximity entails two measurements:

1) Tertiary educational attainment in the region
2) R&D expenditure in the region

[15] "R&D statistics are compiled for four institutional sectors of performance: business enterprise (BES), government (GOV), higher education (HES), private non-profit (PNP). These sectors are defined based on the SNA, with the difference that higher education has been established as a separate sector and households have, by convention, been merged with the private non-profit (PNP) sector. In this case the data specifically inquires NUTS2 regions (Eurostat, n.d.-a)

Both measures have been combined in Table 16, in other to realize a single analysis of cognitive proximity.

Table 16: Overall average of Cognitive Proximity between URMA partners (tertiary educational attainment and R&D spending combined)

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Avg CP Educational Attainment	3	2,8	2,6	3,4	3,4	3,2
Avg CP R&D in the region	3,4	1,6	3,8	3,6	3,6	3,6
Sum	6,4	4,4	6,4	7	7	6,8
Avg CP	3,2	2,2	3,2	3,5	3,5	3,4

Table 16 illustrates the general differences between URMA partners in regard to cognitive proximity. Overall partners score very similar, except for Hamburg. Szczecin scores the highest on average, which reveals that Szczecin is the most central actor concerning cognitive proximity. Whereas Hamburg scores the lowest in relation to other partners which makes Hamburg the most distant and peripheral partner within the network regarding cognitive proximity.

Organizational proximity

Table 18: Transformation of variables: Organizational Proximity

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	5	1	1	1	1
Hamburg	5	0	4	4	2	2
Milan	1	4	0	4	1	1
Szczecin	1	4	4	0	2	1
Krakow	1	2	1	2	0	1
Pleven	1	2	1	1	1	0
Sum	9	17	11	12	7	6
#partners	5	5	5	5	5	5
Avg OP	1,8	3,4	2,2	2,4	1,4	1,2

Lead partner Hamburg HafenCity University (and the city of Hamburg) initiated the URMA project in which they had to form a consortium of partners from different parts of Europe. For this reason they score the highest on organizational proximity. Some partners already knew each other through the fact that they have been part of the METREX network before the establishment of URMA project. These partner regions include: Hamburg, Szczecin and Milan. The METREX network provides a platform for members to exchange knowledge as well as expertise and experience on metropolitan affairs which are of common interest. The network consists out of politicians, officials and their advisors who are involved with the development on the metropolitan level and strategic spatial planning (METREX, n.d.). Also Szczecin has a high score due to the fact that the partner is part of the METREX network and has had existing communications before the establishment of URMA with the other Polish partner Krakow. Twente follows with a score of 1,8, because the region was part of the predecessor projects of URMA (URBAL and SURF) which were also related to urban-rural relations. In both projects Hamburg was also a partner and asked if Twente had any interest in joining the URMA project (Interview-A). Krakow has had existing communications before the establishment URMA with their other Polish partner Szczecin (Interview-E) Prior to the URMA project, no other partners in the URMA network had existing communications with the partner of Pleven, expect for Hamburg. The partnership was suggested to Pleven by the Sophia University. The city of Sophia is also a member of the METREX network (Interview-D).

Total average proximity

Table 19: Average Geographical, Institutional, Cognitive and Organizational Proximity between URMA partners

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Avg GP	3	3	2	3	2,6	1,2
Avg IP	3	3,4	4,2	4	4	3
Avg CP	3,2	2,2	3,2	3,5	3,5	3,4
Avg OP	1,8	3,4	2,2	2,4	1,4	1,2
Sum	11	12	11,6	12,9	11,5	8,8
#proximity	4	4	4	4	4	4
Avg P	2,75	3	2,9	3,225	2,875	2,2

As explained in the literature proximity variables may act as substitutes to one another. When aggregating all proximity variables, the average proximity of all the proximity dimensions for each URMA partner can be noticed. It can be concluded that Szczecin is the most proximate partners in the network with a score of 3,23 out of 5. Hamburg follows with a count of 3, subsequent to Milan who scores 2,9. Krakow has an average score of 2,88 and Twente 2,75. Pleven scores the lowest with a score of 2,2. Altogether, there is not a significant difference between partners, i.e. partners are not too far apart in reference to average proximity.

5. Results

This chapter will present and investigate in how far learning has been apparent between partners in the URMA network by applying the SECI model (chapter 5.1). Additionally, the relationship between proximity and learning will be investigated (chapter 5.2).

5.1 Learning within the URMA network

In this section it will be examined which partner(s) have had a significant impact on other partners, i.e.: influenced the learning process of other partners. More specifically, this chapter aims to identify which partners other partners have learned most from.

Learning processes in the URMA project took place on different levels through interregional cooperation:

- Learning within the project among all partners;
- Bilaterally learning between two partners;
- Learning within each of the partner regions;
- Learning beyond the project with external experts and institutions (Learndoc-1)

The focus in this thesis is on transnational learning between partners. For this reason the main focus is on learning within the project among all partners; and bilaterally learning between two partners.

Learning flows have been analyzed from one partners' perspective to all other partners in the network. It is important to note that more learning flows can take place between one partner to another, hence different types of information and topics have been exchanged through the SECI model. This has been indicated by learning flow 1, 2 and so on.

The table below indicates how the SECI model specifically has been utilized. Thus, which exact definitions and descriptions have been used to evaluate the model for the URMA network:

Table 21: Utilization of the SECI model in order to evaluate the URMA network

Socialization Newly, not easily articulated knowledge was exchanged. In general tacit knowledge is difficult to formalize and communicate and is therefore quite personal and context specific (Dubberly & Evenson, 2011; cited in Polanyi, 1966). In this case tacit to tacit knowledge could be transferred through observation (North & Kumta, 2014)
Externalization Knowledge that firstly couldn't be easily expressed has been written down. Tacit knowledge has been made specific (i.e. explicit) and knowledge is so-to-say 'crystalized' and able to be shared with others (Nonaka et al., 2000).
Combination In the externalization one or more documents been put forward. In these documents explicit knowledge has been sorted, added, combined and categorized which may lead to new information (Mariussen & Virkkala, 2013). It may be concluded that "explicit knowledge has been collected from inside or outside the organization and then combined, edited, or processed to form more complex and systematic form of explicit knowledge" (Chou & He, 2016, p. 150).
Internalization The internalization phase of the SECI model was in place due to the fact that knowledge has become internalized and made one's own. Along these lines. knowledge has been applied from explicit to tacit.

In order to measure and compare the learning flows between partners, learning scores have been assigned to every phase of the SECI model. In general, all phases are of equal importance, thus all phases count for one point each. If learning goes through all phases of the SECI model a higher level of learning is reached (this will also be taken into account). Due to the fact that there are multiple subjects and pilot implementations, there are multiple learning lines. In such a way, the final score will add all the scores together. Countries that score high on the SECI model are also the most central players within the URMA network regarding learning.

SECI model score			
Socialization	Externalization	Combination	Internalization
1 point	1 point	1 point	1 point

Twente region, the Netherlands

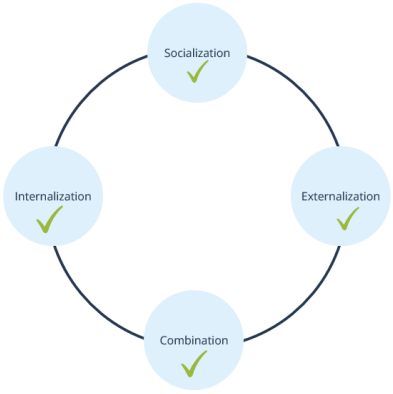
One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Twente region:

Lombardy	Hamburg	Szczecin	Krakow	Pleven
X	X			X

Learning of Twente region, the Netherlands from Lombardy region, Italy

- ***Learning flow 1: Regional food cooperation***

Socialization



The representatives of Twente articulated that in the beginning of the project the Italian partners did not quite understand what Twente was talking about concerning their chosen topic on food cooperation. For the Italian partners it was not exactly clear what the topic really comprised and why this was actually a problem. Twente believes that this occurred because for the Italian regions it is quite normal to make use of their regional products. In the Netherlands agriculture mainly is controlled by the world market, in Italy there still is a strong linkage between regional products coming from other areas which are then distributed to the urban areas. Hence, in Italy, the city and countryside are well connected concerning regional products, yet in Twente it was important to connect the city and the countryside again regarding this specific topic. Twente believes there is a lot of room for development. Consumers also in the Netherlands nowadays want to know where their food is coming from, which often preferably is from the region itself (Interview-F).

Also a representative of the REM consultancy which was hired for the project management of the URMA project believes Twente could learn from the Italian partners. "I would say that the exchange between our partners from Italy was really good and I think Twente could learn from the Italian partners" (Interview-C).

Representatives of Twente indicate that when you're talking about food you're talking about quality and Italian food is in particular known for its quality (Interview-A). Furthermore, representatives of the Twente region explained that it was special how Italy managed their food collaboration: the small-scale way of distributing food and cooperating between small parties and how they shaped it (Interview-A).

Externalization

Firstly the obtained knowledge from Lombardy by the Twente region has been expressed in the pilot implementation report: "the pilot can benefit from good practices made in Lombardia (e.g. Associazione Buon Mercato) and contributions from contacts available. In particular, the pilot responsible persons are interested in how regional food producers and the logistics are organized in other regions" (Interim Pilot Implementation Report, 2014, p.10).

Similar conclusions have been expressed in the Final Piot Implementation Report: "The pilot could benefit from good practices made in Lombardy (e.g. Associazione Buon Mercato di Corsico) and contributions from contacts available" (Final Pilot Implementation Report, 2014, p.12). Also, the Implementation Plan of Twente highlights the good practice: "Good practices made in Lombardia (e.g. Associazione Buon Mercato), but also other good practices in the other countries, tailor-made that fits to the specific area" (Implementation Plan Twente, n.d., p.4).

Again in (Learndoc-1) it is underlined that good practices have been transferred from the Lombardy region to Twente: "the Twente region is characterized by small scale agriculture, structured by its landscape features: narrow plots of land separated by a rich pattern of brooks and valleys, hedges, scattered forest and private estates". This type of landscape offers an opportunity for local farmers to produce high quality products in a sustainable way, by developing regional food chain in the Twente region. The bottom up local food initiative in Buon Mercato in Lombardy Region is a cooperative between producers and consumers. It is an important driver for the distribution of regional food. Twente could benefit from the good practices made in Lombardy and contributions from contacts available. The idea of a cooperative between producers and consumers has been adopted. "Steps undertaken: Development & implementation instruments for the distribution concept Freshroute, set up of urban farm De Viermarken in Enschede, research on models to further develop the distribution system" (Learndoc-1).

Combination

Interim Pilot Implementation Report

In the Interim Pilot Implementation Report explicit knowledge has been *sorted and categorized* due to the fact that different headings are assigned to each pilot

implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In addition, concepts and information are taken from the following documents "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide". Along these lines information has been *added and combined*.

Final Pilot Implementation Report

The Final Pilot Implementation has the same structure as the Interim Pilot Implementation, i.e. different heading are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In this sense, it may be concluded that explicit knowledge has been sorted and categorized. Just like the Interim Pilot Implementation concepts and information have been taken from the "Concise Dictionary", "URMA approach", "Fact sheets on Pilots", "Good Practice Guide" and naturally the Interim Pilot Implementation itself. Thus, information has been *added and combined*.

Implementation Plan Twente

The Implementation Plan of Twente has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been *sorted and categorized*. The Implementation Plan of Twente builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", Fact sheets on Pilots" and "Good Practice Guide" are noticeable (*added and combined*).

Learndoc-01

In order to have assembled and given answers to the questions in Learndoc-01 a strong knowledge base on the network's general structure, flows and interactions should have been in place. All documents (some more than others) that have been published have influenced the way the answers have been formulated in this report, as old explicit information as well as new explicit information is evident.

Internalization

In Milan they had a real cooperative partnership of companies that supply and purchase regional products (Interview-F). This cooperative form has been used in Twente, in particular to promote the way of cooperation. Twente beliefs that through cooperation you can achieve good quality, like in Italy. The cooperation form is very suitable also to reach a certain quality level. "This is also possible in Twente, we also used this argumentation" (Interview-A). The Twente region first tried to get this kind of cooperation off the ground, in particular, on the distribution side for regional products. This has also succeeded and a cooperation still exists now, especially North Twente is active. This was an idea which was acquired from the Lombardy region and Twente directly tried to implement it in their region. Of course Twente and Lombardy have different regional settings so it did not turn out exactly the same (Interview-F).

The information in both the interviews as well as the written documents support one another, thus it can be concluded that all phases of the SECI model were in place regarding the relationship from Twente to Lombardy. Hence, there is an increase in tacit as well as explicit knowledge and therefore an increase in knowledge complexity (Van den Brink, 2003).

Table 22: Key completed steps regarding the Implementation Plan of Twente

"Jul-Dec 2013: -Workshop in Lombardia to contribute to a new understanding of regional cooperation with regard to the new EU funding period."
"Jan-Jun 2014: -Development and implementation instruments for the distribution concept "Versroute" ("Freshroute"), set up of urban farm De Viermarken in Enschede, research on models to further develop the distribution system. -Twente finalizes concept development. First meeting with regional stakeholders" (Implementation Plan Twente, n.d., p.2)

➢ *Learning flow 1: Healthy diet in schools*

Socialization

From the information given in the interviews Twente has indicated to have learned from Germany regarding the health aspects, the healthy diet and the involvement of schools in particular (Interview-A). It is not clear if this learning flow may be regarded as newly, not easily articulated knowledge. For this reason no score is given for the socialization phase. Nevertheless, this is still a notable observation regarding learning within the network.

➢ *Learning flow 2: Cross-border (urban-rural) cooperation*

Socialization

Furthermore, the Twente region found the pilot of Hamburg very interesting. One of the project partners in Twente articulates: "how they had this specific cross border triangle relation to Denmark and other cities. The Twente region also has to deal with these sort of things; e.g.: how to connect with the German hinterlands. This example of Germany was interesting to see how they deal with this and where Twente could learn something regarding this specific topic. For Twente it is also very important to set up such a decent collaboration with the German hinterlands. However, Twente did not have the position or project at the time where you could actually implement it" (Interview-F). In this case, learning took place. Nevertheless, it must be noted that this was not a focus of the Twente region at the time and fell beyond the scope of the project for them, due the fact that they were focusing on the regional food chain. Also, the project partner indicates that they found this an interesting topic but they are not sure how much they precisely learned. It is hard to say if newly, not easily articulated knowledge was exchanged.

Externalization

Assumptions have been made that Twente could learn from Hamburg regarding cross border cooperation. These assumptions have also been confirmed – to a certain extent –

by the Twente region in the interviews conducted. In the Interim Pilot Implementation Report the following is stated: "The Hamburg-Jutland pilot provides a good example of a large scale, cross-border urban-rural cooperation which can serve as a model, specifically for those URMA partners located on the border (Pleven-Romania, **Twente-Germany**, Westpomerania, Germany, Lombardia-Switzerland, Małopolska-Slovakia)" (Interim Pilot Implementation Report, 2014, p.5).

