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MASTER'S THESIS

**THE EU REGIONAL INNOVATION POLICY MEASURES FOSTERING
NON-TECHNOLOGICAL INNOVATION IN SMES: CASES OF
SLOVENIA AND ITALY**

Ljubljana, March 2015

LARA DEVETAK

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The undersigned Lara Devetak, a student at the University of Ljubljana, Faculty of Economics, (hereinafter: FELU), declare that I am the author of the master's thesis entitled THE EU REGIONAL INNOVATION POLICY MEASURES FOSTERING NON-TECHNOLOGICAL INNOVATION IN SMES: CASES OF SLOVENIA AND ITALY, written under the supervision of prof. dr. Miha Škerlavaj and co-supervision of prof. dr. Marko Jaklič.

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INTRODUCTION

“Great innovative breakthroughs, those that can create a Medici effect, can be explained by the intersection of disciplines and cultures” (Johansson, 2006).

To overcome the crisis and to achieve a smart, sustainable and inclusive growth, the European Union (hereinafter: EU) has decided to develop the Europe 2020 strategy (European Commission, 2014b). Among the seven flagship initiatives identified to boost growth and jobs there is also the Innovation Union, because the European Commission (2011a) stated: “We are facing a situation of ‘innovation emergency’. [...] We need to do much better at turning our research into new and better services and products if we are to remain competitive on the global marketplace and improve the quality of life in Europe”. The European Union has realized that it is very important to focus on the innovation and knowledge economy, because the recovery from crisis’ negative effects is not over and with many global competitors there is a risk of losing leadership (European Commission, 2011b).

Why is that important with innovation? Innovation is a source of competitive advantage in the current worldwide economy (Dess & Picken, 2000). In the past, the concept of innovation was mainly associated with the idea of a new technology, but in the last years a new view on innovation has spread and it considers the soft, non-tangible aspects of innovation, for example innovations in management or in organisation (OECD, 2011). Firms that want to be innovative should be aware that both technological competences and skills in other fields (e.g. marketing and management) are important (Mothe & Thi, 2010). With a broadened concept of innovation beyond its traditional technological dimension it is possible to have a more complete and better understanding of firms’ innovation capability (Evangelista & Vezzani, 2010).

There is a problem in definition, or better, in the confusing terminology used to define non-technological innovation, because different authors use different terms to define the same concept or use the same term for different concepts. The term non-technological innovation is often understood as a synonym for organisational or management innovation, but actually this term encompasses all the non-technological forms of innovation (Černe, 2013). Hence, the term non-technological innovation is used as a comprehensive term that also includes management and organisational innovation.

Master’s thesis topic area. Innovation is influenced by many internal (at the firm level) and external factors (business environment characteristics). A focus on the institutional determinants fostering innovation and in particular non-technological innovation was drawn: an investigation was conducted on successful innovation policy measures stimulating non-technological innovation. Innovation is an essential element to foster economic growth, but an adequate public policy support is necessary in order to exploit positive effects of innovation (OECD, 2010). In order to implement effective policies the characteristics of the innovative process need to be deeply examined (Hollanders, Léon Rivera, & Roman, 2012).

Many authors analysed the influence of public policies on innovation and Paraskevopolou (2012) pointed out the influence of regulation on innovation and innovation policy and in particular highlighted the potential of non-technological regulatory impact. Furthermore, the role of the state is very important in designing such an environment that stimulates effectively innovation activity (Bučar & Stare, 2003). Instead of considering a single state, EU innovation policy effects on fostering non-technological innovation were considered in order to have a supranational perspective and still consider a single entity (i.e. the EU). The concept of non-technological innovation is increasing at EU level, but many EU programmes still target only technological innovation and research and development (hereinafter: R&D) without mentioning non-technological innovation in an explicit way (Schade, Saublen, Mancini, & Di Anselmo, 2011).

Černe (2013) pointed out that in some cases management innovations have a bigger impact on financial performance for firms compared to the contribution of technological innovations. Hence, it is important investigate the ways, in which EU takes advantage of the potential of non-technological innovation. Organisational innovations can contribute to firms' competitive advantage as they are primarily based on knowledge and cannot be defined or copied in terms of technical innovations (Alänge & Jaryehammar, 1998). Unfortunately, programmes aimed at innovation support do not appropriately address non-technological innovations, despite the fact that such forms of innovation are considered significant competitiveness factors for all types of firms (Schade et al., 2011). In addition Paraskevopoulou (2012) said that often innovation policies do not target organisational characteristics even if their role in the firms' innovation process is acknowledged.

Instead of considering all the EU innovation policies and their effects in 28 member states, the emphasis is on innovation aspects in the EU regional policy with a geographical focus on Slovenia and Italy. It is important to study and analyse innovation policy effects in EU programmes at the regional level including Slovenia and Italy together. Particular attention is dedicated towards European Territorial Cooperation programmes for the period 2007-2013. It is interesting to compare the business environment of an old EU member state with the business environment of a new one that still has some influences from the transition period. Furthermore, the common macro-region can be considered from different points of view (i.e. cross-border or transnational): Alpine space, Central Europe, South East Europe and the Mediterranean region.

Some authors developed theories on the national innovation capacity. Furman, Porter, and Stern (2002, p. 899) defined it in the following way: "The ability of a country to produce and commercialise a flow of innovative technology over the long term". Other authors elaborated this idea further and introduced the concept of national innovation systems (Lundvall, Johnson, Andersen, & Dalum, 2002). It is preferential to focus on regional innovation systems, because both leading and lagging regions are relevant for the national economies' rise (OECD, 2009a). Some economists considered the sub-national regional innovation systems essential for economic growth even if national systems are complementary to them (Freeman, 2002). Furthermore, various EU regions evolved in different ways due to diverse effects of innovation and technology in their areas (Crescenzi & Rodríguez-Pose, 2011).

I needed to be more specific and study non-technological innovation fostered by EU regional innovation policy in small and medium-sized enterprises (hereinafter: SMEs). Regions differ in terms of innovation systems and in terms of factors hindering innovation in SMEs (Isaksen, 2003a). The focus shall be on SMEs, because on average 99 % of all firms in the area of the Organisation for Economic Co-operation and Development (hereinafter: OECD) are SMEs and in addition SMEs contribute significantly to employment and to value added and more in general to economic growth (OECD, 2010). Gallego, Rubalcaba, and Hipp (2013) highlighted that for small firms organisational innovations have an essential role. Hence, it is important to investigate the relation between non-technological innovation and SMEs.

There is the need to examine in depth emerging trends in innovation policy and in particular to focus on measures fostering service and non-technological innovation by researching possible actions and strategies at the regional level (Schade et al., 2011). Hence, the research questions are: What are the key elements of effective EU regional innovation policy measures fostering non-technological innovation in SMEs? How non-technological innovation, projects co-funded by EU programmes with SMEs and territorial development are related?

Purpose and objectives of the master's thesis. The purpose of this master's thesis is to research and identify those EU regional innovation policy actions that successfully foster non-technological innovation in SMEs, with a focus on EU programmes including Slovenia and Italy. In this way a contribution to investigating an important external factor that influences non-technological innovation and regional innovation policy at the institutional level (EU) can be made. Additionally the importance of non-technological innovation in general and for SMEs is highlighted. I consider the EU regional innovation policy in the sense of focusing on measures fostering innovation within the EU regional policy. Through a literature review of the selected topics it is possible to determine the drivers of non-technological innovation and then to examine in depth adequate policy measures in the empirical part.

For the research and work two specific objectives were set, which are helpful in achieving the master's thesis purpose. The latter are: (1) a review of existing literature in the areas of innovation in general and of non-technological innovation in particular, of the regional innovation policy and SMEs, of the EU innovation policy and of the EU regional policy with the aim to find elements of non-technological innovation in innovation policy measures; (2) an in-depth analysis/investigation on the non-technological innovation in SMEs, on the regional development and on the EU programmes' impact on the considered area by conducting empirical research with interviews of representatives of SMEs, institutions and stakeholders involved in EU programmes including Slovenia and Italy.

Methodology. In the master's thesis simultaneous work on four thematic areas is undertaken: on non-technological innovation, on the EU innovation policy, at the regional level (i.e. specifically Slovenia and Italy) and the focus on SMEs. A multilevel approach is applied as business environment characteristics as well as an institutional factor are considered. The latter factor is the EU with its innovation policy at the regional level (the macro perspective), but at the same

time the firm level is taken into consideration (the micro perspective), as by means of interviews with SMEs and stakeholders different points of views are provided. Due to empirical research on existing projects co-funded by EU programmes with SMEs including Slovenia and Italy the top-down and bottom-up policy effects are considered. Damanpour and Aravind (2012, p. 436) said: "Innovation is a multidimensional construct". According to the complex nature of innovation a relevant approach is to combine micro and macro levels of theories (Crossan & Apaydin, 2010). Furthermore, Černe (2013) pointed out that multi-level research is particularly appropriate in studies on non-technological innovation.

In the theoretical part there is a review of the existing literature on the research topics including books, essays and articles from various web databases (e.g. SAGE Journals Online, Emerald) and from EU official websites. Literature will mainly be in English, but literature in Slovenian and Italian will also be used, if relevant. The descriptive method shall be used to illustrate the main concepts and critical analysis of different points of views of authors. In the empirical part there will be a focus on EU programmes including Slovenia and Italy targeting SMEs, in particular on programmes of the EU Cohesion Policy during the period 2007-2013 addressing the European Territorial Cooperation objective (i.e. cross-border and transnational programmes).

By reviewing projects co-funded by the EU including Slovenia and Italy the appropriate representatives of organisations to conduct semi-structured interviews were selected: SMEs, institutions at different levels and relevant stakeholders of the considered area involved in the EU programmes. With semi-structured interviews it is possible to explore in depth the research topics in a flexible manner (Bryman & Bell, 2007). Non-technological innovation is a relatively new concept and so it is very useful to investigate it empirically in order to get a big picture of EU regional innovation policy measures' effects in the considered area (i.e. Slovenia-Italy) and to identify drivers of non-technological innovation in SMEs.

Mainly qualitative data and some quantitative data are used in this research in order to provide an appropriate representation of the main issues and a clear understanding of the research questions. The empirical part consists of qualitative research, where primary data are obtained via 21 interviews. Interviews' transcripts are analysed with NVivo software following the template analysis method. Due to the elaborated information together with the analysed secondary data (e.g. documents, reports) it is possible to answer the research questions.

Master's thesis structure. In the first four chapters of the master's thesis the elements of non-technological innovation in SMES that are present in different literature coherently are identified. The first chapter presents non-technological innovation's characteristics, while the second chapter deals with regional innovation policy in general. The third and fourth chapters are focused on the EU, where the EU innovation policy and the EU regional policy respectively are considered. The fifth chapter describes the empirical research that was conducted on cases of Slovenia and Italy with 21 semi-structured interviews, also by explaining the methodology and the template analysis method. The sixth chapter presents the main findings of the study, while in the final chapter the results were evaluated in terms of theoretical and practical contributions.

1 non-technological innovation

In the past many social scientists accepted the logical sequence of invention, innovation and technological change, assuming that innovation happens before technological change (Ruttan, 1959). With time, instead of the traditional concept of innovation associated with the technological change a new, wider concept of innovation has been developed and it also includes the non-technological aspects. The use of the concept of innovation developed due to Schumpeter, who was the first that recognised the importance of innovation (Ruttan, 1959).

In Schumpeter the concepts of innovation and entrepreneurship are interrelated (Hagedoorn, 1996), as Schumpeter (1947, p. 151) identified the defining characteristic of the entrepreneur and his function as “the doing of new things or the doing of things that are already being done in a new way (innovation)”. In addition, Schumpeter (1935) pointed out the fact that the economic change, besides outside factors and the growth factor, is influenced by innovation, defined as a change in production function. Schumpeter provided different definitions of innovation, using for example the production function or also the new combinations approach, since he tried to understand the complexity of technological development (Hagedoorn, 1996). Schumpeter was aware of the complexity of the concept of innovation and Hagedoorn (1996, p. 887) claims “Schumpeter’s definition of innovation as ‘new combinations’ is also rather broad as it relates to technical, marketing and organisational aspects of the subject”.

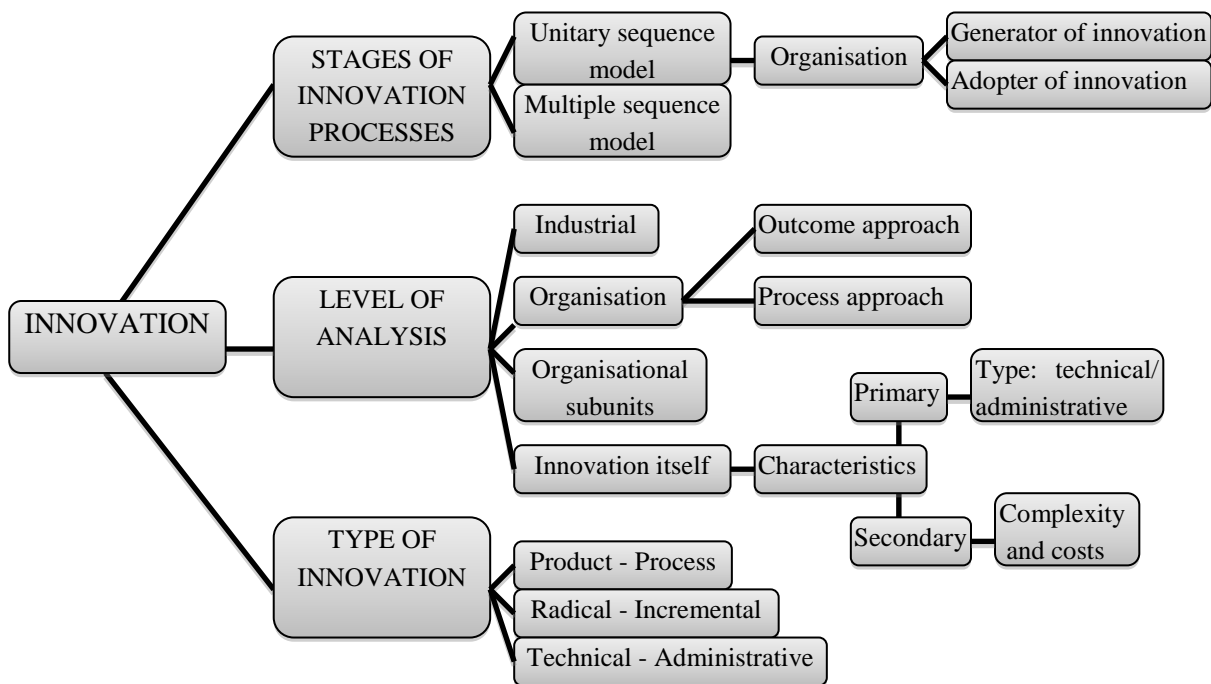
Innovation is significant in many fields: it boosts economy, it improves firms’ performance, it contributes to industrial competitiveness, and it makes a better standard of living (Gopalakrishnan & Damanpour, 1997). Numerous researchers and practitioners recognised this fact, as there are plenty of academic papers and various business ranking/indices about innovation (Crossan & Apaydin, 2010). According to the OECD (2010, p. 15) “innovation is one of the most fundamental processes underpinning economic growth, the driver of growth in output per unit of labour and capital invested, and an important basis for developing solutions to economic and social challenges such as climate change, ageing societies and poverty”. The ability to innovate successfully is a strategic resource, because organisations that keep introducing effective innovations can be competitive and have high performance (Gopalakrishnan & Damanpour, 1997).

1.1 Dimensions of innovation

Innovation is a multidimensional and complex concept. Many authors gave different definitions and considered various aspects of the aforementioned. Hence, in order to understand the different perspectives on innovation it is relevant to take different approaches with openness and interdisciplinarity (Malerba & Brusoni, 2007). Gopalakrishnan and Damanpour (1997) prepared a review of innovation research with the aim to analyse the existing studies on innovation in different fields, since there was a proliferation of innovation studies and theories due to the great relevance of innovation.

Innovation is as an essential instrument to adapt to change (Gopalakrishnan & Damanpour, 1997). There is not a single definition of innovation that is generally accepted and researchers from different groups interpret this concept in a rather different way, therefore it is important to cross-fertilise research ideas across different areas to fully understand innovation (Gopalakrishnan & Damanpour, 1997). Figure 1 presents the three dimensions and the subgroups, in which Gopalakrishnan and Damanpour (1997) grouped in their review the various researchers' conceptualisations on innovation. Innovation can be seen as a process with different stages, where the organisation can be understood as a generator or an adopter of innovation; in addition innovation can be analysed at industry level, at the level of organisation or of its units and at the level of the innovation itself (Gopalakrishnan & Damanpour, 1997).

Figure 1. Dimensions of innovation



Source: S. Gopalakrishnan & F. Damanpour, *A Review Economics, of Innovation Research in Sociology and Technology Management*, 1997.

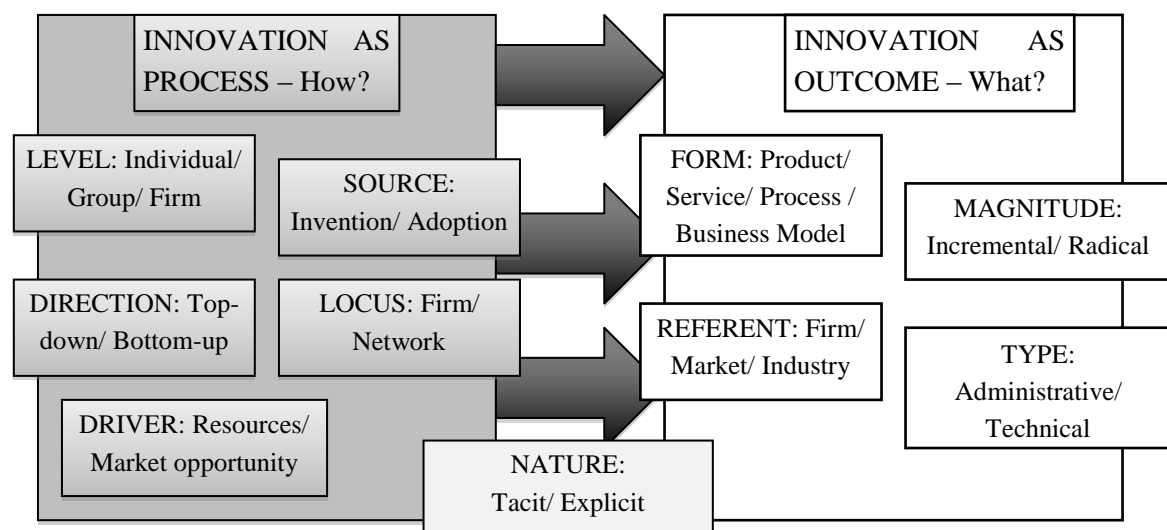
Gopalakrishnan and Damanpour (1997) examined the type of innovation separately, instead of considering it just an innovation attribute, and they distinguished between product and process innovation, between radical and incremental innovation and between technical and administrative innovation. According to Ouden (2012) the creation of value is an important characteristic of innovations and in particular transformational innovations (i.e. that create at the same time value for users, for organisations, for ecosystems and for society) are relevant, because they could help solve society's challenges. Such innovations are meaningful for the society and make users change their behaviour, also by recognising needs that are still unknown to users (Ouden, 2012).

Geroski (2007) makes another distinction between two types of innovation: (1) sustaining innovations that enable consumers to do the usual things in a more rapid and efficient way; (2) disruptive innovations, using the term coined by Christensen (2014), that enable consumers to do new things or usual things in a different way, with completely diverse product characteristics. Crossan and Apaydin (2010) prepared a systematic review of the literature of organisational innovation (where the term ‘organisational’ is used to define the highest level of analysis in the considered literature), but more in general they examined in depth academic research on innovation.

Crossan and Apaydin (2010) also provided a definition of innovation, by re-adapting the concept of innovation used in the European Commission Green Paper of Innovation. According to Crossan and Apaydin (2010, p. 1155) innovation is “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome”. The novelty element was already present in Schumpeter’s definition of innovation (and it can be regarded both in absolute and in relative terms); in addition the value-adding function of innovation is pointed out and the double view on it (i.e. process,outcome) (Crossan & Apaydin, 2010).

Figure 2 presents the dimensions of innovation identified by Crossan and Apaydin (2010) in their review and they are presented in a multi-dimensional framework. Dimensions of innovation as a process come before the dimensions of innovation as an outcome and include also the direction (i.e. whether the innovation is top-down or bottom-up), the level of analysis, the locus (i.e. whether it is an open or closed process of innovation) (Crossan & Apaydin, 2010).

Figure 2. Dimensions of organisational innovation



Source: M. M. Crossan & M. Apaydin, *A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature*, 2010.

Among the dimensions of innovation as an outcome there is form (i.e. product or service, process and business model innovation), magnitude (i.e. the level of innovation novelty) and type (i.e. technical or administrative) (Crossan & Apaydin, 2010). However, there is not a single theory on innovation that matters for all levels and it would be necessary to design research also including higher (i.e. macro) levels and to move in the direction of a multilevel approach (Crossan & Apaydin, 2010).

