

INTERNATIONALIZATION OF SMEs

Regional Innovation Network, supporting the internationalization of SMEs: The case of Clean Water Norway, OREEC and Oslo Medtech

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This thesis concludes my one-and-a half-year master program at the Centre for Technology, Innovation and Culture (TIC) at the University of Oslo. In collaboration with the Work Research Institute (WRI), this thesis was conducted as a four-month research project. The main objective of this study has been to enhance knowledge on the internationalization of SMEs through formal networks.

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Abstract

Internationalization is a topic that until recently was in most cases only relevant for large companies. The main reason for this was their advantages in resource access. However, the increasing pressure on the home market is now being felt by small- and medium-sized enterprises (SMEs) as well, moving them to seek opportunities in international markets. The internationalization of SMEs significantly contributes to the economic growth both at the national, regional and local level. According to the European Commission, SMEs within the EU account for 99 % of all businesses and 67 % of all jobs in the private sector, as well as 85 % of all newly created jobs, and some 59 % of the value added by the economy (2014: 9). However, a vast number of studies show that SME managers meet various barriers when seeking outward international expansion.

The purpose of this study is therefore to examine how the regional innovation network (RIN), a deliberately created public organization, facilitates the internationalization of SMEs through enabling the interaction of these companies with the international environment. This master thesis also provides a clear understanding on SMEs' usage of the international services and activities provided by RINs. This work was created through a qualitative research design, where a multiple case study approach was used to examine and investigate how the RIN supports and enables the internationalization of SMEs. The analysis presented in this work reveals that the RIN, through RIN-to RIN collaboration, joint stands in international exhibitions and conferences, network projects and inter-firm collaboration enables the interaction of SMEs with its international environment. On the other hand, the use of RINs as an arena to reach out appeared to be disfavor by SMEs.

Key words: *internationalization and Regional innovation network (RIN). SMEs*

Table of Contents

1	Introduction.....	1
1.1	Background for this study	1
1.2	Research questions	2
1.3	Purpose.....	3
1.4	Disposition of the thesis	3
2	Conceptual framework.....	3
2.1	Internationalization.....	3
2.2	Network.....	7
2.3	Cluster	9
2.4	Regional innovation network (RIN).....	10
2.5	International dimension of RIN.....	12
2.6	International services in RIN.....	14
2.6.1	Cross- RIN collaboration	14
2.6.2	Joint delegations.....	15
2.7	Inter- firm co-operation	15
2.8	The system of innovation	16
2.8.1	Supra- national organization	17
2.8.2	National innovation system (NIS).....	18
2.8.3	Regional innovation system (RIS)	19
2.9	Benefits of Regional innovation network to SMEs	20
2.9.1	Perceive Benefits of RIN to SMEs internationalization	20
2.9.2	Summary.....	21
3	Methodology chapter.....	22
3.1	Cases study as method.....	22
3.2	Qualitative research.....	23
3.3	To establish the research question.....	23
3.4	Presentation of the case- RIN and case- firms.....	24
3.5	Presentation of the RIN - cases	24
3.5.1	Access to case RIN	27
3.6	Data collection.....	28
3.6.1	Document analysis	28
3.6.2	Interview.....	29

3.6.3	Coding of data material	32
3.6.4	Reliability and validity	33
3.7	Summary	35
4	Data presentation.....	36
4.1	Facilitating the internationalization of SMEs	36
4.1.1	Cross- RIN Collaboration.....	36
4.1.2	Joint delegation	37
4.1.3	Network projects.....	38
4.2	Inter- firm co-operation	39
4.3	The NIS collaborative aspect	40
4.3.1	Minister of foreign affairs.....	40
4.3.2	Innovation Norway (IN)	41
4.4	Data of SMEs perspective on RIN	43
4.4.1	Motivation for membership in RIN	44
4.4.2	Dynamic capabilities of participating firms	44
4.4.3	RIN, an arena to access international market?	45
5	Data analyze	46
5.1	Internal practices in RIN	47
5.2	Analyzing the role of public institutions and the impact of resources.....	51
5.3	Collaborative members in RIN.....	53
5.4	Analyzing data on utilization and benefits of RIN to SMEs	55
5.5	SMEs representatives and their views on RIN.....	58
5.5.1	Conclusion	60
5.5.2	Limitation and implications for further research	61
5.5.3	Policy implication	62
6	Bibliography	63
7	Appendices	68
7.1	Coding of RINs data material (1a)	68
7.2	Coding of firm's data material (2b)	69
8	Interview guide.....	70
8.1	Interview guide for SMEs with international experience.....	70
8.2	Interview guide for regional innovation networks (RIN).....	71
9	Invitation from the Norwegian Embassy to Oslo Medtech (3a)	72

1 Introduction

It is well acknowledged that SMEs operating international are more competitive. SMEs also contribute to the economic performance of the nation. At the same time, a vast of studies demonstrates that SMEs meet various barriers and challenges when they try to enter the international market on their own. However, a number of recent studies have highlighted the importance of network ties and supply chain links in triggering SMEs' first internationalisation step and extending internationalisation processes (OECD, 2009). The objective of this work is to examine how the regional innovation network (RIN)¹ can facilitate the internationalization of SMEs. To do this, a qualitative case study has been carry out. The case- study consists of interviews with CEO and directors RIN's manager and firms with membership in RIN. In addition, annual reports, internet wed –pages of RINs and other relevant documents were taken in used to gain deep understanding in the topic. Further, RIN is acknowledged as an important drive of value creation, and RINs are recognizing as potential useful instrument to increase innovation. Therefore, this research might also provide insights for RIN manager, regional, national, and transnational innovation policy makers, as it may help them to define and develop policies and strategies that support international activities and strategies of these RINs.

1.1 Background for this study

According to the European commission, Small and medium -Sized Enterprises (SMEs) are the backbone of the European economy. Within the EU they account for 99 % of all businesses, 67 % of all jobs in the private sector, as much as 85 % of all newly created jobs and some 59 % of the value added by the economy. (European commission, 2014: 9). At the same time, various studies demonstrate that SMEs face particular difficulties and barriers to successful internationalization. These barriers might be both internal and external in nature. Internal barriers might include inadequacies in human capital, financial resources, expertise and *know-how*, foreign market exposure, production capacity and/or machinery (Oparaocha, & Luis, 2011; European Commission, 2010). If we now look in to external obstacles, these include

¹ The expression "RIN" is here define as "formalized organizations that have been set up primarily to foster innovation within a region" (Svare and Underthun, 2015:6).

government policies and trade barriers, lack of awareness about foreign market opportunities, no connection with potential foreign business contacts, hostile competition from Multi-National Corporations (MNCs), little or no internationalization support services, among many other, (Oparaocha, & Luis, 2011). However, the focus here is the lack of connection with potential foreign business players. In addition, SMEs are in resource disadvantaged compare with MNC. Resource advantages tend primarily to benefit MNCs, which thereby are better able to exploit new opportunities and increase their access to new markets, resources and knowledge. “*MNCs simply have more money and other resources to use in their overseas activities*” (Narula & Zanfei 2015: 333). In addition, their domestic Research and Development (R&D) budgets are larger, and they are more likely to have the absorptive capacity to set up linkages with foreign and domestic science bases (Narula & Zanfei 2015). Therefore, “The MNCs' huge resource advantages, combined with extensive network relationships, make them more capable of leveraging internationalization opportunities to their own advantage” (Oparaocha, & Luis, 2011).

In light of these insights, it is clear that SMEs' limited resources and capabilities represent a barrier to entering the international market on their own. The managers of the SMEs, along with the authorities, have realized the impact of internationalization on the growth and expansion of their firms' innovative capacity and resource generation. They therefore find it necessary to compete in the international arena (Anderson et al., 1994). Regional governments have also acknowledged the positive impact that SMEs' internationalisation brings to the economy of a nation. Therefore, this master thesis aims to find out how the regional Innovation Network can support does SMEs that has the ambition to reach out, but are not able to do it on their own. The research question proposed in this work are the following:

1.2 Research questions

- 1) *How can regional innovation networks (RIN) facilitate the internationalization of SMEs?*
- 2) *How can SMEs managers benefit of RIN's internationalization services?*

1.3 Purpose

The purpose of this thesis is twofold: the first is to examine how RIN enables the face-to-face interaction of SMEs with potential international partners, supplier, producer etc. More concretely, it aims to examine what types of international activities and services RIN offer to SMEs that enable members to internationalized their businesses.

The second purpose is to find out how SMEs benefit of such services and utilized RIN to reach out. These purposes might contribute to understand more on how RINs configure their practices in order to establish common or complementary goals directed towards promoting international activities and innovation among SMEs.

1.4 Disposition of the thesis

In this chapter, Chapter 1, the background for this master thesis and the research questions is provided. Chapter 2 lays out the theoretical framework for the study and introduces different concepts and theories guiding the thesis. In this chapter, the concept of internationalization, network theory, and RINs will be discuss. Chapter 3 presents the chosen RIN and SME cases, as well as the methods used to study these RINs. The aim of this chapter is to guide the reader through the process followed to strengthen this work's reliability and credibility. In Chapter 4, the empirical data and main findings are present it. In Chapter 5, the data material will be analysed and discussed in light of the theoretical framework presented in Chapter 2. Finally, this chapter and work will be finished with a conclusion and possible implication for further research and policy implications.

2 Conceptual framework

2.1 Internationalization

There are many definitions of "internationalization.", but the most cited is perhaps the one coming from Welch and Luostarinen (1999). The scholar defines Internationalization as “*the process of increasing involvement in international operations*” (Welch & Luostarinen, 1999:84). This definition of the concepts includes both *inward* and *outward* activities. *Inward internationalization* activities encompass international engagements focused on the home

country, such as imports and foreign supply channels meant for domestic market operations. *Outward internationalization* entails a flow of outward-focused international activities aimed at serving foreign market operations, e.g., exports and foreign sales offices (Coviello & McAuley, 1999). Another definition of internationalization is the one given by Johanson and Vahlne (1999). In their view, internationalization is a process in which the firms gradually increase their international involvement. In this context, the scholar has developed a mode of internationalization process of the firm that focus on the development of the individual and particularly on its gradual acquisition, integration and uses of knowledge about foreign markets and operation, and on it successively increasing commitment to foreign markets. Further, the authors allege that lack of knowledge on foreign market is the main barrier to the development of international operation, and that this knowledge can be acquire by operating abroad.

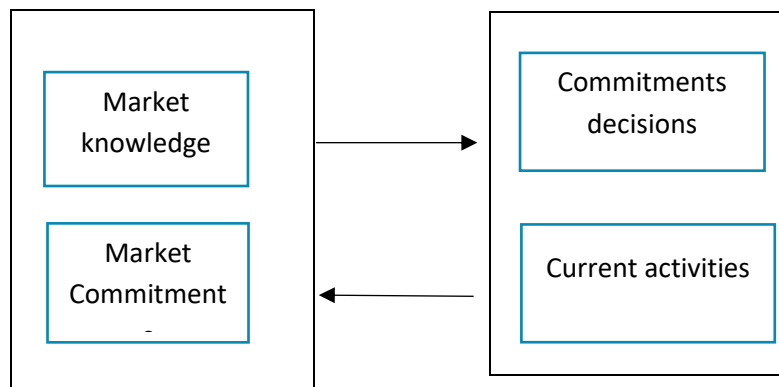


Fig. 1. Basic mechanism of internationalization- state and change aspect
 Source: Johanson and Vahlne, 1999, p. 47

In figure 1, can be observe the four basic mechanisms of the internationalization process. Starting with the first, *Market commitment*, it is argued that Market commitment is composed of two factors (Johanson and Vahlne, 1999:48). The amount of resources committed and the degree of commitment. The amount of resources committed in foreign marker considered the size of investment in that market. The degeed of commitment is in relation with the foreign market commitment; the higher the market commitment, the higher is the degeed of commitment in that foreign market is too. Further. Market commitment affects firm´s perceive opportunities and risk. This means that the lower the risk perception and risk are, the more likely is that the firm will engage in foreign market commitment (Johanson and Vahlne, 1999). On the other hand, *market knowledge* “relates to the present and future demand and supply, to

completion and to channels for distribution, to payment condition and transferability of money, and those things varies from county to country and from time to time” (Johanson and Vahlne, 1999:48). Similar to market commitment, market knowledge is divide into two types of knowledge: objective knowledge an experiential knowledge. The difference between these two types of knowledge is that the former can be taught, while the latter can only be learned through personal experience (Johanson and Vahlne, 1999). One assumption that Johanson and Vahlne make in this context, is that, experiential foreign market knowledge provides the framework for perceiving and formulating opportunities. These opportunities are difficult to perceive through objective knowledge. Furthermore, stablishing any kind of activities in foreign country require both *general knowledge*² and *market specific- knowledge*³. Of these two, it can be determinate that specific knowledge is more important for firm’s foreign market activities- as “*Specific knowledge can only be gain through experience in that market*” (Johanson and Vahlne, 1999:49). *General knowledge* on the other hand, “*can be transfer from one country to another country* (Johanson and Vahlne, 1999:49).

If we now shed light on *current business activities*, it can be shortly summarized that current activities refer to foreign activities that needs to be repeated until the firm get positive result, and thus learn *how* to perform foreign activities. International marketing can be seen as a good example for current activity. The more active the firms are in current activity or activities, the more rapid the firm will acquire international experience (Johanson and Vahlne, 1999). Lastly, decision to commit depends of two factors, these are, 1) what kind of foreign alternatives the firms has, and 2) how the firm chose one of these alternatives. The first factor is close linked to perceived opportunities and risk/problems in foreign market. In this case, problems and opportunities are identified by the personnel operating in foreign market and in both case, weather a problem or an opportunity is identified, *the solution is the extension of the operation in that market* (Johanson and Vahlne, 1999:51).

So far, I have explained that firms internationalize through a process. Nevertheless, the business literature has another point of view in this regard. The business literature addresses three main forms if internationalization of SMEs. These are Foreign Direct Investment (FDI), the behavioral form and the network form. First, the FDI view argues that internationalization

² General knowledge concerns marketing methods, types pf customers, irrespective of their geographical location

³ Market Specific- knowledge is knowledge about characteristics of the specific national market- its business climate, culture pattern, structure of the market system and characteristics of individual customer firms and their personnel (Johanson and Vahlne, 1999:49).

is due to firms choosing their optimal structure for each stage of production by evaluating the cost of economic transactions (Coviello & McAuley, 1999). Firms therefore elect the organisational form and location for which overall transaction costs are minimize. In this context, “transactions perceived to be high risk and requiring significant management time or other resource commitments are more likely to be internationalized as part of a hierarchically structured organization” (Coviello & McAuley, 1999: 225).

The behavioral school, on the other hand, takes a broader point of view. Moreover, the behavioral approach, the traditional internationalization model, can be categorize into either the innovation-related approach (I-model) or the stage approach. Of these two, the Uppsala model is the best known (Oparaocha, & Luis, 2011), because it may be applicable to a wider variety of business sizes and foreign activities; that is, it is not explicitly focused on exporting by SMEs (Oviatt & McDougall, 1997: 87), but considers importing of product and services too. In addition, the Uppsala model portrays internationalization as an incremental process that depends on the firm's experiential knowledge of foreign markets.

The bottom line in this model is that firms might perceive a high degree of uncertainty related to internationalization and therefore begin the process with the foreign country that is geographically closest to them and with only small resource commitments (Oviatt & McDougall, 1997). This approach is similar to the same proposed by Johanson and Vahlne (1999) and the internationalization process explained above. This form of internalization can be interpreted as a strategy to acquire international market knowledge and experience in neighbor countries before expanding the presence and resources to more remote countries.