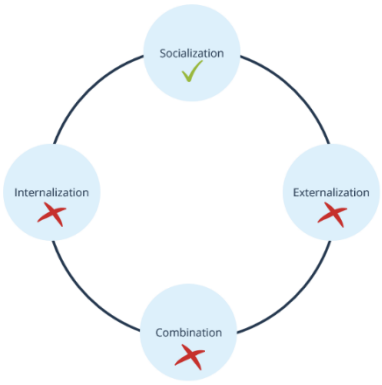
Combination

Interim Pilot Implementation Report

In the Interim Pilot Implementation Report explicit knowledge has been *sorted and categorized* due to the fact that different headings are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In addition, concepts and information are taken from the following documents "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide". Along these lines information has been *added and combined*.

The externalization and combination phase were in place. It is still doubtful if there has been socialization from the Hamburg region to the Twente region**.** For this reason, no score is given for the socialization phase.

Learning of Twente region, the Netherlands from Bulgaria, Pleven



From the information given in the interviews it has been articulated that Bulgaria struggled to reach the same level as other partners (Interview-A) They have a very different development stage. According to the project partners a lot still needs to be done in Pleven in such a way to be a bit comparable to the other regions in the project. According to project partners in the Twente region, in Pleven it was a lot less clear how to apply the things they did there in the Twente and vice versa (Interview-F). Where other partners where focused on finding ways to better urban-rural relations, Pleven was searching for ways to modernize their public administration services and that was not really part of the project.

- ***Learning flow 1: History sells regional products***

Socialization

Nevertheless, the Twente region has learned from Bulgaria that history can be very decisive for the way you do things. History is also a way of selling things, for example if you sell a regional product, then you can make the story more appealing with a bit of history to make the product more attractive (Interview-A).

Learning of Twente region, the Netherlands from Krakow, Poland

- ***Learning flow 1: Shared difficulties regarding cooperation within the region***

"Poland operated a bit in the same way as Enschede. Poland also managed to get a network together. Although, they were mainly in a number of political administrative situations. The governance issue was particularly important, so which parties do you work with and what do you do with the region, the municipality, the city. Especially cooperation to get that right off the ground, and those basic conditions. We also had these difficulties, the cooperation with the Green Knowledge Gate was a very fragile collaboration, we had to invest in it constantly and that was also very difficult. Krakow and Twente thus had similar problems in this area" (Interview-A).

In this sense, there has been an exchange of similar problem obstacles in both the Krakow and Twente region. However, none of the SECI phases have been apparent. For this reason, no score has been allocated for any of the SECI phases.

Conclusion learning Twente from other partners within URMA network

Twente's main focus within the URMA project was innovation of the food chain and enhancing the cooperation between the urban and rural areas by giving priority to the food supply from the rural to the urban area (Fact sheets on Pilots, 2014). From the information given in the interviews and retrieved from the written documents it is clear that the Twente region learned the most from the Italian region Lombardy. The Twente region underwent all the phases of the SECI model and finally also internalized some good practices of Lombardy in their own region. Furthermore, Twente underwent the externalization and combination phase concerning their relation with Hamburg. In addition Twente retrieved new knowledge from the Pleven region (socialization phase).

Learning Twente region from other URMA partners, score SECI

Lombardy	Hamburg	Szczecin	Krakow	Pleven
4	2	0	0	1

Hamburg region, Germany

One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Hamburg region:

Twente	Lombardy	Szczecin	Krakow	Pleven
X	X		X	

Learning of Hamburg region, Germany from Pleven, Bulgaria

- ***No specific topic, learning process was different compared to other partners in the network***

Hamburg articulates that Bulgaria was the partner with the most problems to really integrate, they were not really part of this whole discussion process (Interview-B). More specifically, the partners of Hamburg express that Bulgaria's absolute main interest was to be in a European project to learn about the working of European projects and how to manage such a project. Hamburg believes that the content was the second interest for Bulgaria. For them it was really important to better understand how European projects work due to the fact that URMA was the first European project that they participated in. Altogether, they had a learning process which was different from the other partners in the network (Interview-G).

Hence, no phase within the SECI model was in place regarding learning of Hamburg from Pleven and therefore no score is given in this case.

Learning of Hamburg region, Germany from Lombardy, Italy

- ***Learning flow 1: EXPO-like setting interesting phenomenon***

Socialization

Hamburg found the partner Lombardy quite interesting because they were a bit on the same level and of the same city size. Also, how they created the EXPO was interesting for Hamburg (Interview-B; Interview-G). It is not clear if this is newly, not easily articulated knowledge. Along these lines, no score is given for the socialization phase. Nevertheless, it is still an interesting observation that Hamburg was inspired by the EXPO set up in Lombardy.

➢ *Learning flow 2: Comparable regional context*

Socialization

One project partner of Hamburg describes that the partners from Lombardy had a more large scale perspective. Also on how to better steer urban sprawl in the Milano southern region. That was something a bit more close to the quality and perspective Hamburg had during the project (Interview-H). This comment clearly indicates that regional settings of both Hamburg and Lombardy were more alike, yet this statement does not indicate any phase of the SECI model.

➢ *Learning flow 3: Regional food cooperation*

Socialization

Partners from Hamburg believe that content wise there were some topics where they had some good dialogues. This interest did not so much come from the core team of the city of Hamburg because they are urban planners but more from the people in the Hamburg administration who work on regional food. They were for example very interested in the Italian and in the Dutch case (Interview-G). It is not clear if this is newly, not easily articulated knowledge. Yet, the people from the Hamburg administration had much interest regarding this specific topic. For this reason, no score has been allocated to the socialization phase.

Externalization

As stated in the Implementation Plan of Hamburg the partner has learned much from the partners which dealt with food chains. In the URMA network the partners that were engaged in this topic were Twente and also Lombardy. “Through URMA activities and dialogue with other partners, Hamburg learned that restoring food chains and establishing energy networks on a small scale can have a positive influence on the urban rural learning processes and the impact of win-win-situations” (Implementation Plan Hamburg, n.d., p.5).

Combination

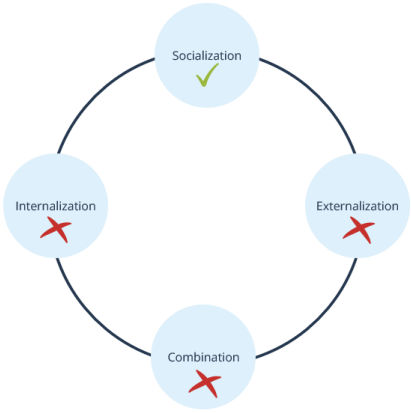
Implementation Plan Hamburg

The Implementation Plan of Hamburg has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been *sorted and categorized*. The Implementation Plan of Hamburg builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (*added and combined*).

The externalization and combination phase were in place. It is still doubtful if there has been socialization regarding the learning flow from the Twente region to the Hamburg region. For this reason, no score is given for the socialization phase.

Learning of Hamburg region, Germany from Twente, the Netherlands

- ***Learning flow 1: Combining environmental and social aspects with farming***



Socialization

Twente was of interest for the Hamburg, particularly on how the region brought together environmental and social aspects with farming on the one hand and including disabled people on the other hand. This was an approach which the partner in Hamburg hasn't heard from before (Interview-B). The Netherlands has a sort of regulation that project like these are financed by the state, for Hamburg that was really interesting because they do not have programs like this. "We took this with us to Hamburg and said: wow, that's a really good idea, why doesn't our state use those intercreated approaches more like the Dutch do" (Interview-B).

- ***Learning flow 2: Project-based regional cooperation and polycentric setting***

Socialization

"The idea of a project based, regional cooperation, was something Twente and Hamburg could both learn from each other. This has to do with firstly not thinking how to describe Urban-Rural Partnerships in a plan or map or in a specific paper. This has to do with firstly linking up a good network of municipalities, regions or counties. This

collaboration was a bit the same as the Lombardy region, although their language was very spatial planning oriented" (Interview-H). While Twente and Hamburg's approach has been very strategy driven and the thinking and mindset of both partners was more steering a polycentric region via projects. The projects that Twente for example tried to implement have been those dealing with food cooperation: to present the competences of agriculture into the project landscape. "That was something in which Hamburg was close to Twente, to think about food like a potential, good food, is a regional potential in a cooperation, that was something we could learn from each other" (Interview-H).

Regarding the pilot implementations Hamburg expresses that they think they learned the most from the Twente region. In general, Hamburg is a more centric region. Nevertheless – just like Twente – Hamburg in a way has a polycentric setting although not as polycentric as Twente. Hamburg has 1,8 million inhabitants, the second largest city only has 200.000 citizens. Hence, there is quite a strong gap between the core city of Hamburg and other cities in the region. Also, Hamburg has a landscape of small scale communities in which cities have 20.000, 30.000, 5000, 2000 inhabitants. There is a really strong agrarian sector in that region, and agriculture has strong potential in that region, so Hamburg was able to learn from this (Interview-H).

Both Twente and Hamburg had a more project-based approach and therefore could relate to one another. Hamburg also explains that the polycentric setting they saw in Twente also was something they had to deal with in their region. Nevertheless, it is not clear if in this case newly, not easily articulated knowledge was exchanged. For this reason, no score is given for the socialization phase.

➢ *Learning flow 3: Regional food cooperation*

Socialization

Employees of the Hamburg administration who work on regional food found the example regarding the Twente case and the Italian case very interesting (Interview-G). One German partner expresses that for Hamburg the Dutch case was more of interest because of this topic of food that some people in Hamburg were interested in (Interview-G).

Hence, there was a great interest from the Hamburg side in how Twente was dealing with food cooperation. Due to the fact that there was a significant amount of interest in

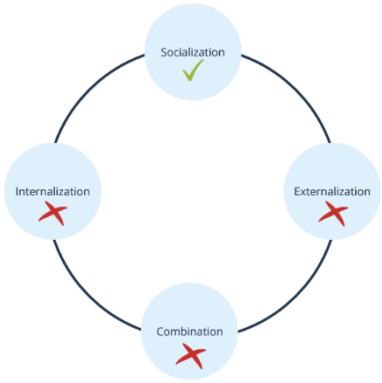
this topic - e.g. the Hamburg administration perhaps has not thought about this before and/or learned new things about this topic that may be interesting for Hamburg.

Externalization

As stated in the Implementation Plan of Hamburg, Hamburg has learned much from the partners which dealt with food chains. In the URMA network the partners that were engaged in this topic were Lombardy but also very much Twente. "Through URMA activities and dialogue with other partners, Hamburg learned that restoring food chains and establishing energy networks on a small scale can have a positive influence on the urban rural learning processes and the impact of win-win-situations" (Implementation Plan Hamburg, n.d., p.5).

Learning of Hamburg region, Germany from Krakow, Poland

➢ *Learning flow 1: Local crossing municipal borders*



Socialization

Hamburg has learned from Krakow that there is a high relevance of local crossing municipal borders. Cooperation is needed for better and stronger cooperation in order to solve local problems. The Hamburg region deal with this by focusing on the transnational and trans regional metropolitan perspective. Partners from Hamburg emphasize that you have to do this twofold, transnational and trans regional are different levels, both are necessary to deal with regional cooperation you can't just leave one behind. This is something Hamburg could learn from Krakow, it is very necessary to work and really cooperate with the local municipalities, of the surroundings of the metropolis for example (Interview-H).

Conclusion learning Hamburg from other partners within URMA network

Hamburg's main focus within the URMA project was to intensify transnational cooperation while at the same time finding ways to include rural regions to also benefit from a more intensified cooperation between the larger urban areas. The central focus of Hamburg's pilot was to intensify cooperation along the Jutland corridor (Interim Pilot Implementation Report, 2014.). It is clear that the Hamburg region learned most from the Twente and also the Lombardy region. In both cases the learning subject involved regional food cooperation. Hamburg underwent the externalization and the combination

phase concerning their relation with Lombardy. In addition, Hamburg retrieved new information from Twente (socialization phase) and also underwent the externalization and combination phase concerning the topic of regional food. Finally, Hamburg also retrieved new information from Krakow (socialization phase).

Learning Hamburg from other URMA partners, score SECI

Twente	Lombardy	Szczecin	Krakow	Pleven
3	2	0	1	0

Pleven Region, Bulgaria

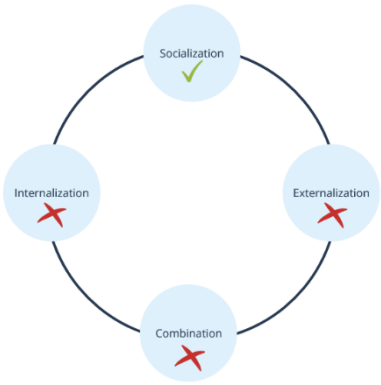
One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Pleven region

Twente	Hamburg	Lombardy	Szczecin	Krakow
X	X	X		

Learning of Pleven region, Bulgaria from Lombardy, Italy

Project partner Pleven express themselves by explaining: "Basically I think we learned from all of them but mostly in Italy. The Italians are just closer to us in the way of thinking" (Interview-D).

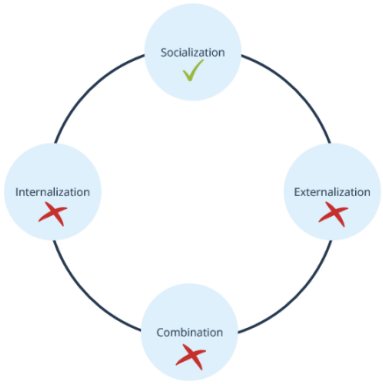
- ***Learning flow 1: Development of park in Pleven***



Socialization

Pleven emphasizes the fact that it obtained a good practice from Lombardy, more specifically, Pleven expresses that Milan has helped them develop a park in their region. The park in Pleven is very big and only one minute away from the center, mostly it is used for tourism and for leisure time by the citizens. Pleven gained experience from Lombardy which will help them develop the second half of the park, e.g.: how to build the infrastructure and to help people from nearby villages who come and visit (Interview-D).

- ***Learning flow 2: Automated transportation systems***

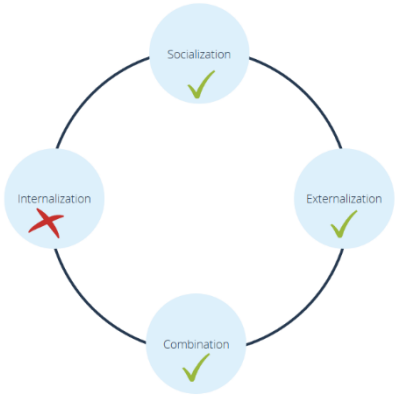


Socialization

In Milan old roman houses are turned into museums, these museums are in the middle of the big city. Milan manages it in such a way so that visitors come. Pleven does not have a border with the Black Sea. Yet, Pleven has the advantage that in Bulgaria very few cities have a place to rest, e.g.: to ride a bike, to be amongst nature in the clean air, so close to the city center while in Pleven these features are in place. Pleven has seen how Milan dealt with the old roman houses in the city center and Pleven wants to make it in the same way. Pleven has boat transport, bicycle transport and public transport. Nevertheless, Pleven has problems with the bike transportation and the boat transportation which Lombardy has automated. Pleven has indicated that

when they have enough budget and that they want to introduce the same automated system (Interview-D).