Chesbrough (2006) is the first that used the concept of open innovation. Chesbrough (2006, p. 2) defines it as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively”. Innovation does not occur only inside an organisation, in a close context, but it can also benefit from the external environment (Chesbrough, 2006). An open innovation approach has been well accepted in order to let the ideas flow and interact between various organisations (Ouden, 2012). Another concept that has spread in the last years is social innovation, which includes new ideas, taken and used to determine societal changes (Ouden, 2012). These are complex shifts in citizens’ behaviour that involve many actor groups in order to manage challenges (Ebersberger, Herstad, Iversen, Som, & Kirner, 2011).

1.2 Non-technological innovation’s features

As it has emerged in various literature reviews, innovation is a general and broad term that includes different dimensions and multiple meanings (Crossan & Apaydin, 2010). Focusing on the innovation type, Daft (1978, p. 197) took the definition from Evan (in Daft, 1978, p. 197) and distinguished between the following: (1) technical innovation, that could be a new product, process or service and one that is usually related to technology; and (2) administrative innovation, which could take the form of policies of recruitment, allocation of resources, the structuring of tasks and one that is normally connected to the social structure of an organisation. In the past, the majority of studies considered only one aspect of innovation (technical innovation) and did not take in account administrative innovation that is in the same way relevant for the development and the success of an organisation (Damanpour & Evan, 1984).

When changes in core technology are necessary technical innovations occur, but when an organisation deals with changes in goals, policies, strategies and other “soft” aspects, there is space for an administrative innovation or for a coupling of both (Daft, 1978). When a firm develops a business strategy it has to consider the complexity of technology, but in addition it should pay attention to the interfaces between technology, organisation, and strategy (Malerba & Brusoni, 2007). Hence, an organisation forced by the environment to make changes in its strategy or structure will improve its performance only if it will implement administrative and technical innovations and consequently the social and technical spheres in a balanced way (Damanpour & Evan, 1984).

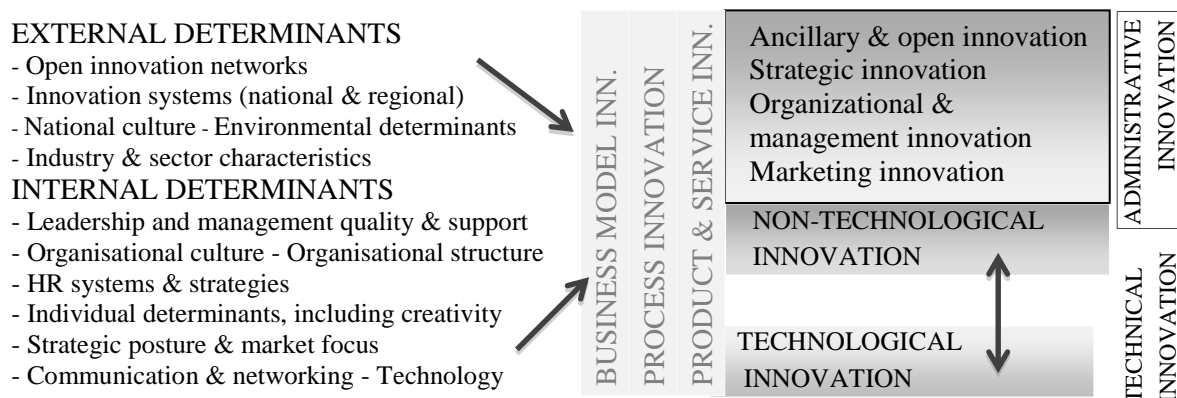
Firms create technological innovations such as new products and processes, but also non-technological innovations (e.g. new business models and organisational methods) (OECD, 2011). In the OECD Innovation Strategy it is pointed out that innovation is not just related to science and technology, but it includes also other forms of innovation (new organisational methods, marketing innovations) that can improve firms' competitiveness, productivity and value creation (OECD, 2010). Furthermore, the idea that innovation has non-technological aspects is present in the third edition of the Oslo Manual, where organisational and marketing innovation are introduced; definitions and examples of different types of innovation (i.e. product, process, marketing and organisational innovation) are provided in Annex B of the Oslo Manual (OECD, 2005). The concept of non-technological innovation is getting more important, especially in relation to firms' and organization's competitiveness (Pereira & Romero, 2013).

Černe (2013) underlined that various scholars use different terms to define non-technological innovation, which often overlap (administrative innovation, organisational innovation, management innovation), and that it is problematic to choose a single term to define any non-technological innovation. Damanpour and Aravind (2012) decided to use the term managerial innovation in their literature review, setting it against technological innovation. The concept of innovation is extensively used and differently defined according to the particular study that is conducted (Damanpour & Evan, 1984). With the term non-technological innovation all the "soft" aspects of innovation are considered with various sub-contexts of research and these kinds of innovations are interesting since they do not need very big investments (Černe, 2013). Hence, it is important to focus on non-technological aspects of innovation and during the research the term non-technological innovation is used, which includes organisational, management and administrative innovation.

Černe (2013) developed an interesting framework on types and determinants of non-technological innovations, based on his qualitative literature review, science mapping, and co-citation analyses results, which is presented in Figure 3. The antecedents of non-technological innovations identified by him are distinguished between internal and external ones and in some cases they are similar or the same as determinants of innovation understood over-all (Černe, 2013). Internal determinants are organisational culture, organisational structures, HR systems and strategies, and knowledge management, leadership, individual determinants, strategic posture and customer/market focus, new technology, internal communication and external networking (Černe, 2013).

External determinants of non-technological innovations are open innovation networks, institutions, and national and regional innovation systems, national culture, sector and industry characteristics and environmental determinants (Černe, 2013). Regarding the type Černe (2013) followed the distinction technical versus administrative and consequently distinguished between technological and non-technological innovation, which includes ancillary and open innovation, strategic innovation, organisational and management innovation, and marketing innovation. In terms of the innovation form Černe (2013) identified product and service innovation, process innovation and business model innovation.

Figure 3. Framework on types of non-technological innovation and on determinants of non-technological innovation



Source: M. Černe, *A Multilevel Approach in Examining Non-technological Innovation*, 2013.

Different authors recognised the importance of non-technological innovations either on their own or together with technological innovations. Schmidt and Rammer (2007) in their empirical research discovered that technological and non-technological innovations are connected both at sector and firm level; in particular a combination of technological with non-technological innovations can have a positive influence on the profit margin of firms. Černe (2013) pointed out the relevance of knowledge exchange and developed IT systems to enable management innovation and the positive contribution of management innovation to technological innovation. Gallego et al. (2013) showed that in order to have a better innovation performance it is important to combine product and process performance with organisational change and that organisational innovation is important in particular for small firms involved in technical innovation.

Evangelista and Vezzani (2010) found out that the joint combination of product, process and organisational innovations confers firms a competitive advantage, while Schmidt and Rammer (2007) identified that firms introducing product and process innovations with both marketing and organisational innovations have better performance in terms of sales and cost reductions than those firms with only technological innovations. Mothe and Thi (2010) recognised that with both organisational and marketing innovations firms tend to have new or improved products/services capacity, but these types of innovation do not impact firms' innovative performance.

1.3 Entrepreneurship, SMEs and innovation activity

Schumpeter (1947) was the first that enlightened the fundamental relation between entrepreneurship and innovation. They are tightly connected, because both entrepreneurship and innovation include elements of novelties and exploitation of opportunities (Crossan & Apaydin, 2010). Moreover, in many empirical studies it is demonstrated that entrepreneurship and SME activities contribute through innovation to economic growth and job creation, because they use new resources and have a bigger productivity (OECD, 2010).

Amabile, Conti, Coon, Lazenby, and Herron (1996, p. 1154) say: “All innovation begins with creative ideas”. Qualified, creative and entrepreneurial people are necessary for innovation and for a competitive economy (Bučar & Stare, 2003). Individual-level incentives can be important for innovative activity and performance; they are not only intended as extrinsic incentives (i.e. pecuniary incentives), but they can also be intrinsic or social incentives (Cohen & Sauermaun, 2007). In order to foster innovation activity it can be useful to develop integrative thinking, by synthesising opposing ideas in a creative solution, and to take a transdisciplinary approach, which can be transcultural and transnational (Ouden, 2012).

Innovation can be seen a successful implementation of creative ideas within an organisation, where the social and work environment can impact creative behaviour (Amabile et al., 1996). Johansson (2006) wrote a fascinating book, *The Medici effect*, where he explains that in order to develop valuable and realised innovations it is necessary to step into an intersection of fields by bringing together different disciplines and cultures. There it is possible to find their meeting point and create new and amazing intersectional ideas from these combined concepts, obtaining a Medici Effect (as the incredible explosion of creativity fostered by the Medici family during Renaissance in Italy) (Johansson, 2006). Creativity and multidisciplinary should not be neglected in innovation studies.

New and small firms have acquired more relevance in the innovation process, because economies of scale in research and development are not more barriers to their innovation activity, but instead new and small firms can cooperate with consumers, universities and other organisations to develop innovations (OECD, 2010). Furthermore, the increasing importance of services has brought new types of innovation (i.e. non-technological ones) and consequently it has reduced the role of economies of scale in R&D, therefore SMEs and entrepreneurship have more opportunities (OECD, 2010). The role of SMEs and entrepreneurship in innovation is to provide new developments in products, processes, organisational methods and marketing techniques by introducing breakthrough or incremental innovations (OECD, 2010).

SMEs may face some barriers to innovation such as limited funding, lack of management resources and technological competencies, therefore it is important for them to collaborate and innovate together with other actors (suppliers, customers, universities and/or research organisations) (OECD, 2010). Local business contacts and local networks can foster innovation in new and small firm allowing local knowledge spill-overs (OECD, 2010). Small firms combine internal R&D with exploitation of external knowledge; organisational innovation may be a facilitator to complement these two sources of innovation input, because it stimulates technical improvement of firms and consequently a successful innovation performance (Gallego et al., 2013). Hence, innovation (including non-technological innovation) is very important for SMEs and entrepreneurship.

2 REGIONAL INNOVATION POLICY

In the OECD Innovation Strategy and in the EU's Innovation Union the essential contribution of innovation in boosting job creation and economic growth (OECD, 2011) is recognised. Innovation has a strategic role also for organisations both in terms of effectiveness and competitiveness and it can be seen as an internal organisational resource for development, but also as a reaction to external environmental events (Gopalakrishnan & Damanpour, 1997). Caracostas (2007) wrote that nowadays, if Schumpeter had been alive, he would have also needed to consider another actor in his studies who would have been the 'policy-shaper', a person responsible to prepare decisions in order to sustain the policy process.

Innovation is not an isolated phenomenon and it is important both in firms' strategies and in public policies fostering growth and competitiveness; in this context the institutional environment also has a relevant function (Malerba & Brusoni, 2007). In particular Bučar and Stare (2003) highlighted the role of the state in fostering innovation activity. Hence, it is important to also focus on the external inputs of institutions that with their regulations and planned actions aim to effectively support and develop innovation activities. The term innovation policy is used in a broad way and it includes all those measures aimed at fostering innovation.

2.1 Innovation policy in general

The aim of innovation policy is to increase the effectiveness and quality of innovation activities with a series of actions (Bučar & Stare, 2003). In order to support innovation activities the 'policy-shaper' takes decisions about many topics, for instance the amount and the distribution of budget allocated to research and the incentives schemes (Caracostas, 2007). While policy-shapers are preparing policy instruments, they should take into consideration innovation theories and more in general economic theories, which influence the perceived role of innovations in the economic development (Bučar & Stare, 2003; Caracostas, 2007).

In the 21st century, innovation is done in a different way compared to the past, with new features such as creative destruction, and consequently it has taken new forms and new and small firms have become more important (OECD, 2010). One of these features is the development of the knowledge economy, where knowledge becomes an important factor of production that can contribute to economic growth; therefore policy should foster knowledge creation and exploitation in firms (OECD, 2010). Knowledge does not belong just to large firms with big R&D laboratories, but it is accessible also to new and small firms, because they can be part of knowledge transfer networks (OECD, 2010).

According to Chesbrough (2012) the process of open innovation, which effectively exploit internal and external knowledge, is accessible to all organisations. There are many external sources of ideas for innovation: collaborations with universities or other players, labour mobility between organisations and firms, other informal connections, and cooperation with consumers

and users that due to the benefit of new ICT can provide suggestions for new products development (OECD, 2010). Hence, it is very important to participate in knowledge networks in particular for SMEs that need to open to innovation by having relations with other organisations and by being able to absorb new knowledge (OECD, 2010).

Metcalf (2007) identified that innovation systems do not develop on their own, but they have to be built. The components of an innovation system are the production structure and the institutional infrastructure and the inter-connections among them (Asheim & Isaksen, 2003). The State has the role to establish the proper conditions for the creation and development of innovation systems, because firms and universities have different communication cultures (Metcalf, 2007). According to Freeman (2002) innovation systems can be analysed at different levels: the global level, the continental level, the national level and sub-national (regional) level. From a broad perspective the national system of innovation includes besides institutions also economic, political and cultural influences (Freeman, 2002).

Countries have different social contexts, organisational forms and forms of specialisation, because there are different national systems of innovations (Lundvall & Borrás, 1997). Furman et al. (2002) focused on national innovative capacity (i.e. the country's capacity to create a flow of innovations that can be commercialised), where the differences between countries depend on both economic geography and innovation policy. The determinants of national innovative capacity are the common innovation infrastructure (i.e. institutions, resource commitments, and policies), the cluster-specific environment for innovation environment and the connections between them (Furman et al., 2002).

Bučar and Stare (2003) pointed out various factors that can hinder or foster the broader socio-economic context of innovation policy: macroeconomic environment (i.e. access to financial sources, tax policy, foreign direct investments, overseas investments), human resources, knowledge creation and transfer, and legal and administrative framework (i.e. the legislation's influence on competitiveness and state aids). In order to recover from crisis effects, governments need to implement measures fostering innovation and long-term growth as investments in infrastructure, in science, R&D and innovation, in human capital, education, employment and training, and in green technologies and energy efficiency (OECD, 2009b). The aim of innovation policy is to successfully facilitate and support innovation activities and consequently economic growth.

A broadly oriented innovation policy consists of many aspects and contents that should be horizontally integrated and harmonised in order to boost innovation and growth and simultaneously to sustain social cohesion (Lundvall & Borrás, 1997). Lundvall and Borrás (1997, p. 15) identified three different policy areas of innovation: (1) policies affecting the pressure for change (i.e. competition policy, trade policy and general economic policy); (2) policies affecting ability to innovate and absorb change (i.e. human resource development and innovation policy); and (3) policies designed to take care of losers in the game of change (i.e. social and regional policies with redistribution objectives).

2.2 Regional innovation systems

Innovation policy can be organised at many different levels; there could be regionally designed and executed policies, regional initiatives that are principally set up on national or EU funding or policies that are established and implemented only at national or EU level (Isaksen, 2003a). Also the territory, where innovation takes place, influence innovation activities; both the presence of local organisations (and the collaboration among them) and the particular resources of the considered area contribute to innovation (Asheim & Isaksen, 2003). Asheim and Isaksen (2003, p. 22) pointed out that “this argument about human relationships and specific regional resources underpinning innovation processes is, perhaps, the most important argument for the regionalization of innovation policy”.

Regions have gained an increased relevance as far as competitiveness and innovation is concerned, because now innovation is at the centre of regional development agendas and also the regional dimension is considered important in national innovation strategies (OECD, 2011). Hence, at this point it is relevant to focus on innovation policy at regional level, to consider regional diversities and to examine in depth regional innovation policy's features. Although with globalisation much more information and numerous connections are available all around the world, specific geographic areas concentrate a significant amount of innovative activities and the geographic proximity is still a relevant element (Pilon & DeBresson, 2003).

Some regions can have a favourable situation, while other regions can have disadvantages in terms of the geographical position, in terms of the presence of specific institutions in the considered area and/or in terms of the implemented policy measures that could impact regions' attractiveness (Brenner & Fornahl, 2003). According to Isaksen (2003a, p. 76) regions differentiate in the following aspects: (1) authority to design and carry out policy instruments (i.e. national, regional or EU authority); (2) approach to innovation policy, whether linear or interactive policy approach is adopted; and (3) innovation systems barriers, where typical regional innovation barriers might be organisational 'thinness', fragmented regional system and 'lock-in' of innovation systems.

When interactions between different organisations produce innovation, we can talk about an innovation system, which needs a 'cognitive distance' big enough to let creative combinations arise and adequately limited to be able to communicate and understand reciprocally within it (Nooteboom, 2003). In order to have a successful regional innovation system it is important to develop an integrated innovation policy system (Christensen, Cornett, & Philipsen, 2003). According to OECD (2011, p. 20) the regional innovation systems “defines regional strengths and weaknesses for innovation and the nature of local and international relationships and networks”.

An effective innovation policy should create complementary measures and take in consideration the different forms of innovation and the barriers to innovation present in regions (Nauwelaers &

Wintjes, 2003). Asheim and Isaksen (2003, p. 42) described in detail the barriers to regional innovation system: (1) organisational ‘thinness’, which is the lack of relevant regional actors and consequently collective learning is insufficient; (2) fragmented regional system, where there is not enough innovation cooperation among organisations in the region and so there is a lack of social capital; and (3) ‘lock-in’ situation, when there is a regional innovation system, but it is too closed and the networks are too rigid.

Pilon and DeBresson explained (2003) the concept of a regional innovation network as an aggregate action where local institutions and firms have due to an open local culture the common purpose of creating and spreading additional knowledge. However, it is not simple to manage innovation in networks, because there are no clear boundaries in terms of network’s ownership and management (Ouden, 2012). Furthermore, the geographic proximity is relevant in the definition of crucial partners in an innovative network, because they need to be identified in the limited area of problem-solving communication (Pilon & DeBresson, 2003).

Long-term-oriented forms of cooperation among organisations might be a source of advantage, but the social mechanisms (e.g. trust and power) can influence inter-organisational relations (Bachmann, 2003). Institutions have a significant role in innovation networks, if they are able to interact and collaborate with private firms (Lutz, Sydow, & Staber, 2003). The strategic priorities for regions are building on current advantages, supporting socio-economic transformation and catching up (OECD, 2011). The literature on regional innovation systems is linked to the cluster literature, because they both describe similar arguments and regional innovation systems are frequently seen as different types of clusters (Lorenzen & Foss, 2003). Lorenzen and Foss (2003) explained the basic form of a cluster as a rather defined group of firms that have systemic relations and that are geographically close to each other.

The intensified interest of academics on clusters and innovation systems shows how significant the regional levels and the place-specific regional resources for firms’ innovativeness and competitiveness are (Isaksen, 2003b). The creation and development of local clusters is not a simple activity, as it involves a series of various processes and aspects; therefore policy measures should consider this complexity and the appropriate timing according to the level of development of clusters (Brenner & Fornahl, 2003). In order to be successful, firms in clusters need to be flexible and adjust to market changes; therefore they should participate in inter-organisational networks supported by the appropriate social infrastructures and regional institutions (Lutz et al., 2003). Besides the effects of initial policy measures that foster the emergence of clusters, they develop by themselves on account of local self-augmenting processes such as spin-offs, spill overs, local synergies and the accumulation of human capital (Brenner & Fornahl, 2003).

Innovation policy focuses also on the changing role of universities and on the important relation between university and industry (Malerba & Brusoni, 2007). The collaboration between the academic and industrial sphere is not always easy, because firms and universities differ in their communication culture (Metcalf, 2007). In innovation policy universities and higher education institutions are very important actors, because the human capital is one of the principal drivers of

innovation (OECD, 2011). They have the possibility to provide training programmes and promote entrepreneurship and, what is more, they can support the development of university-based start-ups (Koschatzky, 2003). Hence, universities should participate actively in the innovation system and provide entrepreneurship education (OECD, 2010).

2.3 Innovation policy measures for regional development

After the recent restrictions on public budgets it is necessary to identify the ‘best’ public policies and focus on them (Caracostas, 2007). However, the one-size-fits-all-policy cannot exist and one unchanging ‘best practice’ policy cannot be appropriate in whatever context due to the diversity of regional realities, the variety of firms and the multiplicity of innovation drivers and barriers (Nauwelaers & Wintjes, 2003; OECD, 2009a). Furthermore, it is not enough to design a set of policy instruments to create a system; there should be coordination and synergies among tools, not a ‘lack of external coherence’ (Nauwelaers & Wintjes, 2003). In addition, local policy measures need to be aligned with general trends of a market or industry and not just focus on the regional issues (Brenner, 2003).

As far as regional policy is concerned it is not sufficient to simply concentrate resources in a place and accumulate investments and assets, but the essential points are the ways in which assets are used and combined and the ways in which different stakeholders collaborate and exploit synergies (OECD, 2009a). Focusing on innovation policy at regional level, it can be designed in many ways and with various measures and instruments. New and appropriate innovation indicators are necessary, which would be able to measure both R&D and non-R&D-based innovation and to map innovation networks in and across regions (OECD, 2011).