However, the main difference between the Uppsala model and the network model is that whereas the former and related literature describe the internationalization process as in incremental learning process, the network theory puts more emphasis on the interplay between external actors. In current literature, researchers have found that network relationships have a significant impact on knowledge-intensive firms and entry mode (Ojala, 2009). Consequently, Coviello and Munro (1999) alleges that there are studies highlighting the potential role of network is small firm internationalization. Other finding also recognized the importance of network to small firms, but how can we define network?

2.2 Network

Network can be defined as a “*sets of two or more connected exchange relationship*” (Coviello and Munro, 1997: 365). The relationship in the network is characterized by the close interaction, or face- to face interaction between two or more actors. In term of international network, one can say that any type of relationship oriented to accelerate or influence the outward activities of a firm, can be refers as international network.

Zain & Ng (2006) defines international network as “*the relationship between a firm’s management team and employees with customers, suppliers, competitors, government, distributors, bankers, families, friends, or any other party that enables it to internationalize its business activities*” (Zain & Ng, 2006:184).

Here we see that this definition takes into account the relationships between firms and governments agencies. To a certain point, we can say that RIN is a governmental agency, since its functions depends of public funding, and also is characterized by the close interaction with firms and intuitions, both at the local, regional and national level. Therefore, this definition is appropriate for this work.

Consequently, companies develop different types of relationship with customers, competitors, government, etc. There are different types of network. The social network theory, and the business network theory are the most studied in network literature. In this aspect, it is found that both RIN and business network emphasizes dyadic relationship, and therefore the need to separate them is important for the development of this work as the main purpose is to gain insights on RINs international support to SMEs internationalization capability.

Social network (SN)

According to Aldrich and Zimmer (1986), individuals such as family, friends, acquaintances and employees form the Social Network (SN). These scholars define the SN as the interaction of two persons connected by social relationships within a bounded population, and characterized by: a) communication content. The exchange of information between actors interacting, b) exchange content, exchange of good or services that actor can exchange c) normative content, referring to the expectation actors have of one another (Aldrich and Zimmer, 1986:5). Moreover, the social network has two components: first, the personal network that is

define as concrete content and bonds with specific individuals. Secondly, the cultural component which is wider and in which the individual actors are embedded (Björkman and Kock, 1995:3). Further, these scholars, highlight that social relationship enhance trust and enable access to new information, thus, social relation are important prerequisite for business exchange. The scholars also pinpoint that, similar to business network, social relation are equally important as a strategy to penetrate new business network in foreign country.

Business network (BN)

Business Networks (BNs) can be define as “*a sets of connected relationships between firms*” (Anderson et al., 1994: 3). Another definition comes from Huang et al. (2011), who define BNs as “*complex webs of interdependent exchange relationships among firms and organizations*” (Huang et al., 2012; 317). A particular characteristic of BN research is that it accounts for both actors in a dyad and investigates how and why relationships change over time. According to Slotte-Kock and Coviello (2009), a change in the dyad results from: First (1) actors of learning about how to utilize new combinations of resources (2) the contrasting perception of actor’s relationship, and (3) actors continually looking for opportunities to improve their position towards important partners.

Following this perspective, BN suggest that network development is cumulative in that relationship are continually stablish, maintained, develop and broken to provide satisfactory economic return or to create a position in the network (Slotte-Kock and Coviello, 2010). This cumulative relationship can be again divide into three types of interaction: the supplier interaction, customer interaction, and competitor interaction. (Huang et al., 2012: 320). On the other hand, Anderson et al., (1994), characterized BNs according to their components. These components are activities, actors, and resources and each of them has a function. “*The primary functions of the relationships corresponding to activities, resources, and actors are efficiency through interlinking of activities, creative leveraging of resource heterogeneity, and mutuality*” (Anderson et al., 1994). Activities performed by two actors, through their relationship, can be adapted to each other so that their combined efficiency is improved, such as in just-in-time exchange (Anderson et al., 1994:3).

To summarize, the BN perspective focuses on understanding how to establish, build, and maintain or change relationships to create a position within a network. This signals the connection between various levels of the network. Further, the BN approach is focuses on how

relationships change and why change occurs (unlike SN research). Thus, *compared with the methodologies prevalent in SN studies, those in the BN tradition are generally more case-based and interpretivist in nature* (Slotte-Kock and Coviello, 2010:4).

Based on these descriptions and characteristics of BNs, one can assume that BNs might be primarily driven by business oriented interaction and value chain integration aiming to optimize resource advantages, while RINs put more emphasis on the relationships and interactions of SMEs with public institutions. This brings me to the next step in this work, and is to look closer to the RIN concept. However, before describing the RIN concept, I want briefly introduce the cluster concept. The reason why I will do that is that both RIN and cluster share some similarities. One can say that RINs were “born” out of the cluster concept. At the same time, there are some significant differences between these two concepts, as it will be shown in the next text.

2.3 Cluster

A simple definition of cluster is the one proposed by Porter (1998), i.e.:

“Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (...) in particular fields that compete but also co-operate” (Porter 1998 in Cooke, 2001:951).

One characteristic of such concentration is related to competitive advantage. In this context, two types of clustering and collaboration are identified; the horizontal and the vertical dimensions. In the horizontal dimension, firms do not necessarily have something to do with each other in terms of collaboration, but they benefit from their co-location, through which they are well informed about their competitors’ products and about the quality and cost of the production factors that they use (Bathelt et al., 2004:34). The vertical cluster dimension consists of those firms, which are complementary and are inter-linked through a network of suppliers, service and customer relation (Bathelt et al., 2004).

In literature discussing these two types of clusters, firms and their location appear to be the central focus. Cluster theory shares one common aspect with innovation system theory, network theory and innovation theory, namely the relation and connection between actors. Nevertheless, in this work, it will be assumed that clusters are endogenous to RINs, meaning

that whereas innovation within a cluster emerge through endogenous, spontaneous or informal processes (Underthun and Svare, 2005), RINs are deliberate networks initiated by public institutions and aiming to promote and foster innovation. Even though firms in clusters are linked through trade relationships and often-vertical relationships of the supply chain in the same way as RINs, the process of positive territorial clustering seemed to exist independently of such deliberation seen in the case of RINs. That said, in this work, the term cluster will refer to the Porterian concept, and RIN refers to networks deliberately established as instruments for innovation, often initiated or supported by regional innovation authorities (Underthun and Svare, 2015).

2.4 Regional innovation network (RIN)

Underthun and Svare (2015) defined the RIN as concept that denotes innovation network deliberately established as an instrument for regional innovation, often initiated or supported by regional authorities or national institutional (Underthun and Svare, 2005). We can also use the term network of innovators to distinguish between various types of network. Freeman (1991) defines network of innovators as following:

“Network organization is a basic institutional arrangement to cope with systemic innovation. Network can be viewed as an inter- penetrated form of market and organization...” (Freeman, 1991, 502)

As we can see, the definition proposes by Freeman (1991) resembles Underthun and Svare (2015) as both address network as an institutional arrangement. Thus, RIN or the network of innovators, are in the sense, of formalized organizational entity that has been set up to foster innovation initially within a region. Although in this study, across boundaries is taken into account) and where deliberate initiative within the networks may be just as important for fostering innovation as for market connection (Underthun and Svare, 2005).

Moreover, Cooke (1996) addresses some key element necessary to be on place in order to achieve positive outcome in RIN. These are trust, leaning, partnership, decentralism, reciprocity. *Trust* can be understood as a dimension of an attitude, but it also entails more. Not only does between partners make a collaborative initiative more likely it also enhances the quality of collaboration for instance by leveraging better and more efficient combination (Svare and Gaustad, 2015). Lack of trust, downright distrust, on the other hand, causes people to

withhold more information and display a more skeptical attitude to others; it may also prevent collaboration from being established in the first place (Svare and Gaustad, 2015). Another key element is *learning*– According to Lundvall and Borrás (1999) in this new competitive age, firm’s skills has lost relevance, and in its place firm learning capabilities has become important for successful economic and market operation. Therefore, the capacity to acquire, learns and transforms new knowledge is a crucial complete factor (Lundvall and Borrás, 1999). In another words, firms build new competence through learning and stablishing new skills and not just by “getting access to information”. *Partnership* – partnership “*emphasize alliances among regional firms, or relations between state and local governments or between the EU and regional government or between regions*” (Ansel, 2000:311). By encouraging various component of the innovation system, partnership has the aim to promote, discuss and build mutual acceptable partnership proposal.

Partnerships bring positive advantages in RIN; nevertheless, there are often significant difficulties with partnership approaches to planning. One potential difficulty is that involving diverse actors in regular meetings and decision- making is usually complex and time-consuming (Madeiros de Arujo and Bramwell, 2002). Further, such form collaboration can also face difficulties because groups refuse to work with others as this may reduce their own influence or power, or because they distrust other parties (Madeiros de Arujo and Bramwell, 2002). Therefore, it is necessary to coordinate the network and solidify a reciprocal relationship of mutual benefit between partners.

Reciprocity –reciprocity is one important key element in networking. One of the main reasons why firms join formal networks is because they need to acquire new information that might be later use to develop a new product or proses. At the same time, they must also share the information and skills among other firms. Therefore, to share and receive information is crucial for the network. As Powell (1990) highlights “*In networks modes of resources allocation, transaction occurs neither through discrete exchange, no by administrative fiat, but through network of individual engage in reciprocal, preferential, mutually supporting action*” (Powel, 1990: 304)

Further, Fritsch & Kauffeld - Monz (2008) explain RIN as a network characterized by the face-to face interaction among firms, members aiming to achieve a common or complementary goal (Fritsch and Kauffeld- Monz, 2008). This interaction may also take place outside member’s milieu such as national and/or international context. This work put emphasis on long distance

interaction. To enable such long distance interaction, a mixture of government support programs, innovation agencies, innovation centers, organizations of both public and private characters, research institutions, technology transfer offices, foreign affairs (embassies) are involve. This homogenous interaction of organization and institutions may in one hand, increase the propensity to enhance innovation and value creating among members locally embedded, and the other hand might strength the propensity to enable the internationalization of member seeking to reach out. Nevertheless, in this work, RIN has receive the role of as intermediary/ facilitator actor between international player and SMEs, aiming to reach out.

2.5 International dimension of RIN

Underthun and Svare (2015), in their work *Innovation through deliberate and strategic network? Exploring Regional Innovation Network (RIN) in Eastern Norway*, identify three dimension of the network. These are network structure (such as the number and type of members, geography of location and horizontality /verticality, relative to the value chain logic: network management and network activities (such as the dynamical capability of the network meeting or events; quality of the network members (such as the dynamical capability of participating firms (Underthun and Svare, 2015).

Dynamic capabilities are “*the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die*” (Eisenhardt & Martin, 2000; 17). In theory, these scholars suggest that these dimensions may serve as intermediary explanatory factors between the simple fact that the network exist on the one hand, and network output on the network in the form of innovation and value creating on the other. Other explanatory factors are the level collaboration between the networks members where trust among members is included as a modifier of the quality and quantity of collaboration (Underthun and Svare, 2015).

In the table 1, in the next page, the scholars have summarized important dimension of RIN. The table illustrate possible explanation between the operation of a RIN and output.

Table 1- Intermediary dimension of RINs

Network structure	Important aspects
Network structure	Horizontal/ vertical
Network activities and services	Workshop and event, webpages, counselling etc.
Relational factors	Trust
Collaboration	Type/ location/RIN- membership of partners /cross- clustering
Perceive networks benefits	Access to market, knowledge, etc.
Network member's quality	Dynamic capabilities Gender balance Education level

RIN's structure and important aspects. Source: Underthun and Svare (2015)

I want here to put more emphasis on three aspects of this intermediary dimensions of RINs, but within the international context. More concretely, I will be looking at Network (international) activities, inter-firm collaboration in RIN and the perceived benefits of RINs to SMEs. It is important to point out that nobody has previously studied any of these RINs within the international context. Earlier studies of these networks have focused on such factors as innovation and co-operation in networks (see for example, Larsen, 2001). Another study is the one carried out by Rye (2014), who examined Clean Water Norway with a focus on trust. Nevertheless, Oparaocha and Luis, (2011) in their study. *The role of institutional networks in the internationalization process of SMEs* looked at how institutional networks, which share some characteristics with RINs, influence the internationalization process of SMEs. In their work, institutional networks take into account the mixture of government support programs and policies, international development agencies, innovation centers, research institutions and professional support institutions, which provide support services which may enhance firms' knowledge transfer and internationalization propensity (Oparaocha and Luis, 2011). Here, we see that RINs and intuitional networks share some similarities in that that both include the interaction of government support programs, innovation centers and research institutions. However, this work will use the definition of RIN proposed by Underthun and Svare (2015). The assumption made here is that, the RIN establishes different international alliances to connect and enable the face-to=face interaction of SMEs with their international environment. More concretely, it is assumed that RINs cooperate with RINs ("clusters") located in foreign countries. It is also assumed that RINs practice international activities such as *joint stands* in

international conferences and exhibitions. In addition, this work will consider the possible collaboration between RIN members in supporting each other to reach out.

2.6 International services in RIN

2.6.1 Cross- RIN collaboration

Cross-RIN collaboration refers to the strategic cooperation of two or more clusters (RINs) in the same industry or across different sectors. Faced with increased competitive pressure, industries seek ways to create new value chains across countries. RINs can then be consider as “springboards” for enabling collaboration among companies and research institutions within the same region, the same country or in different countries. RINs allow members direct access to international markets and resources. Thus, the geographical dimension of cross clustering can be regional, national, European or international. In this work, I take into account the geographical dimension of RINs within the international context, involving two or more regions collaborating, but located in different countries.

Figure 2 shows how RINs enable the interaction of member firms with international players. The assumption is that without the RIN to RIN collaboration, the interaction of firm A with firm B would not have been possible. At the same time, the relationship and interaction of RINs with each other may influence member interactions. The closer the interaction and connection between RINs, the higher the possibility of member interaction.

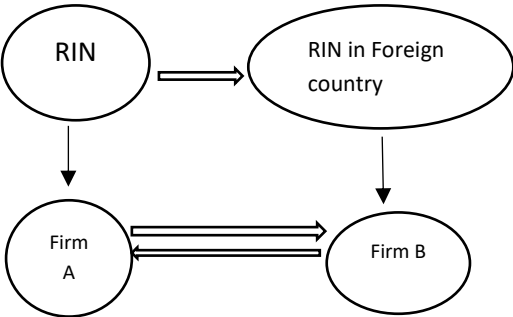


Figure 2- Collaboration between RINs across countries
source: the author of this work made this figure.

Moreover, whereas cross- RIN collaboration is about having and building relationship, joint stand at international conferences and exhibitions is about bringing SMEs and exposition to international arena, and there where stakeholders are presents.

2.6.2 Joint delegations

SMEs are important to the economic growth of regions and nations, but their international outward activities are constrained by their lack of resources. Thus, RINs can act as facilitators or intermediaries by exposing SMEs through international conferences and exhibitions. Through *joint stands* at international conferences and through international activities, RINs mitigate SMEs' resource constraints by 1) providing access to wider available resources in international conferences and exhibitions. These can be investors, customers, suppliers, distributors and competitors, among others, 2) Reducing the cost of participating in joint stands. Normally, joint stands at international conferences and exhibitions are expensive. However, SME members can get together and share such joint stands, and thereby lower the cost of participating. 3), generating awareness in SMEs and industry suppliers of the relevance of their collaboration in all phases of the product development, production and marketing process, 4) disseminating visions and results of a project to the relevant participants of the regional supply chain and specifically to SMEs and the general public, 5). Providing regular updates on the evolution of global markets and supply chains, including the relevance of novel technologies. In general, joint stands contribute to giving SMEs the international exposure they need in order to grow.