➢ *Learning flow 3: Innovative farm*



Socialization

A project participant of Pleven remembers they visited a very innovative farm in Milan where rice was made. This farm was closely located to the city center but still it was like being in a village. Although it's a couple of kilometer away, it's like another universe. The project partner of Pleven expresses: "Everything made is biological, they fight ecological challenges and make it in a healthy way. People can work there and do not have to migrate to the big city in order to work". In addition to this, Pleven also has said to have learned from historical and cultural heritage in Lombardy (Interview-D).

Externalization

"During our visit in Milano we took particular interest in The Rise Park – very hard to transfer due to its unique circumstances but very well suited, as an example to others, to spread the ideas of urban-rural cooperation on a smaller scale in our region" (Implementation Plan Pleven, n.d., p.6). Tacit knowledge has been made specific (i.e. explicit) and knowledge is so-to-say 'crystalized' and able to be shared with others (Nonaka et al., 2000).

Combination

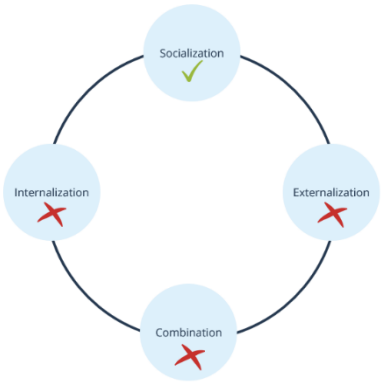
Implementation Plan Pleven

The Implementation Plan of Pleven has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been sorted and categorized. The Implementation Plan of Pleven builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (added and combined).

Learning of Pleven region, Bulgaria from Twente, the Netherlands

➢ *Learning flow 1: Similar regional scale*

Socialization

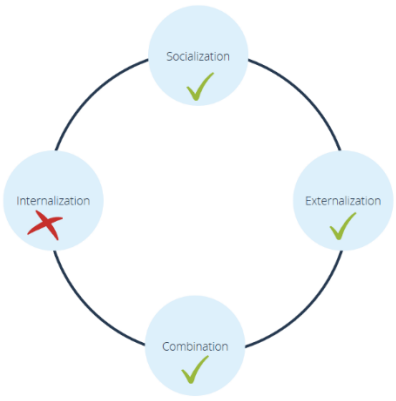


Pleven found that Twente had a similar scale with their region. Both regions have the same population, almost the same nature and circumstance and Pleven looked up to Twente regarding the use of bicycles and the use of agriculture. A project partner of Pleven remembered that they visited a farm in Twente where they grow pigs which are genuinely engineered pigs. This is something Pleven wants to develop in their own country, Pleven says to have the conditions for that (Interview-D).

Learning of Pleven region, Bulgaria from Hamburg, Germany

➢ *Learning flow 1: Museum and setting up an agriculture festival*

Socialization



Pleven's project partner expresses that there was an agricultural museum in Germany, in which you can buy homemade food. At the time Pleven did not include this into their project because they did not think about it. Nevertheless, when they saw it there they said: "yes we have a lot of home cooked food and everything – we can combine it." The project partner of Pleven doesn't know how it will work out but in three years they will know. Pleven gained knowledge from this and it helped them develop a current project they are working on. Pleven took a couple of good practices from them, they want to set up a fair, a festival of agriculture which will combine with the museum, this is what Pleven learned from Hamburg (Interview-D).

Externalization

"The museum visited in Hamburg offered information on how to make Pleven's regional museum more attractive for tourists. Pleven could see and learn from the Hamburg on

how to enhance the visibility and importance of their cultural and historical heritage" (Implementation Plan Pleven, n.d., p.6).

Combination

Implementation Plan Pleven

The Implementation Plan of Pleven has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been *sorted and categorized*. The Implementation Plan of Pleven builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (*added and combined*).

Internalization

One of Pleven's objectives was to set up a project related to "Cluster development, agriculture and food". The project partner of Pleven articulates: "I think we made that one, it was like a festival but it was handled by the municipality not by us, because they have a larger budget to host such events. I think it was successful, they made more people visited the event than was anticipated. It was made in the Gulyantsi municipality, it's one of the 11 municipalities in the region" (Interview-D).

It is hard to say if the festival hosted in Pleven was actually inspired by good practices from the Hamburg region. For this reason it is doubtful if the internalization phase of the SECI model was in place. Consequently, no score is given for the internalization phase.

- ***Learning flow 2: Hamburg's international park***

Externalization

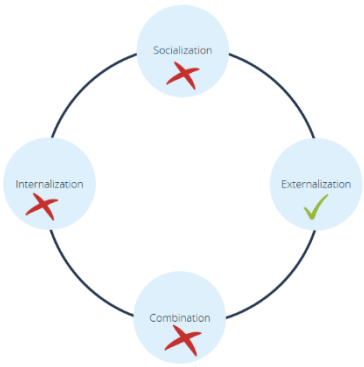
Pleven found it fascinating "how the international park in Hamburg was organized in terms of infrastructure and botanical innovation and as a tourist attraction. That gave Pleven quite some ideas some of which they will consider for their project for tourism development of Kailaka Regional Park" (Implementation Plan Pleven, n.d., p.6). "Also of interest to us were our visits to Italy and the last visit in Hamburg, where we visited the park and certainly

had ideas that we could implement in Pleven District" (Implementation Plan Pleven, n.d., p.6).

➢ *Learning flow 3: Cross-border (urban-rural) cooperation*

Externalization

In the Interim Pilot Implementation Report the following is stated: "The Hamburg-Jutland pilot provides a good example of a large scale, cross-border urban-rural cooperation which can serve as a model, specifically for those URMA partners located on the border (**Pleven-Romania**, Twente-Germany, Westpomerania, Germany, Lombardia-Switzerland, Małopolska-Slovakia) (Interim Pilot Implementation Report, 2014, p.5).



Conclusion learning Pleven from other partners within URMA network

The focus of Pleven during the URMA project was to set up multiple Urban-Rural Partnerships in the region, e.g.: "Silk Textile Cluser", "Agriculture and Food", the construction of an inter-university campus with a technology park and also the realization of complex projects under the Plan for the Management of the protected area "Kailaka" (e.g.: preservation and restoration of the park area, construction of the visitor information center and development based on attractions, recreation and sport) (Implementation Plan Pleven, n.d.). It is clear that the Pleven region learned most from Hamburg and Lombardy. Perhaps because these countries have had more experience regarding Urban-Rural Partnerships and Pleven found multiple subjects interesting,. Pleven underwent the socialization phase (gained new information) two times concerning their relationship with Lombardy. Additionally, Pleven also underwent the socialization, externalization and combination phase regarding the "innovative farm in Milan". Pleven retrieved new information from Twente (socialization phase). Furthermore, Pleven underwent the socialization, externalization and combination phase concerning their relationship with Hamburg.

Learning Pleven from other URMA partners, score SECI

Twente	Hamburg	Lombardy	Szczecin	Krakow
1	5	5	0	0

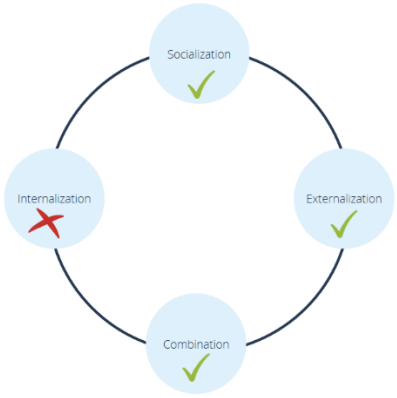
Szczecin, West Pomerania, Poland

One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Szczecin region:

Twente	Hamburg	Lombardy	Krakow	Pleven
X	X	X		

Learning of Szczecin, Poland from Twente, the Netherlands

- ***Learning flow 1: Regional Food Cooperation***



Socialization

During the study visit in the Netherlands the Szczecin region observed a good practice concentrating on the sharpness of the food supply, from rural areas to the city core. Project partners of Szczecin explain that in Poland this is still functioning, because of the country's historical development, nevertheless it's weakening. Because of the experience in Twente, Szczecin now recognizes they can also sustain this food connection between rural areas and city center, combining old methods and new methods. This is specifically something the Szczecin region has observed from the Netherlands (Interview-I).

Furthermore Szczecin emphasizes that the pilot implementation in the Twente Region was a good example of organizing awareness and perceiving the importance of establishing a more sustainable society in the West Pomerania region. "Restoration of the regional food chain to strengthen urban-rural relations, based upon the acknowledgement of the mutual benefits was a very interesting aspect of this pilot project" (Interview-I).

Szczecin also had a good practice which was associated with the regional food chain, this was included in the good practice book. This good practice involves a local fishing group: the 'Zalew' Local Fishing Group. The aim of this local fishing group is to support the local fishermen's. Szczecin articulates that this could also be regarded as an existing food link between rural areas and the city center because they have the fishing group has their

main headquarters near the city center and the fish is going straight to the city market (Interview-I).

Externalization

In the Implementation Plan of West Pomerania indicates that experience was gained and implementations of solutions were apparent in the preparation of a model study of the Dobra municipality with specific emphasis on Wołczkowo (Model study and Vademecum[16]). Bringing this model study to its final development, raising awareness of the inhabitants in the area of Urban-Rural Partnerships during the public consultation and presentation of the proposed changes and records were steps which have been undertaken. Inspiration came from Milan and Twente: "Inspiration by activities of partners from Milan (solutions for agricultural suburban areas) and Twente (food chains)" (Implementation Plan West Pomerania, n.d., p.18).

Also the following has been stated: "The good practice from the Netherlands regarding the restoration of the regional food chain is specified in Szczecin's studies and their submitting documents because they are a Regional Office for Spatial Planning of Westpomeranian Voivodeship and not an institution which delivers practical implementation. Information and knowledge obtained is laid down as strategy improvements and in the future other offices which function more on the micro level are able to implement this" (Interview-I).

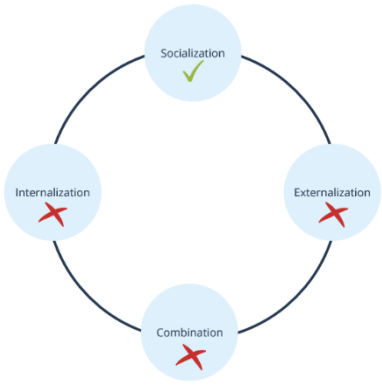
Combination

The Implementation Plan of West Pomerania has a different layout than the other Implementation Plans. The structure of the Implementation Plan is divided among different scopes: the provincial scope, the metropolitan scope, the regional scope and the local scope. Hence, explicit knowledge has been *sorted and categorized*. Naturally, the Implementation Plan demonstrates which steps have been taken regarding the lifetime of the URMA project. The Implementation Plan of West Pomerania builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (*added and combined*).

[16] Handbook

➢ *Learning flow 1: Depopulation, aiming to create a metropolitan place in the city center*

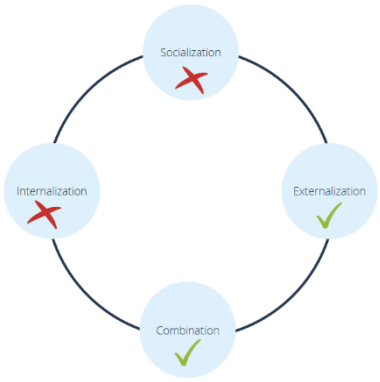
Socialization



Like Hamburg, Szczecin also has a depopulation problem. The region is trying to acquire some metropolitan services and trying to create a metropolitan place in the city center. This metropolitan place is near the river, in the port area, a similar action was implemented in Hamburg in HafenCity which was very good according to Szczecin (Interview-I). One of the project partners in Szczecin states: "this is a similar situation, you have water and abandoned place and you think: what could be done to create a new city center so that people would want to stay in the city?" (Interview-I). Step by step, it is happening in Szczecin, but it is a long process and the region hopes it will achieve something like Hamburg (Interview-I). "They show it could be done. So we can say that is it is a lesson learned from them (Interview-I). But it's not connected with the urban-rural partnership, it is a rather more urban partnership" (Interview-I).

➢ *Learning flow 2: Cross-border (urban-rural) cooperation*

Socialization



Szczecin was interested in the strategic approach for the Hamburg's corridor to Denmark. Considering the fact that Szczecin is also working in a transnational metropolitan area, which covers the German part, for example Mecklenburg-Vorpommern and Brandenburg, this transnational approach including this urban-rural connections and way of thinking, is also important for the Szczecin region. They indicate that they have a similar scale of working, like Hamburg (Interview-I).

A partner from Hamburg states that Krakow and also West Pomerania were very much interested in Hamburg's strategic approach concerning Urban-Rural Partnerships (Interview-G).

It is not clear if this learning flow may be regarded as newly, not easily articulated knowledge. Nevertheless, this is still a notable observation regarding learning within the network. For this reason, no score is given for the socialization phase.

Externalization

Assumptions have been made that Szczecin could learn from Hamburg regarding cross border cooperation. These assumptions have also been confirmed by the Szczecin in the interviews conducted. In the Interim Pilot Implementation Report the following is stated: "The Hamburg-Jutland pilot provides a good example of a large scale, cross-border urban-rural cooperation which can serve as a model, specifically for those URMA partners located on the border (Pleven-Romania, Twente-Germany, **Westpomerania, Germany**, Lombardia-Switzerland, Małopolska-Slovakia) (Interim Pilot Implementation Report, 2014, p.5).

Similar conclusions have been made in Learndoc-1: "the example of a large scaled urban-rural cooperation between a metropolis and remote rural areas inspires several partners: West Pomerania is already cooperating with neighboring German regions and is interested to enlarge the cooperation in direction of Northern Germany and Denmark" (Learndoc-1).

Combination

Interim Pilot Implementation Report

In the Interim Pilot Implementation Report explicit knowledge has been *sorted and categorized* due to the fact that different headings are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In addition, concepts and information are taken from the following documents "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide". Along these lines information has been *added and combined*.