Regarding clusters, political measures cannot assure the emergence of clusters in a specific region, but they give a bigger probability that a cluster would develop in that area by influencing the local environment in many forms: support for start-ups, public research institutes, creation of local networks, local education and direct support to firms (Brenner, 2003). Recently, OECD countries have chosen a new approach regarding regional policy by supporting growth in all types of regions instead of focusing only on poorer regions to reduce disparities (OECD, 2009a).

In order to design effective regional policy measures to foster competitiveness it is necessary to determine the sources of a region’s competitive advantage, which can change over time (OECD, 2009a). Instead of the distinction top-down and bottom-up, regional policies need a multilevel governance approach, which would deal with the many possible public investments’ fields such as infrastructure, human capital formation and mobility, business environment and innovation (OECD, 2009a). It is important to use tools that improve dialogue and coordination tools for a better collaboration among different levels of governments (e.g. consultations, project co-financing, regional development agencies, etc.) and also horizontal collaboration between public and private stakeholders is relevant (OECD, 2011).

Focusing on regions and innovation policy, the OECD (2011, p. 19) identified the following key points of policy improvements: (1) acknowledge the diversity of regional economic and innovation profiles, for example they can have different development paths and they can choose to invest in technological or non-technological innovations; (2) open the black box of regional innovation policies, by considering the three dimensions of heterogeneity among regions (i.e. the institutional context, the regional innovation system and the strategic choices made by regions); and (3) enable regions to become agents of change; regions should develop a vision and a strategic road map to encourage innovation, design a smart policy mix (asset-based and multi-sector), establish multilevel, open and networked governance structures, foster policy learning through better metrics, evaluation and experimentation.

Table 1 presents available regional innovation policy instruments, grouped in traditional, emerging and experimental instruments, in relation to knowledge generation, diffusion and exploitation (OECD, 2011). Besides traditional instruments such as grants, science parks or incubators, there are some emerging instruments that cover all the process from knowledge generation to knowledge exploitation (e.g. competence centres, venture and seed capital); in addition experimental tools such as innovation public procurement are interesting attempts to foster innovation further (OECD, 2011).

Table 1. Regional innovation policy instruments

	Knowledge generation	Knowledge diffusion	Knowledge exploitation
Traditional instruments	Technology funds, R&D incentives/supports/grants Support for scientific research and technology centres Support for infrastructure development Human capital for S&T	Science parks Technology transfer offices and programmes Technology brokers Mobility schemes, talent attraction schemes Innovation awards	Incubators Start-up support Innovation services (business support and coaching) Training and raising awareness for innovation
Emerging instruments	Public-private partnerships for innovation Research networks/poles	Innovation vouchers Certifications/ Accreditations	Industrial PhDs Support for creativity and design Innovation benchmarking
	Competitiveness poles Competence centres New generation of scientific and technological parks and clusters Venture and seed capital Guarantee schemes for financing innovation		
Experimental instruments	Cross-border research centres	Open source-open science markets for knowledge	Regional industrial policy Innovation-oriented public procurement

Source: OECD, *Regions and Innovation Policy*, 2011, based on Nauwelaers and Primi, *Innovation Policy and Regions: Policy Spaces, Strategies and Challenges*, (forthcoming).

A weakness of regional innovation policies is that they may have a limited view on innovation, considering only innovations based on science and technology instead of enlarging their view also on other types of innovations that can potentially exist in their area; therefore regions should improve their understanding of innovation (OECD, 2011). A smart policy mix includes a series of complementary instruments aiming at knowledge creation and exploitation in many ways: from traditional instruments (e.g. support to human capital and skills) to emerging instruments (e.g. talent and creativity support) and experimental ones (e.g. public procurement) (OECD, 2011). Usually administrative boundaries are not equivalent to the areas of innovation and production networks, therefore ‘open’ policy approaches are needed that consider also national and international cross-regional connections (OECD, 2011).

2.3.1 SMEs, entrepreneurship and regional innovation policy

In the 21st century there is a new concept of innovation and consequently the importance of SMEs and entrepreneurship has changed, because innovation in the knowledge economy arises due to creativity and the unexpected that may also occur in small environments and not just in large firms (OECD, 2010). With the development of a ‘network economy’ small firms can connect in networks and are no longer limited – due to their size (Nooteboom, 2003). Policies fostering innovation in new and small firms contribute to better products and services and to an increased efficiency; in addition they support the job creation function of entrepreneurship and SMEs development against unemployment and crisis’ effects (OECD, 2010).

In designing policy tools it is important to consider the specific context and SMEs’ particular characteristics and weaknesses in considered regions (Kaufmann & Todtling, 2003; Nauwelaers & Wintjes, 2003). Furthermore, due to the heterogeneity of SMEs different firms contribute to innovation in different forms (Smallbone, North, & Vickers, 2003). There are few very innovative firms with a high growth potential, whereas the majority of ‘ordinary’ SMEs innovate in a different, simpler and less extraordinary way (OECD, 2010). Policies should differentiate and address separately the Science, Technology and Innovation mode of innovation (i.e. breakthrough innovations with intensive R&D) and the Doing, Using and Interacting mode of innovation that considers incremental innovations (OECD, 2010).

Innovation policies should not just focus on already innovative firms, but they should support the capacity to innovate in general (Kaufmann & Todtling, 2003). SMEs are on average the great majority of all firms (99 %) in the OECD area; even if they innovate less than large firms, the innovation gap seems to be minor when adjusted for the size (OECD, 2010). Large and small firms have different roles, but they are both important in innovation (Smallbone et al., 2003). Small firms differ from large ones in their innovation pattern, because they combine organisational innovation with R&D activities and a wide use of external knowledge (Gallego et al., 2013).

Kaufmann and Todtling (2003) pointed out that SMEs do less research than large firms, so it is necessary to promote connections with universities and research institutions and to have

qualified personnel for communication with science and linking with external innovation networks. SMEs need to improve their capacity to innovate (e.g. 'pre-R&D-project support) and to increase their ability to cooperate; therefore innovation policy for SMEs should aim at these objectives (Kaufmann & Todtling, 2003). Since many SMEs do not have an intention to cooperate with others or are not aware of the positive effects of cooperation, the value of innovation cooperation should be explained to them (Kaufmann & Todtling, 2003).

Smallbone et al. (2003) identified some common characteristics at the micro level for SMEs: a limited resource base in terms of finance/management, a characteristic organisational culture (i.e. combination of ownership and management) and a minor influence on the environment. Personal features of SMEs owners/managers and firms' characteristics internally influence the firms' learning capacity, while collaboration with higher education institutions and other actors, also larger firms, can contribute to the SMEs' innovation capacity (Smallbone et al., 2003). The innovation policy should also promote knowledge transfer, help SMEs to develop their absorptive capacity (e.g. strengthen firms' human resources) and develop the firms' ability to commercially exploit their innovations (Smallbone et al., 2003).

Knowledge exchange is an essential factor in SME innovation and policy can foster it also by strengthening the local skills ecosystem in many ways: creation of science parks, business incubators, encouraging mobility of staff between universities and the industry, etc. (OECD, 2010). Kaufmann and Todtling (2003) observed that the problems that constrain innovation vary according to the type of region and of SMEs and that these obstacles do not only have a financial or technical nature, but they include strategic deficits, organisational weaknesses, rarely performed market research activities and firms and unqualified personnel.

Firms could have problems in determining their own support needs and may not be aware of available sources of innovation supports, so information and consultations should be offered, also to improve firms' monitoring skills (Fornahl, 2003; Kaufmann & Todtling, 2003; Smallbone et al., 2003). Nonetheless it is not enough to just send abstract information to firms, because the majority of SMEs will not take advantage of the provided information, if it is not usable (e.g. with positive examples), promoted in an active way and targeted to the specific type of SME (Kaufmann & Todtling, 2003).

Asheim, Isaksen, Nauwelaers, and Todtling (2003) presented five categories of policy instruments for SMEs: direct support, technology centres, brokers, mobility schemes and upgrading of SMEs' suppliers. Garofoli and Musysek (2003) grouped policy tools by target groups (i.e. firms-oriented, system-oriented and process-oriented), for example technical personnel introduction targets firms, while schemes fostering the role of 'innovation brokers' and mobility schemes for researchers are system-oriented. According to the OECD (2010) Knowledge Intensive Service Activities (hereinafter: KISA) can be very useful for SMEs in terms of boosting entrepreneurship skills of SME employees and for this reason public SME training support programmes should provide these kinds of activities.

Nauwelaers and Wintjes (2003) proposed a classification of policy instruments for SMEs and for regional development, studied in the SMEPOL project, by mode of innovation support and a target level of support. This classification was integrated with some policy instruments fostering regional innovation proposed by the OECD (2011) and presented firm oriented and system oriented policy instruments in Table 2. Innovation vouchers for example focus on learning capacity to innovate and in many cases they were a positive experimental instrument at the regional level; they give the possibility to companies to select an innovation service provider, also cross-border (OECD, 2011).

Table 2. Classification of policy instruments* along mode and target of support

Mode of innovation support		
Target level of support	Input resources: reactive tools allocating inputs for innovation	Behavioural value-added: proactive tools focusing on learning to innovate
Firm oriented	Traditional firms' R&D subsidies/loans	Subsidy for hiring innovation managers in SMEs
	Risk capital	Incubators with 'soft' support
Firm oriented	Training subsidies	Business Innovation Centres
	Incubators with 'hard' support	'Proactive' technology centres
	Research centres	Audits, monitoring of needs
	Traditional 'reactive' technology centres	Innovation Coach
	Transfer units in universities	Innovation support services for SMEs
	Science & Technology Parks	
	Mobility schemes research-industry	Proactive brokers, match-makers
System-oriented (regional)	Subsidy for cooperative R&D projects	Cluster policies
	Collective, User-oriented Technology or Innovation centres	Support for firm networking
		Schemes acting on the culture of innovation
		Innovation vouchers

Note. *Policy instruments that were studied in the SMEPOL project and integrated with OECD policy instruments used to promote regional innovation.

Source: C. Nauwelaers & R. Wintjes, *Towards a new paradigm for innovation policy?*, 2003; OECD, *Regions and Innovation Policy*, 2011.

Studies on entrepreneurship and networks should consider rationality and creativity and the relevant roles of institutions, social relations and culture (Morlacchi, 2007). Entrepreneurial activities impact the development of regions, since they affect competitiveness, innovativeness and the rate of unemployment. (Fornahl, 2003). Witt and Zellner (2007) identified some obstacles to entrepreneurship: barriers to entrepreneurial activity, lack of qualified resources and organisational rigidities. Fornahl (2003) listed some variables that influence regional entrepreneurial behaviour: 'general environmental conditions' (e.g. financial capital, human capabilities), (regionally shared) cognitive representations and information processes.

In order to understand innovation the concepts of culture and local culture also need to be considered (Pilon & DeBresson, 2003). A not adequate entrepreneurial culture is a barrier to innovation not only in firms (Bučar & Stare, 2003). Entrepreneurs should be aware that risk-taking is an element of innovation and failure is part of innovation, so they should be ready to risk and eventually fail (Bučar & Stare, 2003; Johansson, 2006). Hence, an entrepreneurship mind-set should be promoted in the school education system already (OECD, 2010)

OECD (2010, p. 16) identified some key points that policies for SME innovation and innovative entrepreneurship should take into consideration: (1) the participation of new and small firms within global and local knowledge flows, so policies should focus on the barriers they could face; (2) the need to change education and training systems in order to improve the stimulation of the growth of entrepreneurial human capital; and (3) the importance of social enterprises and social innovation, so policies should promote their growth.

Policies can increase SME participation in knowledge flows by promoting partnerships within the innovation systems, by stimulating local knowledge flows and interactive learning networks, by encouraging openness to global sources of knowledge, by facilitating cross-border strategic alliances, by reinforcing training in SMEs and by increasing the use of informal learning sources (e.g. innovation voucher to get KISAs outside) (OECD, 2010).

2.3.2 Non-technological aspects of innovation policy

The benefits of investing in innovation are increased if technological innovation is combined with forms of innovations deriving from all sectors of an organisation (Gaynor, 2002). Innovation does not include only technology, but there is also non-technological innovation and policies should consider the undeveloped potential contribution of SMEs to the economy in terms of incremental and non-technological innovation (OECD, 2010). Non-technological innovation is a broad concept and it includes a lot of actors, methods and situations (more than technological innovation) and it can play an essential role for SMEs (e.g. introduction of total quality management techniques; web monitoring of news on competitors, etc.) (OECD, 2010).

Public policies can impact innovation, even if they do not consider it in a direct way; in particular the non-technological regulatory effects for innovation are important (i.e. novelties in the management of innovation within/across organisations; changes in the structure of industries, demand patterns and institutional context) (Paraskevopoulou, 2012). Non-technological innovation occurs and is important in many different fields: in both manufacturing and services sector, which has recently increased its economic relevance; also in ‘low-technology sectors’ (e.g. construction, retail banking, education) and, what is more, in tourism, where non-technological innovation is a key driver for productivity improvements (OECD, 2010).

Services in particular are a big potential source of growth for countries, so policy makers are fostering innovations in service activities; these are not just technological innovations, but there are also non-technological aspects (OECD, 2012). Innovation in services occurs in an open

innovation context, where the right balance between standardisation and customisation should be found (Chesbrough, 2012). Many policies for innovation and innovation indicators still have a manufacturing and/or R&D approach; therefore new indicators and policies should be developed with a major focus on non-technological aspects of innovation (OECD, 2012).

2.3.3 Innovation across borders

Innovation has changed also due to globalisation and new and small firms can take advantage of global connections by interacting with other firms, universities and research institutions (OECD, 2010). SMEs can face difficulties connected to international networking in terms of costs and risks, but public policies can help overcome these barriers (OECD, 2010). Despite the fact that a globalising learning economy is taking shape, the spatial mobility of knowledge represents a limit to globalisation, because tacit knowledge remains specific to organisations and locations and barely transferrable (Lundvall & Borrás, 1997).

A different approach from gaining competitiveness in the global economy is the regionalisation strategy, which is built on the fact that innovation as an interactive learning process and that learning is a localised process (Asheim & Isaksen, 2003). However, there could be other paths between aiming at global success and being focused on regional development. Asheim and Isaksen (2003) proposed a multilevel approach to innovation systems and knowledge networks, where firms in addition to regional clusters can collaborate with national and international innovation systems. Of course in order to apply this strategy across borders public-private co-operation and public intervention are needed; furthermore it is necessary to consider the specific features of each region (e.g. socio-cultural factors), especially when transferring experience from one region to another (Asheim & Isaksen, 2003).

The option of the cross-border cooperation preserves the regional dimension and includes an international perspective. Assuming that the real competition takes place on global markets, neighbouring regions can begin a 'co-optition' that is cooperation for competition (OECD, 2013). For example some innovation policy measures create knowledge spill-overs across regional borders (OECD, 2011). However, the cooperation across borders is not such an obvious fact. Pilon and DeBresson (2003) indicated that innovative collaborations and networks often do not develop across national borders, even if they are located close to these border, because local culture is important. Isaksen (2003a) pointed out that there is still little cross-border cooperation, in contrast with prevailing national innovation systems, not because of spatial distance, but due to linguistic barriers, diverse understanding and institutional distance.

With globalisation the cross-border collaboration in innovation is a big opportunity for SMEs, because they can get new ideas and resources and at the same time they can sell their outputs in foreign markets (OECD, 2010). Both national and supranational governments offer incentives to foster regional cross-border collaboration; for example the European INTERREG Programme and the European Research Area Initiative promote inter-regional cooperation (OECD, 2011). Although OECD countries have not yet taken advantage of all opportunities offered by cross-

border innovation policies, there are many advantages of cross-border territories such as enlargement of innovation networks and diversity of funding opportunity (OECD, 2011). With globalisation of innovation regions need not just be focused on their limited areas, but they should start considering territories beyond their borders (OECD, 2013).

Unfortunately border barriers are often exceeding proximity advantages, so it is important to determine the appropriate area for cross-border regional innovation policies and adapt policies to the environment (OECD, 2013). National and supranational governments have a considerable role in cross-border collaboration, especially in reference to policies, regulation and funding (OECD, 2013). The cross-border governance (and consequently the cross-border cooperation) might face problems due to multiple jurisdictions, different languages, cultures and regulatory/institutional environments (OECD, 2013).

According to the OECD (2013) it is important to see the border as an opportunity and to promote public success stories of cross-border instruments. Table 3 presents different innovation policy instruments for cross-border cooperation. The detailed description of all policy instruments is provided in the report *Regions and Innovation: Collaborating across Borders* (OECD, 2013).

Table 3. Overview of cross-border innovation policy instruments

Instruments	
Strategy and policy development	R&D support
Analytical exercises and mappings (mapping of clusters or value chains, technology foresight exercises)	Joint public research programmes
Benchmarking and policy learning	Joint research infrastructure, shared access to research facilities
Joint branding of the cross-border area	Cross-border private R&D funding programmes (generic and thematic)
Technology transfer and innovation support	Educated and skilled workers
Cross-border innovation advisory services (vouchers, intermediaries)	Scholarships/student exchanges
Advisory services to spin-off and knowledge-intensive start-ups	Joint university or other higher education programmes
Other technology transfer centres and extension programmes	Talent attraction and retention or mobility schemes
Science and technology parks and innovation networks	Cross-border labour market measures
Cross-border science and technology parks	Other instruments
Cluster or network initiatives	Financing (venture capital funds or angel networks)
	Public procurement/ border as a source of innovation/ innovation awards

Source: OECD, *Regions and Innovation: Collaborating across Borders*, 2013.

Pilot actions might be positive measures due to accountability and stakeholder involvement (OECD, 2013). In many international examples the successful instruments were those that

fostered connections between firms and knowledge institutions beyond the border, clusters in the cross-border areas and shared paths of scientific infrastructure; innovation vouchers and joint research were effective too (OECD, 2013).

3 INNOVATION POLICY IN THE EUROPEAN UNION

Nowadays there is a broad view on innovation and consequently innovation policy has become a broad policy area (Isaksen, 2003a). A gradual change in innovation policy was observed, with a shift from sustaining only R&D and technology to promoting innovation in general (Nauwelaers & Wintjes, 2003). Instead of focusing mainly on investments in research and development as in the past, innovation policy should take into consideration the various forms of innovation; innovation is not just based on science and technology, but it includes the creation of a variety of new products and services in all sectors, new marketing and organisational methods and many other aspects (OECD, 2010).

First of all, it is important to understand what the concept of innovation adopted by the European Union is. In the Green Paper on Innovation the European Commission (1995, p. 1) innovation was defined as “the successful production, assimilation and exploitation of novelty in the economic and social spheres”. On the website of the European Commission there is now another definition available under the Glossary section, which is based on the Oslo Manual (OECD, 2005) and has a wider scope. The definition of the European Commission (2014a) says: “An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relation. The minimum requirement for an innovation is that the product, process, marketing method or organisational method must be new (or significantly improved) to the firm”. Hence, innovation is a broad concept with many possible forms.

3.1 Historical evolution

Innovation policy is at the centre of industrial policies with the objective of improving industries' competitiveness (Isaksen, 2003a). The innovation policy originated during the 1980s in Western Europe, at the national and EU level, with the purpose to increase the competitiveness and innovation capability of European countries' industry, because they were dealing with an enlarged international competition (Isaksen, 2003a). An important development of innovation policy in the European Union took place since mid-1990s after the identification of 'the innovation deficit' (i.e. the relative performance gap between EU and its competitors, especially US) (European Commission, 2001).

The first generation of innovation policy was based on the linear model of innovation, where the focus was on support to R&D activities, mainly in high-technology sectors and technological diffusion, and large firms were important players (Asheim & Isaksen, 2003; Bučar & Stare, 2003; Jensen, Johnson, Lorenz, & Lundvall, 2007). The second generation of innovation policy

took into consideration the complex aspects of innovation systems and the multiple connections among different players by adopting the interactive linear model, in which small firms were also involved and connected to wider innovation systems and other aspects beyond R&D (e.g. market information, informal practical knowledge) (Asheim & Isaksen, 2003; Bučar & Stare, 2003).

Nauwelaers and Wintjes (2003) pointed out that there is a movement to more interactive policy support, despite the fact that linear tools are predominant. In the third generation of innovation policies, due to the concept of knowledge economy, innovation should be positioned in the foreground of every policy; therefore policies from different areas should be combined in order to develop an appropriate environment for innovation (Bučar & Stare, 2003). The European Council (2000) launched the Lisbon Strategy in March 2000 with the aim for the European Union “to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”.

Senior Nello (2012) identified that the EU faced many difficulties in approaching Lisbon Strategy’s goal and suggested to follow the traditional Commission’s approach (i.e. promoting research, innovation and SMEs, investing in human capital and facilitating the markets functioning) especially with consistent actions. The EU is supporting R&D and consequently innovation in many ways. Framework Agreements cover EU funding for research and for the 2007-2013 period the Seventh Framework Programme was launched, while other resources were included in the Competitiveness and Innovation Programme (Senior Nello, 2012). Furthermore, there is the intention to go beyond EU fragmentation and develop a European Research Area for combined multidisciplinary and cross-border programmes (Senior Nello, 2012).