2.7 Inter- firm co-operation

Cooperation, rather than competition, is the driving force behind inter-firm networks (Sprenger, 2001). We can identify two types of inter-firm collaboration: the vertical and the horizontal. In the horizontal form, co-operation takes place between competitive firms or between firms and research centers. In the vertical form, on the other hand, users and producers collaborate. Here, the goal is to improve products or production processes (Lundvall and Borrás, 1999). A RIN is often characterized by having both types of cooperation, although the vertical form may be more common. Nevertheless, Sprenger (2001) addresses that inter-firm networks allow all types of co-operation where allowance is made for lateral relationships to partners outside the value added chain. The advantage of inter-firm collaboration can be explained from three perspectives: access to resources, technological innovation and globalization. The resource advantage highlights the resources available to each firm. Often, members in a network have direct or indirect access to resources and influence in pursuing projects they consider individually or collectively important. Network actors may need each other, because within

their own institutional setting (e.g. firm, university, and research laboratory) they cannot create all the necessary resources, whether financial or intellectual (Lundvall and Borrás, 1999: 105). Another argument for inter-firm co-operation is the one proposed by Teece (1990). He suggests that inter-firm collaboration is due to the success of technological innovation and relies on the fact that no single firm can assure all the necessary services needed for the diffusion of their innovation in-house (Teece, 1990). On the other hand, globalization adds another argument in favor of inter-firm collaboration for innovation. Narula & Hagedoorn (1999) argues that few firms can replicate their value chain across the globe without losing on efficiency and effectiveness. Hence, firms need to form linkages with key suppliers and customers, as well as with competitors in some cases (Narula & Hagedoorn, 1999). Having suppliers and customers with international connections represents a potential linking point from the domestic to the international arena, often unknowingly (Luostarinen et al., 1996).

2.8 The system of innovation

The system of innovation approach can be understood as all important, social, economic, political, social, organizational institutional and other factor that influence the development, diffusion and use of innovation (Edquist, 2005 in Fagerberg, 2005). The innovation literature distinguished between five innovation systems theories. These are structure according to the components of the system objective.

The national innovation system (Lundvall, 1992, Nelson 1993), the regional innovation system (Asheim, 1995, Asheim Isaksen 1997), the technology innovation system (Hughes 1993) and the sectorial innovation system (Malerba 2002) and the triple Helix –model (Etzkowitz and Leydesdorff, 2000). All these theories are introduced to define and delineate an innovation system. Common for all these theories is the interactive innovation's perspective, where innovation is not a linear process from research, to development to new product, but as interaction between firms and institutions. This is, a firm does not innovation (or internationalized) in isolation, but in collaboration with its environment.

Figure 2 shows the three most relevant innovation system supporting RIN and members to achieve access to the international arena: The arrow represents the level of support in form of funding and network. The thicker the arrow the higher the support is. In what it follows, a will explain each of them.

What the figure shows is that the national innovation system and the regional innovation system are RIN’s primary international supporters. These support is in form of public funding and innovation “brokerage” this term is fully described it in the analyze chapter. Further. The figure also shows that supranational organization are also supporting RIN and members to interact with international actors. in the text under I will explain each of these actors standing behind RIN.

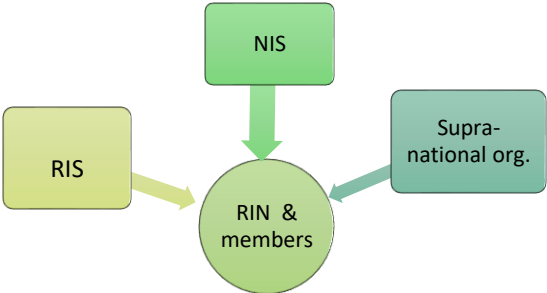


Figure 3- RINs and SMEs supporters

2.8.1 Supra- national organization

The Madrid conventions of the Cousin of Europe, defines cross border co- operation (CBC) as any concerted action designed to reinforce and foster neighborly relations between territorial communities and authorities within the jurisdiction of other Contracting and the conclusion of any agreement and arrangement necessary for this purpose (Perkmann, 2003: 156). The concept of transnational system of innovation (TSI) is used to refer to the creation of supranational innovation systems and sub-national innovation system (Chaminade & Nielsen, 2011). Moreover, Sub-national regions are found within national borders of one country, and can be define as *administrative regions* or *functional regions* (Chaminade and Nielsen, 2011). Supra-national regions, on the other hand, are form by two or more neighboring countries and have some sort of political entity of which is delegate from its member countries (Chaminade and Nielsen). The European Union is an example of supra- national regions. A ‘supranational policy of great impact was created when the European Commission launched the Interreg I Programme, designed to support CBRs financially, in 1990. This was followed by Interreg II (1994 -99) and Interreg III (2000 - 06); this last was allocated a budget of 4.875 billion (1999 prices), corresponding to approximately 2.3% of the total regional policy budget of the EU (Perkmann, 2006:864). The Interreg Europe programme, financed by the European Regional Development Fund (ERDF), and was therefore designed to support *policy learning* among the

relevant policy organisations with a view to improving the performance of regional development policies and programmes (Interreg Europe, 2016:10). The Interreg Europe programme has an ERDF budget of EUR 359 million for the 2014-2020 period and a thematic focus on the following four policy topics, each related to regional development: Research, technological development and innovation in 1) Competitiveness of SMEs, 2) Low-carbon economy, 4 Environment and resource efficiency (Interreg Europe, 2016:12).

2.8.2 National innovation system (NIS)

The national innovation system theory can be defined as:

“The system of interacting private and public firms (either large or small), universities and government agencies, aiming at the production of science and technology within national borders. Interaction among those units may be technical, commercial, legal, social and financial, inasmuch as the goal of the interaction is the development, protection, financing or regulation of new science and technology (Niosi and Bellon, 1994).

The NIS is perhaps the system that brings most of the component together and stresses possible linkages among different institutions and organization (Niosi and Bellon, 1994). Consequently, the majority units are private corporations, but governments are the dominant element of the system (Niosi and Bellon, 1994). The NIS expression was first use by Freeman (1987). He defines NIS as “*the networks of institutions in the public and private sector*” (Edquist, 2005:183). Later, the concept was further developed by Lundvall and Nelson, where they, in two central work, stand for different perspective. For example, Nelson takes, in his work *National system of Innovation: A comparative study*, a more inductive approach, where empirical studies have stronger emphasis rather than theorizing (Nelson, 1993). Nelson’s concept of NSI is based- on an evolutionary economic framework and on his work regarding the role of public policy in innovation, he argues that the innovation system is larger than the R&D system, and includes government as a guiding institution and universities as purveyors of basic scientific knowledge (Niosi and Bellon, 1994). Lundvall, on the other hand, in his work *Towards a theory of innovation and interactive learning* defends a more theoretical oriented approach (Lundvall, 1992). Lundvall on contrast to Nelson concentrates on the interaction between private firms and the subsequent networking that supports interactive *learning*⁴, followed by technical change (Niosi and Bellon, 1994). In term of internationalization and

⁴ “Learning” refers top building new competences and establishing new skills and not just to “getting access to information (Lundvall and Borrás ,1999)

globalization,⁵ Lundvall and Borrás (1997) suggest that the role of governments is becoming more important in supporting SME international activities. They highlight that “*Greater attention is being paid to the wide – ranging internationalization of technical development and implementation...It is recognized that firms of limited size have difficulties in following this trend. Therefore, it has become a new task for governments to support firms in their effort to internationalized activities*” (Lundvall and Borrás, 1997:28). Thus, the role of government in supporting firms is determinant in order to initiate the internationalization process, similar to the regional innovation system.

2.8.3 Regional innovation system (RIS)

The regional innovation system was inspired by the NIS concept, and it is based on a similar rationale that emphasizes territorially based innovation system (Asheim and Gertler, 2005: 209) and can then be thought of as the institutional infrastructure supporting innovation within the production structure of a region (Asheim and Gertler, 2005: 299). RIS highlights an important level of governance of economic process between the national level and the level of industrial cluster. Notwithstanding, the degree of regional governance is here expressed in both private representative organizations such as branches of industry association and public organizations such as regional agencies with powers devolved from the national level to promote enterprises and innovation support (Asheim and Gertler, 2005). Unlike, the NIS that bring most of the components of the SI together, and stresses linkage among different organization and institution at the national level, RIS emphasis strong interaction and collaboration of innovative actors within a spatial proximity at the regional level. Two main arguments for RIS spatial concentration are 1) tacit knowledge cannot travel over long distance. For instance, suppliers with specific technology or knowledge -based often depend on tacit knowledge and face – to-face interaction 2) the learning process and innovation has come to be based on the interaction and knowledge flow between organization and institutions which are localized embedded (Asheim and Gertler, 2005). As Lam (1998, 2000) put it, “*learning process is highly time- and space specific*” (Asheim and Gertler, 2005: 294). Moreover, it was predicted that the increasing globalization and the use of ICT would make actors of the system less dependent of RIS. This prediction has proven the opposite. Even in a globalizing economy, with its increased interdependency between firms in different nations, several authors simultaneously point to an increase importance of place- specific and often non- economic factors in creating competitive

⁵ Globalization is the mobilization of all productive factors - labour capital, organization, technology, new material- (Niosi and Bellon, 1994)

advantage and differences in regional economic growth rate (Asheim and Isaksen, 2002). Therefore, is determinant that Regional authorities both at the national and regional level, should provide a regional innovation infrastructure that benefit regional innovation and regional development. Public funded initiative aiming at strengthening regional (innovation) networks with the purpose of enhancing value creation and innovation among members of the networks is one way to promote regional growth and development.

After having introduced the concept of internationalization, network and network typology, regional innovation network, and the main institutions supporting RIN and SMEs embedded in RIN to access international market, I will now shed light on benefits of regional innovation network to SMEs.

2.9 Benefits of Regional innovation network to SMEs

Many SMEs are mostly fast-paced entrepreneurial and often innovation driven firms, which increases the likelihood of their attractiveness to international markets. These traits might be positively related to commercial success in non-domestic markets. However, as it is mention in the introduction part of this work that lack of internal and external resources as well as lack of knowledge on how to enter international market act as internationalization barriers for SMEs. Nevertheless, in this work it is highly recognized the significant role of governments in helping SMEs to overcomes such barriers. Governments can utilize various methods to remove or reduce trade barriers for their exporters. Government programs and international organization programs as well as government agencies. For instance, International organizations programs provide assistance in capacity building and help encourage SMEs towards internationalization by building relationships with policymakers, academia and other international actors (OECD, 2006, 13-15).

2.9.1 Perceive Benefits of RIN to SMEs internationalization

RIN can bring many benefits to SMEs to internationalize their business. In the table two, key benefits of RIN to SMEs internationalization are highlight. These are divide into two level (see table 2). In the first level we have enabling force and in the second fostering Environment. In this context, it is assumed that the first level is the primary benefit of first step to enter the market while on the second level, once SMEs has entered the market, the second level is to

“protect” or maintain SMEs position in the international market. This represent the second level in the table under.

Table 2- RINs benefits to SMEs internationalization

Enabling forces (1 st level)	Fostering Environment (2 nd level)
R&D and market information (knowledge)	Government policies and trade regulation
Government export promotion grants and direct internationalization assistance	Removal and tariff and non- tariff trade barriers
Seed funds for overseas investments	Funding support mechanism
Credit Guarantees	Access to strong financial institutions
Government backed export insurance	Host country FDI incentives and protection

Table 2. Two dimension of RIN advantage for SMEs internationalization. Source Oparaocha & Luis, 2011. P. 20.

As shown in table 2, RIN may facilitate their internationalization of SMEs propensity. For example, through participating in RIN, SMEs can, 1) become aware of foreign market opportunities, government grants and financing availabilities for outward international engagements. 2) Know -how to tap into the latest R&D findings from research institutions, which can result into enhanced product or process advantage for the internationalizing firm. 3) Gain market information such as customer demand and preferences, potential business partners, visibility studies etc. (Oparaocha, & Luis, 2011).

2.9.2 Summary

The theoretical chapter has presented a number of central concepts, such as internationalization, network, and the regional innovation system. I also introduced the network typology and the concept of cluster. The RIN, cluster and business network concepts seemed to share similarities, though they are slightly different. Therefore, I clarification of these concepts was necessary. In addition, I have outlined possible benefits that SMEs may have by been part of a regional innovation network. In the next chapter. I will address the method that has been use in this master thesis.

3 Methodology chapter

This chapter will defend the choice of cases as research design, choice of research object and the chosen research techniques. The researcher will clarify methods to maintain well-documented and well-founded procedures for data collection and data analysis. In this work, I have conducted a qualitative case-study of three regional innovation Network; Oslo Medtech, Clean Water Norway and Oslo Renewable Energy and Environment Cluster (OREEC). The qualitative methods I have used, are document analyze and interviews, where I will put more emphasis on interview.

3.1 Cases study as method

Punch (1998) defines case study as, “*one case is study in detail using whatever method seem appropriate* (Punch, 1998: 150). However, “*Case studies need not be one off*“(Punch 1998: 89). In this research, multiple-cases approach is applied. Multiple case studies can 1) provide a broader basis for exploring theoretical concepts and explanations of phenomena, and 2) it might be useful to corroborate and further explore theory (Punch, 1998). Furthermore, according to Yin (2009), a case or multiple case study is appropriate as a methodological approach to answer “how” and “why” questions. The research questions in this thesis are all explanatory by posing - “how”, questions, therefore, case -study is a suitable approach to choose for this work.

This work has the purpose of developing a full understanding on how Regional Innovation Network (RIN) enable the interaction of members (SMEs) with its international environment. In order to give such understanding, these research questions require in-depth research to raise sufficient and valid answers. Moreover, a case study might also see as methodology⁶ tool rather than as method⁷ to conduct a case study (Hay, 2010). Further, a case study can be either qualitative or quantitative, where qualitative cases study seems to be more use in social science (Hay, 2010: 83). This case study has chosen qualitative research as methodology.

⁶ Methodology is a theory of what can be research, how can be research, and to what advantage (Hay, 2010)

⁷ Method is a mechanism to collect data (Hay, 2010)

3.2 Qualitative research

Following the definition of Punch (1998), qualitative data is defined as empirical information about the world, not in the form of numbers (Punch, 1998: 59). In other words, qualitative data describes rather than define. There are different ways and methods that the case- researcher could make use to gathered qualitative data. However, Hay (2010) describes three types of qualitative methods for gathering information; oral (interview- based), textual (documentary) and the observational (Hay, 2010: 8). In this work, interview – based and documentary methods has been use to gathered information, nevertheless I will put stronger emphasis on interviews.

An important objective of qualitative approach is to understand social phenomena. In this work, to understand the internationalization of SMEs via a public funded network is the main objective. In accordance with this explanation, this study favors the qualitative approach due to the intrinsic nature of the focal research questions 1) *How can RIN facilitate the internationalization of SMEs*, 2) *How can SMEs managers benefit of RIN's internationalization services?* Because the characteristics of social elements embedded in SMEs relationship with its environment, RIN could not be effectively investigated using quantitative method of enquiry. Therefore, it is believed that a qualitative inquiry will enable this thesis to produce the best possible insight or understanding of the actors and actions involved in the internationalizing of SME utilizing networks of public-funded institutions. Further, in order to give the results validation and credibility, the process that leads to the result must be transparent and explicitly described. Therefore, in this work the researcher will describe in details how she obtained this result: from research question to analyze and the interpretation of data.