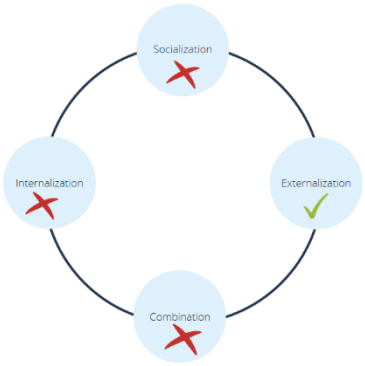
Learndoc-01

In order to have assembled and given answers to the questions in Learndoc-01 strong knowledge base on the network's general structure, flows and interactions should have been in place. All documents (some more than others) that have been published have influenced the way the answers have been formulated in this report, as old explicit information as well as new explicit information is evident.

Learning of Szczecin, Poland, from Lombardy, Italy

➢ *Learning flow 1: GIS-based analysis*

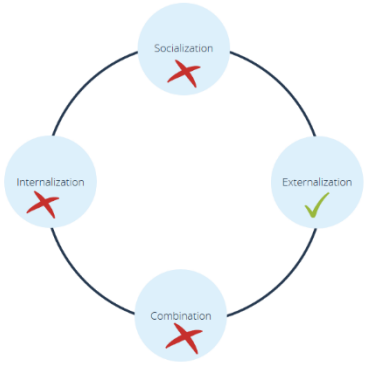
Externalization



As stated in the Final Pilot Implementation Report (2014): "Further, GIS-based analysis proved to be a useful tool to map values of the areas as well as vulnerable and degraded areas in order to develop measures for their protection and valorization. In addition, it enabled the identification of possible adequate/compatible functions provided by peri-urban areas (e.g. integrating the agricultural production) and prevention of further urban sprawl. A similar analysis could be conducted in the Florence Metropolitan Area, the West Pomerania and the Krakow Metropolitan Area which all struggle with urban sprawl. In the course of the pilot implementation, it had become increasingly" (Final Pilot Implementation Report, 2014, p.16).

➢ *Learning flow 2: Agriculture in suburban areas*

Externalization



As stated in the Implementation Plan of West Pomerania:
"Implementation of solutions and experience gained in the preparing of an model study and vademecum to local planning documents od Dobra municipality- in Study of condition and directions of spatial development with particular emphasis on Wołczkowo (Model study and Vademecum). Bringing to final development. Raising awareness of the inhabitants in the area of Urban-Rural Partnerships during the public consultation and presentation of the proposed changes and records. Inspiration by activities of partners from Milan (solutions for agricultural suburban areas)" (Implementation Plan West Pomerania, n.d., p.18).

Conclusion learning Szczecin from other partners within URMA network

The main focus of Szczecin during the URMA project was to implement spatial tasks related to Urban-Rural Partnerships in the spatial development plan of West Pomerania. This was done in order to strengthen the connection between the rural areas and the urban core (Interview-I). The structure of this plan has been executed on provincial scope, metropolitan scope, regional scope and local scope. It may be concluded that

Szczecin learned the most from the Twente region, Hamburg and Lombardy. Szczecin underwent the socialization, externalization and combination phase concerning their relationship with Twente. Regarding the relationship with Hamburg Szczecin gained new information (socialization phase). In addition, Szczecin underwent the externalization and combination phase from Hamburg. Regarding the relationship with Lombardy, Szczecin retrieved new information (socialization). Also, Szczecin underwent the externalization phase concerning their relationship with Lombardy.

Learning Szczecin from other URMA partners, score SECI

Twente	Hamburg	Lombardy	Szczecin	Krakow
3	3	2	0	0

Krakow, Poland

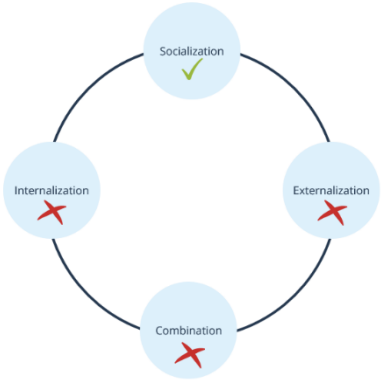
One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Krakow region:

Twente	Hamburg	Lombardy	Szczecin	Pleven
X	X	X		

Learning of Krakow, Poland from Hamburg, Germany

- ***Learning flow 1: Urban Regeneration***

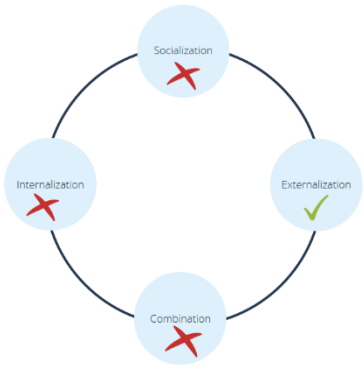
Socialization



During one of the study visits URMA partners visited Wilhelmsburg Island Park in Hamburg in which urban regeneration projects were implemented. At that time it was told to the participants that it was not, really a topic of the project. Nevertheless because Hamburg did take the participants to this location and Krakow as institution was interested in the topic of urban regeneration they were able to ask many questions concerning solutions, and Hamburg answered accordingly. The Institute of Urban Development in Krakow is one of the institutions who is programming urban regeneration in Poland. The project partner from Krakow can't answer to what extent this knowledge was used, but it was useful for sure they articulate. For example at the time they were working on a legal act in Poland concerning urban regeneration, this knowledge came in handy: organizational aspects on how to do things and how to organize these processes in urban regeneration and on the other hand, observing possible legal solutions for such instruments was very useful (Interview-E).

➢ *Learning flow 2: Cross-border (urban-rural) cooperation*

Externalization



In the Interim Pilot Implementation Report the following is stated: "The Hamburg-Jutland pilot provides a good example of a large scale, cross-border urban-rural cooperation which can serve as a model, specifically for those URMA partners located on the border (Pleven-Romania, Twente-Germany, Westpomerania, Germany, Lombardia-Switzerland, **Małopolska-Slovakia**) (Interim Pilot Implementation Report, 2014, p.5).

Learning of Krakow, Poland from Bulgaria, Pleven

➢ *No specific topic: Learning in opposite direction*

Krakow indicates that they didn't get any knowledge from Bulgaria, they believe it was in the opposite direction (that Bulgaria has received knowledge from other partners but partners have not really received knowledge from Bulgaria) (Interview-E). Hence, no phase within the SECI model was in place regarding learning of Krakow from Pleven and therefore no score is given in this case.

Learning of Krakow, Poland from Twente, the Netherlands

➢ *Learning flow 1: Regional food cooperation*

Socialization

Krakow believes that they got very interesting solutions from Twente concerning food cooperation and that somehow this was transferred to the Gorlice county administration in the Eastern Polish part of the Malopolska region. It was a coincidence because the county approached the Krakow institute to get advice on how to develop a particular strategy due to the fact that they are in a very old part of the region. Some external stakeholders attended some events within the project. The project participant from Krakow knows they are still working on this and that they implemented these cooperatives in this part of region. The project partner doesn't know what the current phase is because The Institute of Urban Development in Krakow wasn't the direct beneficiary. The Institute was partner of the project but they were

transferring these learning moments to institutional partners like the Marshal Office of the Malopolskie region and to the Gorlice county administration (Interview-E).

According to project partners in the Twente region Krakow found it very interesting what Twente was doing regarding the city-country side connection. They wanted to focus on an area which was located 120km further away (Gorlice county) which was only moderately developed but which was actually beautiful and which was mainly an agricultural region. As reported by the Twente region the people which visited Twente from Krakow thought: "If we can connect the regional production with Krakow there, you can develop your region further and in Krakow we can also use those products from that region and then you have made the connection", and that is something they gained here in Twente (Interview-F). During the regular visit in Netherlands there were also some extra people from Krakow which joined to learn and see how we do it here (Interview-F).

In addition, project partners in the Twente region believe that the triple helix collaboration was an interesting aspect of their region. "The cooperation between knowledge institutions, industry, government and other organizations, that is what most partners found to be very interesting." In Hamburg there was a lot of interest for this, but also with the partners again in Italy and Poland (Interview-F).

A representative of the REM consultancy believes that the polish partner from Krakow could learn from the Twente region because they are not that experienced with this food network. So, there was a knowledge transfer from Twente to Poland (Interview-C).

Externalization

Knowledge that firstly couldn't be easily expressed has been written down. As stated in the Interim Pilot Implementation Report: "The URMA-Partner in Krakow is interested in establishing links with producers in Twente with the aim of establishing a similar concept in the Malopolska Region" (Interim Pilot Implementation Report, 2014, p.10). The same phrase has been highlighted in the Final Pilot Implementation Report: "Conversely, the URMA-Partner in Krakow is interested in establishing links with producers in Twente, with the aim of establishing a similar concept for the Małopolska Voivodeship in Poland" (Final Pilot Implementation Report, 2014, p.12).

Learndoc-1 indicates that "The example of the Green Knowledge Port in Twente Region as well as the regional food initiatives in Lombardy and Tuscany has inspired urban and rural stakeholders in Lesser Poland Region. A new cooperative will connect consumer from the metropolitan area of Krakow and producers from the rural Gorlice district" (Learndoc-1).

Furthermore, the Implementation Plan of Krakow also highlights learning from the Twente region: "The Handbook of Urban-Rural Cooperation aims at further dissemination of the URMA approach, including experiences and knowledge gathered during study visits and conferences organised within the project. Moreover, without this experience and knowledge transfer there would not have been a chance to make an effort to evaluate the potential for URMA in Poland. Consequently, the project meetings made us aware of the scope and specification of work that needs to be done in our case and brought our attention to the question of how we perceive the same issue and how it should be perceived in different contexts, the contexts that vary from region to region, country to country, and even, people to people. The The Nova Huta - Gorlice district Food Cooperative has been inspired and greatly boosted by the study visit in Twente, where the functioning of the well-established and prospering cooperative could be observed. Adapting the mechanism would be of benefit to the planned food cooperative and help reduce the foreseeable risks involved. During the study visit the representatives of interested parties took part, which consequently allowed for the subjects responsible for the establishment of the cooperative to gain essential knowledge supported by the "behind the scenes" experience (Implementation Plan Krakow, n.d., p. 7 & 8).

Combination

Interim Pilot Implementation Report

In the Interim Pilot Implementation Report explicit knowledge has been sorted and categorized due to the fact that different headings are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In addition, concepts and information are taken from the following documents "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide". Along these lines information has been added and combined.

Final Pilot Implementation Report

The Final Pilot Implementation has the same structure as the Interim Pilot Implementation, i.e. different heading are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In this sense, it may be concluded that explicit knowledge has been sorted and categorized. Just like the Interim Pilot Implementation concepts and information have been taken from the "Concise Dictionary", "URMA approach", "Fact sheets on Pilots", "Good Practice Guide" and naturally the Interim Pilot Implementation itself. Thus, information has been added and combined.

Implementation Plan Krakow

The Implementation Plan of Krakow has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been sorted and categorized. The Implementation Plan of Krakow builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (added and combined).

Learndoc-01

In order to have assembled and given answers to the questions in Learndoc-01 a strong knowledge base on the network's general structure, flows and interactions should have been in place. All documents (some more than others) that have been published have influenced the way the answers have been formulated in this report, as old explicit information as well as new explicit information is evident.

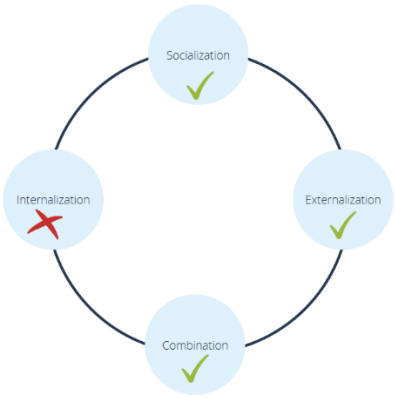
Internalization

The good practices obtained in the Twente region concerning food cooperation was somehow transferred in the Gorlice county administration in the Eastern Polish part of the Malopolska region (Interview-E). The written text in the Implementation Plan of Krakow also confirm that certain aspects learned from the Twente region have been internalized: "During the study visit the representatives of interested parties took part, which consequently allowed for the subjects responsible for the establishment of the cooperative to gain essential knowledge supported by the "behind the scenes" experience" (Implementation Plan Lesser Poland Region, n.d., p. 7 & 8).

Hence, the internalization phase of the SECI model was in place due to the fact that knowledge has become internalized and made one's own. Along these lines. knowledge has been applied from explicit to tacit

Learning of Krakow, Poland from Lombardy, Italy

➢ *Learning flow 1: Landscape Protection Instruments*



Socialization

In Milan there was a study visit which also focused on peri-urban issues. The challenges they experience in Milan are also issues in Poland like urban sprawl, that was quite visible in Milan, the Italians were showing solutions to counteract these processes, although this was even more useful to the partners from Szczecin from West Pomerania. The project partner of Krakow knows this because they were also working on some model of the mitigation of urban sprawl in the region.

What Krakow primarily found interesting was this landscape of protection instruments, this again was maybe not the main topic of the project, but something Krakow focused on this due to the fact that at the time there was a discussion in Poland concerning the new law on landscape protection, so again quite a coincidence. At that time Krakow didn't work directly with this legal act (implementation wise) but it was interesting as such although Krakow didn't make direct use of that knowledge (Interview-E).

Externalization

As stated in the Final Pilot Implementation Report: "Further, GIS-based analysis proved to be a useful tool to map values of the areas as well as vulnerable and degraded areas in order to develop measures for their protection and valorization. In addition, it enabled the identification of possible adequate/compatible functions provided by peri-urban areas (e.g. integrating the agricultural production) and prevention of further urban sprawl. A similar analysis could be conducted in the Florence Metropolitan Area, the West Pomerania and the Krakow Metropolitan Area which all struggle with urban sprawl. In the course of the pilot implementation, it had become increasingly" (Final Pilot Implementation Report, 2014, p.16).

A similar phrase was stated in Learndoc-1:

"In the metropolitan area of Krakow in Lesser Poland Region the experience of

Lombardy supported the discussion on how to face the urban sprawl problematic" (Learndoc-1).

Combination

Final Pilot Implementation Report

The Final Pilot Implementation has the same structure as the Interim Pilot Implementation, i.e. different heading are assigned to each pilot implementation (Regional context and rationale behind the pilot, Objectives and expected outputs of the pilot, Actors and their involvement, Progress of the pilot, Challenges and Lessons learnt). In this sense, it may be concluded that explicit knowledge has been sorted and categorized. Just like the Interim Pilot Implementation concepts and information have been taken from the "Concise Dictionary", "URMA approach", "Fact sheets on Pilots", "Good Practice Guide" and naturally the Interim Pilot Implementation itself. Thus, information has been added and combined.

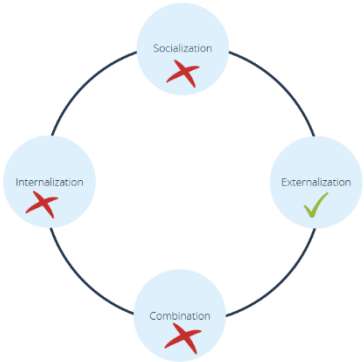
Learndoc-01

In order to have assembled and given answers to the questions in Learndoc-01 a strong knowledge base on the network's general structure, flows and interactions should have been in place. All documents (some more than others) that have been published have influenced the way the answers have been formulated in this report, as old explicit information as well as new explicit information is evident.