In 2010 a new European Union’s ten-year growth and job strategy was introduced, Europe 2020, which according to the European Commission (hereinafter: EC) (2014b) is “about delivering growth that is: smart, through more effective investments in education, research and innovation; sustainable, due to a decisive move towards a low-carbon economy; and inclusive, with a strong emphasis on job creation and poverty reduction”. Among the five targets for the EU in 2020 there is the objective of increasing investments in R&D to 3 % of the EU’s Gross Domestic Product (hereinafter: GDP) and among the seven flagship initiatives there is the Innovation Union that aims at creating an innovation-friendly environment (European Commission, 2014b).

3.2 EU innovation policy

Looking at the EC website, Innovation Policy is present in the Directorate General (hereinafter: DG) for Enterprise and Industry section under the Industrial Innovation topic (European Commission, 2014c). The European Commission (2014c) has the objective to “develop policy initiatives aiming at the modernization of the EU industrial base through accelerating the uptake of innovation”. Coherently with the EU’s Industrial policy the DG Enterprise and Industry is focused on checking innovation performance and the development of innovation (e.g. Innovation Union Scoreboard, Innobarometer) and on designing appropriate policies to promote a large

commercialisation of innovation such as public procurement of innovation (European Commission, 2014c).

In order to assess policy instruments and their achieved results, the European commission is constantly monitoring innovation performance in Europe with many tools, also at the regional level (European Commission, 2014c). The Innovation Union Scoreboard is annually published and compares research and innovation performance of the various EU member states, while the Business Innovation Observatory offers serial case-studies, where the most recent business and industrial innovation trends are analysed (e.g. design for innovation, smart living, etc.); Innobarometer on the other hand provides significant information and opinions from business and the general public about innovation activities and attitudes on an annual basis (European Commission, 2014c).

The regional dimension is very important for innovation and it should be regularly checked and analysed; therefore the Regional Innovation Scoreboard is published every two years with statistical data on regions' innovation performance in order to monitor innovation at the regional level (European Commission, 2014c). Furthermore, the Regional Innovation Monitor Plus (hereinafter: RIM Plus) was developed within the Innovation Union flagship initiative based on the Europe 2020 strategy; RIM Plus gives information on the various regional innovation policy measures in EU (European Commission, 2014c).

3.2.1 EU support for innovation

Since innovation is a relevant source of growth and employment, the European Commission (2013a) identified multiple ways in which the EU provides support for innovation in the programming period 2007-2013, which are presented in Table 4. During the programming period 2007-2013 the Competitiveness and Innovation Programme (hereinafter: CIP) was launched targeting SMEs to support innovation activities (also eco-innovation), to provide business support services and to improve access to finance (European Commission, 2014d).

Under the CIP programme there was also the Entrepreneurship and Innovation Programme, which included the Eco-innovation initiative that was aimed at connecting good innovative ideas with the market and their commercialisation (European Commission, 2014d). In the period 2006-2012 two important initiatives were introduced PRO INNO Europe, which focused on policy analysis and policy cooperation in Europe, and Europe INNOVA that was a platform for innovation experts to develop adequate instruments for innovative SMEs (European Commission, 2013a).

Under the Europe INNOVA initiative three European Innovation Platforms were established for knowledge-intensive services (i.e. KIS-IP), cluster cooperation (i.e. Cluster-IP) and eco-innovation (i.e. Eco-IP); in addition to these platforms there were various actions focused on innovation analysis (e.g. European Cluster Observatory), innovation management (e.g.

IMP³rove) and dissemination of results (European Commission, 2013a). Furthermore, the Enterprise Europe Network was established to provide useful information and innovation support to European SMEs (European Commission, 2013a).

Table 4: EU support for innovation

Type of support	EU programme or initiative
Financial support for innovators (i.e. enterprises, start-ups, research institutes, etc.)	Competitiveness and Innovation Framework Programme 7th Framework Programme for Research and Technological Development (hereinafter: FP7) European Structural Funds' operational programmes
Support services for innovators	Enterprise Europe Network Business Innovation Centres European e-Business Support Network Europe INNOVA tools and other services
Fostered collaboration among innovation players (i.e. innovators, development agencies, education and training institutes, technology transfer offices, investors, etc.)	many initiatives such as: European Cluster Observatory LivingLabs Regions of Knowledge within the FP7 Programme
Improved innovation support	Europa INNOVA Pro INNO Europe and other initiatives

Source: European Commission, *Overview of EU support for innovation*, 2013a.

In 2014 a new programme, COSME, for the Competitiveness of Enterprises and Small and Medium-sized Enterprises, has been launched for the period 2014-2020; COSME will support entrepreneurs and access to the market, improve finance for SMEs and create better conditions for business creation and growth (European Commission, 2014e). Clusters (i.e. groups of specialised enterprises and often SMEs) are also important, because SMEs collaborating together can be more innovative; therefore the EU Cluster Portal offers many tools and information on clusters and SMEs within them in Europe and it is complementary to the Smart Specialisation Platform dedicated to regional and national policy-makers (European Commission, 2014).

The DG Research and Innovation aims at implementing research and innovation policies in order to achieve the EU objectives; during the period 2007-2013 FP7 was launched, which also involved SMEs (European Commission, 2012a). In 2004 the Horizon 2020 programme was introduced for the period 2014-2020 in order to implement the Europe 2020 flagship initiative Innovation Union; it is the biggest EU Research and Innovation programme ever and aims at removing barriers to innovation and at facilitating public-private partnerships (European Commission, n.d.-a). The objective Innovation in SMEs is enlisted in the Industrial Leadership pillar: it will support SMEs with direct financial support (through SME instrument) and with improvements in their innovation capacity (e.g. innovation management capacity) in order to foster all forms of innovation in SMEs (European Commission, n.d.-a).

3.3 Non-technological innovation in EU policies

The European Commission pays particular attention to new forms and types of innovation. Although the service sector is becoming more relevant in the economy, there is still a lower level of innovation in service firms compared to firms in manufacturing (except the ICT services) (European Commission, 2014c). Nonetheless, non-technological innovation has a significant role in the service sector (European Commission, 2014c). Under the Europe INNOVA initiative the European Innovation Platform for Knowledge Intensive Services (KIS-IP) was launched in order to connect entrepreneurship, universities and finance in service sector; the European Service Innovation Centre was established to foster service innovation and consequently industrial development and the growth of SMEs (European Commission, 2014c).

According to the European Commission (2012d, p. 12) service innovation “comprises new or significantly improved service concepts and offerings as such, irrespective of whether they are introduced by service companies or manufacturing companies, as well as innovation in the service process, service infrastructure, customer processing, business models, commercialisation (sales, marketing, delivery) [...]”. In the final report of the project European Policies and Instruments to Support Service Innovation (hereinafter: EPISIS) it was pointed out that service innovation differs from the traditional concept of R&D and innovation, because it includes more non-technological and intangible aspects (European Commission, 2012b). Both services and technology are important, but technology contributes to (service) innovation only if it creates value (European Commission, 2012b).

Service innovation includes a wide range of different activities and represents a big untapped potential for the EU, so service innovation policy should understand its complexity in order to address it properly (European Commission, 2012b). The results of the EPISIS survey showed that in many European countries, in China, Korea and the US there is an increasing awareness and diffusion of service innovation policy and a particular attention to non-technological innovations (European Commission, 2012b). Due to service innovation policies there has been a change in policies from having a technology focus to adopting a broad approach to innovation (European Commission, 2012b).

Policy-makers should consider technological and non-technological innovation equally in relation to State aid rules; for example using the term knowledge transfer instead of technology transfer in order to also include the non-technological characteristics of R&D&I (European Commission, 2012b). European Commission (2012b) identified different service innovation policy approaches: policies that support service innovation in a particular industry/sector; neutral or horizontal policies that target businesses in general (but in this case there is little support for service innovations due to sustained technology bias); thematic policies (e.g. grand challenges approach); demand-driven and user-driven innovation policy approach and specific policies targeting service innovation (still used in a little measure).

Three policy tools were determined by the European Commission (2012b, p. 44) to foster innovation management focused on new forms of innovation (i.e. service innovation, open innovation and user-driven innovation): (1) Innovation Networks, which are limited contexts where companies, research institutions and other actors interact and create and develop knowledge; (2) Living Labs, where end-users actively participate with innovators in developing new products, services and processes; in this way they foster open and user-driven innovation; and (3) IMP³rove, which stands for IMProvement of Innovation Management Performance with Sustainable IMPact, and it is an evaluating tool for SMEs to assess their innovation capacity and skills and for benchmarking at the European level.

A flagship initiative under the Europe 2020 strategy is the Digital Agenda for Europe, which also has a focus on ICT innovation, because an improved ICT ecosystem can foster innovation, and on open innovation (European Commission, n.d.-b). Open innovation is important for the innovation performance and could have a greater role in the EU, which has the potential to be a unique space for open innovation due to the variety of industrial competences and other capabilities of the diverse European countries (Ebersberger et al., 2011). Open innovation will become relevant for the European Innovation System and all stakeholders will participate in a Quadruple helix innovation model (i.e. institutions, research sphere, business sector and citizens); a new approach has been developed, Open innovation 2.0, in which the innovation process consists of networking, stakeholders collaboration, corporate entrepreneurship, proactive intellectual property management and R&D (European Commission, n.d.-b).

The European Commission promotes social innovation through networking (the Social Innovation Europe community) and competitions (e.g. the European Social Innovation Competition), by improving improved framework conditions and providing funding possibilities (European Commission, 2014c). Workplace innovation is also important: it consists of innovations in enterprises' structures, internal processes, human resources management, external relations, etc.; the European Commission promotes it through the European Workplace Innovation Network (EUWIN) (European Commission, 2014c).

Within the flagship initiative of the Europe 2020 strategy Innovation Union the role of design for innovation was highlighted, therefore the European Commission has the intention to develop actions to support both design-driven innovations and the adoption of design in innovation policies due to established European Design Innovation Platform (European Commission, 2014c). Furthermore, the Europe Commission recognises the importance of public sector innovation to improve efficiency and organisation of the public sector and of public procurement for innovation, because there is a big potential market for innovative services and products (European Commission, 2014c).

Policy measures can also promote and support innovation on the demand-side (e.g. increasing consumer confidence in innovations, public procurement of innovations, etc.); these actions are complementary to supply-side innovation policy tools (e.g. research and development grants) (European Commission, 2014c). Together with innovation there might be problems due to

property rights and the European Commission is aware of the need to have strong intellectual property rights for the innovations' protection (European Commission, 2014c).

Non-technological innovation is a broad term that includes various forms of innovation, which are not directly dependent upon technology: service innovation, open innovation, user-driven innovation, social innovation, workplace innovation, innovation in design, public sector innovation etc. As far as the EU is concerned in different contexts different terms are used to define the same concept (i.e. non-technological innovation) or certain subsets of it; for example there are descriptions of service innovation, social innovation, workplace innovation etc., but they can all be included under the umbrella term "non-technological innovation". The EU does not have a specific policy that is focused only on non-technological innovation (considered in all its forms) and does not use the specific term "non-technological innovation policy".

Reichert (2012), the former head of the SMEs Unit at the DG Research and Innovation, pointed out that non-technological innovations are not completely addressed in FP7 and that tools for innovation are often oriented to technological innovation. Hence, more EU support and attention should be put on non-technological innovation with an increased awareness of its importance and SMEs should be involved in this area (Reichert, 2012). Regarding EU policies with a confusing terminology there is a misunderstanding between the R&D, intended as activities, and non-technological innovations, intended as outputs (Sequeira, 2009). There is also the risk to create artificial distinctions among the various forms of innovation activities and outputs (Sequeira, 2009). Furthermore, without proper definitions it is complicated to focus on non R&D aspects of innovation activities and to connect non-technological innovation to policy (Sequeira, 2009).

This master's thesis is focused on non-technological innovation, so it was interesting to find out in which ways and how much this term is used in the EU context. Research on the Google search engine was run by using key terms such as "non-technological innovation" and the EU on May 3rd 2013. The intention was to identify how the EU dealt with non-technological innovation, therefore only the websites that are directly or partially indirectly connected to the EU were chosen; in cases of the same text or a very similar one present in two different pages only one example was taken into consideration. Hence, 25 examples of the use of this term were analysed.

The limitations of such research is clear: it is likely that other EU-related web pages including the term "non-technological innovation" exist and also other search engines could be used during the research. However, the purpose of this research was not to cover all the possible examples, but to identify the different approaches in the understanding and interpretation of the term "non-technological innovation" present on EU-related web pages. I found that there is no one common use and understanding of the term, but that it is used in different contexts and with diverse authors the term is used in different ways and with different meanings.

In Table 5 an attempt to demonstrate a classification of the different ways, in which the term non-technological innovation is understood, was made; the cases were grouped in three categories of interpretation (i.e. Umbrella Term, Tech Vs. Non-Tech and A Type of Non-R&D

Innovation). In Appendix B there is the detailed list of the examples of the different uses of this term in the EU context. The terms “technological innovation” and “R&D related innovation” were used as synonymous, while their opposite and complementary term was “non-technological innovation”.

“Non-technological innovation” is used as an Umbrella Term, when all the subsets of innovation that are not directly related to technology are covered (e.g. organisational innovation, marketing innovation, etc.). In some cases the term “non-technological innovation” is used in contrast with the term “technological innovation” (i.e. Tech VS. Non-Tech), but this does not necessarily mean that is used as a collective term to include all the various forms of innovation not related to R&D. Instead it recognises the fact that innovation can also have non-technological aspects. Furthermore, the term “non-technological innovation” is often used to describe one type of innovation that is not related to technology (i.e. A Type of Non-R&D Innovation), assuming that non-technological innovation is just one form of non-R&D related innovation and that it is at the same level with the other forms such as service innovation or marketing innovation; in some cases it is understood as a synonym to other forms of non-R&D innovation.

Table 5. Different uses of the term “non-technological innovation” in the EU context

Uses of the term	Example
Umbrella Term	“Expressed in its simplest form, non-technological innovation covers all innovation activities which are excluded from technological innovation” (OECD; European Commission; Eurostat, 1997, p. 88).
Tech VS. Non-Tech	“The activities cover both technological and non-technological innovation , corresponding to the broad approach to innovation taken in the Innovation Union” (Questions & Answers - Horizon 2020, 2013).
A Type of Non-R&D Innovation	“The Structural Funds regulation allows support to service industry, service innovation as well as non technology innovation both directly and indirectly” (Schade et al., 2011, p. 11).

4 REGIONAL POLICY OF THE EUROPEAN UNION

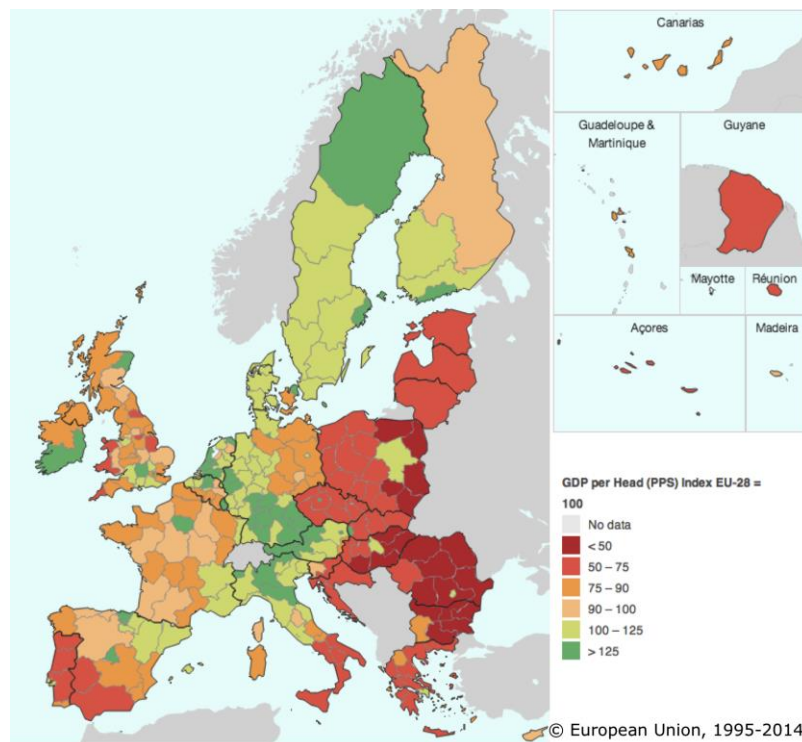
Regional policies are relevant, because they can provide sustainable ways of growth and contribute to economic recovery (OECD, 2009a). According to the OECD (2009b, p. 12) regional policies can maximise public investments’ impact, target needy regions in an effective way, exploit regional development agencies’ experience and ensure the mobilisation of local/regional knowledge, capacity and funds. Barca (2003) pointed out that regional policies should change in order to increase economic and social cohesion due to the regional disparities still existing in Europe. The EU has developed an active policy to redistribute resources among various European regions and countries (i.e. regional dimension) and diverse groups of people (i.e. social dimension) (Senior Nello, 2012).

The objectives of the EU regional policy are stated in the article 2 of Treaty on European Union (1992) that says: “The Community shall have as its task [...] to promote throughout the Community a harmonious and balanced development of economic activities, [...] a high degree of convergence of economic performance, [...] and economic and social cohesion and solidarity among Member States”, but it is still an open question whether economic integration drives a major convergence between diverse regions or not (Senior Nello, 2012).

4.1 EU regional policy

The EU regional policy is an investment policy that has the purpose of attenuating the existing economic, social and territorial divergences in European regions. It helps achieve the Europe 2020 strategy objectives; it promotes economic growth, competitiveness, job creation, a better quality of life and a sustainable development (European Commission, 2014f). Figure 4 shows EU regional disparities in 2011 based on Gross domestic product (hereinafter: GDP) per capita (European Commission, n.d.-c).

Figure 4. Gross Domestic Product per capita, 2011 (purchasing power parity)



Source: European Commission, *Cohesion Policy Data*, 2014.

Initially cohesion policy was aimed at economic and social cohesion, but more recently a third dimension was added, the territorial cohesion, related also to the EU enlargement and aimed at reducing the disparities of new countries entering the EU (European Commission, 2014f; Senior Nello, 2012). Territorial cohesion deals with issues such as the development of cooperation between countries and regions, the improvement of connections between areas and the exploitation of diverse characteristics of EU territories (European Commission, 2014f).

4.1.1 A short history of EU regional policy

The EU financial instruments for cohesion and regional policy include the traditionally named Structural Funds besides other related instruments (Senior Nello, 2012). Up to 2006 the Structural Funds were the European Social Fund (hereinafter: ESF), the European Regional Development Fund (hereinafter: ERDF) and other two funds for agriculture/fisheries; in addition there were two related instruments: the European Cohesion Fund (hereinafter: CF) and the European Investment Bank (hereinafter: EIB) (Senior Nello, 2012). For the period 2007-2013 the EU instruments for economic and social cohesion increased to three: the ESF, the ERDF and the CF; two new funds for agriculture/fisheries and two related instruments (Senior Nello, 2012).

The ESF was created in 1960 after the Treaty of Rome with the purpose to foster employment opportunities by creating new jobs and facilitating training; the ERDF was created in 1975 and it is the biggest financial instrument for cohesion and its purpose is to attenuate regional divergences by promoting both public and private investments; the CF was part of the Maastricht package and its aim is to reduce social and economic disparities by helping those member states that have problems in adapting to the competitive environment of the economic and monetary union (i.e. eligibility criteria: country Gross National Income (hereinafter: GNI) per inhabitant is less than 90 % of the EU average) (European Commission, 2014f; Senior Nello, 2012).

Senior Nello (2012) divided the historical evolution of EU regional policies until 2007 into three periods: 1959-1975, where many national measures were taken, but there was no overall common policy; 1975-1988, when new European Commission initiatives were launched (e.g. ERDF) and measures were more coordinated; 1988-2006, a period of evolution of regional policies due to the introduction of various reforms and to the creation of Community Initiatives (i.e. encouraged cooperation of member states on common objectives). During the period 2000-2006 there were only four initiatives and among them there was INTERREG III for cross-border, transnational and interregional cooperation (Senior Nello, 2012).

4.1.2 The programming period 2007-2013

During 2007-2013 the expression cohesion policy is used instead of structural actions; there are three financial instruments (i.e. the two structural funds, ESF and ERDF, and CF) and 35,7 % of the EU budget is allocated to cohesion policy (i.e. € 347 billion, current prices) (European Commission, 2014g; Senior Nello, 2012). The cohesion policy's priorities evolve with time and Senior Nello (2012, p. 359) described the three objectives for cohesion policy during 2007-2013 that are presented in Table 6.

Structural funds and Cohesion Fund always involve co-financing (European Commission, 2014f). During this period various changes were implemented (e.g. in operating procedures) and the cohesion policy was closely connected to the Lisbon Strategy; it aimed at fostering investments, innovation, knowledge society and new jobs (Senior Nello, 2012). Within the

Objective 3 EU established a legal entity to promote European Territorial Cooperation, which is the European Grouping for Territorial Cooperation (hereinafter: EGTC) (Senior Nello, 2012).