3.3 To establish the research question

Concretizing a research question is as an interactive process that is acquire until the researcher gets a stable view of what she or he is trying to find out (Punch, 1998). Further, it does not mater about the order in which thigs where done, but the conceptual clarity matters (Punch, 1998). According to Punch (1998), there are three different ways in the research process: (1) develop the question first and then the method. (2) begin with general approach to its topic, and then develop focus in the question and methods as things proceeds (3) a mixture of these two, where the researcher cycles backwards and forward between questions, methods and some

initial data (Punch, 1998: 33). In this work, the third approach. After having read literature on internationalization and public funded network, my understanding of *how* internationalization of SMEs via network takes place was still limited. In order to get more clear understanding of this topic and after having read annual reports, internet webpages and elaborate a semi-structured interview guide, I went out to interview case- firms and case- RINs. The information gathered from the informants contribute significantly to get a broader understanding of the topic and to narrow down my explorative research question (s).

3.4 Presentation of the case- RIN and case- firms

In this text, the researcher has the objective to introduce the reader the RINs and the firms here studied. As the figure shows, each RIN has an upper case letter under. These represent the firms. In this chapter, I will present the RINs here studied and later each firms, SMEs will be

3.5 Presentation of the RIN - cases

In this text, the researcher has the objective to introduce to the reader the three RINs here studied. These are Oslo Renewable environmental cluster (OREEC), Clean Water Norway (CWN) and Oslo Medtech. As the figure shows, each RIN has an upper case letter under. These represent the firms. Firms embedded in RIN, will be later present in this chapter.

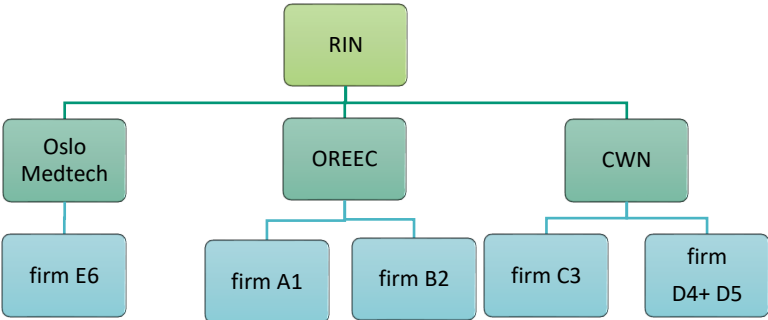


Figure 4- Regional Innovation Networks

Oslo Renewable Energy and Environment Cluster (OREEC)

OREEC is a network of businesses, research, education and public players in the renewable energy and environment in the Oslo region (OREEC, 2016). The network was launched as a project in 2007. Members and partners in OREEC are companies, research institutes, educational institutions and local authorities within clean-tech in the greater Oslo region. An important note about this RIN is that the members represent different industries that may have very different supply chains, types of knowledge etc. The network has per today 60 members, but its activities, rather national or international, extends beyond formal partnership. Originally a relatively loose forum for knowledge exchange, for instance through events such as “Clean Tuesday”, the RIN has developed around major research projects with international collaborators, business facilitation and workshops (Underthun and Helge, 2015). Further and important fact to highlight here is that, members in OREEC represent different industries that may have very different supply chains, types of knowledge etc. (Underthun and Helge, 2015) and different interest. Example for this are the solar power and waste management industry. For this reason, OREEC holds relatively specialized events that cater to sub-industries within the larger umbrella of renewable energy and environmental technology (Underthun and Helge, 2015) As such, OREEC also nurture contact with other innovation networks within these sub-industries, and report cooperation with as many as 20 defined “clusters” in Europe and beyond (Underthun and Helge, 2015). In terms of public funding, the RIN is financed from a range of national and international research projects as well as the Norwegian Research Council, Oslo Municipality, Akershus County Municipality, Interreg projects, and the EU (Underthun and Helge, 2015). In terms of “innovation status”, OREEC has so far been unsuccessful in bids to achieve any of the three tiers of Innovation Norway’s systems of cluster support, but are currently working on a bid within solar energy (Underthun and Helge, 2015).

Oslo Medtech

Oslo Medtech is a health technology RIN, dedicated to accelerate and support the development of new Medtech and eHealth products, services and innovative solutions for the Norwegian and global health care market (Oslo Medtech, 2015). This RIN was launched as a network initiative in 2009 with 32 private and public actors in the medical technology industry. It aims to combine knowledge held within firms producing and developing medical technology and actors within health care, including major hospitals and research institutions in the Oslo area (Underthun and Helge, 2015). Currently, Oslo Medtech is comprised of about 180 members, including private

companies (local and international), hospitals, research institutions and investors. Most of Oslo Medtech's activities and events are close for non-members, implying a relatively strong sense of exclusivity (Underthun and Helge, 2015). From 2009-2014, the RIN took part in the Arena programme (Norwegian cluster, 2015:05, 26) and only a year after, Oslo Medtech became under the Norwegian Centre of Expertise (NCE)⁸ cluster programme. Further, in 2016, the network has applied for the "Cluster Management Excellence Label Gold" card, which is a European Commission initiative⁹, which acknowledges cluster organizations that demonstrate highly sophisticated cluster management and that are committed for further improve their organizational structures and routines for the benefit of an even higher performance. Oslo Medtech is of special interest when it comes to international firm's development, where more than 28% of members has international ambition (Jacobsen, 2016). Although the Medtech sector is globally connected through multinational corporation (MNCs), it is also highly populated by rapidly growing SMEs (Andersson et al., 2013) where "*SMEs account for 80 % of the firm's population in Europe's medical devices sectors*" (Andersson et al., 2013:868) and are the source of innovative ideas and a powerhouse of innovation. Even though, this sector is a high-growth industry, it is also highly complex and regulated. Firms operating in this sector regularly confront factors that can both push and restraint international activities (Anderson et al., 2013). In what it follows, I will present the next RIN, the Clean Water Norway.

Clean Water Norway (CWN)

Clean Water Norway (CWN)- is an industrial cluster with focus on water treatment (Jacobsen, 2016:7) established in 2007 (Underthun and Helge, 2015). The majority of its currently 70 members were originally located in an area covering Vestfold County, extending into the neighboring countries of Telemark and Buskerud (Underthun and Helge, 2015). In terms of publicly funding, the VRI program¹⁰ has had a major role in the establishment of the RIN and in facilitating its activities in its early years, the members and the RINs board have later taken on a more active role (Underthun and Helge, 2015). From 2009- 2014 the RIN acquire Arena program¹¹ support, and status, but after its ending, the RIN has failed in bids to achieve any cluster support program. Today, the only economic public resource that the RIN receives is the one coming from the Vestfold County. The limited resources that the RIN has if reflected in the

⁸ NCE is a program directed toward dynamic industry cluster that have established systematic collaboration and have potential for growth in national and international market (Norwegian cluster, 2015)

⁹www. cluster- analysis.org

¹⁰ Programme for Regional R&D and innovation (VRI)

¹¹ The Arena Programme is a publicly funded innovation program intended to promote more innovation in business and industry, through collaboration between businesses, knowledge and R&D institutions, and the public sector.

number of person working in the secretariat as well as in the numbers of activities arranged in the RIN. Members in CWN, especially public members, seem to have taken a more active role in this RIN. Activities in this RIN are or were concentrated around four teams: 1. reputation, 2) recruitment, 3) innovation and global relation. The RIN has been actively involved in establishing joint innovation projects between local enterprises (Svare and Gausdal, 2015 in Underthun and Helge, 2015:16), R&D institutions, and in introducing local enterprises to the global market.

3.5.1 Access to case RIN

Since the very early stage of this work, I was determinate to write a master project. Although the topic was not very clear. After browsing and reading carefully all the project available in the Science shop of the Faculty of social Science wed page, I finally found a project and topic that caught my interest, «understanding the dynamic of regional innovation network in regional innovation System», a master project requested by Work Research Institute (WRI). I immediately took contact by mail with the personal administrative in the Science shop to show my interest for the project. Shortly after that after that, I was having my first meeting with the projects leader in WRI. During our first meeting, we talked about the project´s topic, possible research questions and the networks that could be study. I had the opportunity to choose between six networks. I decided to choose OREEC, Oslo Medtech, and CWN. The motivation for my choices were primary drive by 3 reasons: 1) a genuine interest for renewable energy and Medicine technology; 2) their international experiences and international ambitions that these networks has been important for me in order to gain 3) relevant empirical data. It was not easy getting access to network´s managers because of their busy schedule. However, I finally managed to make an appointment with OREEC and CWN managers. To access informant in Oslo Medtech, my leader research as well as college of him has been very helpful in helping to access it.

Accessing SME´s manager on the other hand, was relatively easier than accessing networks. The firms here presented where first identified through the networks homepage, on exception of firm D6. On the other hand, access to the firm D6 occurred with the support of the informant in Oslo Medtech who put me in contact with the manager of the firm. Some important criteria for me, was to get a broader insight about the company, their international experience and membership in RIN before getting in contact and making and appointment with

firm's manager. I was also invited to joint an international event in the Embassy of Mexico by one of the firm's representative, I thanked yes to this invitation, but unfortunately, I did not hear anything else of the informant after the interview. I though this could be an opportunity to observe how international actors interact with each other in such international events.

3.6 Data collection

The focus on this work is on internationalization of SMEs through RIN. To acquire knowledge on what types of international activities, and practices are carry out in the network, I had analyzed relevant documents, and carry out interviews with three RIN and five SMEs. Moreover, this research has the aim to be trustworthy (Hay, 2010: 77). One way to ensure such trustworthiness is by describing carefully the methods I used to obtain data. Therefore, I want to go in- depth in each method used in this work. Document analyze and interview. I will however put more emphasis on interview as they are the most central resource to obtain information.

3.6.1 Document analysis

Document are a reach source of data for social resource (Punch, 1998:190). Document are all types of written document available for the researcher. According to Punch (2009), one the strength by using document analysis in qualitative researcher and case- studies is that documents are stable. They can be red it so many times as necessary, contain names, references and details. Besides, documents cover a wide aspect of both time and events (Yin, 2009; 102). Example of document can be public records, rappers, emails biography and visual document among others. However, in this work I mainly used two types of documents: reports of RINs and internet home pages of the three RINs- cases, but also internet home page of firms- cases. After the meeting with OREEC leadership in the end of June, I receive an annual report for 2015, in addition, I had printed out the annual report for 2013, which was available in the RIN's internet home page. In May 25, I had the opportunity to participate in a symposium gathering in Oslo Medtech, the topic was implementation of technology in hospital. A day after, the RIN send out the power point presentation to all participants. The presentation touch topics regarding internationalization and firm international ambitions. The presentation is name *Value creating in the health industry*. Another evaluating document is the one the CEO in Clean water Norway sent me by e. mail. After having made an appointment and schedule the interview with the

CEO, I decided to contact her by e- mail where I inquire any sort of document I could have to get broader insights about the RIN before the interviews. The result was an evaluation report carry out by Menon Economic¹² .

In general, these documents have been the main documents used in this work. Nevertheless, another types of documents have also been taken in used, such as Norwegian cluster (2015) document. RIN's internet homepage has been browsed and red several times through the development of this work. Internet homepages has also functioned also as source of information to the selection of the informants, in the way that I could encounter does firms that appears to be central for the topic of this thesis. However, as a researcher, I must acknowledge that document analyses have its weakness. One of weakness can be credibility, to what extent of what is been written, is it true? To what extend we can trust on what is been written down? Another weakness can be low level of international work and detail description on this issue, in both documents and internet homes pages. Therefore, I decided to go out and interview leadership in RIN and firms in order to be able to give a valid and relevant answer to my research questions.

3.6.2 Interview

An interview was once defined as “face -to -face verbal interchange in which one person, the interviewer, attempts to elicit information or expression of opinion or belief from another person or person´ (Hay, 2010:102). In this work, I have interviewed both RIN manager and SMEs manager for two purpose. The first was to acquire knowledge in RIN strategies and practices to support SMEs to reach. The second was to listen SME's manager perspectives on how they are being benefit of RIN international services (Patton, 2002).

Forms of interviews

We can differentiate between three mayor forms of interviewing: structures, semi- structure unstructured. The structure interview form follows a predetermined and standardize list of questions where the questions are asked in almost the same way and the in the same order in each interview (Hay, 2010). On the unstructured forms of interview and as opposite to the structure form, the interviewed takes a conversation where the interview is direct by the informant rather than by the set questions (Hay, 2010). In the middle of these two, we find the

¹² www.menon.no/

semi- structure form of interview. This thesis will be using a semi- structure interview guide. The semi- structure interview form has some degree of predetermined order but maintain flexibility in the ways issues are address by the informant (Hay, 2010:102). Further, the interviews where characterized by open topics. This means that I had to remain open to any other topic brought by the informant, but I could also intervene and redirect the conversation when I fell it was necessary (Hay, 2010: 110).

First, I interviewed three firm's representatives. The data gathered from them contribute to a better preparation to the interview with interweaving leadership and managers in the three RINs. Almost at the end of the interview process, I decided to interview two more firm's representatives, member in RIN. The reason why I did that, it was because I wanted to improve the quality of data.

Access to informants

Conducting an in- depth interviews with small number of the "right" people will provide significant insights into a research uses (Hay, 2010 75). This mean that the researcher most chose does informants that has the right coalification and experience related to the research question of the study. In my work, to acquire data regarding what international services and activities are practices in RINs, and how firm's managers and representative's benefits of such services and activities, I needed to come in contact with informant that: 1) had membership in RIN: 2), had or were present in at least one foreign country. In these cases, I decided to choses informants that have relevant international and knowledge. Through each RIN's internet home page, I was able to access each member firm's home page. Here, I could see which firms perform international outward activities or in another way are relate to the international market. I made a list of potential informants in each RIN and then took contact with each of them by phone. Some did not answer the phone, and some of them did not have time to talk with a master student, but I was prepared to get negative responses. That is why my list for each RIN contained more than five firms. Through the phone conversations, I presented myself, background for the project, and the aim of the project. Then I asked whether the potential informants would be willing to participate. I also tried to make the presentation of the project interesting for them, pointing out that the result of the study will benefit them. The phone conversation was follow by an e-mail containing deeper information regarding the project, the topic for the project, as well as some alternative dates for the interview. Most of the informants wanted to meet me before the summer vacation. However, some of them opted to do the

interview after the summer vacation. It is also important to highlight that one of the RIN leaders gave tips regarding which informants I could contact. This was the case with Oslo Medtech. In fact, the RIN's CEO personally contacted the most suitable informant, asking if he (the informant) could be willing to talk with me for a couple of minutes. Her help was very useful, as my own attempts at directly contacting firms were time consuming and laced with uncertainty. From Oslo Medtech, I also received a document that shows their collaboration with Norwegian embassies in foreign countries (see appendices 3a). After conducting all the interviews, I reflected over each informant's answer. In general, the answers seemed well thought out and indicated that the informant's relationship to the RIN was sufficiently deep to provide useful information. With regards to my own attitude, as a researcher, I consistently attempted to take a neutral position during the interview process.

Ethics consideration in conducting interview

My research followed the advice of Hay (2010) regarding informant consent, confidentiality and ethical issues. All research methods necessarily involve ethical considerations (Hay, 2010: 27). As mentioned, all potential informants were contacted by phone. This initial telephone conversation was followed by e-mails containing detailed information about the aim of the project and other relevant information, such as the date, place and time of the interview. All these aspects were modified according to the informants' wishes and capabilities. I was aware of the informants' busy schedules and had to be flexible. Finding a time and a place for the interview was not an issue at all. The informants were very open and kind. Some of them were even curious about my background and nationality.