- ***Learning flow 2: Regional food initiatives***

Externalization

Knowledge that firstly couldn't be easily expressed has been written down. The example of the Green Knowledge Port in Twente Region as well as the regional food initiatives in Lombardy and Tuscany has inspired urban and rural stakeholders in Lesser Poland Region. A new cooperative will connect consumer from the metropolitan area of Krakow and producers from the rural Gorlice district (Learndoc-1).



Conclusion learning Krakow from other partners within URMA network

The prime focus of the Krakow region was to create a new metropolitan strategy for the city of Krakow in order to gain a higher cooperation at the spatial planning level between urban and rural municipalities (e.g. through Integrated Territorial Investments,

ITI) (Implementation Plan Lesser Poland Region, n.d.) From the information given in the interviews and retrieved from the written documents it is clear that Krakow learned the most from the Twente region. Krakow underwent all the phases of the SECI model and finally also internalized some good practices of Twente in their own region. Furthermore, Krakow retrieved new knowledge from Hamburg (socialization). In addition Krakow underwent the externalization phase concerning their relationship with Hamburg. Regarding the relationship with Lombardy Krakow underwent the socialization, externalization and the combination phase. Further, Krakow also underwent the externalization phase in relation to Lombardy.

Learning Krakow from other URMA partners, score SECI

Twente	Hamburg	Lombardy	Szczecin	Pleven
4	2	4	0	0

Lombardy region, Italy

One or more phases of the SECI model were in place concerning the following partners whilst analyzing the Lombardy region:

Twente	Lombardy	Szczecin	Krakow	Pleven
X	X		X	

Learning of Lombardy, Italy from Hamburg, Germany

➢ *Learning flow 1: Shared strategies at large/territorial scale*

Socialization

A scientific consultant of the Lombardy region articulates that the Lombardy region has learned from the HafenCity University Hamburg (Lead Partner) and State Ministry of Urban Development and Environment, Free and Hanseatic City Hamburg concerning the governance process. In particular the Lombardy region observed how Hamburg developed the governance process in defining shared strategies at large/territorial scale (Interview-J).

Externalization

In the Pilot guidelines one of Lombardy's project partners proposed to implement some aspects developed from the large scale process developed in the Pilot of Hamburg partners (specifically multi-stakeholders decision making process) (Interview-J).

➢ *Learning flow 2: Cross-border (urban-rural) cooperation*

Externalization

In the Interim Pilot Implementation Report the following is stated: "The Hamburg-Jutland pilot provides a good example of a large scale, cross-border urban-rural cooperation which can serve as a model, specifically for those URMA partners located on the border (Pleven-Romania, Twente-Germany, Westpomerania, Germany, **Lombardia-Switzerland**, Małopolska-Slovakia) (Interim Pilot Implementation Report, 2014, p.5).

Learning of Lombardy, Italy from Krakow, Poland

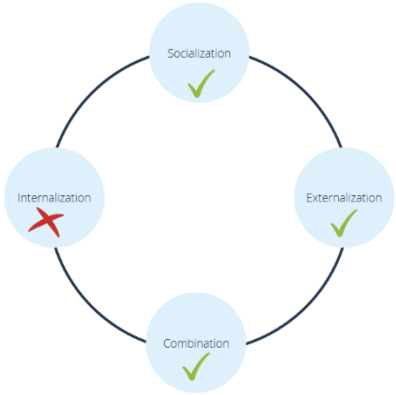
- ***Learning flow 1: Defining and integrating policies for peri-urban valorization (and possible instruments)***

Regarding the Krakow region there was an exchange in planning policies and governance policies with the Institute of Urban Development Krakow. Thus, how to define policies integrating urban and rural policies and possible instruments for peri-urban valorization (Interview-J).

The project partner from Lombardy indicates that they exchanged information on this topic. Yet, it is hard to say if newly, not easily articulated knowledge was exchanged. Hence, no phase within the SECI model was in place regarding learning of Lombardy from Krakow and therefore no score is given in this case.

Learning of Lombardy, Italy from Twente, the Netherlands

- ***Learning flow 1: Quadruple helix and re-construction of a local food chain***



Socialization

Project partners in the Twente region believe that the triple helix collaboration was an interesting aspect of their region. "The cooperation between knowledge institutions, industry, government and other organizations, that is what most partners found to be very interesting." In Hamburg there was a lot of interest for this, but also with the partners again in Italy and Poland (Interview-F).

The project partner from Lombardy emphasizes that the relationship with the Twente region was based on relevant exchange in relation to peri-urban polices developed for the peri-urban (fringe) areas; polices (national and local) for food chain re-organization (short/local food chain); methodological approach based on quadruple helix (Interview-J). The Implementation Plan of Lombardy also confirms this.

Externalization

In the Pilot guidelines a scientific consultant from Lombardy proposed to implement some aspects developed by the Twente partners (quadruple helix approach; integrated food chain polices integrating environmental, social and territorial issues) (Interview-J).

As stated in the Implementation Plan of Lombardy: "One of the main references for the implementation, regarding tools and activities related to the drafting of the Guidelines/criteria supporting the Urban-Rural Partnerships, is the experience carried out in the pilot case of Twente. There, the re-construction of a local food chain is connected not only with the definition of a regional food strategy, but also with activities that make urban people aware of the wider range of values of peri-urban agriculture and peri-urban areas in general (the urban farm built on a former industrial site as a strong symbol, the importance of the involvement of students and young people, etc..) A central element highlighted by the pilot of Twente is the role of private actors or local entrepreneurs, which should be supported in building their know-how (professional branding and promotion) as well as in the financial aspects of their activity (micro-credit). Both these are elements that could be considered also for the tools proposed in Lombardy region, particularly the possibility to implement the agricultural vocation in the governance of peri-urban areas (Peri-Urban Agriculture)" (Implementation Plan Lombardy, n.d., p. 7 & 8).

Combination

Implementation Plan Lombardy

The Implementation Plan of Lombardy has three main headings (like all other Implementation Plans, except for Szczecin): General information, Main Components of the Plan and Project Implementation Progress and Next Steps. Hence, explicit knowledge has been *sorted and categorized*. The Implementation Plan of Lombardy builds on the previous documents such as the Interim Pilot Implementation and the Final Pilot Implementation. Yet, also information fragments of early documents such as "Concise Dictionary", "URMA approach", "Fact sheets on Pilots" and "Good Practice Guide" are noticeable (*added and combined*).

Conclusion learning Lombardy from other partners within URMA network

The principal aim of the Lombardy region was to evaluate urban-rural relationships regarding the EXPO 2015. Additionally, seeking innovative ways towards land management and use towards environmental protection and valorization of metropolitan territories. It is evident that the Lombardy region has learned the most from Hamburg and the Twente region. Lombardy underwent the socialization and externalization phase concerning their relationship with Hamburg. In addition, the externalization phase was also in place regarding cross-border (urban-rural)

cooperation. Regarding the relationship with Twente, Lombardy underwent the socialization, externalization and combination phase.

Learning Lombardy from other URMA partners, score SECI

Twente	Hamburg	Szczecin	Krakow	Pleven
3	3	0	0	0

Table 25 is based on the SECI model and illustrates bilateral learning between partners.

Table 25: Transformation of variables: bilateral learning

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	4	5	3	3	2
Hamburg	4	0	4	3	3	4
Milan	5	4	0	2	3	4
Szczecin	3	3	2	0	1	1
Krakow	3	3	3	1	0	1
Pleven	2	4	4	1	1	0

5.2 Relationship between Proximity and Learning

This section will present and investigate the relationship between proximity and learning within the URMA network.

In the URMA network learning[17] can be divided in two categories:

1) Supply and distribution of learning; partners are able to provide knowledge towards other partners in the network
2) Individual learning: partners are able to accumulate knowledge from other partners

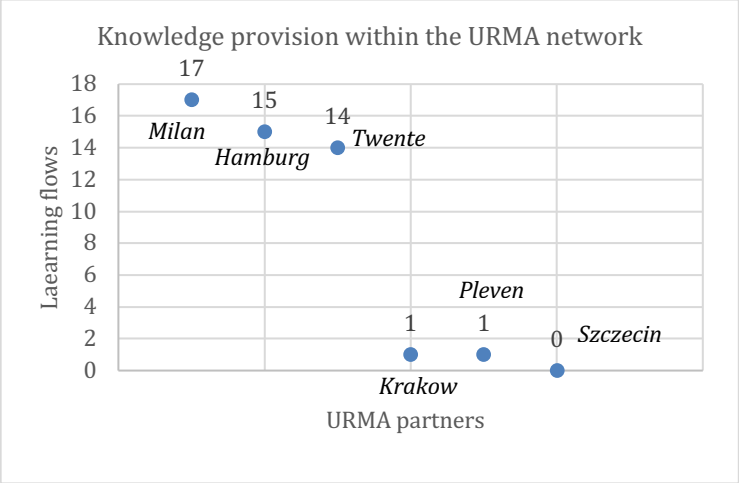


Figure 21. Knowledge provision within the URMA network

[17] It must be taken into account that the SECI model can be seen as a more in depth and tangible model of learning. The model specifically identifies knowledge conversion, meaning: the interaction between tacit and explicit knowledge. Partners have learned from one another by all means, i.e. learning without regard to knowledge conversion could have taken place but this is more difficult to identify due to the fact that learning overall is a quite intangible concept; for this reason the SECI model has been utilized. More specifically, this does not mean that the other partners *have not learned* from the regions which have lower scores, yet *in this case* the SECI model could not be employed for these specific regions.

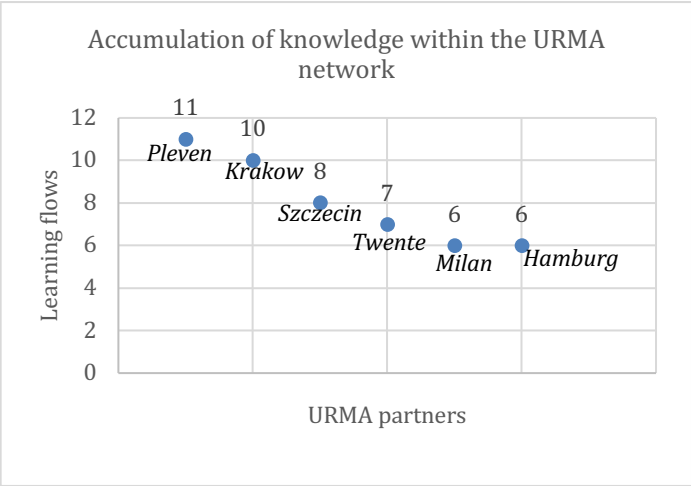
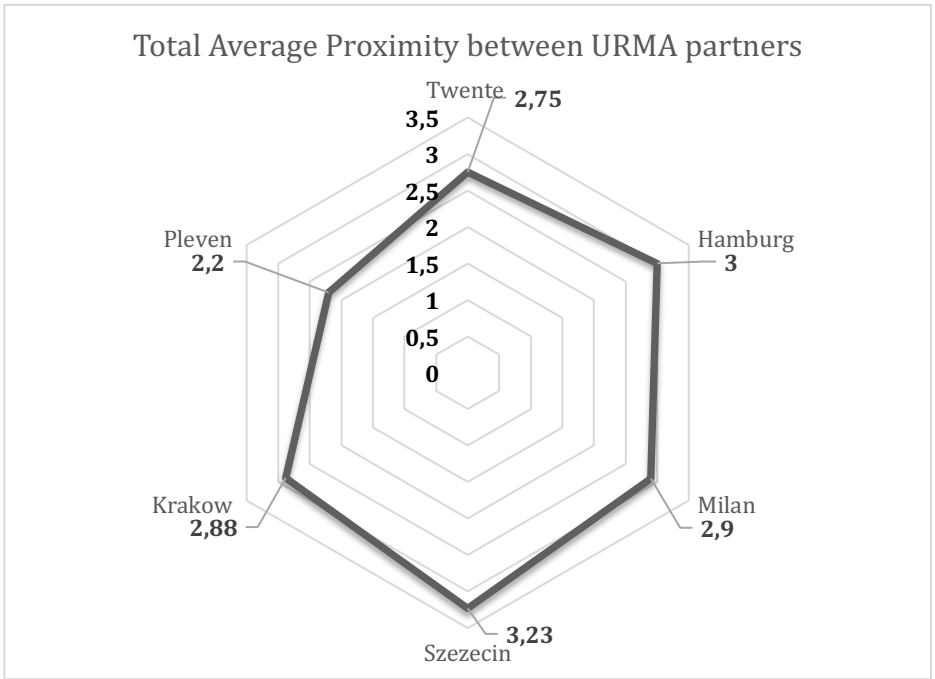


Figure 22. Accumulation of knowledge within the URMA network

When examining figure 21 learning is quite diversified. It may be confirmed that Milan, Hamburg and Twente distribute and provide the most knowledge as most learning flows of other partners extend to these partners. Thus, these partners may also be regarded as the three main donor regions in the network. In comparison Krakow, Pleven and Szczecin are able to transfer less knowledge. When analyzing figure 22, learning flows are quite fairly distributed, which indicates that all partners within the network have experienced learning. Szczecin, Krakow and Pleven score moderately higher, in this case these partners can be considered as more recipient regions. Because proximity and learning are relation-based figure 21 and 22 have been combined to analyze overall learning in the network (bilateral learning).



Highest Proximity
Szczecin: 3,23
Hamburg: 3
Milan: 2,9
Krakow: 2,88
Twente: 2,75
Pleven: 2,2
Lowest Proximity

Figure 23. Total Average Proximity between URMA partners

Figure 23 demonstrates the total average proximity between the URMA partners. It can be seen that Szczecin is the most proximate partner in the network. Hamburg also scores high on proximity, closely followed by Milan. Krakow scores 2,88 on proximity and Twente 2,75. Pleven scores the lowest with a score of 2,2.