Table 6. Objectives of EU Cohesion Policy 2007-2013

Objective	% of funds	Type of Fund	Description
Objective 1 Convergence	81,6	ESF ERDF CF	To support those regions with GDP per capita less than 75 % of EU average to foster the economic convergence of poorer regions
Objective 2 Regional Competitiveness and Employment	15,9	ESF ERDF	To improve regional competitiveness and attractiveness with regional development programmes in order to promote innovation, the knowledge society, entrepreneurship, etc.
Objective 3 European Territorial Cooperation	2,5	ERDF	To increase cooperation at different levels: cross-border cooperation, cooperation between transnational areas and cooperation all over Europe

Source: S. Senior Nello, *The European Union : economics, policies and history*, 2012.

4.1.3 The future of EU regional policy

As indicated in the cohesion policy the EU is investing in smart, sustainable and inclusive growth accordingly to the Europe 2020 strategy through ERDF, ESF and CF, which together represent one third of the EU total budget (i.e. € 351,8 billion); therefore cohesion policy during the period 2014-2020 will be the main investment instrument to achieve the Europe 2020 goals (European Commission, 2014f). In order to reach those goals the ERDF will be oriented towards key areas, for example the support for SMEs should be doubled from € 70 to € 140 billion in the seven year timeframe (European Commission, 2014f).

The European Commission collaborates jointly with the Managing Authorities in EU countries and regions in order to be certain of the appropriate use of the resources coherently with the EU objectives (European Commission, 2014f). According to the European Commission (2014h) more than half of investments during the period 2014-2020 will be focused on the following priorities: (1) investing in growth and in particular in research and innovation, ICT, competitiveness of SMEs and low-carbon economy through ERDF; and (2) investing in people and in particular in employment and mobility, better education, social inclusion and better public administration through ESF.

All regions will benefit from cohesion policies in different measures according to the level of development (i.e. less developed, transition and more developed regions); in general there will be a simplification with common rules for all funds, greater use of digital technology (i.e. e-cohesion), simpler accounting rules and a better focus on results due to clear and measurable

aims and targets with adequate indicators, reporting, monitoring and evaluation (European Commission, 2014h).

4.1.4 The characteristics of regional policy

Regional policy refers to many levels: the EU, national, regional and also local level; both national and regional bodies are in charge of implementing the policy together with the European Commission (European Commission, 2014f). The Commission comes to an agreement with national authorities on Partnership Agreements and on Operational Programmes, which cover one state or region or more countries in case of cooperation programmes; then ‘managing authorities’ in each country/region plan and manage the implementation of programmes in each competence area, also by choosing projects (European Commission, 2014f).

There are four principles of operation of the cohesion policy: concentration, in terms of resources, effort and spending; programming (i.e. design, management, implementation, monitoring, and evaluation of programmes); partnership (i.e. programming is a collective process with close cooperation of the European Commission and appropriate national, regional and local authorities and stakeholders); and additionally, because the resources are additional to national financing and do not replace it (European Commission, 2014f; Senior Nello, 2012).

With the participation of national, regional and local authorities there is a decentralisation of decision making and this could imply complex and bureaucratic procedures (Senior Nello, 2012). Furthermore, it is very complicated to evaluate the success of structural measures due to their long-term effects and the difficulties to isolate the single measure effect from the effects of national or regional policies; another point to consider is the difference in the ability to implement structural measures between the EU member states, as there can be differences in administrative capacity that could affect measures’ effectiveness (Senior Nello, 2012).

Crescenzi and Rodríguez-Pose (2011) pointed out the relationship between innovation and regional growth, because intensified innovative efforts that result in positive results could support growth performance, also at the regional level. The analysis of EU growth dynamics revealed that due to the influence of local factors there could be different outcomes in different regions (Crescenzi & Rodríguez-Pose, 2011). Crescenzi and Rodríguez-Pose (2011) showed with an empirical analysis that EU regional policy funds’ distribution does not effectively address disadvantaged socio-economic factors of regions. A combination of bottom-up and top-down policies should target many developmental factors such as innovative activities, socio-economic conditions and geographical factors/accessibility (Crescenzi & Rodríguez-Pose, 2011).

4.2 Cooperation between regions and countries

According to thematic concentration, the European Commission (2014f) with ERDF directs its actions to the following priority areas: innovation and research, the digital agenda, support for

SMEs and the low carbon-economy. In the European Territorial Cooperation programmes at least 80 % of investments will be focused on these priority areas (European Commission, 2014f). Furthermore, the European Council introduced an integrated framework of ‘macro-regional strategy’ in order to support a successful cooperation/cohesion in a defined geographical area, where different member states and third countries are present (European Commission, 2014f). The EU has already developed three strategies at the ‘macro-region’ level (i.e. EU strategies for the Baltic Sea region, the Danube region and the Adriatic and Ionian region); the European Commission is also preparing a strategy for the Alpine region (European Commission, 2014f).

4.2.1 European Territorial Cooperation

The European Territorial Cooperation is fundamental for European integration in order to create a common European territory, where borders are not seen as obstacles, but as opportunities (European Commission, 2014f). The OECD (2013) identified the three principal ways, in which regions can cooperate internationally to sustain research and innovation: cross-border collaboration (of neighbouring regions), transnational collaboration (at macro-region level) and inter-regional collaboration (of non-contiguous regions).

During the period 2007-2013 the Objective 3 of the EU cohesion policy (i.e. the European Territorial Cooperation) was implemented through three types of programmes following such structure and the European Commission (2014f) described them in the following way:

- 53 cross-border cooperation programmes, which received € 5,6 billion of ERDF contribution and covered areas across two EU internal borders. The aim of these programmes is to overcome the problems connected to borders intended as obstacles (i.e. administrative, legal, physical, cultural and linguistic barriers), resolve common difficulties and exploit the potential opportunities; they also support a large variety of actions such as the promotion of entrepreneurship and the development of SMEs (European Commission, 2014f).
- 13 transnational cooperation programmes, which received € 1,8 billion of ERDF contribution and referred to larger territories of cooperation (e.g. the Baltic Sea, Alpine regions); due to these programmes the regional development received a European perspective, because regions from different EU states cooperate together in many fields: environment, accessibility, sustainable urban development and innovation (European Commission, 2014f).
- The interregional cooperation programme (INTERREG IV C) and three networking programmes (Urbact II, Interact II and ESPON) that received € 445 million of ERDF contribution; they include all European member states in order to facilitate the exchange of experience and good practice among various regional and local actors from diverse countries at the pan-European level (European Commission, 2014f).

The ERDF finances the European Territorial Cooperation objective through those three types of programmes; furthermore, it contributes to the participation of member states in EU external

border cooperation programmes that are sustained with other instruments such as the Instrument for Pre-Accession Assistance (hereinafter: IPA), which finances cross-border cooperation involving EU member states, candidate countries and potential candidate countries (European Commission, 2014f). In addition, a new legal entity was introduced to support and facilitate the different forms of international cooperation within EU and that is the EGTC, where established cooperation groupings can have a legal personality (European Commission, 2014f).

4.3 Innovation and SMEs in regional policy

Regional economies should be able to innovate and evolve in a dynamic and competing environment; therefore it is important to design an appropriate eco-system for stimulating innovation, R&D and entrepreneurship and to reduce regional disparities (European Commission, 2014f). Innovation is an essential element of cohesion policy; in the programming period 2007-2013 close to 25 % of the resources were distributed for various forms of innovation (i.e. R&D and innovation in the narrow sense, entrepreneurship, ICT, human capital) including experimental and innovative actions, while during 2014-2020 period 30 % of allocations are for innovation conceived in a broad term (European Commission, 2014f).

During the period 2007-2013 the “Regions for Economic Change” initiative was developed under the interregional cooperation programme; that is a learning platform for EU regions to promote the exchange of good practices of regional development and innovation at the regional level (European Commission, 2013b). A strategic approach is needed in order to create a national and regional smart specialisation strategy (hereinafter: RIS³), where all the relevant actors are included to concentrate limited resources on the key areas; therefore member states and regions will have to prepare those strategies (European Commission, 2014f).

According to the European Union (2011, p. 7) the smart specialisation “promotes efficient, effective and synergetic use of public R&I investments and supports Member States and regions in diversifying and upgrading existing industries and in strengthening their innovation capacity”. The European Commission also created the Smart Specialisation Platform to support the RIS³ development by offering technical support and expert advice to EU countries and regions (European Commission, 2014i). Coherently with the concentration of effort principle, ERDF investments for the 2014-2020 period will focus on the four key thematic priorities (i.e. research and innovation, the digital agenda, support for SMEs and the low-carbon economy); investments in innovation will also target the RIS³ implementation (European Commission, 2014f).

The European Union (2011, p. 9) identified the following new opportunities for regional innovation: (1) innovation clusters for regional growth, which are relevant in smart specialisation strategies; (2) innovation-friendly business environment for SMEs that can be created by promoting entrepreneurial attitudes and innovative mind-sets, by kick-starting and growing innovative businesses, by focusing on financial engineering support and by creating synergies around SME support; (3) education, training and lifelong learning in research and innovation, because the collaboration of higher education institutions and research centres can help the firms

to commercialise their innovations; and (4) other key areas, which include attractive regional research infrastructures and centres of competence, creativity and cultural industries, the Digital Agenda, public procurement of innovation and increased synergies between policy instruments.

It is not only the Cohesion policy that fosters innovation, therefore the European Commission supports the various innovation actors, member states and regions to exploit synergies between the different EU programmes (European Commission, 2014f). Considering the combined funding of EU programmes for research, innovation and competitiveness (i.e. ERDF, CF, ESF, Horizon 2020 and other programmes directly managed by the Commission) there cannot be any substitution of co-funding or double financing, while synergies among programmes can be obtained with complementary parallel projects or successive projects that build on each other (European Commission, 2014j).

4.3.1 Regional policy for SMEs

The SME competitiveness is one of the five key elements of the Cohesion Policy 2014-2020 (European Commission, 2014f). It is important to develop place-based support service schemes within a RIS³ and to design support services to boost SME investments in research, development and innovation and to increase SME competitiveness (European Commission, 2013d). Table 7 presents an EU approach towards regional innovation and specifically the policy tools to reach RIS³ objectives of Research and Development plus Innovation (hereinafter: R&D+I) and of Competitiveness.

Some tools such as vouchers and coaching/mentoring address various targets both for R&D+I and competitiveness objectives. The European Union is also fostering the public procurement of innovation consistently with the Europe 2020 strategy, therefore innovative or first commercialised goods should be considered in procurements (European Commission, 2014i; European Union, 2011a). Research and innovation programmes for SMEs should be prepared according to SMEs needs (e.g. simple rules for participation and financing) and should consider the entire innovation cycle; for example micro-grants (e.g. innovation voucher schemes) can boost both technological and organisational innovation in SMEs (European Union, 2011a).

Structural Funds such as ESF and ERDF can contribute to the promotion of entrepreneurial skills and to development of entrepreneurial mind-sets, especially in young people; therefore it is important to foster creativity, innovation and entrepreneurship skills with training and at school, in all types and levels of education (European Commission, 2012c). Furthermore, it is necessary to extensively spread information about Structural Funds opportunities targeting SMEs and entrepreneurship to support regional projects (European Commission, 2013e).

In order to react to the consequences of the financial crisis, the SMEs' access to finance has been improved, because they have the possibility to use EU Structural Funds as a guarantee to obtain credit (European Commission, 2014f). Furthermore, supporting SMEs can significantly contribute to the regional economies' development, because SMEs are very important actors of

the European economy representing 99 % of businesses and almost two thirds of all private sector jobs in the EU (European Commission, 2013c). SMEs can face many difficulties (e.g. lack of experience, limited resources), but the EU intends to overcome them with both direct measures and indirect ones such as business support services or training (European Commission, 2013c).

Table 7. Tools for R&D+I and Competitiveness RIS³ Objectives

R&D+I RIS³ Objectives	Dedicated Tools	Competitiveness RIS³ Objectives	Dedicated Tools
Increasing the number of enterprises engaged in R&D activities	Enterprise/university networks Grants for R&D activities Feasibility studies to access grants Reimbursable loans Research intensive clusters Vouchers	Improving product/service/process quality Access to external funding sources	Coaching/mentoring Vouchers Living Labs Design Investment readiness Public financial engineering schemes
Commercialisation of R&D results - licensing	Coaching/mentoring IPR valuation Technology brokerage	Hiring qualified staff	Vocational training schemes Student PhD placement
Commercialisation of R&D results through spin-offs/ start-ups	Seed capital Incubator Prototyping Living labs Fab labs Accelerator	Access to high value added support services Enhancing innovation management	Vouchers Clusters Mentoring /coaching Vouchers
Supporting service innovation	Living labs Voucher for design advice	Enhancing growth	Coaching/mentoring Vouchers
Supporting the introduction of new innovative products/ services to the market	Coaching/mentoring Market replication Pre-commercial procurement Large-scale demonstrators	Increasing the number of SMEs engaged in cooperation	Clusters Vouchers Meet the buyer Matchmaking
Supporting social innovation	Incubator User-driven innovation		
Increasing the number of enterprises engaged in transnational R&D activities	Advice and support for feasibility studies to be in transnational consortia		

Source: European Commission, *Regional policy for smart growth of SMEs. Guide for Managing Authorities and bodies in charge of the development and implementation of Research and Innovation Strategies for Smart Specialisation*, 2013d.

4.3.2 A focus on non-technological innovation

Regarding the tools to improve regional support services for SMEs the European Commission (2013d) identified that inter alia vouchers, training and matchmaking can contribute to both technological and non-technological innovation. It is important to follow a systemic and cross-sectoral approach to foster service innovation (European Commission, 2012d). In the European Commission's definition service innovation is a broad term that includes many forms of non-technological innovation. In Table 8 an overview of support instruments fostering and exploiting service innovation is presented. Different instruments address different targets of support: innovation management support helps companies, while living labs improve the business environment and public procurement initiatives can contribute at the market level.

Table 8. Overview of support instruments to unlock the potential of service innovation

Support instruments at the company level	Support instruments at the sectoral, business environment level	Support instruments at the market level and to promote spill-overs
Design innovation clinics	Design centres	Regional awareness raising measures
Supply-side innovation vouchers	Living Labs	Incentives for cooperation between manufacturing companies and designers
Innovation management support	Support to clusters in emerging industries driven by service innovation	Demand-side innovation vouchers
Facilitating access to finance Service incubation centres	Innovation assistance	Public procurement initiatives

Source: European Commission, *The Smart Guide to Service Innovation. Guidebook Series How to support SME Policy from Structural Funds*, 2012d.

The Take it up project under the Europe Innova initiative analysed the use of Structural Funds for non-technology and service innovation. Firms can have non-technological innovations targeting services to industry (e.g. marketing, design, open innovation), services embedded to products such as financing/leasing a product or mobile phone application, services to people and public support services to enterprises (e.g. private-public partnership) (Schade et al., 2011). In addition, some sectors rely more on non-technology innovation (e.g. tourism, e-commerce, creative industries, finance, counsel, design and retail), but also manufacturing industries can exploit its positive effects (Schade et al., 2011).

Unfortunately, public innovation support for SMEs does not properly address non-technological and non-R&D activities (Schade et al., 2011). Hence, innovation policy should increase the awareness of the importance of service and non-technology innovation, support appropriate activities, increase the competitiveness of non-manufacturing sectors, encourage entrepreneurial

initiative and take market measures (Schade et al., 2011). In the Take it up report Schade et al. (2011, p. 3) pointed out that “without necessarily making a clearly earmarked objective, the ERDF regulation allows the support to the services industry in general and to the development of service innovation both directly and indirectly”.

Almost all operational programmes promote generic actions that can foster service innovation (e.g. clusters, tourism, e-business), but only 75 of them out of more than 200 precisely mention it; furthermore only a small amount of projects in the four considered regions focus on non-technological innovation and often universities and public research institutions benefit more from ERDF innovation support than clusters and business associations (Schade et al., 2011). Public authorities should design policies that both promote the use of enabling technologies and the creation of non-technological innovation (European Commission, 2013d).

5 A STUDY ON NON-TECHNOLOGICAL INNOVATION IN SMES IN EU PROGRAMMES INCLUDING SLOVENIA AND ITALY

A study in order to identify which measures or actions could effectively foster non-technological innovation in SMEs was conducted. A non-technological innovation in SMEs from the EU perspective was considered, specifically by taking into consideration the EU regional innovation policy. The geographical focus was placed on cases of Slovenia and Italy, two European countries with different characteristics. In particular projects co-funded by various European programmes that included both Slovenian and Italian partners were examined.

In the following sections a description of the aims of the research and of the research questions is provided; an explanation of what is intended by the term EU regional innovation policy follows; then there is a short presentation of the cases of Slovenia and Italy including the EU programmes involving those two countries (in particular European Territorial Cooperation); finally there is the description of the methodology of the research and of the template analysis (i.e. the chosen technique for analysing collected data).

5.1 Research questions

Innovation is an important source of competitive advantage for companies in the current globalised market characterised by the knowledge economy (Dess & Picken, 2000; OECD, 2010). While the traditional concept of innovation was related only to R&D, in the last years a new approach developed and also non-technological aspects of innovation became important (OECD, 2011). However, not everyone is aware of the importance and of the potential of non-technological innovation and many innovation policy measures do not address it specifically (Schade et al., 2011). States have the role to create the appropriate environment in order to support innovation activity (Bučar & Stare, 2003).

A single state was not considered, but a supranational entity, the EU was. Nonetheless, the EU innovation policy was taken into consideration at the regional level, because there could be an interesting relation between innovation and regional growth (Crescenzi & Rodríguez-Pose, 2011). EU programmes, in particular cross-border and/or transnational ones, could contribute to the regional development, where regions are intended in a broader sense, not just delimited by national borders. Non-technological innovation was the focal point and it was researched in the EU innovation policy at regional level, in particular in the cases of Slovenia and Italy and specifically by concentrating on SMEs.

Due to the fact that there is no specific non-technological innovation policy literature directly addressing SMEs, different thematic areas were studied (i.e. non-technological innovation; regional development, SMEs and innovation policy; EU innovation policy and EU regional policy) adopting a multilevel approach with the intention to highlight the key features of non-technological innovation and of the innovation policy measures fostering it, especially in relation to SMEs. A multilevel approach is the appropriate one for researching non-technological innovation (Černe, 2013).

The research questions underlying this work are the following: What are the key elements of effective EU regional innovation policy measures fostering non-technological innovation in SMEs? How non-technological innovation, projects co-funded by EU programmes with SMEs and territorial development are related?

The master's thesis' purpose is the identification of those aspects of EU regional innovation policy measures that successfully stimulate non-technological innovation in SMEs, with a particular focus on EU programmes including Slovenia and Italy. By adopting a multilevel approach different objectives will be pursued both at the micro and macro level: (1) To investigate non-technological innovation in SMEs and raise awareness and knowledge on it; (2) To identify stimuli and barriers to innovation and to non-technological innovation in particular; (3) To analyse the effects of EU regional innovation policy measures in the considered area; (4) To understand how to foster non-technological innovation in SMEs.

At this point it is important to define what is intended by EU regional innovation policy. There is not a unique EU regional innovation policy, because on one hand innovation policy is mainly considered within the DG Enterprise and Industry and the DG Research and Innovation, on the other hand a regional level of analysis is mostly present in the DG Regional and Urban Policy, even if the European Commission is making efforts to enable and exploit synergies among various funds related to different DG-s (European Commission, 2014j). Hence, a decision was made to focus on the aspects of the EU regional policy that take into consideration innovation, since innovation has a positive impact on regional growth (European Commission, 2014f).

Innovation is an important element in the EU regional and cohesion policy and in RIS³; therefore innovation policy measures within EU regional policy are considered in this research. Furthermore, non-technological innovation is not directly targeted by EU policy measures that

mainly consider innovation in general. EU recognises the importance of non-technological aspects of innovation, especially in terms of service innovation, but it does not target them specifically with regional policy measures (Schade et al., 2011). I tried to find the key features of non-technological innovation that were present in EU policies by reviewing EU official documents in addition to other reviewed literature.

When discussing the EU regional innovation policy with a geographical focus on Slovenia and Italy, EU programmes simultaneously including Slovenia and Italy are considered together with the regional development of the macro-region including the common transnational area of Slovenia and Italy. The fact of considering EU programmes directly targeting both Slovenia and Italy, apart from other countries, means focusing mainly on the EU Cohesion Policy and in particular on the European Territorial Cooperation objective during the programming period 2007-2013 (i.e. cross-border and transnational cooperation programmes).

5.2 Cases of Slovenia and Italy

Slovenia and Italy are very different European countries: one is a small and young EU member state that had a transition economy; the other is a large G8 country, a founding country of the EU. In the following sections there is a short description of the business environments and the characteristics of Slovenia and Italy, followed by a presentation of the EU funding programmes including Slovenia and Italy.