When I mentioned my nationality, one particular informant started telling me about their intentions in entering the Mexican market, as well as other Latin American countries, in the near future. However, some of the informants were also concerned regarding *confidentiality*, and access to the result of this work. I explained that this master thesis was going to be publicly available, and if they wished, anonymized. Three out of the eight informants wanted to be anonymous. In order to respect their decisions and wishes, I have applied the complete anonymity option for all the informants. In this way, I have ensured that my research does not enable others to identify informants (Hay, 2010: 29). Each informant is here coded (see Table 3) in order to maintain their confidentiality and to provide relevance to the answers. The choice

of complete confidentiality was also essential in order to increase the level of assurance with the interviewees and reduce the possibility for a response bias.

Interview code	Industry/ sector	Respondent position
A1	Hydrogen transport sector	CEO
B2	Environmental industry	Chief Executive Officer
C3	Water sector	Chief Process officer (CPO)
D4+D5	Water sector	Manager Director & sales and marketing manager
E6	Medical technology	Chief Strategy officer (CSO)
EF- 01	Energy & Environmental technology industry	CEO & project leader
ES- 02	Water treatment industry	CEO
OM- 03	Medtech	Member service and project manager

Table 3- informant

3.6.3 Coding of data material

Punch (1998) allege that coding is the starting activity in this sort of qualitative analysis and the foundation for what comes later (Punch, 1998:204). The purposes of coding are partly data reduction, to help the researcher get a handle on large amounts of data by distilling along key themes (Hay, 2010: 281), because is not possible for the researcher to include all the themes in a qualitative case- research. I this work, I had transcribed three interviews with RINs leaders and five interviews with firm’s representatives. The data gathered from RINs leaders is sort out into four categories, and divided into many sub-categories (see attachment 1a). Consequently, the data gathered from SME’s representatives were also sort into four categories (see attachment 1b in the appendices) and divided into sub-categories. By sorting data into two parts, it would make it easier to identify the theme oriented to answer the research questions. The selection on firms was make in order to answer the second research question and gain insights on SME’s perspectives on RINs, usage and utilization of RINs international support presented in chapter two. The data material, both from SMEs representatives and RIN leaderships, was colored according to the topic. After this process, codes were group together according to their

similarities, substantive relationship, and conceptual link (Hay, 2010: 291). This enable the reduction of data material and classification.

On the other aspect, Hay (2010) argues that cases studies play two roles: to test theory and to generate or expand theory. The main objective of this work is not to generate theory, but the result or finding can provide evidence that could point to similarities between the cases and therefore point towards generalized analytical outlook. The interview guided was however design to take into consideration the research problem, and subsequent conceptual framework.

3.6.4 Reliability and validity

A qualitative research is measure mainly based on its validity and reliability. We can here refer to *reliability* as consistency (Punch, 1998). The goal of reliability is to reduce errors and bias in the data collection and to ensure that a later researcher can follow the same procedure and retrieve the same result. Punch (1998) identify two types pf consistency: *Stability* and *internal consistency*. Stability refers to the ability of achieving the same result by using the same method. For example, if the result of researcher A is replicated by researcher B, by using the same method a researcher A then is highly reliable” (Punch, 1998). On the hand, *internal consistency concerns the extent to which the items are consistence with each other, or are working in the same direction* (Punch, 1998). One can say that, *internal consistency*, inquires detail information of how the researcher interpreted data and result. In other words, to what extent, a later researcher can duplicate the result of this social study. In qualitative studies might be challenging to duplicate result, since individual, situation or process are different, thus, the result would also probably vary to a greater or lesser degree, and possess weak *internal consistency*. To strengthen internal consistency, the researcher must be open to explain the methodology procedure as well as how the data was analyze. These two aspects must be carefully described and explained, because as Thagaard (2009) highlighted, *to achieve high internal reliability is therefore important that the researcher communicate their process methods, interpretation of data and analytical processes open* (Thagaard, 2009:199). Therefore, I want to be open in this regard by explain the methods used to gathered data in this work.

This qualitative case- study was design to gain insights and analyze key elements concerning Regional Innovation Networks, and their international support to SME’s manager’s outward activities. The process started with a meeting with my project leader working in the

Labor Research Institute (AFI) of Oslo. When the research question was more or less form, I started to search for existing literature for the most appropriate theories and empirical findings to develop the probabilistic concept map that was need in order to reach our research objectives. Finding a theory or definition of the core concept, RIN, was not easy, because this concept is new in innovation literature. Therefore, I took contact with my project Leader in AFI, and he provided me with relevant theoretical papers elaborated within the organization. Not having relevant theory would have significantly had an impact on the reliability of this research. The next step was to choose an appropriate mythology that matches the existing conceptual framework. In chapter four, I thoroughly have explained methods and procedure used to collected data, such as form of interview and (semi- structure), and access to the informant. Furthermore, the data gathered from informants are describe in chapter four- *Presentation of empirical data*. Most of data material here presented is to wide extend, descriptive, meaning that is been written down as it was said by informants, excluding like this, any form of interpretation. When I was done with the process of gathering data, the next step was to analyze data. This take me to the concept of *validity*.

Validity is defined as the truthfulness or accuracy of data compared to acceptable criteria (Hay, 2010:391). To ensure truthfulness, researcher most therefore, have the responsibility to study validity threats, prioritized criteria, and specific techniques employed. (Whittemore et al., 2001:530). Assuring credibility refers to the conscious effort to establish confidence in an accurate interpretation of the meaning of the data (Whittemore et al., 2001:530). *Authenticity* is closely link to credibility in validity and involves the portrayal of research that reflects the meanings and experiences that are lived and perceived by the participants (Whittemore et al., 2001:530). In the previous pages, i.e. 3.6.3, I have addressed the topic of how the data material is codified and analyzed.

It has been described that the transcriptions of interviews are categorize according to topics oriented to answer the research question. Moreover, in chapter four, it has been present the empirical material in a descriptive way. However, because the focused interview was administrated once, thus it cannot be know if the respondents will provide the same information or code if the interview sessions is repeat it with the same interview guide. Consequently, the analyses of data material might possibly have different result and thus, different interpretation.

3.7 Summary

This chapter has presented the case-RINs and the qualitative methods that have been used to carry out the case studies. The objective of this work is to gather data that demonstrate empirically what practices and services are carried out in RINs to start the internationalization process of SMEs through the close interaction of members with international players. This chapter has dealt with two ways of gathering data: document analysis and interviews. Interviewing is one of the main data collection methods in qualitative research (Punch, 1998). Therefore, much of the emphasis has then been on interviews. In this chapter, I have also dealt with relevant ethical issues when carrying out qualitative case studies. After coding data material, I realized that the codes touched many interesting topics (see attachment 1a and 2 b in appendices) such as trust in international context, challenges, etc. However, I had to choose the codes that best answer the research questions. Some of the other codes will get a place at the end of this work.

The result of RIN's data material and coding is categorized as following:

- Cross RIN collaboration
- The national innovation system aspect
- Joint delegation
- Inter- firm collaboration
- Network projects

In the next chapter, the empirical findings from the five SMEs and three regional innovation networks that constituted the case studies are presented. The reader will be first introduced to the empirical findings regarding RIN, followed by SME's perspective on RINs.

4 Data presentation

This section is devoted for presenting the empirical data collected for analysis and further discussion. The data material here presented it aims at answering the research question (1) *how can RIN facilitate the internationalization of SMEs*. (2) *How can SMEs managers benefit of RIN's internationalization services?* These interview responses are organized according to the corresponding interview questions that generated the answers. Note that analysis will be carry out in the next chapter. Therefore, this part presents what was say and just how it was say. First, I will present data gathered from regional innovation network, follow by SMEs perspectives on RIN.

4.1 Facilitating the internationalization of SMEs

4.1.1 Cross- RIN Collaboration

To the answer, *how do you facilitate the internationalization of SMEs, members in the RIN*, *the answer* I received was the following:

“This cluster to cluster collaboration, they are valuable you know, because just looking at our cluster, we work with hospitals, we work with the universities, we work with the master students, companies big and small. We have so many different stakeholders that we work with, and we know those personally and through professionally and that is very valuable information that we are getting on, and so, if you have cluster in other market that has the same network that we know nothing about, perhaps they pick up the phone and try to call people or google them, does not work that well. So if you go through other cluster, first of all you have that integrity and the position that makes it easier for us to reached out and get noted and then instantly through that cluster administration and network access to all this stakeholders, so it's a door opener to much larger part of the market” (OM-3, Member service & project manager)

Note the concept “cluster- to- cluster collaboration. In this work, the concept cross- RIN collaboration, or RIN- to RIN collaboration is used to refer to “cluster- to cluster collaboration”. The majority of the informants refers to “cluster-to- cluster collaboration” as a strategy to enable the interaction of SMEs with international stakeholders.

Another informant said the following:

“It's both by network and also projects and lot of our projects are with international partners, so for the projects with try to recruit Norwegian companies to participate in the projects with international

companies. Some of the projects are cluster to cluster cooperation and some are clusters –to- cluster including partner’s companies and research institutions” (EF-01, CEO).

Cross- RIN collaboration does not necessary imply project collaboration. It may also be used as a strategic contact point that RIN build over time.

“Cluster to cluster collaboration is more about getting quit access to more stakeholder and ecosystem in the industry and another country. In Oslo Medtech we have the Municipality and hospital representing the customers and then we have companies and investors who represent more the supply side. So if someone come to us and say, I want to meet 5 companies, and I want to look at two hospitals, and I want to see how they are implementing technologies. We can easily set up and help them. So if the cluster we collaborate with have the same network. Therefore, we have one contact point to reach the demand side, and what the customer need, what are they looking for. Is about having one contact point to reach more stakeholders, so that is why cluster to cluster collaboration is an efficient way to enter a new market is” (OM-3, Member service & project manager).

In addition, Oslo Medtech also collaborate with its RIN partner in USA, by inviting each other to hold speech for members. This form of collaboration creates also more exposure in home country for small companies that do not fulfil the requisite or has not the resources to participate in international activities.

“We are very event focused, and that is everything from attending international conference where small companies come with us, to events that we do here in collaboration with stakeholders, so we are doing one coming up right now where someone from the USA, the cluster we work with, its coming to talk about US market access through the Middle West. Why should we go to the Middle West in the USA?” (OM-3, Member service & project manager)

Data also shows that joint delegation is another international strategy uses in RIN to connect members (SMEs) with relevant partner in foreign countries.

4.1.2 Joint delegation

Whereas cross-RIN collaboration is more about creating a long term relationship between RINs through different forms of collaboration, joint stands in international conferences and international exhibitions is more about bringing and exposing firms directly and face-to-face to relevant stakeholders in the international market. The data show that such joint stands are an effective way to help firms meet relevant stakeholders or partnerships across borders. For instance, one of the informants explains the benefits of joint delegations and the cost of such activities.

“So, one of the thing that we are trying to do to help these companies to overcome some of these challenges is among other things, is doing this joint delegation or joint initiative with a number of companies. Moreover, we see that there are lot of benefits for that. First, they can split the cost for participating international event where they would not necessary have the funding to do it themselves. Having a stand at a conference or an exhibition, it is very expensive, usually. You need around 100, 000 NOK to have your own stand at a conference in Denmark, for example (OM-3, Member service & project manager).

Joint delegation or joint stands are the informants also referred to, is an international activity that can take place anywhere in the world. The benefits of joint delegation are that firms can make their presence there where potential stakeholders are also present.

“... Joint stand, does not necessarily has to do with cluster collaboration. It can be anywhere. Say Sweden. is about identifying one, which market that are the most relevant for the companies, more companies are trying to enter the Nordic market, probably UK, USA, whatever it feels closer to home, we do some survey within 3 to 5 years’ perspective to look international market strategy” (OM-3, Member service & project manager).

Another informant highlighted the cost and benefit of joint stand in international conferences

“...And then we also try to mobilize companies to participate in conferences exhibition, last week 7H was in Munich in exhibition with several Norwegian solar companies” (EF-01, CEP) ...

“14 days ago we were in Zaragoza in another exhibition in hydrogen where we brought ten companies and research institutes, as the same way as Inter-solar they come and stand and where all the partners participate for small among of money. The Asker County is supporting the stand, so we try to make a common stand to get companies to participate” (EF- 01, CEO).

“Yes, INTERSOLAR, is one of the world’s biggest gathering for solar industry. We also got some of our companies and other companies in informal network. We have a stand there, to highlight the Scandinavian solar industry. This is a really good way to show up the companies connect to us, and we also have an event in Barcelona in September or October where we are now trying to establish a stand for us and maybe some partner” “(EF-01, Project leader).

4.1.3 Network projects

So far, data shows that cross- RIN collaboration and joint stands in international exhibitions and conferences are two important practices carry out in RIN to enable the interaction of SMEs with international actors. The data also show that business networks enhance firms’ ability to cultivate their international presence. For instance, informant OM- 3 said:

“We have this public mechanism in innovation Norway, called business network” (OM-03 Member service and project manager) ...

“What we do, is that we announce that is a funding for this type business-to-business collaboration so, where we identify, and ok are there 4 - 5 companies that are trying to enter the UK. Then, Oslo Medtech will help to coordinate that project, because it will function as a project with activities that you need to do and progressed at the end. Because you get funding from a government agency, such as Innovation Norway, and there is a lot coordination, special small companies, where usually the CEO does marketing, accounting. They do everything, but they have that extra resources that helps to set up the proposal for funding, help then meet the right people in whatever market they are going to, help them to make sure that they have regular meeting” (OM-3, Member service and project manager).

Another informant said:

“We try to stablish good partnership; our international partnership does the same. We try to get them active in the project and work together. It is not very easy because the companies are busy working doing their core activities and some of our project are kind of network project. It's not necessary business develop or research projects, but we try to build the project so that can be important for the development for their company, both for their core activities and to get new partner in other countries”. (EF-01-CEO).

Informant ES-2 also said:

“We have a network projects, between Norway, Sweden and Denmark. It part of the innovation express project, funded by innovation in the sea Baltic regions. This is a collaboration between three “cluster”, RIN” (ES-2, CEO).

These international activities and international services here presented, shows that the leaders in regional innovation network are direct involve in administrating and coordinating such activities. However, data also shows that members in RIN can also be source to access international market.

4.2 Inter- firm co-operation

RIN members also help each other reach out. What this means is that members, whether they are public or private organizations, invite other members to join them to go to an international activity. The firm attending such activities sends the invitation to the RIN managers and then the RIN manager is in charge of distributing that information among members interested in internationally oriented activities. The informant Es-2 said the following:

“The other part is the Oslo municipally, they want to take closer look and see what they are doing. And then because they are part of the clusters they a lot of collaboration abroad and sometimes they have

delegation coming to the Oslo municipality that use this opportunity also to invited other members of the cluster to come to an event in Oslo municipality and have a meet the delegation” (ES-2, CEO).

“There is another company going to India, they have also big international contact.... If you really want to towards does countries, maybe we can help you. These companies have nothing again sharing their international contact. They want to do that” (ES-2, CEO).

Other RINs are also open to collaborate as the same way as in CWN, but attempt to do so in the way which most effectively allocate their resources. This was point out by one RIN manager:

“but yeah, companies would contact us as well, we get this- hey we are going to conference in this country, is this something that would be interested for the cluster to participate or other companies, we do that as well, but try to be present where there Is a need from a larger share of companies...” (OM-03, Member service & project manager)

In addition, to member’s help to other members of the RINs to access international market, data shows that governmental agencies are also strongly involve in supporting RIN in various ways.