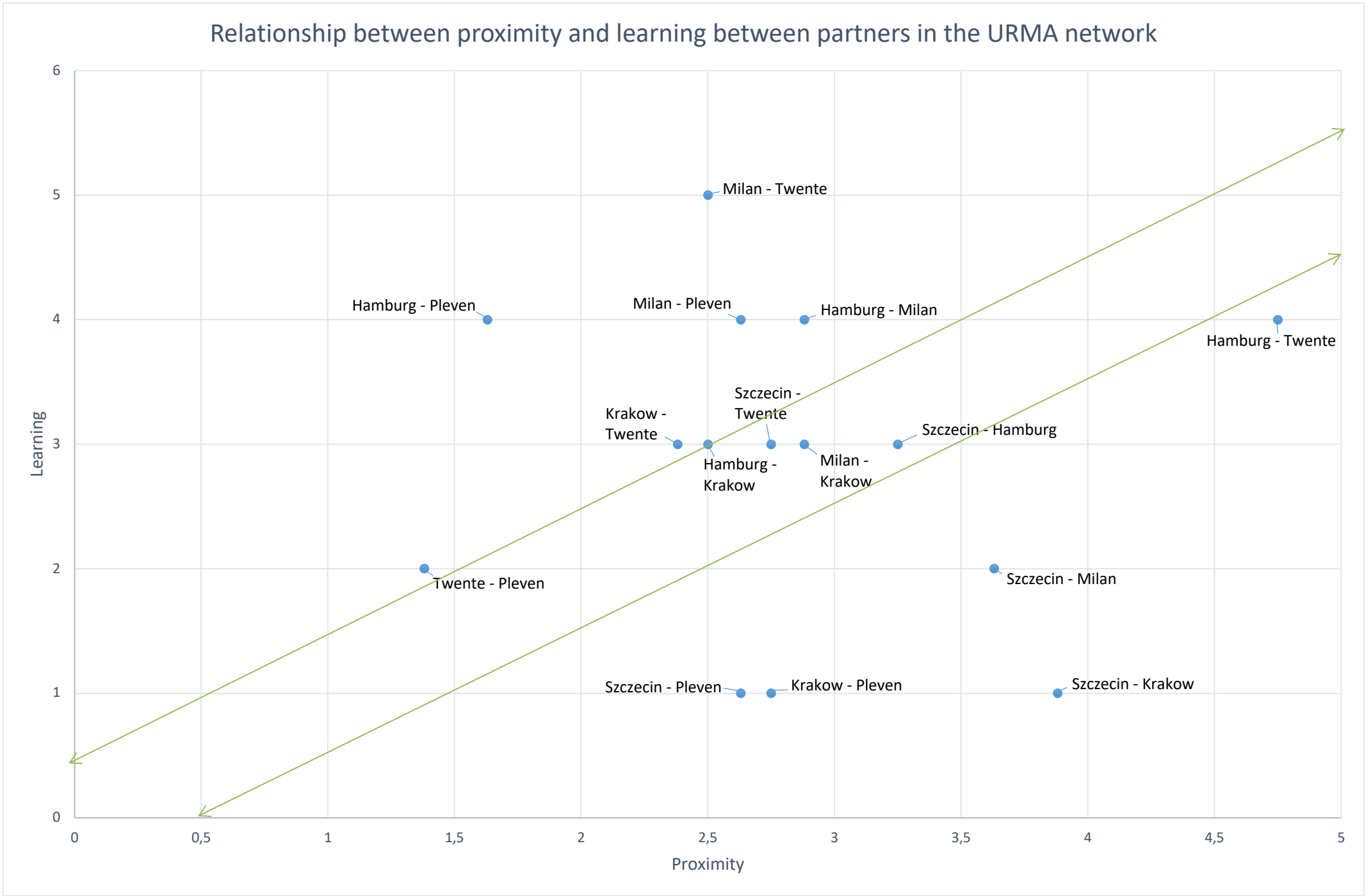


Figure 24. Relationship between proximity and learning between partners in the URMA network

Figure 24 illustrates the density of relationships concerning the proximity level as well as the sum of learning between partners of the URMA network.[18] In 6 instances proximity is higher than the sum of learning between partners, in 9 instances learning is higher than the level of proximity. Hamburg – Twente score the highest on proximity with a score of 4,75, the learning between partners is also quite high with a count of 4. Szczecin – Krakow rank 3,88 on proximity which is quite high and 1 on learning. Szczecin – Milan also have a high score on proximity: 3,63, yet learning is quite low with a score of 2. The relation between Szczecin – Hamburg concerning proximity counts 3,25, the variable learning is quite similar with a score of 3. Milan – Krakow have a proximity rate of 2,88 and score a 3 on learning, which is notably close. Hamburg – Milan also have a proximity rate of 2,88 and likewise a score 3 on learning. Krakow – Pleven rank 2,75 on proximity but have a very low learning score of 1. Szczecin – Twente have a proximity score of 2,75 and record a 3 on learning. Milan – Pleven score 2,63 on proximity and 4 on learning, which is quite high considering the proximity level between partners. Szczecin – Pleven rank 2,63 on proximity and rate very low on the learning variable with an outcome of 1. Furthermore, Hamburg – Krakow have a proximity level of 2,5 and rate average on learning with a score of 3, which is considerably close. Milan – Twente have a proximity of 2,5 yet score 5 on learning. While these two partners jointly have the highest learning scores, their proximity compared to this is quite low. Krakow – Twente rank 2,38 on proximity and 3 on learning. Hamburg – Pleven have a proximity level of 1,63 and notwithstanding this they score very high on learning with a 4. Finally, Twente – Pleven have the lowest proximity score in the whole network with a count of 1,38 and they score a 2 on learning.

In only 4 cases of the 15 it may be presumed that there is a relation between proximity and learning. Because of this it is very difficult to assume that a relationship between the variables proximity and learning exists.

[18] The sum of learning has been calculated by the amount of learning flows between partners added together and divided by two (see appendix for calculations)

Table 26: Learning within the URMA network: Knowledge provision and accumulation

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven	***Knowledge provision***
Twente	0	3	3	3	4	1	**14**
Hamburg	2	0	3	3	2	5	**15**
Milan	4	2	0	2	4	5	**17**
Szczecin	0	0	0	0	0	0	**0**
Krakow	0	1	0	0	0	0	**1**
Pleven	1	0	0	0	0	0	**1**
Accumulation of knowledge	**7**	**6**	**6**	**8**	**10**	**11**	**48**

Table 26 combines the scores of accumulation of knowledge and knowledge provision. As indicated in the above there are three donor regions in the network and three recipient region. Even though this distinction exists all partners are learning.

6. Discussion and conclusion

This final chapter will seek to answer the main research question set out in this thesis: "*To what extent does geographical, institutional, cognitive and organizational proximity affect knowledge transfer between partners of the URMA network*?" Interpretations from the results sections will be included in order to address the research question. In addition, limitations of this study will be highlighted and new insights and opportunities for further research will be elaborated upon.

The aim of this thesis has been to research the relation between proximity and learning in Pan-European Networks; to see whether closeness between European project partners has an effect on the learning processes between them. This relation has been investigated through the case study of URMA. The aim of URMA has been to learn and exchange knowledge between project partners on Urban-Rural Partnerships. During 2012-2014 partners from different European regions have joined forces to exchange information, knowledge and good practices on the topic of Urban-Rural Partnerships.

6.1 The Construction of the URMA network

This section aims to give answers to sub question 1: *How was the URMA network constructed?*

The URMA network was introduced as a result of a discussion on the topic of spatial development in Germany, out of which a new instrument was developed: Urban-Rural Partnerships. Hamburg took the lead, both the federal level and HafenCity University had a parallel discussion on how to enhance strategies in order for all areas to be included. The idea extended further and the working group "URMA" was set up in the METREX network. Due to a shortcoming in financing while at the same time having great interest in the topic, it was decided to participate in an INTERREG project. Hamburg became lead partner and selected partners from the METREX network (Hamburg, Szczecin, Milan), but also outside of the network (Twente, Krakow, Pleven), have been included considering the fact that partners had to originate from all corners of Europe, following a specific requirement of the INTERREG IVC program.

6.2 Proximity within the URMA network

This section aims to give answers to sub question 2: *To what degree has proximity been apparent between partners within the network?*

In this analysis all proximity dimensions will primarily be treated as one. The reason for this approach is to have a more robust view on the variable proximity by adding the dimensions together.

Proximity between partners in the URMA network

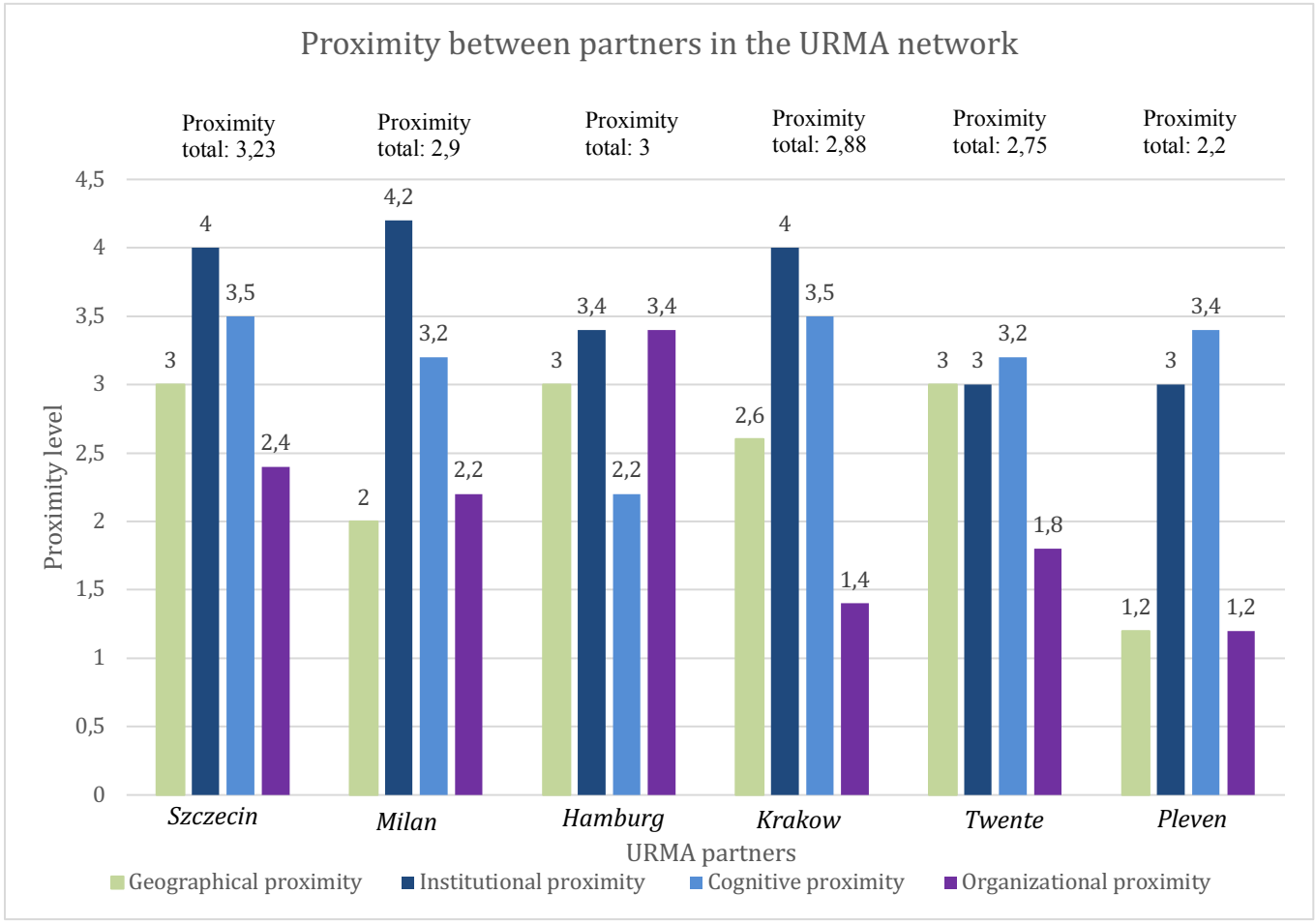


Figure 25. Proximity between URMA partners

Overall proximity

When considering overall proximity, partners score quite similar. However, Pleven scores significantly lower than the other partners. For three proximity dimensions Pleven has scored the lowest. Szczecin, Milan, Hamburg, Krakow and Twente differ by maximum 0,48 whereas Pleven varies 1,03 with the most proximate partner Szczecin.

Bilateral proximity between partners

Table 27 illustrates the proximity between each partner. This table is ranked from high to low proximity between partners. In this analysis of the bilateral relation it may be concluded that proximity is quite diversified. Twente and Pleven are the partners which collectively have the lowest proximity, scoring 1,38, while Hamburg and Twente rank the highest on proximity: 4,75. As 5 is the highest rating for proximity and 1 the lowest, it can be confirmed that most partner relations score rather average. Only in two cases, bilateral proximity is quite low (Hamburg-Pleven and Twente-Pleven). In four cases the bilateral proximity is quite high.

Table 27: Bilateral relationship proximity between partners

Relationship partners	***Bilateral proximity***
Hamburg-Twente	4,75
Szczecin-Krakow	3,88
Szczecin-Milan	3,63
Szczecin-Hamburg	3,25
Hamburg-Milan	2,88
Milan-Krakow	2,88
Szczecin-Twente	2,75
Krakow-Pleven	2,75
Szczecin-Pleven	2,63
Milan-Pleven	2,63
Hamburg-Krakow	2,5
Milan-Twente	2,5
Krakow-Twente	2,38
Hamburg-Pleven	1,63
Twente-Pleven	1,38

In this research the focus is especially on the relation between partners, in particular looking into their bilateral proximity. It may be concluded that there are no substantial results of high proximity between partners. While most partners score averagely, this relates to the fact that partners are not very proximate (only averagely) concerning bilateral proximity.

6.3 Learning within the URMA network

This section aims to give answers to sub question 3: *To what degree has learning taken place between the transnational partners?*

Table 28: bilateral learning between partners

Relationship partners	***Bilateral learning***
Milan-Twente	*5*
Hamburg-Twente	*4*
Hamburg-Milan	*4*
Milan-Pleven	*4*
Hamburg-Pleven	*4*
Milan-Krakow	*3*
Krakow-Twente	*3*
Szczecin-Hamburg	*3*
Szczecin-Twente	*3*
Hamburg-Krakow	*3*
Twente-Pleven	*2*
Szczecin-Milan	*2*
Szczecin-Krakow	*1*
Krakow-Pleven	*1*
Szczecin-Pleven	*1*

Learning certainly has been apparent in the URMA network, albeit between some partners more than between others. Also the outcome of variable learning is quite wide-ranging between partners. In 12 of the 15 cases there has been bilateral learning between partner regions[19]. Milan-Twente score the highest – a 5 – on bilateral learning. Szczecin-Krakow, Krakow-Pleven, Szczecin-Pleven record the lowest outcome on bilateral learning with a score of 1. Noteworthy is the fact that Szczecin (the partner that scores highest on overall proximity) rates quite low on bilateral learning.

6.4 The relation between proximity and learning

This section aims to give answers to sub question 4: *Is there a relation between proximity and learning?*

[19] 1 indicates 0 learning flows

As already mentioned in the above, it is difficult to assume there is a relation between the variables proximity and learning. When regarding table 29 this statement is likewise confirmed. The primary example and a noteworthy finding is that while Szczecin is the partner that scores the highest on proximity, at the same time is one of the partners that ranks the lowest on learning. For this reason, it may be asserted that in this research there is no relation between the closeness of partners and their level of learning. Yet, the dissimilarity in scores between knowledge provision and the accumulation of knowledge in the results section (5.2) are interesting findings, which will be further elaborated on in section 6.7: new insights.