5.2.1 Characteristics of Slovenia and Italy in brief

According to the Global Competitiveness Index (hereinafter: GCI) for 2014-2015 prepared by the World Economic Forum (hereinafter: WEF) Italy holds the 44th position, while Slovenia is in 70th position; Italian GDP per capita for 2013 in US dollars amounted to \$34.714,70 and the Slovenian one to \$22.756,02 (WEF, 2014). Italian strengths are infrastructures, market size, health and primary education, while weaknesses are labour market efficiency and financial market development. Financial market development is a Slovenian weakness too, whereas health and primary education and higher education and training are Slovenian strengths (WEF, 2014).

In the Innovation Union Scoreboard 2014 EU countries are grouped according to their innovation performance in respect to the EU average; Slovenia is an Innovation Follower in a group with other countries that have an innovation performance above or close to the EU average, while Italy is the top performer of the Moderate Innovators group with an innovation performance under the EU average (European Commission, 2014k). Slovenia best performs in terms of Firm investments (firm activities), while it has a weaker performance in the dimension Innovators (outputs) aspect; in addition, Slovenia is the growth leader of Innovation Followers (European Commission, 2014k).

Slovenia is relatively strong in R&D expenditures in the business sector, but it had a big decline in the growth of Non-R&D innovation expenditures (European Commission, 2014k). Italy is performing well in its group of Moderate Innovators, but for most indicators Italian performance is below the EU average (European Commission, 2014k). Italy is relatively weak in terms of Innovative SMEs collaborating with others and relatively strong for Community designs, but there is a growth decline in Community design, in Non-R&D innovation expenditures and in Venture capital investments (European Commission, 2014k).

5.2.2 EU programmes involving Slovenia and Italy

Slovenia and Italy as EU member states can participate in all the EU directly managed programmes (e.g. CIP and FP7 for period 2007-2013). Cohesion policy covers all regions in the EU and consequently also Slovenian and Italian regions (European Commission, 2014f). In this work a specific territory was researched instead of considering the whole EU. The cases of Slovenia and Italy were considered as well as the regional development of the cross-border, common area (i.e. a focus on the EU programmes including Slovenia and Italy simultaneously).

The attention was concentrated on projects financed by the EU involving Slovenian and Italian partners at the same time, therefore especially programmes of European Territorial Cooperation (i.e. cross-border and transnational) were taken into consideration, mainly during the programming period 2007-2013. In the case of cross-border cooperation only Slovenia and Italy are considered, while in transnational programmes Slovenian and Italian partners participate in a multi-national consortium with partners from other neighbouring countries. Focusing on cohesion policy, during the programming period 2000-2006 Slovenia was under the Objective 1 and also the Italian southern regions plus the isles, while the other Italian regions were under the Objective 2 and 3 (European Commission, 2014f).

During the programming period 2007-2013 each region in the EU was covered by two out of three cohesion policy's objectives (i.e. Convergence, Regional Competitiveness and Employment, and European Territorial Cooperation objective) in different measures coherently with their GDP per capita in relation to the EU average (European Commission, 2014f). The Convergence objective covered the whole Slovenian territory and four Italian southern regions; the Regional Competitiveness and Employment objective targeted all the regions not included in the Convergence objective or in "phasing out" assistance (European Commission, 2014f).

For the period 2014-2020 all the regions in the EU can benefit from the Structural Funds (i.e. ERDF and ESF), but in different measures according to their GDP per capita in relation to the EU-27 average; there are Less Developed regions, Transition regions and More Developed regions (European Commission, 2014f). Hence, both Slovenia and Italy will use Structural Funds during the programming period 2014-2020 (European Commission, 2014f). The countries that are eligible for the Cohesion Fund support have a GNI per capita below 90 % of the EU average and Slovenia is among them for the period 2014-2020 (European Commission, 2014f). The European Territorial Cooperation objective is described in detail in the next section.

5.2.2.1 European Territorial Cooperation

Considering the cooperation between European regions during the programming period 2000-2006 the Interreg III initiative aimed at increasing cohesion in the EU and promoting trans-European cooperation (European Union, 2005). According to the European Union (2005) Interreg III consisted of three strands: (1) strand A cross-border cooperation; (2) strand B transnational cooperation; and (3) strand C interregional cooperation.

The Community Initiative Programme INTERREG IIIA Italy-Slovenia included the following areas for the Italian part: the Provinces of Udine, Gorizia and Trieste located in the Region of Friuli Venezia Giulia and the Province of Venezia in the Veneto Region plus some other areas for special Programme Interventions (Interreg Italy Slovenia, 2014). Eligible areas of financing for the Slovenian side, on the other hand, were the two statistical regions Obalno-kraška and Goriška and the municipality of Kranjska Gora (Interreg Italy Slovenia, 2014). The map of the eligible areas is available in Appendix C. Slovenia and Italy also participated in programmes of transnational cooperation such as CADSES and Alpin Space (European Commission, 2014f).

In the analysis conducted within the iCON project (i.e. a project co-funded by EU within the cross-border cooperation programme Italy-Slovenia 2007-2013) Informest (2010) identified that among all projects co-funded by the EU for economic cooperation between Italy and Slovenia there were some that were aimed at fostering innovation and sustaining competitiveness of SMEs in the considered area, but the economic systems across borders of Italy and Slovenia were not very connected. The EU cooperation programmes during the period 2000-2006 and before helped the collaboration across borders between local authorities, but they were not able to create an integrated approach of common socio-economical development of the area; furthermore, Slovenia unlike Italy has no regional administrative level and this can be a problem (Informest, 2010).

In Table 9 there is a list of the regional development programmes for the programming period 2007-2013 for cross-border and transnational cooperation directly involving Slovenia and Italy simultaneously. In Appendix C the maps with the specific eligible areas of each programme are presented. During period 2007-2013 at the national level all the Slovenian territory was eligible under the Convergence Objective (European Commission, 2014f).

Under the European Territorial Cooperation Objective regarding cross-border cooperation programmes Slovenia was involved in the Italy-Slovenia, Slovenia-Austria, Slovenia-Hungary and Slovenia-Croatia IPA programme; while in transnational programmes Slovenia, with specific areas, participated in the following programmes: Alpine Space, Central Europe, Mediterranean Programme, South-East Europe and Adriatic IPA Cross-border Programme (European Commission, 2014f).

Table 9. European Territorial Cooperation programmes involving Slovenia and Italy of the programming period 2007-2013

Programme	Countries involved
Cross-border cooperation programme	
Italy-Slovenia	Italy, Slovenia
Transnational cooperation programme	
Alpine Space	Germany, France, Italy, Austria and Slovenia (with participation from Liechtenstein and Switzerland)
Central Europe	Czech Republic, Germany, Italy, Hungary, Austria, Poland, Slovenia and Slovakia (plus Ukraine)
Mediterranean Programme	Cyprus, France, the United Kingdom, Greece, Italy, Malta, Portugal, Slovenia, Spain (with participation of Croatia, Bosnia and Herzegovina, Montenegro and Albania with IPA funds)
South East Europe (SEE)	Albania, Austria, Bosnia and Herzegovina, Bulgaria, Romania, Croatia, the former Yugoslav Republic of Macedonia, Greece, Hungary, Serbia, Montenegro, Slovakia, Slovenia, Moldova, Italy and Ukraine
Cross-border co-operation under Instrument for Pre-Accession Assistance (IPA)	
Adriatic IPA Cross-border Programme	Greece, Italy, Slovenia, Croatia, Albania, Bosnia and Herzegovina, Montenegro

Source: European Commission, *Regional Policy – InfoREGIO*, 2014f.

At the national level four Italian southern regions were under the Convergence objective (Campania, Puglia, Calabria and Sicilia), one was a phasing-out region (Basilicata) and all the other Italian regions were under the Regional Competitiveness and Employment objective with their specific Operational Programmes (European Commission, 2014f). For example the Friuli Venezia Giulia region that is on the border with Slovenia had its own programme co-funded by ERDF under the Regional Competitiveness and Employment Objective with six priorities also including Innovation, research, technology transfer and entrepreneurship (European Commission, 2014f).

Under the European Territorial Cooperation Objective co-funded by ERDF Italy participated (i.e. specific Italian areas were eligible) in the following cross-border cooperation programmes: Italy-Slovenia, Italy-Austria, Italy-Switzerland, Italy-France ALCOTRA, Italy-France Maritime, Italy-Malta and Greece-Italy (European Commission, 2014f). Considering transnational programmes Italy was included in the Alpine Space, Central Europe, the Mediterranean Programme, South-East Europe and Adriatic IPA Cross-border Programme (European Commission, 2014f).

The focus of this research is on the European Territorial Cooperation programmes including Slovenia and Italia, so in particular on the Operational Programme (hereinafter O.P.) Italy-Slovenia 2007-2013. In the O.P. Italy-Slovenia 2007-2013's official website Programme Italy

Slovenia (2014) the general objective is stated: “Enhance the attractiveness and competitiveness of the Programme-area”. In order to reach this objective four specific objectives were defined with reference priority axes (Programme Italy Slovenia, 2014); they are presented in Table 10.

Table 10. Priority axes of the Operational Programme Italy-Slovenia 2007-2013

Priority axis	Specific Objective
Priority axis 1. “Environment, transport and sustainable territorial integration”	Ensure sustainable territorial integration
Priority axis 2. “Competitiveness and knowledge based society”	Increase competitiveness and development of a knowledge-based society
Priority axis 3. “Social integration”	Improve communication, social and cultural cooperation, also in order to remove persisting barriers
Priority axis 4. “Technical assistance”	Improve the efficiency and effectiveness of the Programme

Source: *Programme Italy Slovenia*, 2014.

The Priority axis 2 is the one closest to the topic of non-technological innovation and SMEs, therefore the projects financed under this axis were considered with particular attention. The Priority axis 2 has the following operational objectives, as they are listed in the O.P. Italy-Slovenia 2007-2013’s official website Programme Italy Slovenia (2014): (1) Increase competitiveness of SMEs; (2) Jointly develop tourism potentials; (3) Promote research and innovation to the development of a knowledge-based economy; and (4) Improve and qualify employment potentials through co-ordinated higher-education and training.

The O.P. Italy-Slovenia 2007-2013 provides for different types of interventions within the Priority axis 2 such as fostering synergies through the collaboration among institutions/ organisations/ enterprises (e.g. enterprise incubators, innovation centres, scientific/technological parks) and an incremented use of ICT in firms (Programme Italy Slovenia, 2014). Even if non-technological innovation is not directly named, there is space for it in the O.P. Italy-Slovenia 2007-2013, because innovation is defined in broad terms. For example non-technological innovations can be developed in the tourism sector (OECD, 2010), which is considered with special attention in the O.P. Italy-Slovenia 2007-2013 (Programme Italy Slovenia, 2014).

Transnational programmes aim also at fostering regional growth, innovation and SME development; they are tailored to specific characteristics of the target territories. For example in the Alpine space programme 2007-2013 the Priority 1 Competitiveness and Attractiveness includes the objective “strengthening innovation capabilities of SMEs” (Alpin Space Programme, 2014). For the programming period 2014-2020 EU Partnership Agreements and draft Cohesion Policy Operational Programmes of member states are still being adopted and analysed; the planned conclusion of this phase is in Autumn 2014 (European Commission, 2014f).

5.3 Methodology

Non-technological innovation is a relatively new concept or better is a relatively new term, because there have always been non-technological aspects of innovation, but in the last years a new awareness about non-technological innovation has emerged. The study has a mix of explanatory and exploratory nature with a geographical focus on the common cooperation area of Slovenia and Italy and uses qualitative data.

In some aspects it is explanatory, because it attempts to find out a causal relationship between different phenomena, but it is mainly exploratory due to the openness of the questions and its aims to examine in depth and to better understand the topics related to non-technological innovation (Saunders, Lewis, & Thornhill, 2012). For exploratory studies it is useful to have in-depth and semi-structured interviews; in addition such studies are flexible, suitable for complex themes and it is possible to make changes during the research (Saunders et al., 2012).

Semi-structured interviews are not standardised and initially the researcher has a list of topics and some relevant questions to address, but the concrete questions or the order of questions could change from interview to interview and also additional questions could be combined according to the conversation's flow (Saunders et al., 2012). A semi-structured interview is flexible and in researches with a defined focus gives the possibility to examine in depth specific aspects of the topic (Bryman & Bell, 2007). Considering the complexity of the topic and the characteristics of the research semi-structured interviews were used.

The initial target was 20 semi-structured interviews, of which ten with representatives of institutions operating in the considered area and ten with representatives of SMEs participating in projects co-funded by EU programmes (hereinafter: EU projects). In order to identify the proper organisations to be interviewed existing EU projects with Slovenian and Italian participants and SMEs of the programming period 2007-2013 were reviewed; in some cases the period 2000-2006 was also considered.

In the first projects' review the focus was put on projects co-funded by the cross-border cooperation programme Italy-Slovenia 2007-2013 under Priority axis 2 "Competitiveness and knowledge based society", because this programme included only Slovenian and Italian partners of the reference area and the specific objectives of this priority were addressing SMEs competitiveness and innovation, even if non-technological innovation was not directly named (Programme Italy Slovenia, 2014). It was apparent that a small number of SMEs directly participated as partners in those EU projects, mainly as support partners (e.g. an IT firm developing a website), while the majority of beneficiaries and partners were public authorities, universities and other organisations (e.g. development agencies, business associations).

Hence, in a second projects' review the scope of the research was extended to the various transnational cooperation programmes. In this case the SMEs participation was also not very

remarkable, therefore the target of interviews was changed, coherently with the exploratory nature of the study. The number of interviews to SMEs was reduced. It was still important to understand SMEs' needs and difficulties, even if information would be provided by SMEs of the reference area participating in other EU programmes. On other hand, instead of targeting only SMEs, additional interviews addressed business associations, trade unions and other organisations that have direct contacts with SMEs in order to get the SMEs' point of view.

Many important stakeholders of the considered territory, which are in touch with EU programmes' reality were involved in the research. The interaction among various stakeholders, organisations and enterprises influence regional performance (European Commission, 2014c). Regarding the selection of the organisations to interview, a purposive sampling approach was used, as the most appropriate people able to answer to the research questions were selected, but in some cases the snowball sampling technique was also used, since an interviewee suggested another organisation/person to take part in the interview (Saunders et al., 2012).

Especially when political authorities with a top-down approach promote cross-border cooperation, as in the case of the EU territorial cooperation objective, it is important to involve stakeholders (OECD, 2013). According to the OECD (2013) the "quadruple helix" approach consists in involving public authorities, companies, research and education organisations, and other members of the society (e.g. non-governmental organisations). Following the quadruple helix criterion 22 semi-structured interviews were conducted in total and 21 of them were included in the study and analysed; one interviewee did not want to participate directly in the study. Two other organisations were also contacted that did not respond or wish to participate.

After the projects' reviews two projects co-funded by the cross-border cooperation programme Italy-Slovenia 2007-2013 (i.e. iCON and T-LAB) that had elements of non-technological innovation were identified. Therefore a project partner for each project was contacted for an interview. Other interviewed organisations were selected because of their stakeholder's role in the considered area and in many cases they were both partners in some EU projects and key actors in the territory, so they provided insights from their double function. Furthermore, relevant institutions at regional and national level were taken under consideration. Table 11 presents the interviewed organisations selected following the criteria of the European Territorial Cooperation objective 2007-2013 in Slovenia and Italy with a multilevel approach.

Organisations that participate in cross-border or transnational cooperation programmes often participate also in other EU programmes. Programmes could be directly managed by EU (e.g. FP7, CIP) or included in the EU regional policy at the national or regional level such as ESF or ERDF. Based on their experience with EU programmes, the interviewees provided opinions on regional development, on SMEs' roles and on drivers of non-technological innovation. Two interviewed SMEs do not participate in the European Territorial Cooperation programmes, but their point of view as enterprises of the reference area involved in EU projects is still interesting for the study.

Table 11. Interviewed organisations

Type of organisation	Number	Country
EU Programme Authority	3	Slovenia, Italy
Public agency	2	Slovenia
Development agency	2	Slovenia, Italy
Research and Technology Centre	4	Slovenia, Italy
Business association/ business support provider	3	Slovenia, Italy
University	3	Slovenia, Italy
Expert in innovation policy	1	Slovenia
SMEs		
Technical support provider for EU projects	1	Italy
Technological SME participating in EU projects	2	Slovenia, Italy

5.3.1 The interviews

The data (21 interviews) was collected during the period from the end of June 2013 to the beginning of November 2013. All interviews were arranged in advance and audio recorded with the consent of the interviewees; in addition notes during the interviews were taken. Three interviews were conducted through Skype, while all other interviews were done at interviewees' workplace. Since the concept of non-technological innovation is relatively new, organisations for interviews that deal with innovation in general and with SMEs were selected.

Before each interview I contacted the interviewees, sent them a short interview guide with the questions in advance and explained that the aim of the interviews is to identify the key elements of EU regional innovation policy measures that foster non-technological innovation in SMEs. It can happen that someone implements a non-technological innovation, but they may not be aware of it and they may not understand it. Hence, it was explained at the beginning to each interviewee what was intended with the term non-technological innovation; overall the questions were open to let the interviewees freely express their thoughts and ideas on the topic. Furthermore, some questions were of probing type in order to explore some important topics or to understand some interviewees' statements and get an explanation (Saunders et al., 2012).

The interviews' topics were defined in advance with the questions (that were sent to interviewee before the interview), but during the conversation the questions' order was not strictly followed. According to the context of the interview some questions were partially modified, some questions were skipped or some new questions were added. The interviews' length ranged from 19 to 70 minutes. The interviews were conducted either in Slovenian or in Italian according to the interviewee's spoken language. In two cases there were more representatives of the same organisations and they were all interviewed simultaneously.

All the interviews were audio recorded, then verbatim transcribed and sent to the interviewees for approval. The interviewees were informed in advance that the verbatim transcripts of

interviews would be included in the master's thesis' Appendix and provided consent for the interviews' publication. The verbatim transcripts of all 21 interviews, previously reviewed and approved by interviewees, are available from the author upon request. More information about the interviews is available in Appendix D. Interviews are not anonymous due to the specific researched topics and the defined geographical area; for example interviewees described their experience of participating in specific EU projects. However, interviewed people agreed to that.

A problem of qualitative research is that it creates a large amount of data, for example with interviews' transcription (Bryman & Bell, 2007). In order to manage all the information efficiently NVivo software during interviews' transcripts analysis was used. The obtained data was analysed with a template analysis procedure, which initially has a deductive approach and then focuses on the inductive one (Saunders et al., 2012); it is described in the following section.

5.4 Template analysis

Template analysis is a procedure to analyse qualitative data that helps the researcher in organising the data and provides a structure for further analysis and interpretation (Cassell, 2008). According to Saunders et al. (2012, p. 572) "a template is essentially a list of the codes or categories that represent the themes revealed from the data that have been collected". Due to hierarchical coding data is well organised (King, 2014).

The initial template can be based on a priori themes determined by the researcher or on interviews' questions, which can be modified during the coding of interviews by adding new themes or changing their order, because templates are very flexible (Cassell, 2008; King, 2014). The final version of template, which includes all codes applied to transcripts, represents the main themes and relations within the analysed data and it is then useful for the interpretation of the data (King, 2014; Saunders et al., 2012).

5.4.1 After literature review and before the interviews

Building on the literature review the thematic areas for interviews' questions were determined and then two first templates that included all the questions' topics were prepared, one for interviews with SMEs (and SMEs support organisations), one for interviews with institutions. Table 12 shows the initial templates for SMEs' and institutions' interviews. During the literature review the attention was always put on non-technological aspects of innovation at each level.

Innovation policy instruments were researched in the following order: from more general regional ones to specific regional innovation policy instruments for SMEs; in particular a focus was given on cross-border regional innovation instruments, because European Territorial Cooperation programmes were mainly taken into consideration in the empirical part. The aim of the literature review was to identify the key aspects of (cross-border/transnational) regional innovation policy measures for non-technological innovation in SMEs.

Table 12. Initial templates

Template for SMEs' interviews		Template for institutions' interviews	
1 FACTORS THAT FOSTER INNOVATION		1 FACTORS THAT FOSTER INNOVATION	
1.1 IT system		1.1 Role of the institution	
1.2 Knowledge exchange	1.2.1 Capacity to absorb knowledge	1.2 Consideration of SMEs heterogeneity	
1.3 Open innovation	1.3.1 Universities-SMEs	1.3 Entrepreneurship culture	
		1.4 Local culture	
2 BARRIERS TO INNOVATION		1.5 Open innovation	1.5.1 Universities-SMEs
3 EU PROJECTS			1.5.2 Cluster and networks
3.1 Problems/changes	3.1.1 Communication problems	1.6 Capacity to absorb knowledge	1.6.1 Human resources enhancement
3.2 Results in terms of innovation		2 BARRIERS TO INNOVATION	
3.3 Information about EU programmes		3 EU PROJECTS	
4 NON-TECHNOLOGICAL INNOVATION		3.1 Results in terms of innovation	
4.1 Examples of non-technological innovations		4 NON-TECHNOLOGICAL INNOVATION	
		4.1 Mention in policies	
4.2 Policy measures	4.2.1 Innovation Vouchers	4.2 Policy measures	4.2.1 Innovation vouchers
			4.2.2 Living labs
			4.2.3 Public procurements for service innovation
		4.3 Information and awareness of SMEs	

5.4.2 After the interviews and before the analysis

The aim of interviews is to find out what the EU regional innovation policy offers to SMEs, which attitude SMEs have towards those measures and towards innovation overall and non-technological innovation in particular. Furthermore, the role of various stakeholders, which operate in the cross-border area within EU regional innovation policy, was taken into consideration. It was also interesting to find improvements/changes that could be implemented.