4.3 The NIS collaborative aspect

Another interesting finding in this study is the role of governmental agencies and public institutions. These institutions support RIN and SMEs to reach out. On the one hand, the embassy’s credibility appeared to be an effective way to connect firms directly with international resources and to get more attention than otherwise. On the other hand, Innovation Norway’s resource capability, extended international network and cultural and market knowledge in foreign countries allow RINs to rely on it.

4.3.1 Minister of foreign affairs

For instance, the informant in Oslo Medtech said the following:

“So we also work a lot with the Minister of Foreign Affairs and the reason why we do that is because they have a position international. If you can say that you work with the embassy, or the embassy helps you to host an event and send out invitation, then you get more attention than just a random company that you never heard about. We are being very lucky to have to collaborate with embassies. Already this week, I think we have three events in collaboration with the Norwegian Embassies in India, Switzerland, and the USA at the same time. This it has been very successful (OM-03, Member service & project manager).

4.3.2 Innovation Norway (IN)

Innovation Norway appears to be involved and closely collaborating with RINs to support SMEs in their internationalization efforts. The data show that IN support RIN by:

- Entering together a new market

“In addition, you have, and this is an initiative that started with innovation Norway going. So this innovation Norway and Oslo Medtech are going together, so innovation Norway put some money and companies that are going put some money in and then Oslo Medtech work with putting our hours on” (OM-03, Member service & project manager)

- Funding to carry out international activities

“... sometimes we do meeting, workshop on seminar where we discuss coming activities for the next six month or for the next year. These are the activities Oslo Medtech will be doing, you can sign up for this, or this, or one the market that you are interested in. We try to put together consortium, to apply for funding from Innovation Norway, for internationalization (OM-03, Member service & project manager)

- Event's organizer and maker

There is Smart city expo in Barcelona in November there will be Nordic pavilion at an exhibition arrange by Innovation Norway and the Danish cluster so we will try to bring some companies of the city of Oslo to that exhibition (EF-01, CEO)

“And innovation Norway uses the cluster as a point for distributing events and things that happens that they already arranged and they want to invite people to come to these events, whether they are delegation coming or they have some area or some topic on their agenda. Then they invite the cluster managers, and then we invite their members to join if they want. Just like a distribution of contacts. I forward invitation through my mail list” (ES-02, CEO)

- Knowledge- how to enter international market and opportunities in foreign market

“So we have representatives from innovation Norway in India coming to Oslo to do that workshop. The focus is Indian market access for Norwegian companies, what are the barriers, what are the challenges, what are the opportunities. How to find collaboration partner, you know all these things that you need to know before you enter a market” (OM-03, Member service & project manager).

Another informant said:

“We have a meeting with innovation Norway from India in April, Clean-tech opportunities in India, not very many 5-6 companies, but that is one example, we have also seminar on solar with innovation Norway in India participation. We have some visitors from innovation Norway in Latvia, central

Europe and some delegation coming here and we have a presentation from 2-3 Norwegian companies, our partners, given their presentation to these visitors and trying established relationship, so that is also part of the international work we do...” (EF-01, CEO).

To summarize, empirical data shows that through inter- regional collaboration, joint delegations, business network projects and collaboration with governmental agencies, RIN support the face- to face interaction with international stakeholders. In addition, business network project, and inter-firm collaboration appeared to be other forms of RIN’s support to SME’s internationalization process.

The first part of the empirical data presentation had the aim of presenting data devoted to answer the first research question: *How can regional innovation Network facilitate the internationalization of SMEs?* In figure 5, I had summarized the main finding aiming at answering this research question. The figure shows a significant difference between channels and international services offered to SMEs in each RIN. It can be observed that Oslo Medtech scored highest, having the majority channels or international services to offered than any other. Clean Water Norway, on the other hand, it is no favored.

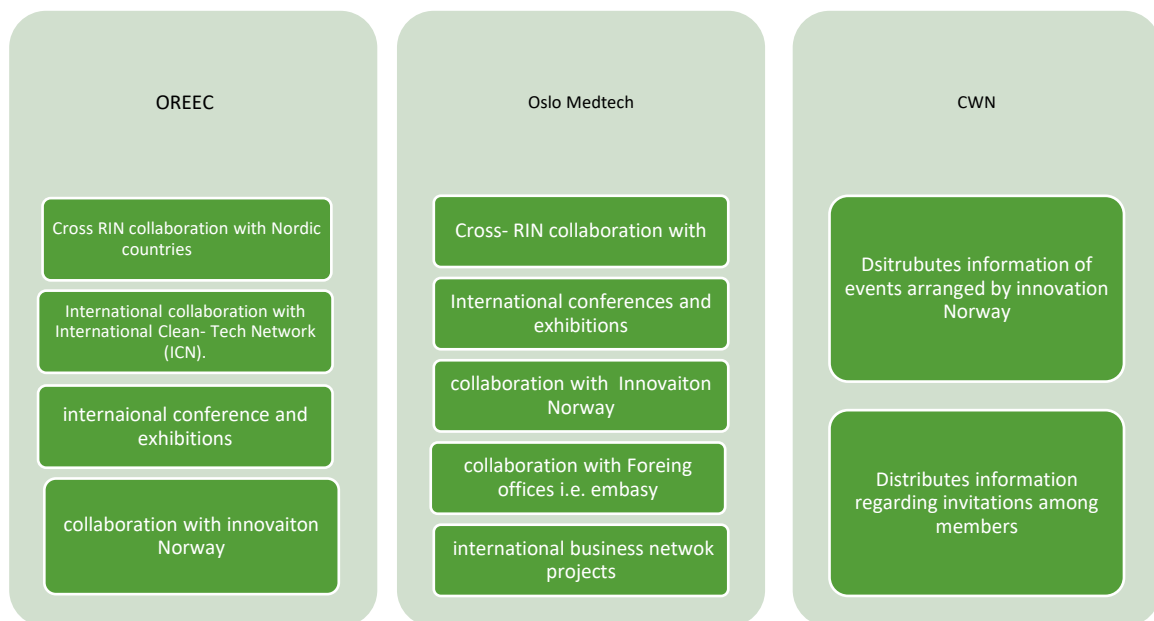


Figure 5- RIN international channel

In the next section, the empirical data presented it, is devote to answer the second research question: *How can SMEs manager’s benefit of RIN’s internationalization services?*

4.4 Data of SMEs perspective on RIN

In the first part of the empirical introduction, RINs' practices and strategies to support SMEs in going abroad was introduced. In this second part, I will introduce the empirical data gathered from firms' representatives and managers. In the table 4, I present an overview of the main answer and question oriented to answer the research question: *How can SMEs manager benefit of RIN's internationalization services?* The vertical lines show the questions, while the horizontal lines show the informants' respective answers. The selected questions and answer presented in the table intend to give a general overview of SMEs perspectives on RIN. For a full overview of the interview guide with SMEs representatives, see the appendices 8.1.

Questions to SMEs informants	A1	B2	C3	D4 + D5	E6
1-What might be the reasons of joining RIN?	For meeting companies and see how they work	To get connection with Investors	To receive information about new technology, new markets and potential partners in projects/contact with national and international partners	It is about meeting other companies and see how they work, network. We also learn from other companies	Information, learning, sharing
2-How often do you attend activities in RIN?	Do not participate	Participate before, but now the company is very busy with the development of its core product	We do not participate	Twice a year.	Twice a month
3- Have you searched international partner through RIN?	No, we have the network we need. <i>"we had established most of our network in hydrogen before OREEC"</i>	We have long international experience we have big network, our company, our people.	No, we have been able to find partners through other channels (trade fairs, paper presentation, marketing)	No, most of the time they come to us, or if we are interested in in a specific country we search for potential distributors in that country.	Yes, we have been on contact with international players through RIN.
4-What is your opinion about RIN?	I like what they are doing, even though I don't need them so much	I think RIN should know more what they are selling	Good arena for companies that does not have international experience	This company did not receive this question.	They are doing an important job.

Table 4- SME representatives perspectives on RIN

In the next text, I will present in detail the data gathered from SME's representatives. The data presented correspond to the questions 1-3, presented in the table 4. The data gathered from these questions best answer the research question (number two in this work). Therefore, they deserve detail descriptions.

4.4.1 Motivation for membership in RIN

The next text is devoted to present the data gathered from SMEs. The data will be present as the informant said and in the way, he said, excluding any form of subjectivity and/ or judgement. What we see in the table is that most SMEs' managers seem to share a common reason for having a membership in RIN: information. All the SMEs leaders said that they are part of a RIN in order to obtain information.

Informant in firm A1 said:

“It’s more like looking into what is going on this area, could be some interesting people and companies we can meet”. “Secondary network. It is as if you will always meet will meet some that know more about technology that you do not know too much. It’s not real business, but complementary knowledge.” ... “Information in and out (A1, CEO).

Informant D4 and C3) replied the following to the question "What is (are) reason(s) for your membership in a RIN? Here, we received two different opinions: one is information about potential partners, expertise and learning.

“It’s about meeting other companies and see how they work, network” (D4, Manager Director)

“To receive information about new technology, new markets and potential partners (C3, Chief Process Officers)

“We learn about how some of the companies that are very successful exporting their product, how they did it (D5, sales marketing manager)

4.4.2 Dynamic capabilities of participating firms

To the question of how often SME's managers attend activities and meeting in RIN, I received the following answers:

For example, informant B2 said the following:

“I been attending many events, conference in OREEC before, but lately I been very busy with the project itself, we want to finish the product and be ready for the market (B2, CEO)

While on the other hand, informant in firm AI said explicitly not to participate in RIN's event.

“We don't participate in these activities, not because they are doing something wrong, but because they don't have something that is relevant for us” (A1, CEO)

Similar to A1 firms, informant in C3 firm said:

We have not yet participated in such activities. We will be open to participate when the right types of projects or meetings come up (C3, CPO)

In contrast, informant D4 said the following

" we participate twice a year, more and less" (D4)

Informant D6, on the other hand said:

"We participate in RIN twice a month or maybe more" (D6, SCO)

In summarized, empirical data shows a relative lows dynamic capability of firm's participation in RIN.

4.4.3 RIN, an arena to access international market?

When I asked informants is their company has search for international partner through RIN? I receive the following answers.

For instance, CEO in firm B2 said:

"We have long international experience; we have big network. Our company, our people. S-O¹³ has been working in Statoil for 25 years as project leader, and we have enormous network. S-I¹⁴ is working with international business development, I have a big network, and all this things together, together with the university, and they give us good feedback all the time. OREEC and Oslo Chamber of commerce we are member in this organization. That means that they are also part of our business" (B2, CEO).

A1 firm and C3 firm, on the other hand, uses their own channel to contact international resources. To the question-, how do you access international partners? Is it through RIN?

"No, no through the RIN, through our own channels. Therefore, I think we had stablished most of our network in hydrogen before the RIN (A1, CEO).

Then the informant added the following:

Because we have partners already. We know whom we want to talk to (A1, CEO))

Informant in firm C3 said:

¹³ Represent the name of the worker in the company with international experience

¹⁴ Represent the name of another worker also with broad international experience

No, we have been able to find partners through other channels (trade Fairs, Paper presentations, marketing) (C3, CPO)

In contrast to the firm A1 and C3, firm D4+D5 said direct to be contact by international distributors.

Must of the time they come to us, or if we are interested in getting to the country, we go and search after similar distributors that sale the same product to same customer, same market. We approach the company and ask if they are interested in collaborating with us (D5, CEO)

The firm D6 did not received the question. The researcher acknowledged that otherwise, the result of the data would have been different. However, if one were going to judge by the information gathered from the informant, opinion on RIN, and the dynamic capability of the firm's participation in RIN events and meeting, one could have concluded that this firm do use the RIN to reach out.

Summing up, the empirical data gathered from SMEs representatives regarding usage and utilization of RINs support, shows three main finding: First, a relative low dynamic capability of perception in RIN. Second, in terms of RIN as an arena to search for international partners, empirical data shows that the majority of SMEs managers use other types of network, and seems to have intern international experience and knowledge. Third, the main perceived of SMEs of RIN seems to be information and learning capability. After having presented the empirical data, I want now proceed to analyze the main findings in this work.

5 Data analyze

In the last chapter, the empirical foundation for this study was present it. In what it follows, the main finding will be discuss and examined in light of the research questions and the theoretical framework. First, I will introduce some internal practices carry out in the regional innovation network. Such internal practices can be seeing as a strategy to identified firm's international ambition and international potential market. Therefore, they are considered relevant to this topic. Internal practices in this sense are survey to identified potential market and firm's international ambitions and seminar on how to do networking internationally. Please note that internal practices do not form part of the theoretical chapter as these are data that came out after the empirical chapter was compiled, but they deserved its place in this chapter, because I believe

that these are significant factors for accelerating the internationalization of SMEs. Besides, there is very little or no literature yet in this topic.

The data analyze is then organized into two categories: the RIN and the SMEs perspective. The RIN perspective touch the internal practices topics, the role of institutions at the national and supranational level as well as inter- firm's collaboration between members in RIN. The second part focus on SMEs usage and benefits of RIN. Finally, I will end this master thesis with a brief conclusion on main finding, implication for further research and policy implication.

5.1 Internal practices in RIN

Identifying international market

The aim of this work was to study how RIN help SMEs to access international environment. The empirical data show that the managers of the RINs fulfil this function in different manners. Oslo Medtech, for example, starts by first developing a clear overview of each SME's stage of development, current needs, innovative capacity and potential international market possibilities. The management of the RIN accomplishes this by having regular meetings with the leadership of each client company. After this phase is completed, Oslo Medtech works with a key executive from the SME to identify potentially lucrative international markets. This process may draw upon surveys conducted by this RIN from time to time, with the goal of finding the most promising opportunities over the next two-three years. The surveys also look at the longer term, identifying which markets will be most important in ten years. The third step for Oslo Medtech is to map out where the RIN member is interested in going, and then to build a network responding to this desire. In addition, RIN keeps member well informed through meetings, workshop and seminar. In the statement under it can be red what the informant in the RIN said regarding this topic:

“Among some times, we do that, and sometimes we do meeting, Workshop on seminars where we discuss coming activities for the next six month or for the next year. These are activities that Oslo Medtech will be doing, you can sign in up for this, or this, or one market that you are interest and, and based on this we try to put consortium, to apply for funding and from Innovation Norway, for internationalization” (Member service and project manager).

Unlike Oslo Medtech, this CWN does not carry out survey to identify potential international market and or firm's international ambitions. In fact, in CWN, members seem to have taken on the role of helping each other to connect internationally. It is not easy to pinpoint why

members are taking the role of self-organizing and tighter collaboration among members in CWN, however, I have suggested to explanations for these. First, the RIN only employs one-person that works part time in the secretariat. As the CEO said, "*What kind of activities can you have, when you don't have a very big secretariat and when you have to deal with administrative matters at the same time?*" (CEO in Clean Waster Norway). Second, lack of leadership and knowledge on how to run a RIN. One of the challenges for RIN's managers in today's globalized economy is developing sufficient skills and knowledge to be able to help SMEs. As an example, economic or finance knowledge may be call upon for SMEs looking for risk capital. Where will the needed money come from? Which funds or other types of investors may be interested in investing. According to the CEO in CWN, simply finding the right people - people with the necessary skills and knowledge - is a "bottleneck." (CEO in CWN). Furthermore, the leadership must be able to create networks in the international arena. Creating contact points and building networks, especially internationally, is time consuming and requires managers who know how to do such things. If you are going abroad from the cluster point of view, you need a contact point in the new country and you need to be familiar with the foreign offices of innovation Norway. To develop such contacts is a full time job and requires more people that the one presently employed by CWN (CEO in CWN).