Table 29: Comparing proximity and learning

Relationship partners	**Bilateral proximity** ⟺	**Bilateral learning**
Hamburg-Twente	4,75	5
Szczecin-Krakow	3,88	0
Szczecin-Milan	3,63	2
Szczecin-Hamburg	3,25	3
Hamburg-Milan	2,88	4
Milan-Krakow	2,88	3
Szczecin-Twente	2,75	3
Krakow-Pleven	2,75	1
Szczecin-Pleven	2,63	1
Milan-Pleven	2,63	4
Hamburg-Krakow	2,5	3
Milan-Twente	2,5	5
Krakow-Twente	2,38	3
Hamburg-Pleven	1,63	4
Twente-Pleven	1,38	2

6.5 Research Question

To give an answer to the main research question set out in the *thesis "to what extent does geographical, institutional, cognitive and organizational proximity affect knowledge transfer between partners of the URMA network?*: It can be concluded that there is no relation between proximity and learning in this specific analysis of proximity and learning regarding the single case study of URMA. When comparing proximity with learning flows between partners, there appears to be no clear correlation between these two variables. In fact, only from 4 cases of the 15 it can conceivably be assumed there is a relation. According to the theory set out at the beginning of this thesis, it is most often argued that higher proximity levels between actors generate more learning and innovation opportunities. (Boschma, 2005). This assumption is not confirmed in this thesis. Therefore, the hypothesis: "*high levels of proximity will also generate a high level of learning"* is rejected.

The scores of learning between partners is quite an evident finding due to the fact that Twente, Hamburg and Lombardy were the partners which were assigned their own pilot implementation. In a way there was more to show – or so to say – demonstrate for these partners to other partners in the network. Furthermore, it has to be noted that the donor partners have been involved in other European urban-rural networks.

6.6 Limitations

There were three principal limitations when conducting this study. Firstly, during the URMA project some participants stepped out and new participants entered the network. This naturally creates a loss of knowledge and understanding, as the new project partners have not been exposed to the entire (learning) process. When conducting the interviews, an incomplete picture may have been sketched due to the fact that not all relevant information may have been communicated. Secondly, the timing of the project was from 2012-2014. This has taken place some time ago and for this reason it may be more difficult for the interviewees to exactly recollect moments of the past. Thirdly, it proved not possible to include the Tuscany region in this study, which was an actor participating in the URMA project as well.

Despite these limitations, it proved to be possible to present a complete examination of both proximity between partners as well as learning.

6.7 New insights

Table 26: Learning within the URMA network: Knowledge provision and accumulation

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven	***Knowledge provision***
Twente	0	3	3	3	4	1	**14**
Hamburg	2	0	3	3	2	5	**15**
Milan	4	2	0	2	4	5	**17**
Szczecin	0	0	0	0	0	0	**0**
Krakow	0	1	0	0	0	0	**1**
Pleven	1	0	0	0	0	0	**1**
Accumulation of knowledge	**7**	**6**	**6**	**8**	**10**	**11**	**48**

As table 26 shows, Milan, Hamburg and Twente may be considered the partners that provide the most knowledge and, hence, can be seen as the donor partners. In this context, these partners disseminate tacit and explicit knowledge to other partners in the network. Even though the provision of knowledge is unevenly distributed, the accumulation of knowledge of partners in the network is far more even distributed. Thus, individual learning is quite the same between partners. This is because the donor regions also are learning, but significantly more from one another. At the same time the recipient regions Szczecin, Krakow and Pleven are learning as well, likewise from the donor regions.

This is a critical finding in the light of the fact that this exemplifies that European projects are functioning in the desired way. By composing a network with actors with higher and lower strength levels, learning is being enabled, in which also lower strength regions are able to gain new knowledge and insights. Specifically, INTERREG IVC's objective was to help regions share solutions and to enable public institutions all over Europe to learn through cooperation (Interreg, n.d.). In this case the desired effect of such a European project is achieved. This ties into another conclusion: proximity turns out not to be the leading factor in this analysis, but strength between partners is. In this context, strength of partners can be formulated as follows:

- Expertise on the topic in question[20]: if actors in European projects already have expertise on or have been affiliated to the specific topic, they are more knowledgeable and equipped to deliver a greater contribution. Through expertise, explicit and tacit knowledge may be disseminated in the network.
- Experience on the topic in question[21]: if actors already have experience (such as being active in other European, regional or local settings), they are able to put this into practice. This ensures a certain know-how, in this case this can also be articulated as tacit knowledge, which is ready to be shared with other project partners.
- Experience in European projects: partners which have more experience in European projects know what to expect and are able to work in a more goal-orientated way.
- Welfare level (and investment level) of partners: the welfare level of project partners indicates the level of development of a region. Either a large or a limited amount of money is invested in order to develop the region, related to the topic in question[22]. Whilst taking the example of Urban-Rural Partnerships by some less developed regions, this can be perceived as a far-fetched phenomenon, certainly vis-à-vis their own development stage.

Above strength has been formulated on basis of its manifestation in the network as such. On the one hand actors which are seeking to learn and have room for development, learn from actors who are able to provide this knowledge. On the other hand, the more developed actors are also benefitting from the collaboration because they are learning from one another.

In order to create inter-institutional learning in a network it seems important for European policy makers to include both high strength partners as well as low strength partners in their programs, which will – then again – learn from the higher strength partners. In European projects the desired effect is that all partners are able to learn, and all partners are able to develop their regions and/or cities, i.e. not only the higher strength regions and not only the lower strength regions. In this specific case, this desired effect has been achieved because the network has been composed of partners

[20] In this case of Urban-Rural Partnerships
[21] In this case of Urban-Rural Partnerships
[22] In this case, particularly on the topic of urban-rural relations

with different strength levels in which both the lower strength and higher strength partners are learning. Implications of this approach are that every network functions differently and there may be other third variables playing a role on the outcome of learning.

6.8 Further research

This thesis has provided more insights on the workings of Pan-European Networks regarding the relation between proximity and learning. Even though there is no relation between these variables, it has been explained that strength between partners is a critical determinant in how learning functions.

In the case study of URMA it is apparent that not proximity but strength plays a vital role in reaching an optimal level of learning. Policy makers which are engaged in setting up transnational networks must take into account that strength between partners in Pan-European networks play a vital role with respect to the learning processes which take place in the network. Hence, strength may be used as a tool enabling cities and regions to determine opportunities that could exist with potential future partners beforehand, i.e. a more preferred composition could be shaped beneficial to learning. Nevertheless, more in-depth research must be carried out in order to create such a functioning tool.

It is difficult to assume which proximity dimension may be more important than another due to the fact that in this research it has been concluded that there is no relation between proximity and learning. Further research must be executed in order to see if one proximity dimension is more important than others concerning learning in Pan-European Networks.

This thesis aimed to examine whether proximity has an effect on learning. It can be concluded that proximity does not play a major role but that strength between partners proves to be the determining factor. In addition, more research is required to establish whether in other European projects the same conclusion can be drawn. The European motto “United in Diversity” reflects the outcome of this research. When selecting European project partners, it is important to seek a balance between high strength and lower strength partners. Pan-European network have a distinctive network structure in which the objective is not only about receive and transmit. It is also about partners which can act on equal footing and that all partners are able to learn and develop themselves as such. Creating a diverse network with partners originating from various

European countries – which have lower and higher strength levels – has proven to be an essential factor for learning in Pan-European networks.

7. Appendix

Appendix A: Overview of public analyzed documents

Importance	Document	Pages
High		
	Good Practice Guide	19
	Interim Pilot Implementation Report	18
	Implementation Plan Hamburg	6
	Implementation Plan West Pomerania (Szczecin)	29
	Implementation Plan Lombardy	9
	Implementation Plan Lesser Poland Region (Krakow)	8
	Implementation Plan Twente	5
	Implementation Plan Pleven	8
Medium		
	Fact sheets on Pilots	4
	Concise Dictionary	12
	URMA approach	8
	Documentation of project events Szczecin (September 2012)	22
	Documentation of project events Krakow (December 2012)	6
	Documentation of project events Hamburg (June 2013)	3

	Documentation of project events Milan (October 2013)	7
	Documentation of project events Pleven (January 2014)	2
	Documentation of project events Twente (June 2014)[23]	3
	URMA publication OECD West Pomerania	13
	Newsletter No1 2012	5
	Newsletter No2 2013	7
	Newsletter No3 2013	9
	Newsletter No4 2013	7
	Newsletter No5 2014	7
	Newsletter No6 2014	7
Low(er)		
	Project flyer	1

Appendix B: Overview of alternative analyzed documents

Code document	Importance	Type of document	Pages
Learndoc-01	High	Report	11

[23] Please note that the documentation of project events gave more insights on the functioning of the URMA project. Nevertheless, the documents were not able to give sufficient knowledge on the learning flows within the network. For this reason these documents have not been used directly during the analysis of this research

Appendix C: Overview of conducted interviews

Code interview	Country	Date	Type
Interview-A	The Netherlands	January 19th 2017	Semi-structured
Interview-B	Germany	May 12th 2017	Semi-structured
Interview-C	Germany	May 18th 2017	Semi-structured
Interview-D	Bulgaria	September 26th 2017	Semi-structured
Interview-E	Poland	October 6th 2017	Semi-structured
Interview-F	The Netherlands	October 30th 2017	Semi-structured
Interview-G	Germany	February 2nd 2018	Semi-structured
Interview-H	Germany	March 13th 2018	Semi-structured
Interview-I	Poland	April 26th 2018	Semi-structured
Interview-J	Italy	May 16th 2018	Semi-structured

Appendix D: Overview of Tables and Figures

Table 4: Geographical distances between URMA partners in kilometers

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	320	999	664	1071	2032
Hamburg	320	0	1109	409	882	1942
Milan	999	1109	0	1207	1291	1574
Szczecin	664	409	1207	0	664	1801
Krakow	1071	882	1316	665	0	1182
Pleven	2032	1941	1585	1800	1184	0
Sum	6393	6427	7530	6822	7454	12.139
#partners	6	6	6	6	6	6
AvgD	913,29	918,14	1075,71	974,57	1064,86	1734,14

Table 5: Transformation scheme geographical proximity

High geographic proximity				***Low geographic proximity***
5	4	3	2	1
(0-350 km)	(>350-700 km)	(>700-1050 km)	(>1050-1400 km)	(>1400+ km)

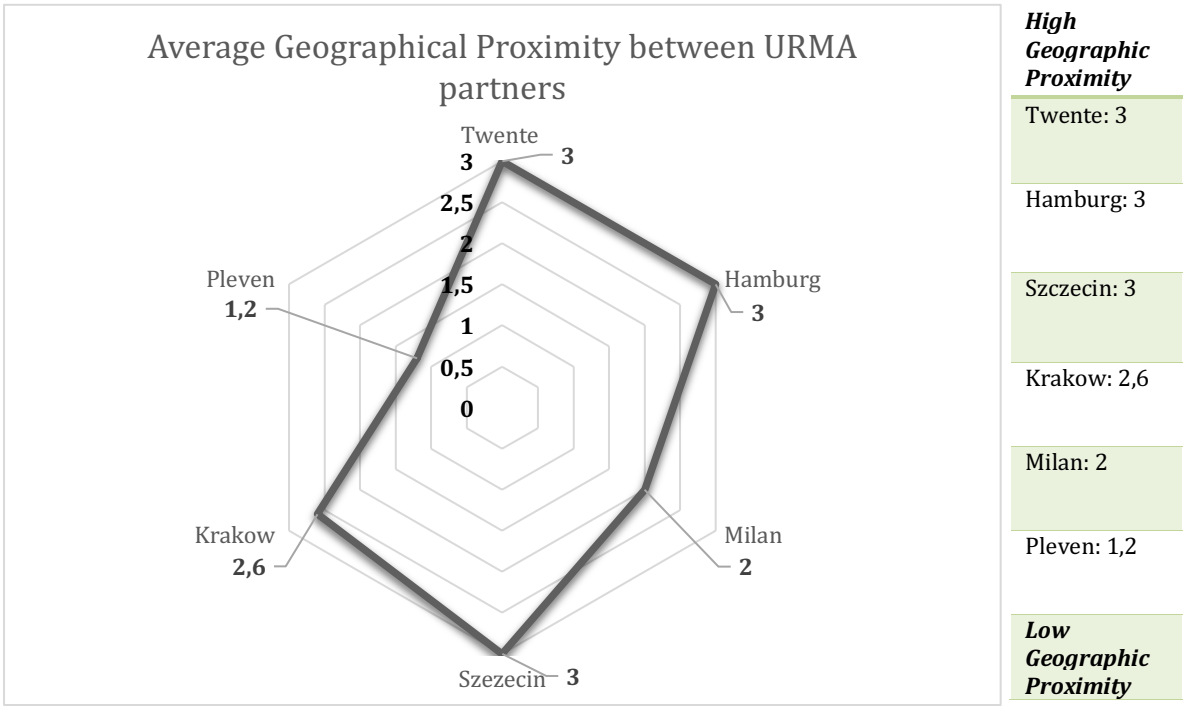


Figure 14. Average Geographical Proximity between URMA partners (see page: 43)

Table 7: differences in Quality of Government Index scores (institutional proximity) between URMA partners

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	-4,39	-41,41	-44,45	-44,62	-80,91
Hamburg	4,39	0	-36,75	-40,06	-40,23	-76,52
Milan	41,14	36,75	0	-3,31	-3,48	-39,77
Szczecin	44,45	40,06	3,31	0	-0,17	-36,46
Krakow	44,62	40,23	3,48	0,17	0	-36,29
Pleven	80,91	76,52	39,77	36,46	36,29	0

Table 8: Transformation scheme institutional proximity

High institutional proximity				***Low institutional proximity***
5	4	3	2	1
(0-20)	(>20-40)	(>40-60)	(>60-80)	(>80+)