Coherently with the exploratory nature of the research many new elements emerged after the interviews; therefore it was necessary to adapt the template according to newly obtained data in order to conduct an appropriate analysis of interviews. Table 13 shows the adapted template. In this case only one common template is presented, because the majority of categories were covered both in the interviews with SMEs and in the interviews with institutions/stakeholders. In case of a category not present in an interview, it is just not considered for that specific interview.

Table 13. Adapted template

1 EU REGIONAL INNOVATION POLICY'S CONTRIBUTION			
1.1 Problems		1.2 Improvements	
2 EU PROJECTS			
2.1 Positive aspects of participating in EU projects			
2.2 Negative aspects of participating in EU projects			
2.3 Results		2.4 Information and awareness about EU programmes	
3 SMEs PARTICIPATION			
3.1 Reasons why SMEs do not participate			
3.2 Possible improvements			
4 NON-TECHNOLOGICAL INNOVATION			
4.1 Mention in policies		4.2 Knowledge and awareness of SMEs	
4.3 Examples of non-technological innovations		4.4 Policy measures	
4.4.1 Innovation vouchers		4.4.2 Living labs	
4.4.3 Public procurements for innovative services			
5 FACTORS THAT FOSTER INNOVATION			
5.1 Collaboration Universities - SMEs		5.2 Cluster and networks	
5.3 Role of stakeholders		5.4 Education	
6 BARRIERS TO INNOVATION			
7 CULTURE			
7.1 Entrepreneurial culture		7.2 Local culture	
7.3 Differences Slovenia-Italy			

5.4.3 The analysis with NVivo software

Considering the large amount of data collected, it was decided to use NVivo software to facilitate the analysis of interviews. With computer-assisted qualitative data analysis software as NVivo it is possible to label parts of text with a specific code and then to retrieve all the parts of interviews coded with the same label (Bryman & Bell, 2007). The categories and sub-categories, determined in the second, adapted template, were used as codes in the NVivo software. In the next chapter the result of interviews analysis are initially presented by categories according to the template analysis.

6 STUDY RESULTS

6.1 Main interview findings

Important stakeholders of the considered area between Slovenia and Italy were interviewed. They are directly or indirectly connected to EU programmes for regional development and innovation; beyond SMEs the interviewed organisations are (innovation) support institutions. An investigation of EU policy's effects and non-technological innovation in SMEs from their points of view was conducted. In the following sections the main findings from interviews according to template analysis' categories are described. Finally, the study's results are presented.

6.1.1 EU regional innovation policy's contribution

It emerged from interviews that the EU contributes to regional development and innovation of the considered area by supporting and co-financing various types of projects. The initial idea was to focus on SMEs participating in projects within the territorial cooperation programmes, but after some interviews it was understood that different programmes pursue different objectives. There are specific programmes targeting SMEs such as CIP or fostering research and innovation such as FP7. Programmes for European Territorial Cooperation are not focused on single enterprises, but among their cohesion objectives they aim at creating a favourable context for enterprises, by taking into account innovation policies. Enterprises are mostly not directly involved, but they could benefit indirectly from activities of intermediary institutions.

There is a long time span between the publication of a call and the actual beginning of the project. Due to changes in the economic situation there could be problems in projects' implementation in a dynamic environment. A support institution' representative explained this fact: "The language of programmes is a language of 2005-2006 in a generally growing political-economic context, while in the current reality there is characterised by recession, survival, business failures and, consequently, the difficulty to talk to them [SMEs] about innovation [...]".

Policy measures should be stable, linear and consistent, based on previous evaluations. SMEs need a clear organisational and strategic framework and not just temporary measures. In some cases the strategies are good, but too broad and this results in a fragmented implementation. Policy-makers should consider the feedback of target groups more. Each stakeholder should get clear objectives and the different actors should be more coordinated at the national and regional level in terms of participation in EU projects.

6.1.2 EU projects

Many interviewees said that by means of EU projects partners receive funds, know each other, begin to work together and to trust reciprocally, therefore project activities can result in a long-term collaboration. A business association's representative stated: "With certain institutions we started off with international cooperation projects and now we work together across the board [...]". EU projects foster interactions academia - industry, as a technology centre's representative said: "[...] In my opinion it is particularly important to establish trust through concrete work, to achieve results, as well as to better understand processes on both sides [industry and academia]". Interviewees stated that EU projects contribute positively in terms of knowledge, experience, contacts, assets and human resources. EU projects can also provide implications to policy-makers and can represent a good opportunity to experiment and implement pilot actions.

Regarding EU projects there are also some aspects that could be improved or changed. According to some interviewees sometimes projects are too similar, sometimes too abstract and without practical effects; this can result in a dispersion of funds in many activities. Many interviewees complained about the complexity of managing projects. Even if administration is

necessary in order to avoid funds' misuses, it is time-consuming (e.g. reporting, documents, receipts etc.). A business association's representative said that in some cases "[...] partners are more concerned with the management of projects than with their actual contents". There are complex rules of management and reporting; therefore adequate human resources are needed.

Another problem connected to EU projects is that there are differences in the jurisdictions of the various states involved, therefore some problems in the implementation of the projects' activities could occur. In addition each country has different types of controls and this means different administrative conditions for different foreign partners, even if they are involved in the same project. The project's sustainability is also an open question, because in some cases activities do not continue after the project's end; a possibility is to upgrade the old project in a new one. Furthermore, the commercialisation's aspects are a delicate issue; it would be useful for SMEs to have resources to patent new products developed within a project. EU projects could be also perceived in a negative way due to some misuses and negative examples.

Different points of view regarding information and awareness of SMEs on EU programmes were obtained. Some interviewees believe that SMEs have enough information and interest, while some disagree on that. According to a business support provider's representative SMEs lack awareness on the importance of EU programmes (e.g. sometimes they do not come even at concrete and useful events). Another interviewee identified the SMEs non-ambition as the problem. While informing SMEs, it is important to set the right amount of information, not too much and not too little, by effectively targeting the different SMEs' information needs. Furthermore, it is important to clearly inform SMEs about programmes' features and specific targets; an interviewee said that sometimes SMEs have wrong expectations of EU programmes.

6.1.3 SMEs participation

Interviewees provided various explanations on the little SMEs participation in EU programmes. The most often reason is the excessive administration. Reporting and controls overload participants in EU programmes due to complex procedures and many documents, even for little funding. With all this bureaucracy the focus is not always on the whole picture and on projects' results, but often on single administrative aspects. Furthermore, some interviewees pointed out that it takes too long for funds' reimbursement; SMEs could face liquidity problems.

Eligibility criteria limit SMEs' participation. Even if an SME could be eligible for participating in an EU programme, it could not participate, because the programme supports general actions to improve the context and do not address SMEs' concrete problems. We should also consider that SMEs are currently struggling for survival and they do not always have time and resources to innovate. The participation in EU projects is not a fast solution for an enterprise in troubles and requires an adequate structure. Referring to participation in FP7, a research and technology centre's representative explained that "an enterprise that is eligible for these calls is no longer a micro-enterprise, it is a small enterprise or one becoming medium-sized, [...] it has a structured

development department, sufficient administrative staff to cover project's administrative aspects, as well as a positive cash flow which allows it to pre-finance the project".

A recurring point in many interviews is the state aid issue and the de minimis rule, which is seen in many cases as a limitation to SMEs participation. State aid must be notified, but European Union (2011b) decided that "the de minimis rule [...] exempts aid of less than EUR 200 000 from the requirement to notify the European Commission in advance". State aid rules are applied to SMEs also in EU Operational Programmes for regional development (European Commission, 2012f). Hence, according to some interviewees funds from territorial cooperation programmes should not be included in de minimis rule of state aid.

Considering that SMEs usually get small amounts of funds, a research and technology centre's representative disagreed on the fact that rules on state aid limit SMEs participation and highlighted financial issues: "It's not so much that limit [the limit of state aid], the fact is that they must anticipate all or the bulk of the grant, because they receive [the grant] as they progress with the work, after reporting". On other hand, a representative of another centre did not see financing as a problem but as a challenge (e.g. possibility to obtain pre-financing). SMEs' representatives provided useful tips for a small enterprise, which would like to start participating in an EU programme. They are presented in Table 14. "It is difficult to start from scratch and think about starting an EU project", an SME's representative said, therefore also a small role (and a small budget) in an EU project could help to get familiar with EU programmes.

Table 14. Tips for an SME that wants to participate in an EU programme

Internal resources	External environment
<ul style="list-style-type: none"> - Understand programme's features and administrative procedures - Set EU programmes in the enterprise's strategy and invest for it - Have adequate human resources for administration or outsource to experts 	<ul style="list-style-type: none"> - Start with a small role in the project in order to learn the terminology and complex mechanisms - Be in touch with a support institution (e.g. technology park) - Go on info days and network with potential project's partners

SMEs do not necessarily participate actively in an EU project as partners, they can also indirectly benefit from an EU project by taking part at seminars, workshops, etc. Some support institutions' representatives stated that it is difficult to involve SMEs in such projects' activities; often SMEs need to be actively informed (e.g. calling them for their participation). According to a representative of a public agency SMEs do have interest for networking: when they perceive a benefit, they trust to networks and clusters and participate in common activities.

6.1.4 Non-technological innovation

It was interesting to investigate if non-technological innovation is adequately mentioned in policies; different opinions from interviewees were obtained. According to some research and

technology centres' representatives it is properly addressed in policies and in specific calls; some other interviewees disagreed. An EU programme authority's representative said that "since there is already a lack of classic innovation, there is no understanding nor for non-technological innovation either [...]. Since non-technological innovation is less tangible, [...] it is also difficult to define it in terms of results and indicators". Also some other interviewees pointed out the lack of a definition and of appropriate indicators for non-technological innovation.

An EU programme authority's representative explained that the O.P. Italy-Slovenia 2007-2013 includes a list of the main supported activities linked to innovation, but also other activities could be implemented within it; this is a programme's quality, but also a weakness, because the definition's openness could result in diverse types of activities and a fragmentation of actions.

An innovation does not occur only in technology, but there could be a process innovation, a new organisational process, a social innovation, etc. An expert in innovation policy said: "The key problem we encounter is the lack of understanding of the notion of non-technological innovation itself"; it is important to explain this concept, so SMEs will be able to understand non-technological innovations and eventually to identify them in their activities. The interviewee also said that regions or local communities could represent the ideal environment for non-technological innovations, because they are heterogeneous and different from technological innovations. They do not require specific physical resources or technical knowledge.

From interviews with business support organisations it emerged that SMEs often innovate, but they are not aware of it. Furthermore, innovation indicators do not measure all forms of innovation and those measurements do not target all innovators. There is also a cultural issue, because often innovators from R&D/technological areas think that non-technological aspects are not such relevant or profitable. A research and technology centre's representative explained that "non-technological innovations must be actually perceived as the ones that enable better yield in technological innovations".

Within the O.P. Italy-Slovenia 2007-2013 the main focus was on two projects with elements of non-technological innovation, iCON and T-LAB. After the interviews with representatives of some projects' partners, certain activities related to non-technological innovations were identified; they are presented in Table 15. Furthermore, a business association's representative pointed out that non-technological innovations could have smaller effects than technological ones, especially in terms of involved enterprises. However, in the past years he noticed a positive trend in the quality and the amount of non-technological innovations in Slovenia.

An expert in innovation policy said that non-technological innovations include a wide range of innovations. Many interviewees provided examples of the contexts for such innovations: (1) Organisational approaches and business models; (2) Services; (3) Design; (4) Open innovation; (5) Education; (6) Interdisciplinarity and joint cooperation; (7) Intellectual Property Management; (8) Cluster and eco-management; (9) Changing social, cultural and marketing processes.

Table 15. Non-technological innovations in projects iCON and T-LAB

Project	Elements of non-technological innovations
iCON – Competitiveness of SMEs through Innovation and Collaborative Entrepreneurship Partners: Development agencies, business associations, business support providers	<ul style="list-style-type: none"> - Linking together all the main organisations for business support of the considered area - Cross-border branch based clusters/networks - Participation at fairs as a territorial system Italy-Slovenia (together) - Web platform for SMEs: Knowledge Management System and Digital Business Ecosystem - Support for SMEs' cross-border cooperation and internationalisation - Online training courses (e.g. doing business in Italy and Slovenia, business cross cultural communication) - Cross-border internships for young people
T-LAB - Laboratory of touristic opportunities in cross-border regions of Slovenia and Italy Partners: National tourist organisation, business association, development agencies, technology parks, universities	<ul style="list-style-type: none"> - Cross-border web platform for networking, information and developing touristic projects - Joint marketing of tourism products in the cross border area (e.g. touristic products about First World War) - Fostering innovations in web marketing, domotics, energy efficiency and renewable energy sources in the tourism and hospitality sector - Support to new enterprises in the tourism sector (e.g. incubation, consulting) - Interactive workshops (e.g. match-making)

Strategic specialisations among regions (i.e. in RIS³) are an example of non-technological innovation too. A representative of an EU programme authority highlighted also the importance of governance innovation. For example the identification of an organisation's new issues could take place through a web platform with a public consultation open to all stakeholders instead of a thematic group with some representatives of stakeholders; this is a non-technological innovation.

6.1.5 Factors that foster innovation

Regarding collaboration SMEs-universities a university's representative explained that universities could offer technological knowledge and managerial/law support to enterprises, but he added that "however, this relationship is difficult, because often the languages of academia and enterprises are different, [...] the time horizons are very different". Other interviewees also pointed out that academic and industrial spheres have different mentalities and that both have reciprocal prejudices. A successful example of collaboration industry-academia in Slovenia is the programme Young Industry Researchers (Sln. *Mladi raziskovalci iz gospodarstva*).

Some interviewees highlighted their positive experiences with Industrial liaison offices of local universities. Many interviewees stressed the need to overcome the existing barriers/prejudices on both sides and to provide communication channels and opportunities to meet. The triangulation (i.e. support institutions – universities – SMEs) could represent a solution; support institutions play an intermediary role in connecting the other two spheres.

Many interviewees agreed on the importance of clusters and networks: nowadays it necessary to be connected with international partners. A good network of contacts is fundamental for participating in EU projects, because it is the base for a strong consortium. If you are a member of a network, you automatically have many existing and potential contacts. Clusters and networks foster innovations; a university's representative described their positive contribution in terms of connections, synergies, simpler solutions, and long-term relations.

It is difficult to define a cluster; a research and technology centre's representative described it as a supranational aggregation of interests. Clusters should be seen from an extraterritorial perspective; partners could come from different areas (e.g. Meta-districts in Lombardia, Italy). Within RIS³ EU supports clusters across borders. This is linked to the idea of "co-competition", a mix of cooperation and competition between different regions or areas. Some interviewees see clusters as a positive instrument, but they must have a reason to exist. Part of interviewees highlighted the risk of clusters' misuses; therefore it is necessary to have clear and simple rules. A representative of an SME, which provides technical support for EU programmes, explained that beyond clusters there are other forms of aggregation such as European economic interest grouping, EGTC and European Research Infrastructure Consortium.

Many interviewees stressed the importance of the environment and agreed to the fact that stakeholders foster innovation, in different ways according to their role and their field of activities. In Table 16 a summary of the different functions of interviewed stakeholders in fostering innovation in SMEs is depicted. Due to the diverse typologies of interviewed organisations, there are multiplex ways of fostering innovation. However, the common point is that they operate at a system level aiming at catalysing opportunities for SMEs.

Table 16. Stakeholders' functions for fostering innovation in SMEs

Support	regional policies innovation process (e.g. technology brokers, innovation management)
Offer	useful services and infrastructures (e.g. for start-ups) initiatives (e.g. Innovation Forums and Awards); training courses
Raise awareness	opportunities for SMEs (e.g. possible funding) with targeted information
Intermediate	collaboration SMEs-universities knowledge and technology transfer (e.g. Industrial Liaison Office)
Promote	participation in EU programmes of SMEs and others (e.g. info and assistance)
Participate	EU projects (management; dissemination) → indirectly services to SMEs
Facilitate	networking and new contacts (e.g. international partnerships)
Counsel	products' commercialisation and intellectual property management

Focusing on the features of the considered Slovenian-Italian area, it is interesting to point out the relevant role of some organisations of the Slovenian minority in Italy (i.e. the Slovenian Regional Economic Association - SDGZ and Euroservis) in connecting Slovenian and Italian organisations in various projects due to their knowledge of both languages, contexts and cultures. In particular Euroservis, which is a Slovenian organisation in Italy that develops projects of the

EU programmes, encouraged through EU projects reciprocal cooperation of organisations from the Slovenian minority in Italy, from the Italian minority in Slovenia and from both the “majorities”, Slovenia and Italy.

By considering innovation in a broad perspective, some interviewees proposed to promote interdisciplinary teams, especially in technological SMEs, with the introduction for example of anthropologists for marketing and trend-follower experts. Even if an SME is focused on technological innovations, it should consider also soft aspects of innovation. In the education process there should be more space for creativity, innovativeness and entrepreneurship, for example by teaching at school the EU policies and innovativeness. Furthermore, another relevant topic, which is worth learning, is cross-cultural business communication, especially in projects involving partners from different areas and consequently with different cultures.

6.1.6 Barriers to innovation

Basing on interviews’ responses different factors that hinder innovation, which are presented in Table 17 were identified. Media for example can represent a barrier to innovation when they provide negative examples of entrepreneurs. Financing of innovation can be seen as a barrier, but on other hand there are opportunities for good ideas (e.g. venture capital). Entrepreneurial culture also has a relevant role, because some managers could view R&D simply as a cost, could lack adequate knowledge (e.g. innovation management) or could be afraid of failure. Furthermore, if an enterprise struggles for survival, it does not have time for innovation.

Table 17. Internal and external barriers to innovation

Internal barriers to innovation	External barriers to innovation
<ul style="list-style-type: none"> - Lack of time and resources for innovation - Lack of entrepreneurial skills - Entrepreneurial culture - Intellectual Property Management - Costly market penetration/ commercialisation 	<ul style="list-style-type: none"> - Lack of long-term strategy for policy measures - Administrative barriers - Too long time span between publication of a call and beginning of a project (change of circumstances) - Media

6.1.7 Entrepreneurial culture in Slovenia and Italy

Culture is a relevant element for entrepreneurship and innovation. There could be differences in mentality between two countries or even between two regions within the same country; therefore cross-cultural communication plays an important role. A good example of overcoming mental (and physical) barriers is the participation of Slovenian and Italian entrepreneurs together at international fairs as a common Italian and Slovenian area. Also media can contribute to an improvement in entrepreneurial culture by providing positive examples of entrepreneurs. There were no big differences between interviewees from the two countries in terms of entrepreneurial culture, even if historical and cultural differences exist.

According to some interviewees Italians have a longer entrepreneurial tradition and good networking skills, while Slovenians have an adequate innovation culture. In some cases interviewees saw peers across the border in a better light than themselves; this happened both with some Italian and some Slovenian interviewees. However, the focal point is the mutual cooperation. As an SME's representative said: "Here, in our area between Italy and Slovenia, there are two substantially different cultures and so we could make use of positive things from Slovenia here as well, and vice versa".

Focusing on the differences between Slovenia and Italy many interviewees highlighted possible problems in territorial cooperation programmes including these countries, especially in the O.P. Italy-Slovenia 2007-2013, due to different administrative divisions. In Italy there is a subdivision in regions, provinces and municipalities, while Slovenia mainly has a national and also a local administrative level. This can result in limitations of programme's implementation. If we focus on the O.P. Italy-Slovenia 2007-2013 there are two official languages (i.e. Italian and Slovenian), but in some cases English is actually the working language, because both parts use it as a common language to communicate (e.g. when an Italian partner does not speak Slovenian). For some interviewees language skills could be a barrier, while for others it is not a problem.

6.2 Actions fostering SMEs participation in EU programmes

Participating in EU programmes could represent an opportunity for SMEs to innovate, but they are not always aware of this potential. The research provided grounds to investigate the reasons why SMEs do not participate in EU programmes. Based on interviewees' answers the main problems and the possible improvements to increase SMEs participation in EU programmes were identified. The latter is presented in Table 18.