If we now see OREEC's internal practices oriented to help members and partner to reach out, the empirical data shows that OREEC, similar to CWN, does not carry out any international survey to identified potent international partners. As we see in the text under, the informant acknowledged not to know where member or partner international priorities are, however, the informant said to be working on it and that they are already starting to get in contact with each partner in the RIN with the objective to gain information in this topic. The informant also acknowledged the importance of having such information available in order to accelerate the interaction of partners with international players.

"Members have they prioritized market, and I am not sure where they are. I don't know that" (EF-01, CEO)

"Yes, that is correct, that is important to get that information, what are the firms need and we will work on that" (EF-01, CEO)

However, the RIN (OREEC), carry out various international project in collaboration with Nordic countries. OREEC's most important international project takes place within the Scandinavian countries. Why this RIN orients its international activities towards these market,

is unclear, as there is not survey showing that these markets are member's priorities. One can however, assume that the SMEs in this RIN chose to collaborate with countries that are more similar to each other in terms of business environment and cultural similarities. If that is the case, then this empirical result is agreement with the internationalization model proposed by Johanson, & Vahlne (1999) who suggest that SMEs gradually internationalized, and that the process of internationalization often initiated between countries where the business environments are similar to each other. Another reason for the intense Nordic collaboration in OREEC might be related to financial institution supporting the low carbon industry in these countries. For instance, OREEC's most important funding program is Interreg. Interreg, as explained in chapter two, is a EU program promoting social and economic integration across borders through regional cooperation. This program has the focus in four policy topics, among them low carbon economy and environment and resources efficiency. OREEC has currently a program between Norway, Sweden, Denmark. In addition, the RIN has other application in Interreg. A point that I want to make here is that, in the case of OREEC, international activities and initiatives in Nordic countries might be driven by two factors: First, OREEC's primary financial support is Interreg, and one of the Interreg's policies is to foster collaboration across borders. Therefore, OREEC coordinates several projects in Nordic countries. Second, Nordic countries have the know-how knowledge within the renewable energy industry. Thus, it is not necessary to travel longer to gain access to this knowledge. Summing up, OREEC's absence of survey as part of internal practices to identify SMEs' international priorities might be explained by these two factors. However, knowing which other market or players SMEs are interested in interacting with, might accelerate the internationalization process of SMEs.

The complexity of networking across border

Globalization has increased over the last two decades, which has led to more complex business relationships (Leek, et al., 2003). Wong et al., (2005) recited that complexity arises because people are different across the border and therefore relationship building and maintenance are likely to depend upon the cultural context. In this context, the diversity of the market in which firms operate is more important than the number of the market (Hadley and Wilsson, 2003; Elo and Törnroos, 2005). The bottom line here is that, culture makes people think differently from others as values, habits and norms vary among cultures. Therefore, little (or not enough) knowledge of the business culture of a potential international partner, can interrupt the process because misunderstanding might appear. This can be avoided by learning how to interact and

network with foreign players. Regional innovation network can thus help SMEs by mentoring/coaching them how to do networking in foreign countries. The empirical data shows that one out of the three RINs here interviewed, do mentor members in how to do networking internationally. *Mentor* refer to the advice and help that firms might receive from RINs leadership to overcome culturally differences and challenges that firms might face when interacting with international players. For instance, the informant in the RIN under explains that they hold seminar where the secretariat mentor members how to do business in foreign countries. Specially on those countries that are more foreign to Norwegian business culture.

“We have done some seminar, especially those internationalization seminar coming up where we have a little section on how to do business in China, how to do business in India. Specially does very foreign to the Norwegian companies or very different from Norwegian culture” (OM-03, Member service & project manager).

On the other hand, it is mentioned that Clean Water Norway (CWN), have greatly helped its members to get access to international resources. For instance, the RIN’s secretariat acts as a “bridge” between innovation Norway and firm’s members. The administration distributes information to its members about international activities and events arranged by Innovation Norway. Additionally, members can use the RIN to invite each other to join and meet international delegations coming to Norway. The Oslo municipality is an example of this. Nevertheless, this RIN, unlike Oslo Medtech, do not mentor/coach members in how to do networking in international context. Neither carry out any kind of survey in benefit of SME internationalization progress. In looking into OREE, it is found that this RIN, similar to CWN, said not to coach or mentor how to do international networking. When the CEO received the question if they mentor or coach members and partner for how to do networking, the answer was the following:

“That is a very good question- No we don’t. I am sure if we go to Sweden or Denmark is not necessary, but if you go to Mexico, India or China. Of the US... We should perhaps think about that” (EF-01, CEO).

After looking closer to internal practices in RIN, I want now to analyze the role of public institutions and the impact that the absence of public funding has in RIN.

5.2 Analyzing the role of public institutions and the impact of resources

In the last section, internal practices in RINs were analyzed. This aspect is related to research question number one- *How can the Regional Innovation Network facilitate the internationalization of SMEs?* In chapter two, the concept of RIN is introduced as an organization aiming to support and foster innovation initially within a region. After presenting the empirical data, we see that RIN is not only set up for fostering innovation, but we can also say that the concept extends to the point to include also the fostering member's internationalization process through enabling and carrying out various international practices and activities. An important finding in this work, was the level of collaboration of RIN and the national innovation system to bring SMEs to international market. For instance, empirical data shows that governmental institutions such as the National innovation system, foreign affairs offices and European programs are also involved in supporting the internationalization and interaction of SMEs.

Traditionally, the role of government and policymakers in the national innovation system has been to provide and foster a good business environment, through regulation, funding and policies among other at the national level. However, according to data, it can be observed that these institutions perform other activities that go beyond their traditional role and at the regional level. For instance, Innovation Norway¹⁵, on one hand, offers various internationalization services to SMEs aiming to reach out, including advisory relating to international markets, international networks and international trade regulations, among others. On the other hand, the empirical data shows that the agency closely collaborates with RINs in connecting Norwegian SMEs with international players. As an example, Innovation Norway, through RIN or in collaboration with RIN, exposes SMEs with international players, in countries where Innovation Norway is present. In addition, Innovation Norway works actively in bringing international delegations to the RINs in the country, allowing SMEs of scarce resources to present their business and needs to visitors. Moreover, collaboration with foreign offices abroad appeared to be an effective strategy used in Oslo Medtech. The work that these public institutions perform in RIN can be referred to as (“international”) “*innovation brokers*”. The term “*innovation broker*” is used about individuals or institutions helping enterprises to connect with

¹⁵ Innovation Norway is the Norwegian Government's most important instrument for innovation and development of Norwegian enterprises and industry (innovasjonorge.no)

relevant R&D institutions in order to solve R&D challenges that may lead to a future innovation (Svare and Gausdal, 2015:621). I called it “international” *innovation brokers* because their objective is the identification of potential international stakeholders and resources for SMEs in foreign countries. Furthermore, these governmental agencies are not standing alone in supporting RIN’s international endeavor. Earlier, I had also explained the role of supranational organization (European Commission) in financing a RIN (OREEC) and international collaboration across border through Interreg programs. By forming part of this program, the RIN can then directly expose its members and partners to their international environment and help them to access to the technology and competence available in neighbors’ countries.

In analyzing data, we can also observe that the RIN that lack financial support, it also reduces the international support to SMEs. In other words, the less funding support, the less the RIN is capacity RIN has to connect member with its international environment. For instance, in figure 4, we can appreciate different channels that the networks used to connect members. We can also observe that the CWN in comparison with Oslo Medtech and ORECC, use very few channels to enable such connection. Here, we can observe that the RIN’s function is to distribute information of international event and activities arrange or organized elsewhere. This might be because the secretariat does not receive much funding to run the RIN, other than the one received from the Vestfold county. It is nevertheless important to highlight that funding has a big impact for all RINs. In fact, all informants in the networks said that funding is a challenge for them; the RIN concept itself acknowledges the importance of public funding not only to foster innovation, but also to foster the internationalizing process of firms, members. In the case of CWN we can observe that the almost absence of no funding may explain the absence of other international activities and services as well. The empirical data shows that CWN is currently not receiving funding from the “big program” as the informant addressed. The “big programme” referred to finding program such as VRI- funding program, innovation Norway funding program or supra- national funding programs. Thus, the only economic resource for the network is coming from the Vestfold County. It came out that the secretariat has hired one person to work part time (50%) to do the administration work. The informant said that because they do not get any funding, they could not hire more people to work in the secretariat. A point I want to make here is that, where there is great absence of public funding support, or private funding, it will also significantly affect the performance of the network in bringing firms to the international market.

To summarized, we can conclude here that the empirical data is in agreement with Lundvall and Borrås (1997) point of view on governments intervention to support the development of national and regional to face the increasingly globalization of the economy and harder competition in global market. This study shows how Innovation Norway and the Ministry of Foreign Affairs Office appear to be the two public institutions most critical in supporting or backing up RINs in their endeavors to help SMEs internationalize. There are few studies analyzing the concrete reasons or motivations for governmental institutions acting as “international network brokers,” backing up RINs. One would nevertheless assume that such activities are conduct with the primary goal of improving the international competitiveness of SMEs and enhance regional economic growth. In addition, is been discussed the impact of financial support in RIN.

In the next section, I want to further look closer to the role of members in RIN and how they support each other to reach the international arena.

5.3 Collaborative members in RIN

One of main characteristics of the regional innovation Network is its vertical form of collaboration. In RIN, actors take the vertical form of collaboration. However, horizontal form of collaboration may also take place. The empirical data in this work shows that actors, member RIN often take the initiative to cooperate between them to reach out. This form of co-operation takes two forms: the first form is by inviting other members to come and meet an international company visiting the SMEs, member in RIN. Another form of collaboration is by bringing small companies with them (firm going abroad) to international joint delegation. In addition, sharing international contact among other members is also another form of inter-firm cooperation. As an example, we have the Oslo municipality with membership in RIN. According to the informant in the RIN, the Oslo Municipality is one member that “has a lot collaboration abroad” (ES-02, CEO). When an international delegation is coming to the municipality, the Oslo Municipality take contact with the secretariat to invite other members and then the secretariat forward the information among other members.

Another example is the willingness of a big international company of sharing its international contact among other small companies. Often, this big companies also arrange its own

networking events. This includes a meeting point for other members who want to get international contact. To this types of international joint activities or sharing international contact. Rosenfeld (1996) refers to this as *co-marketing*, because companies collaborate to promote their business with international players, but it can also be motivated it by the sharing of resources available among firms.

What we see here is a growing number of SMEs building more and tighter relationships with other companies to achieve greater external economies of scale, market strength, or exploit new opportunities (Rosenfeld, 1996). This tighter relationship between firms, after my point of view, may be influence by the absence of international activities and services offered by the RIN in which the firms is member. The absence of international activities in services in RIN, is in tur, is influence by public funding received and devoted to support the internationalization of SMEs. What I see here is that the more (financial) resources the RIN has, the higher is its capability to coordinate, administrate and select international markets, thus the less initiative is taken by members. Taking as an example the RIN representing the health technology sector. This RIN confirms that members, as in the case of CWN, they also come with suggestion and invitation for the secretariat and its member to travel together to international conference.

Nevertheless, unlike the informant in CWN, the informant in Oslo Medtech pointed out that the secretariat rather tries to be present in international market, there where there is a need for a larger share of companies is. Oslo Medtech, through running the RIN in a more successful way, has been able to capture more public resources than CWN. The RIN (Oslo Medtech) is better resource endowed, and this is reflected in the various activities and services the RIN offer members. A point that I want to make here is that, empirical data shows that there, where there is significant the RIN with absence of resource, the less international activities and services RINs offers to SMEs, the more firms would get involved in supporting each other.

To summarized, in this section, I had deal with three topics. In the first part, I presented the topic regarding internal practices carry out in each RIN and oriented to accelerate the internationalization of SMEs. The data shows that one out of three RINs carry out internal practices to identified international potential markets. The data shows, that unlike Oslo Medtech, neither in OREEC or CWN carry out internal practices to identify international market. The second topic is related to the role of the national innovation system and the supra-national organization supporting the internationalization of SMEs. In the third topic, I have deal with the role that SMEs in RIN play in connecting other members with international players.

In the next section of this chapter, I will analyze the data on usage benefits of RIN international services to SMEs.

5.4 Analyzing data on utilization and benefits of RIN to SMEs

This aspect is related to both research question 1) *how can the regional innovation network facilitate the internationalization of SME*, and 2) *how can SMEs managers benefit of RIN's internationalization services*. The aim of this text is to gain insights in what types of resources SMEs seek for and utilize from does international services and activities provided by RIN. In understating SMEs usage and the benefits of such services and activities to access international market, could reveal the impact and influence that RIN has on the internationalization of SME. Hence, acquiring such information will point toward answering the overall research question, which is to examine the role of regional innovation network to facilitate the internationalization of SMEs.

From the empirical data presented in the previous chapter, we can see that SMEs main benefits that SMEs gain in RIN are, a) information, e.g., *To receive information about new technology, new market, and potential partner in projects (C3, CPO). Information inn and out, we can give information and we can receive information (A1, CEO). It is to get a larger group off people to work with, it's a network exchange information, learn and share, to recognized more Medtech companies, particularly when you are small company (D6, CSO).*

B) learning and sharing e.g., *we learn about how some of the companies that very successful exporting their product, how they did it, and also they share contact with me, in can contact them, I also know one guy, when he is traveling and he meet some potential customer for our product, he promotes us, because we are Norwegian, they are Norwegian, we try to help each other (D5, sales and marketing manager).*

C) funding application and regulatory support, e.g. *I think they are doing an important job. They help us, and other companies and they facilitate activities, but also they are involved with government agencies, such as the Research Council. They are good in helping us to organize the funding mechanism in order to take the best it. As example, it's difficult to get funding in the clinical business, so what the RIN does, is that they go and talk to Innovation Norway for essence, to sort of find ways for how we can easier or what we could do to get support. For*

essence, regulatory type of support, RIN identify the needs and then they go and talk to them. (D6, SCO).

What we see here is that information and learning and funding mechanism support are the main benefits of RIN to SMEs. In table two, chapter two, we can see that (market) information belongs to first level, enabling force. While funding support mechanism is in the second level, fostering international environment. In general, we see that the majority SME's representatives, refers to information access as the main benefit gain in RIN. One firm referred to *learning how*, another firm referred to funding support mechanism as the main benefits acquire in RIN. This finding is similar to the finding in Oparaocha, & Luis (2011) work. Here the scholar found out that business advice, market information and partner search were the area where the studied SMEs have benefits mostly from institutional network. Information and information sharing is therefore important to exist in for the success of RIN. So far, this finding is in agreement with Powell (1990) who strongly appeals to information reciprocity among members of a network. *“In networks modes of resources allocation, transaction occurs neither through discrete exchange, no by administrative fiat, but through network of individual engage in reciprocal, preferential, mutually supporting action”* (Powel, 1990: 304).