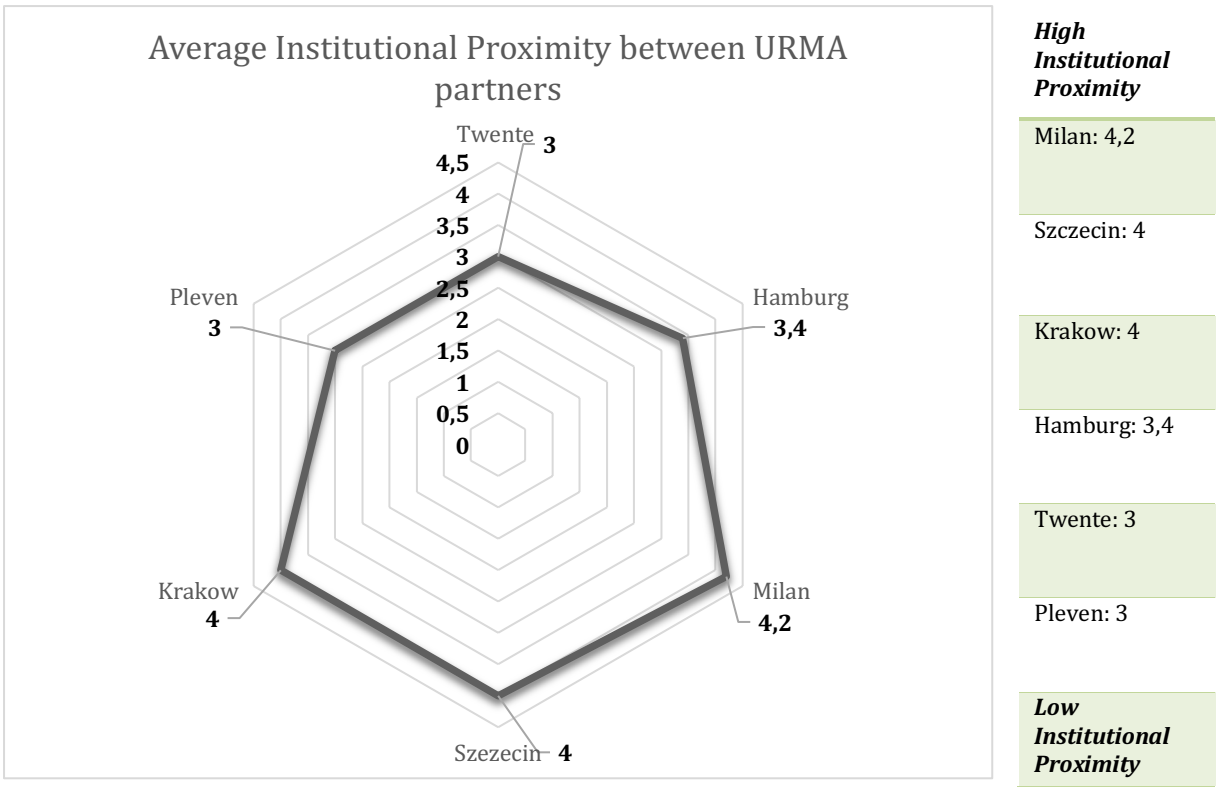


Figure 16. Average Institutional Proximity between URMA partners (see page: 44 & 45)

Table 10: Differences in tertiary educational attainment between URMA partners

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	1,5	-13,2	-7,2	-3,9	-11
Hamburg	-1,5	0	-14,7	-8,7	-5,4	-12,5
Milan	13,2	14,7	0	6	9,3	2,2
Szczecin	7,2	8,7	-6	0	3,3	-3,8
Krakow	3,9	5,4	-9,3	-3,3	0	-7,1
Pleven	11	12,5	-2,2	3,8	7,1	0

Table 11: Transformation scheme cognitive proximity (on tertiary educational attainment)

High cognitive proximity				***Low cognitive proximity***
5	4	3	2	1
(0-2,5)	(>2,5-5)	(>5-10)	(>10-13)	(>13+)

Table 13: Differences in R&D spending between URMA partners

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	570,5	-188, 3	-624,9	-538	-650,9
Hamburg	-570,5	0	-758,8	-1195,4	-1108,5	-1221,4
Milan	188,3	758,8	0	-436,6	-349,7	-462,6
Szczecin	624,9	1195,4	436,6	0	86,9	-26
Krakow	538	1108,5	349,7	-86,9	0	-112,9
Pleven	650,9	1221,4	462,6	26	122,9	0

Table 14: Transformation scheme cognitive proximity (on R&D spending)

High cognitive proximity				***Low cognitive proximity***
5	4	3	2	1
(0-200)	(>200-500)	(>500-700)	(>700-900)	(>900+)

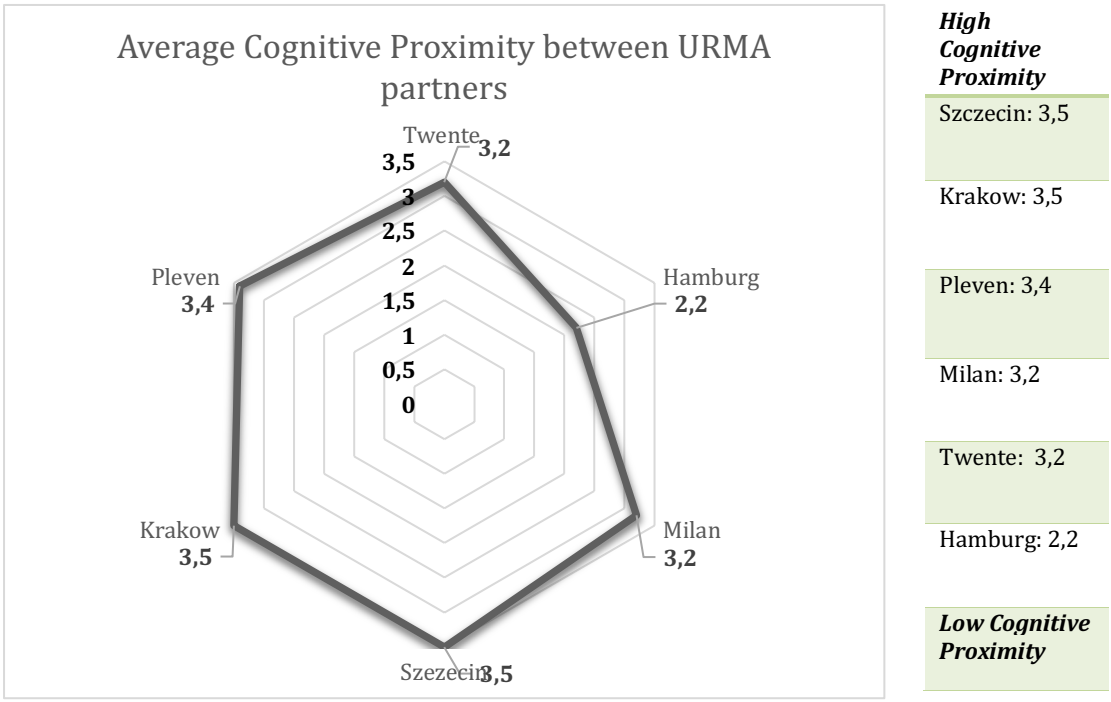


Figure 19. Average Cognitive Proximity between URMA partners (see page: 47 & 48)

Addition to table 12 & 15: combination of proximity variables cognitive proximity

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	4	3	3	3,5	2,5
Hamburg	4	0	1,5	2	2	1,5
Milan	3	1,5	0	3,5	3,5	4,5
Szczecin	3	2	3,5	0	4,5	4,5
Krakow	3,5	2	3,5	4,5	0	4
Pleven	2,5	1,5	4,5	4,5	4	0

Table 17: Transformation scheme organizational proximity

High organizational proximity				***Low organizational proximity***
5	4	3	2	1
Have worked together in (an)other EU project(s) before establishment URMA project	*Part of same network before establishment of URMA project*	*Have worked together in some way of cooperation before establishment URMA project*	*Existing communications before establishment URMA but haven't worked together prior to URMA project*	*Have not worked together before establishment URMA and no existing communications prior to the URMA project*

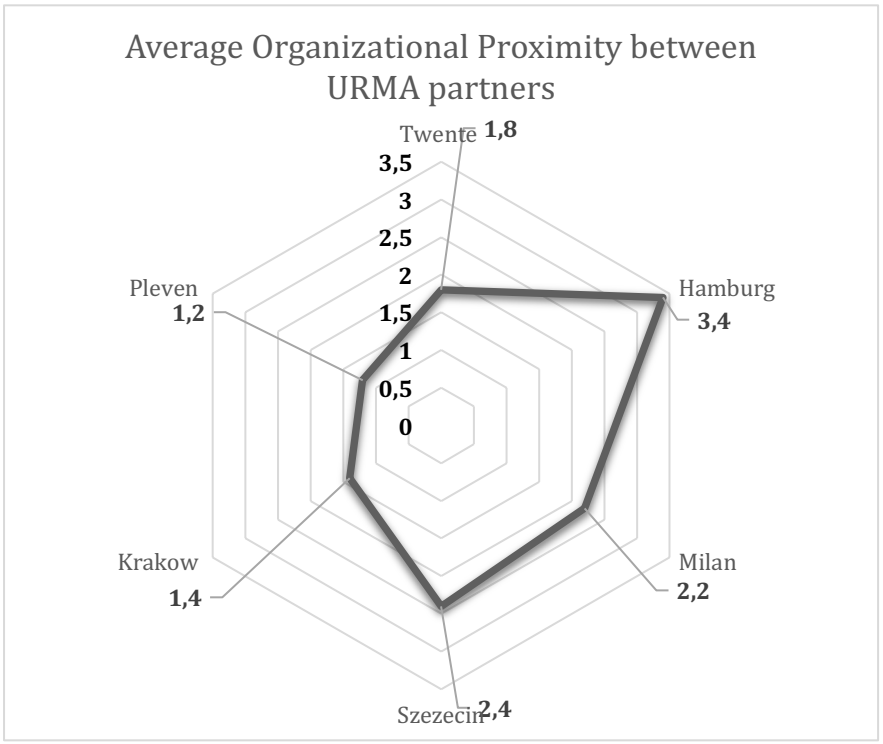


Figure 20. Average Organizational Proximity between URMA partners

Table 20: Bilateral proximity between URMA partners

		Geographical proximity	Institutional proximity	Cognitive Proximity	Organizational Proximity	Sum Proximity
Szczecin	Hamburg	4	3	2	4	3,25
	Milan	2	5	3,5	4	3,63
	Krakow	4	5	4,5	2	3,88
	Twente	4	3	3	1	2,75
	Pleven	1	4	4,5	1	2,63
Hamburg	Milan	2	4	1,5	4	2,88
	Krakow	3	3	2	2	2,5
	Twente	5	5	4	5	4,75
	Pleven	1	2	1,5	2	1,63
Milan	Krakow	2	5	3,5	1	2,88
	Twente	3	3	3	1	2,5
	Pleven	1	4	4,5	1	2,63
Krakow	Twente	2	3	3,5	1	2,38
	Pleven	2	4	4	1	2,75
Twente	Pleven	1	1	2,5	1	1,38

Table 23: Bilateral learning between partners

	Twente	Hamburg	Milan	Szczecin	Krakow	Pleven
Twente	0	5	7	3	4	2
Hamburg	5	0	5	3	3	5
Milan	7	5	0	2	4	5
Szczecin	3	3	2	0	0	0
Krakow	4	3	4	0	0	0
Pleven	2	5	5	0	0	0

Table 24: Transformation scheme bilateral learning

Low level of learning				***High level of learning***
1	2	3	4	5
(0)	(1-2)	(3-4)	(5)	(>6)

Table 30: overview SECI model in URMA network

	All phases of the SECI model	Socialization, Externalization, Combination	Externalization, Combination	Socialization, Externalization	Only Externalization	Only Combination	Only socialization	No phases of the SECI model
Twente	Lombardy		Hamburg				Pleven	• Szczecin • Krakow • Pleven
Hamburg			Lombardy		Twente		• Twente • Krakow	• Szczecin, Krakow, • Pleven
Lombardy		Twente		Hamburg	Hamburg			• Szczecin, • Pleven
Szczecin		Twente	Hamburg		Lombardy		• Hamburg • Lombardy	• Krakow, • Pleven
Krakow	Twente	Lombardy			• Hamburg • Lombardy		Hamburg	• Szczecin, • Pleven
Pleven		• Hamburg • Lombardy					• Twente • Hamburg (x2) • Lombardy (x2)	• Szczecin, Krakow

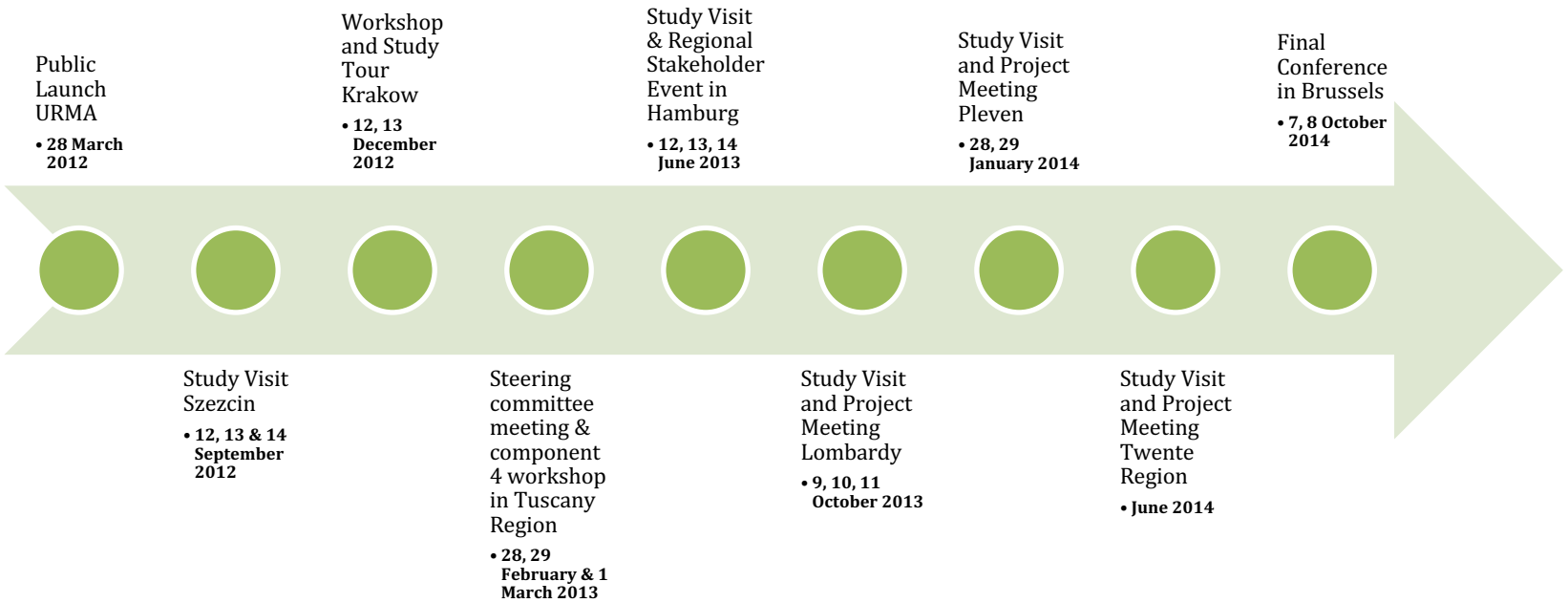


Figure 26: Timeline URMA network

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