Further, if we now look into the main international services and international activities that RIN offered to SMEs, such as joint delegations and cross – RIN collaboration, empirical data shows that firm's representatives did not refer to any of these services of activities that RIN said to offers to SMEs. Therefore, there is a contrast between what the regional innovations network offers and what the SMEs use and utilized in RIN to gain access to international market. This is critical because RIN's support represent significant possibilities for SMEs to gain the exposure they need in foreign market. What might the reason for this contrast? I have to explanation for this. First, it might be because the interviewer did not ask that question specifically. Asking direct question could be interpretative as “leading questions” which in turn is against the nature of the qualitative enquiry approach used in this study (Oparaocha & Luis, 2011). In considering a second reason, I would like to see it from another perspective, the intern perspective. This is, the more international - experience, network - and knowledge the firm has internal, the less the firms seems to rely on RIN as an arena to contact with its international environment.

For instance, a firm representative said, *“The RIN is a very good arena for companies that has NO international experience”* (D3, CPO). By interpreting this statement, one can assume that

this firm has international experience and refers to *other* companies that might benefit more of RIN's support. The same informant also said to access international market through other channel different from RIN, similar case in firm B2 and A1 (see e.g. table 4, question 3). Moreover, the internationalization network theory emphasis that firms can make use of different parties to enable the internationalization of business, these parties can be government agencies, and other actors that may support outward activities. The empirical data shows that firms use another "parties" other than RIN to interact with international players, thus reducing the "need" of RIN's support. As we can see in the figure six, most of the firm's managers make use of other channels to reach out. What we observe in the figure, is that firms E6 do make use of RIN as an important arena for connecting abroad, while firm A1 make uses of (international) Business network (BN). Here, the informant said to have good international business network before he become member in RIN. He explicitly said no to have need of RIN. On the other hand, Firm B2 makes uses of both Business network and social network, but also considered RIN as part of its network structure to access to the international market. In addition, the informant also said to attend regularly events in Oslo Chamber of Commerce¹⁶, which is an international business network that offer networking, expertise and consulting in international trade. Further, this informant also mentioned to work with people that have wide international experience and network.

The empirical data rather satisfied the concept of social network (SN), proposed by Aldrich and Zimmer (1986). This SN concept emphasize the interaction of any individual, firm, friend and employees connected by social relationship within a bounded population. Here we see that the connection between employees' and international players, is the result of earlier work in foreign countries. Hence, social interaction and social relation are equally important as a strategy to penetrate new business network in foreign country (Björkman and Kock, 1995)

Consequently, firm C3 and D4+D5 uses other channels to connect abroad. For instance, informant in firm C3 said to be able to find international partner through other channels such as Trade fair, paper presentation and marketing. Informant in D4+ D5 firm said that most of the time international companies get in contact with the company. In contrast, firm D6 is the only firm here participating that benefit and utilized RIN international services. In addition, the firms in collaboration with the RIN (Oslo Medtech) participate in coordinating international network

¹⁶ www.chamber.no/

projects in countries such as England and USA. This firms also seemed to be very satisfied with the financial support mechanism that this get from RIN. in figure six, the reader can see an overview of all networks use in firms, including RIN. In general, empirical data seems to point to the direction of other the use of other types of network rather than RIN.

Types of Network

RIN	x		x		
BN		x	x		
SN			x		
Other				x	x
	E6	A1	B2	C3	D4+D5 (firms)

Figure six- Network used in firms, RIN = regional innovation network, BN= business network, SN = social network, other= other types of network different Thant RIN, BN and SN.

To summarized, this data can be perceived in the way that, the use of other types of network may explain why firm’s representatives do not make uses of RIN resources to access the international environment. I want now go over to another topic. The general opinion of SME’s representatives on Regional innovation network.

5.5 SMEs representatives and their views on RIN

In general, firm’s representatives have a positive opinion about RIN. They referred to RIN and the job that RIN does as: a) important, e.g., *“I think they are doing and important job. They help us and others and they facilitate international activities”* (E6, Chief Strategy officer). Another informant said, *“I think the RIN is important part of our network”* (A1, CEO). Further, the CEO in firm A1 said, *“there are important, I like what they are doing, although I do not need them so much. I am sure that there are many other companies that does”* (A1, CEO).

b) RIN an Arena for SMEs with no international experience. Here, we see that informant in firm C3 regards of RIN as *“a very good arena for companies that that has not international experience. They (RIN) could be the arena for building their first network of partners”* (C3, chief Process Officer). lack of international knowledge and experience to enter foreign market is one of the barriers that SMEs meet when trying to penetrate the market. The empirical data

shows that this specific firm is aware of obtaining this benefit in RIN. Although this firms have low dynamic capability of participation in RIN, the informant still consider that RIN might be of benefit for other companies.

Moreover, informant in B2 firm also said something that caught my attention. He said, - *I think they (RIN) should know more what they are selling-* At first, I was unsure what the informant wanted to say with this, so I asked- why you mean with that? What the informant explains following my question, was that often SMEs hired new people to work in the organization. What he sees, is the need of the secretariat or RIN to be update on this regard. To come and present themselves to the new people in the company, and aware them of the international services and activities RIN can offered to the firm. In this way, both RIN and organizations can benefit of each other.

Svare & Gausdal (2005) refers to this service as *Individual Innovation Broker (IIB)*. In addition, IIB is an individual innovation broker who visits regional enterprise in order to identify their innovative potential or challenges. Moreover, the same informant also mentioned another word that I found it interesting, *network structure*. He referred to *network structure* to the use and interaction in various network to access international market. These includes RIN, the Oslo Chamber of Commerce, and social network. This informant is currently running a company with huge potential in international market, and is busy in searching for international investors and commercialization of its product in international market. In addition, the company (SME) closely collaborate with different actors of the regional and national innovation systems, such as universities, regional innovation funding programs, such as Programme for Regional R&D and innovation (VRI), and Innovation Norway. In general, the informant saw to have positive opinion on RIN as it is considered part of its network structure.

In general, all the firm´s representatives had a positive opinion in Regional innovation network. although their participation and interaction in RIN, is not positive.

5.5.1 Conclusion

The current study set out to examine how the regional innovation network facilitate the internationalization of SMEs in three different industries. To make this topic researchable, the state research problem was narrow down to the following research questions:

- *How can the regional innovation network (RIN) facilitate the internationalization of SMEs?*
- *How can SMEs managers benefit of RIN's internationalization services?*

In order to answer these questions, a qualitative case study was designed it. The aim of this study has been to gain insights in how RIN facilitate the entrance of SMEs to the international market. The main argument in this work has been that, lack of internal resources in SMEs to internationalized their business, are alleviate with the support of the regional innovation network. The finding indicates that RIN facilitate such entrance by collaborating with other RIN in foreign countries, by bringing joint delegation of SMEs to international conferences and exhibitions, as well as coordinating international network projects. The finding also indicates a close collaboration between RIN and governmental agencies, and European program to achieve this goal. Further, the empirical data also shows collaboration among members of the RINs for connecting each other and sharing international contacts among them.

Further, the analysis shows that the primary benefits of RIN to SMEs are market information, learning and funding mechanism support. It is also found that few firms use and utilized the international resources available in RIN to access international resources. In addition, relative low dynamic capabilities of firm's participations are also found. In section 5.4, I made an attempt to explain what might be the reasons for the low dynamics capabilities of participating firms in RIN. I also presented some possible explanations of why SMEs do not use the external resources that RIN offers to access international market. In term of views on RIN, the analyses show that the majority of SME's representatives have a positive view on the regional innovation network. Representatives acknowledged the importance of the job that RIN is doing in international context.

To summarize, the main finding shows that the regional innovation network (RIN) practices three forms of collaboration to support firms to reach out. These are cross- RIN collaboration, collaboration with governmental agencies, inter- firm collaboration and joint delegations in international conferences and exhibitions. Together, these activities and services

in RINs aim to help SMEs lack of resources and to overcome challenges to internationalize their businesses. In term of SME's usage and benefits of these services, I found that SMEs rather benefits of market information, learning and funding support mechanism. Lastly, finding suggest the SMEs uses other types of network to interact with its international environment and because of this reason, it is not easy to point out the general impact of RINs on SMEs internationalization capability.

5.5.2 Limitation and implications for further research

This case study is limited since each regional innovation network was analyze separately. Further, the scope is narrow down to cover only international activities and services carried out in RINs. Going in to detail in each regional innovation network, would have strengthened the implications. A master thesis has tight time and scope and limited space. Therefore, I deliberately chose to limit each RIN- case studied and to cover only international activities and services in order to gain insight and data on that specific data. Furthermore, examining the implication of how RIN might work to activate or increase the level of SMEs usage and utilization of RINs international resources could have been interesting for further research.

5.5.3 Policy implication

The present analyses show how three different regional innovation network, in three different industries facilitate the internationalization of SMEs. Providing SMEs with external resources is vital for its international expansions and competitiveness. Small and medium-sized enterprises (SMEs) play an important role in the economy, since they represent a major source of employment and generate significant revenue and export earnings. Therefore, competition policy must be adapted to the new conditions where inter-firm co-operation and international alliances (network) must be promote at the regional and national level. At the national level, government can for example support SME's international network by: 1) promoting awareness, 2) facilitating of informal contact and thematic working group, 3) helping to bring firms to collaborate by supporting brokerage¹⁷, 4) Supporting collaborative facilities and technical services and 5) Providing financial support for networks and inter-firms co- operation (Lundvall and Borrás, 1997: 110).

This work has focused on the facilitation of international network through regional innovation Network. In looking closer to the point five- *providing financial support*- this study also reveals that the RINs here studied shares a common challenge. A common challenge for all these RINs is financial support. According to the information provided by RINs leaders, the need to increases their budget to carry out international activities and services planned in the RIN is a priority. In this context, if the aim is to create competitive firms in the international market, the result of this work might be a called for both regional and national authorities to increase RIN internationalization budget.

¹⁷ Innovation broker or brokerage is used about individuals and R&D institution helping enterprise to connect with relevant R&D institutions in order to solve R&D challenges that may to future innovation (Svare and Gausdal, 2015). These definitions are close to RINs definition.

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7 Appendices

7.1 Coding of RINs data material (1a)

<p>Facilitating the interaction of SMEs members with international platers</p> <ul style="list-style-type: none">• Cluster to cluster collaboration in Minneapolis• Cluster to cluster collaboration- In Network projects• Cluster to cluster collaboration in Nordic countries• Collaboration with Foreign affairs offices• Collaboration with Innovation Norway foreign offices• Meeting with innovation Norway in India• Visitor from innovation Norway• CWN, Innovation Norway’s contact point• Innovation Norway – Oslo Medtech- and firms collaborating together to enter a new market• <p>Network projects</p> <ul style="list-style-type: none">• (Business)Network projects in collaboration with innovation Norway• Network projects• Network projects funded by Interreg• <p>International activities</p> <ul style="list-style-type: none">• Joint delegation• Meeting, workshop and seminars <p>The secondary outcome of Joint delegation</p> <ul style="list-style-type: none">• Trust• New projects may come out• Strengths Building network among companies abroad• Cooperation abroad makes the network stronger	<p>Role of the cluster</p> <ul style="list-style-type: none">• Engage firms with key stakeholders• Usage and position of RIN to exposure firms• Effective use of resources available• Door opener• Knowing the members and member’s need• Mapping potential future international market <p>Funding supporting RIN</p> <ul style="list-style-type: none">• Interreg program• Aker county• Innovation Norway• Vestfold county <p>Factor inhibiting the function of RIN</p> <ul style="list-style-type: none">• Funding• Challenges• “sleeping members”/ non- active members• Small secretariat• Leadership• Administrative level <p>Internal procedure in RIN</p> <ul style="list-style-type: none">• List of possible participants• Mapping international top market• Team work
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7.2 Coding of firm's data material (2b)

<p>Reasons for been part of RIN</p> <ul style="list-style-type: none"> • Complementary network • Learning • Partnership • Information <p>Dynamic capabilities of participating firms</p> <ul style="list-style-type: none"> • (never)Irrelevant activities • Occupied • Twice a year • Twice a moth <p>Opinion/point of view on RIN</p> <ul style="list-style-type: none"> • Door opener • Important • Good arena for companies that does not have international contact 	<p>Internal International experience</p> <ul style="list-style-type: none"> • international partner with worldwide connection • Synergy effect of international partners • Internal international experience of employees • International partnership collaboration <p>Sharing international contact among members</p> <ul style="list-style-type: none"> • Responsibility of helping other members • Working together for later sharing
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8 Interview guide

The aim of this text is to strengthen the transparency and trustful of this work by providing the interview guide use to conduct interviews. First I will present the interview guide for SMEs with international experience, follow by the interview guide for RINs.

8.1 Interview guide for SMEs with international experience

1. Basic information

- a) Names of informants; position in the company
- b) Reasons for partnership in RIN

2. Dynamic capabilities of participation on RIN

- A) How often do you participate in RIN activities and events, weather national or international oriented types of events?
- B) What can be reasons for participating in these events?
- C) What can be the reasons for not participating in such events and meetings?

3. Regional innovation network international support

- A) What might the reason for collaborating with international actors?
- B) Have your company search for international partner or network access?
- C) How do you get contact with the international partners that you currently collaborate with?
- D) Have you been able to get access to international partner through the RIN?
- E) How the RIN help your company to get access to international resources?

4. Opinion

- A) In general, what is your opinion or experience in RIN?
- B) Do you have a membership in another network?

Is there something else that you would like to add before ending this interview?

In that case, I have not more question, but may I contact you if there is any need for further information?

Thank you so much for participant in this study, your time is really appreciated!

8.2 Interview guide for regional innovation networks (RIN)

1. Basic information

- A) Position in the RIN
- B) Period of involvement in the RIN
- c) Experience in international environment

C) International support to SMEs

- A) Could you please tell me how the RIN support or facilitate the internationalization of SMEs that wants to reach out?
- B) What kind of activities or services the RIN offers to these SMEs?

2 Intern procedure

- A) How do you inform companies about international activities?
- B) How do you select companies participating in international activities?
- C) What do you see after when choosing a country, you want to collaborate with or a country that you want to establish a relationship with?
- D) How long time it takes to establish a relationship in foreign countries
- E) Do you offer seminar on how to do networking international or how to interact with international players?

3 Challenges

- A) Are there any challenges that prevent RIN from supporting SMEs to reach out?
- B) How does RIN work to overcome such challenges?

Is there something else that you would like to add before ending this interview?

In that case, I have not more question, but may I contact you if there is any need for further information?

Thank you so much for participant in this study, your time is really appreciated!

9 Invitation from the Norwegian Embassy to Oslo Medtech (3a)

Nordic Life Science Days

Svensk–norsk dialog og
nettverkskveld

Norgesambassade,
[REDACTED]

Velkommen

Ambassadør [REDACTED]

Verdiskaping fra Life Science i Norge og Sverige – en politisk satsing?

Anders Lönnberg, nasjonal samordner for Life Science, Stockholm

Karita Bekkemellem, administrerende direktør, LMI, Oslo

Fra grenseprengende forskning til ny behandling?

Olli Kallioniemi, direktør SciLifeLab, Stockholm

Finn-Eirik Johansen, direktør for Livsvitenskap, Universitetet i Oslo

Sverige og Norge: en attraktiv region for Life Science?

Jan-Olof Jacke, administrerende direktør, AstraZeneca

Thomas Ramdahl, administrerende direktør, Bayer AS

Støtteordninger for innovasjon og verdiskaping

Anne Kjersti Fahlvik, direktør for innovasjon, Norges forskningsråd

Jenni Nordborg, direktør helse, Vinnova

Helseinnovatørskolen – et norsk-svensk samarbeid

Marianne Schulzberg, professor, Karolinska Institutet

Hilde Nebb, professor, Universitetet i Oslo

Bjarte Reve, administrerende direktør, Nansen Neuroscience Network

Networking og tapas 19.00 –20.30