Table 18. Actions for SMEs participation in EU programmes

Problem	Improvement for SMEs participation
Complicated procedures	simplification of procedures with less rigid rules evaluation of the results at the end support for reporting (e.g. consultant, courses)
Constricting state aid rules	loosen state aid rules
Financial issues	pre-financing without bank guarantee
SMEs' struggle for survival	concrete actions with added value support for the commercialisation of products

SMEs would prefer less bureaucracy and an evaluation of the results at the end instead of prevailing formal controls on reports and financial statements. Regarding state aid some interviewees suggested not to consider EU funding as state aid, at least for small enterprises. SMEs do not participate in EU programmes, especially in territorial cooperation ones, only for profit, but also in a European spirit; therefore they should not be too burdened with that. Furthermore, there are differences in state aid rules' implementation in different countries.

6.3 EU regional innovation policy measures' effects in the considered area

Many stakeholders that are directly involved in EU programmes with Italian and Slovenian partners were interviewed. Hence, a conclusion can be made that EU regional innovation policy measures contributed to regional development and fostered also non-technological innovations in the cross-border area between Slovenia and Italy and in interviewees' reference areas. Interviewees were asked to evaluate their experience with EU programmes. The main positive aspects of participating in EU projects for SMEs and other organisations (i.e. at business support level) are summarised in Table 19.

Table 19. Positive aspects of participating in projects co-funded by the EU

Business support level	SMEs level
- Networking and new contacts	- Collaboration with new partners
- New services for SMEs	- New entrepreneurial skills
- Knowledge creation and flow	- Additional human resources
- Increased integration and synergies	- New equipment
- Industry-academia collaboration	- Received funds

Interviewees provided interesting examples of EU projects with non-technological aspects of innovation. Hence, I decided to list them with the aim to improve the understanding of the concept of non-technological innovation. In Table 20 activities of cross-border cooperation programmes are presented, while in Table 21 those within other programmes are included.

Table 20. Identified non-technological innovations in cross-border cooperation programmes

Activity	Name of the project (EU programme)
Cross-border joint services of two technology parks	project Business region LK - Cross-border cooperation of Technology Park Ljubljana and Lakeside Science & Technology Park Klagenfurt to increase the competitiveness of business locations... (Slovenia-Austria 2007-13)
Cross-border networking for SMEs and start-ups	project INCO-NET - New tools for the support of SMEs and innovative start-ups in the cross-border area (Italy-Austria 2007-2013)
Intellectual property pre-diagnosis at cross-border level	project IPforSMEs - The role of intellectual property (IP) in creating regional value through interregional IP exchange (Italy-Slovenia 2007-13)
Strategic-cognitive maps for SMEs	project KNOW US - Co-generation of competitive knowledge among universities and SMEs (Italy-Slovenia 2007-2013)
Training courses on innovation strategies & cross-border meetings	project SHARTEC - Shared innovative production technologies in border regions (Italy-Slovenia 2007-2013)
Promotion of slow tourism forms in Italian and Slovenian area	project SLOW TOURISM - Valorization and promotion of slow turistic routes between Italy and Slovenia (Italy-Slovenia 2007-2013)
Cross-border network in health care industry & model of integration	project TRANS2CARE - Transregional Network for Innovation and Technology Transfer to Improve Health Care (Italy-Slovenia 2007-2013)
Solving issues related to the regulatory vacuum caused by non-harmonization of laws	project TRANSARMON - Harmonization of standards for SMEs that act across border area (Italy-Slovenia 2007-2013)

Assuming that innovation is not just linked to technological procedures, but it includes a wide range of forms, some interviewees proposed to consider the cross-border cooperation and in particular the collaboration of regions across borders (in providing shared services) as an example of non-technological innovation, the cross-border innovation. Hence, from this point we could see all projects of the O.P. Italy-Slovenia 2007-2013 as innovative.

Table 21. Identified non-technological innovations in other EU programmes

Activity	Name of the project (EU programme)
Transnational methodical tools/cluster	project ACCESS - ACCelerating regional competitiveness and sector-based excellence through innovation management tools and techniques (Central Europe 2007-2013)
Transnational cooperation network universities-industry	project ADRIA-HUB - Bridge technical differences and social suspicions contributing to transform the Adriatic area in a stable hub for a sustainable technological development (Adriatic IPA 2007-2013)
Consultation workshops on sustainable innovation	project CASI - Public participation in developing a common framework for assessment and management of sustainable innovation (FP7 2007-2013)
Regional branch based innovation support with new ICT applications	project CEBBIS - Central Europe Branch Based Innovation Support (Central Europe 2007-2013)
Assessment of R&D state support schemes with peer review method	project EUROPEER SME - Peer-reviewing European Good Practices in Innovation Promotion for SME (FP6 2000-2006)
Conversion of military brownfields into Business Support Centres	project F.A.T.E. - From Army To Entrepreneurship (South-East Europe 2007-2013)
Competencies on design and intellectual property for SMEs	project ID:WOOD - Clustering knowledge, Innovation and Design in the SEE WOOD sector (South-East Europe 2007-2013)
Assessment of Innovation management performance	project IMP³rove - IMProving Innovation Management Performance with sustainable IMPact (Europe INNOVA)
Transnational services and events (B2B matching, pitching events)	project MED-KED - Mediterranean Knowledge-based Entrepreneurship Development (MED 2007-2013)
Innovation audits conducted by innovation advisors	project PROINCOR - Proactive Innovation Support for SMEs in the Corridor from the Baltic to the Mediterranean Sea (Central Europe 2007-13)
New services for start-ups (early stage funding of innovation)	project PROFIS - Promotion of Financing Innovation in South-East Europe (South-East Europe 2007-2013)
Demand-side innovations for local energy policy	project REMIDA - smaRt Energy chains and coMmunIties in the meD Area (MED 2007-2013)
Sustainable production area: integrate industry into environment	project SEPA - Sustainable and Equipped Productive Areas (South-East Europe 2007-2013)
“Regional research-driven clusters” based on the triple helix model	project STARNETregio - STARring a transnational network of regional research-driven marine clusters (FP7 2007-2013)
Innovative approach to the teaching of TRIZ methodology	project TETRIS - Teaching triz at school (LLP 2007 – 2013 “Leonardo da Vinci”)

6.4 Actions fostering non-technological innovation in SMEs

Actions for non-technological innovation should foster the understanding and the promotion of this concept. Some interviewees believe that existing instruments are appropriate also for non-technological innovations, even if there are some problems in the implementation phase. Based on literature review three interesting types of innovative policy instruments that could foster non-technological innovations were identified and interviewees were asked about them. After the interviews it was clear that these tools have a potential, but often such instruments are far from SMEs' reality. Sometimes neither support institutions have the resources to deal with them.

For many interviewees innovation vouchers represent a simple and fast tool for SMEs. In Slovenia there had been different types of innovation vouchers with positive experiences, while in the considered Italian area they were not that popular. Some interviewees did not know what a living lab is, other just heard about them. However, one told that there are an increasing number of (structured) enterprises, which use living labs to include end-users in their innovation processes. Some interviewees were not acquainted with public procurement for innovative products and services. This could be an interesting tool for SMEs, in particular in terms of obtained references, but it is necessary to clearly define and set measurement for innovations.

Interviewees proposed possible improvements to policy measures in terms of: (1) Economic measures with a clear underlying strategy; (2) Concrete actions for SMEs (e.g. specific calls for SMEs, tax relief for innovative SMEs, guarantee schemes). In Table 22 a summary is made of the main actions that could contribute to the development of non-technological innovations in SMEs; these actions are presented at SMEs and business support level.

Table 22. Actions for non-technological innovation in SMEs

SMEs level	Business support level
Innovation vouchers for non-technological innovation	A specific institution for promotion of non-technological innovations to target groups
Innovation management activities: audits, advisory services, etc.	Research-industry: Collaboration and Mobility schemes
	Support for creativity and design
Interdisciplinary teams with experts from natural and social sciences	Public procurements for innovative products & services
	Clusters and networks and Match-making
Living labs	Special events (e.g. Innovation Day, Innovation awards)
Unconventional training and mentoring/coaching for SMEs in order to change culture	

Various interviewees also mentioned actions linked to innovation management (e.g. IMP³rove, Competence broker). In all those actions an external expert or a small group of them (i.e. innovation consultants) evaluated and solved SME's problems related to innovation in a short time. Some interviewees stated that educational programmes (e.g. Leonardo da Vinci) could increase employees' capabilities and motivation; they could also help in overcoming SMEs' psychological inertia.

7 DISCUSSION

7.1 Implications for SMEs and support institutions

SMEs need a clear vision and strategic decisions in order to innovate. They must be aware of the importance of innovation; often they do not innovate, because they are not in such a bad situation or they do not realise the importance of it. Individualism and conservatism characterise many SMEs. Various interviewees stated that often SMEs' owners have the attitude of knowing everything and do not want to accept external help. Furthermore, small and micro enterprises need support institutions' actions to overcome their structural weaknesses and acquire self-confidence in order to survive on the global market.

SMEs often await a state of need to start innovating or cooperating with others, but they should become aware of the importance of innovations and innovate in advance. Even if they are afraid to fail, due to low self-confidence or limited knowledge, they should try. If they are motivated to innovate and/or to participate in an EU programme, they should set their objectives in their strategic plans and include innovation in their business models.

The collaboration of SMEs with universities could foster innovation. SMEs should not just contact universities to solve cheaply their contingent problems, but they should establish a long-term collaboration. A university's representative proposed permanent partnerships university-SMEs, especially for those SMEs without internal research centres. SMEs should implement interdisciplinary teams (i.e. with experts from both natural and social sciences), which cover multiple areas, in order to develop both technological and non-technological innovations (i.e. cross-sectoral innovations). Also human resources with marketing and sales skills are important in technological firms (e.g. for commercial expansion).

EU programmes represent a big opportunity for SMEs, also to innovate. There are plenty of possibilities, therefore SMEs should choose accurately. Hence, they should be updated, participate to support institutions' events and understand programmes' contents. Not all EU programmes target SMEs directly. In some cases they could benefit indirectly from activities of intermediate institutions. However, SMEs do not always give the right feedback to stakeholders participating in EU projects that provide services for them, because they do not fully understand their potential.

At the beginning the participation in EU programmes could seem complicated, because there are demanding administrative procedures. It is important to connect to a support institution that would provide technical expert advices and help in finding contacts; networking is very important. Even a little experience in EU projects could be useful and emerging synergies could last per a long time. The participation in an EU project could represent the first step in a firm's internationalisation process.

Support institutions should adequately inform SMEs about EU possibilities. They should also clearly explain to enterprises what to expect from EU funding (e.g. helping a single enterprise is not the aim of structural funds). With cross-border cooperation projects enterprises do not receive directly funding, but intermediate organisations create the appropriate business environment for them. EU projects are an important financial source for support institutions that obtain new knowledge and can offer new services to enterprises in the reference area.

Organisations need to have adequate financial and human resources to participate in EU projects. Aggregation tools should be implemented to overcome financial and human resources' scarcity of SMEs and other organisations; for example service pooling, where some services are jointly provided to different organisations (e.g. Welcome Office FVG, jointly developed by research institutions of the Italian region Friuli Venezia Giulia to support incoming students/researchers). SMEs could be afraid of participating in a cluster or in an international network. Hence, support institutions should explain them synergies' benefits (e.g. by providing them concrete examples) and, what is more, they should increase SMEs trust by clearly defining the "rules of the game" (e.g. with the Cluster policies Whitebook). Competitors could be also potential partners.

An interviewee highlighted the fact that innovation is an abstract concept and that traditional SMEs "live of concreteness, they do not see innovation as the solution, because they do not know what it is". Hence, support institutions should explain non-technological innovations to SMEs, raise awareness on it and provide them with useful information and inspiring examples (e.g. good practices). They should offer to SMEs concrete actions and create the appropriate context for non-technological innovations, even without mentioning non-technological innovations specifically. Beyond the terms that are used, provided support and obtained results matter. SMEs appreciate simple and effective actions that do not distract them from their core activities, but provide adding-value services.

There are a lot of support institutions: they should be more collaborative and complement their activities. Stakeholders could have different roles (e.g. contacts provider, promoter of initiatives, etc.), but they should work in a network as a system in order to avoid duplicate functions. Support institutions should also encourage participation in EU programmes and promote various methodologies to stimulate creativity and innovativeness. They should educate SMEs and provide training course to improve SMEs' knowledge absorption capacity.

7.2 Implications for policy-makers

Cross-border or transnational cooperation programmes have long-term effects and are difficult to evaluate, while they are in progress. When possible improvements were asked for, some stakeholders highlighted the need to establish appropriate performance indicators to measure projects' effects and have good evaluations, while other suggested introducing a higher degree of complementarity between different funds, also in terms of source reallocation. An SME's representative provided the example of a project proposal that was the first on the list of those

excluded from financing: idea was good, but too many competitors. He proposed to redistribute exceeding funds from a programme to another for the best rejected proposals, because “the firm is always one! Regardless of who manages the funding, the firm does not care”.

Policies and rules on the management affect programmes’ effectiveness. Many interviewees pointed out the demanding administrative procedures as a negative aspect of participating in EU programmes, because sometimes it seems that the time spent on projects’ administration is bigger than the time spent on projects’ actual activities. However, controls are important to avoid misuses. Projects should have significant contents and not be too abstract or unoriginal. Furthermore, they should not be valid only in a short run (i.e. sustainability issues). Hence, procedures should be simplified and evaluations should be more focused on results. Policy-makers should pay attention also to governance innovations.

It is not enough to foster innovation within SMEs. Policy-makers should also focus the attention on commercialisation process of the developed innovative products, because SMEs need help to reach the market with their final product. An interviewee gave the example of the successful transnational programme Eurostars for supporting SMEs’ access to new markets. Innovation policy measures should be long-term oriented and not change constantly; strategies should not be too general. Furthermore, a one-size-fits-all solution is not the right approach, because there is a variety of SMEs with different resources and consequently with different needs (e.g. a micro enterprise and a structured medium enterprise).

Policy-makers should consider the fact that many SMEs are currently struggling to survive and they do not have time and resources for other activities, therefore they should introduce concrete actions and target SMEs’ real needs. Furthermore, there should be the possibility to update or adapt programmes in progress, because in our dynamic world in seven years many things could change (e.g. EU programmes 2007-2013 were prepared before financial crisis and recession).

Clusters, networks and other aggregation tools are important, but entities to support are those that have sense to exist and that would survive also without funding. An interesting institution, which Slovenia lacks, is a non-profit research organisation for the participation in European programmes such the Italian Agency for the Promotion of European Research (hereinafter: APRE). Some interviewees suggested broadening the participation in EU projects to other financiers and actors of the economic systems, because SMEs are interested in strengthening their financial position. Triangulation (i.e. collaboration support institutions – universities – SMEs) could contribute to the regional development and innovativeness. The collaboration between an intermediary organisation and a university to establish a centre, which provides industry specific services for local SMEs, is an example of non-technological innovation.

Innovation is still associated with technological aspects, therefore some interviewees suggested to focus on education and promotion of non-technological innovations. Non-technological innovations can happen also in relation to technological innovations; also technological firms could implement them. There are still no adequate definitions and indicators of non-

technological innovation and, what is more, it is not clear whether innovation should be measured in relative or absolute terms. Some interviewees stated that it is better to provide an open definition of innovation instead of a precise definition of non-technological innovation. However, a too broad definition could result in a fragmentation, which is a barrier to innovation.

Even at the EU level, there is no single definition and a specific innovation policy for non-technological innovation; it should be considered as an umbrella term for all forms of innovation not related to technology. However, beyond mentioning non-technological innovation in policies, it is important to promote and explain the concept, the idea that lies behind the term. Both support institutions and SMEs should fully understand its value and potential. There is not only a narrow innovation, linked to technology, but firms could and should implement also wide innovations, which could take place in many forms and in many fields, also by combining different elements. These are non-technological innovations.

Education is very important: children should learn already in schools about creativity, innovativeness, entrepreneurship and receive information about EU programmes. Many interviewees agreed on the importance of the environment; here stakeholders play a relevant role, so they should be included in an effective way in policy-making processes. SMEs and universities have difficulties in finding a common language to communicate, therefore specific actions should put them together and increase their collaboration. EU funds in a certain way “force” SMEs to get to know and work together with universities. Mobility schemes research-industry are a good tool to overcome existing prejudices between the two spheres.

Regions are the appropriate context for non-technological innovations. EU regional innovation policy should create a positive environment for non-technological innovations in SMEs with appropriate actions (e.g. innovation consultants, innovation vouchers); the latter are described under section 6.4. Programmes for entrepreneurship and innovation in SMEs should directly involve SMEs or at least support institutions directly linked to SMEs. Great innovations take place at the intersections of disciplines or cultures (Johansson, 2006). EU territorial cooperation programmes are the ideal context for non-technological innovations by involving participants from different countries: innovations across the board and across the border.

In territorial cooperation programmes various countries are involved and problems could arise due to different countries’ jurisdictions, therefore policy-makers should harmonise those differences in order to effectively implement cross-border or transnational cooperation. Furthermore, historical minorities in EU could represent a bridge in connecting different countries due to the knowledge of different languages and understanding of different cultures.

7.3 Theoretical contribution, limitations and future research suggestions

This research highlights the importance of non-technological innovation in general and for SMEs and raises awareness about it through many concrete examples of non-technological innovation.

In addition a relevant external factor was investigated that influences non-technological innovation in SMEs (i.e. institutions) by focusing on regional innovation policy at EU level. Innovation is traditionally associated to technology, non-technological aspects are too often neglected therefore this concept was explained and promoted. It is a relatively new concept and there is not much literature about, in particular in relation with EU innovation policies.

Non-technological innovation in SMEs from the EU perspective was considered with a multilevel approach. In the literature review there was a focus on different levels of analysis and topics (i.e. non-technological innovation, EU innovation policy, regional level and SMEs) in order to identify the features of innovation policy for non-technological innovations, in particular non-technological aspects in EU regional innovation policies. There is still confusion about the terms related to non-technological innovations, therefore the different ways in which this term is used in websites connected to EU are presented. The term non-technological innovation should be used as an umbrella term for all forms of innovations not related to technology.

In the empirical part an analysis was made of the EU regional policy measures' effects in the Italian-Slovenian area. By interviewing stakeholders I concluded that EU projects within territorial cooperation programmes foster non-technological innovations and that non-technological innovations contribute to territorial development. Hence, it is important to effectively include SMEs in EU projects to make them implement innovations and contribute to regional growth. Various stimuli and barriers to innovation and in particular to non-technological innovation in SMEs were identified. For example cluster and networks, collaboration SMEs-universities, stakeholders and culture could foster non-technological innovations.

I established actions to encourage SMEs participation in EU programmes and to foster innovation and non-technological innovation in SMEs as well as pointed out EU opportunities for SMEs and identified elements of non-technological innovation within EU projects. Non-technological innovation is a relatively new concept, there is not yet a lot of awareness about it therefore the empirical research that was undertaken was very useful to gain a broader understanding of this concept and to assess the current situation of non-technological innovation in terms of awareness, diffusion and policy support.

The newness of the concept of non-technological innovation could represent a limitation, because there is not much literature on it and not a unique definition, but a somehow confused terminology. It is difficult to measure innovation and even more non-technological innovation. The research findings are based only on qualitative data and consequently a biased view may have been obtained due to the small sample and to the subjectivity in interviewees' selection. Furthermore, the concept of non-technological innovation is not yet very popular and interviewees could understand it in different ways, even though the concept was clearly explained. Future researches could select a bigger sample and collect also quantitative data in order to verify propositions. Beyond the considered Italian-Slovenian areas researchers could focus on other territorial cooperation programmes or also research non-technological innovations in other specific programmes (e.g. only FP7 or CIP) and for other programming periods.

CONCLUSION

Non-technological innovation matters. Beyond the traditional concept of innovation associated to technology a new, wider concept of innovation has emerged: non-technological innovation. This is not a new discovery, non-technological innovations have existed since forever, what is new here is the approach and the awareness.

Technological innovations are of course very important, but there is not only R&D and new technologies and patents; we can also innovate in many other forms, ways and fields. By combining technological and non-technological innovations, we could probably achieve a better result. Furthermore, non-technological innovations alone could contribute to firm's performance. They could be implemented without needing specific assets or technical knowledge, but they require a cultural change. Hence, a focus was made on non-technological innovation with the aim to investigate and raise awareness on this concept.

Non-technological innovation was investigated from an EU perspective and EU regional innovation policies were particularly considered by focusing mainly on territorial cooperation programmes involving Italy and Slovenia. Special interest was drawn to SMEs, because they represent the majority of firms and non-technological innovations are a big potential for them. In order to identify the successful EU regional innovation policy measures fostering non-technological innovation in SMEs an empirical research was conducted with 21 semi-structured interviews of important stakeholders/SMEs of the reference area involved in EU programmes.

With a multilevel approach the knowledge and awareness about non-technological innovation was investigated and a wide range of examples of non-technological innovations fostered by EU programmes were presented. Key aspects on which EU regional innovation policy should focus were highlighted. Beyond grants SMEs need an appropriate environment with a stable political context. I found that EU projects within territorial cooperation programmes foster non-technological innovations and that non-technological innovations contribute to territorial development. Hence, SMEs should connect with others and participate in EU programmes in order to implement non-technological innovations and consequently contribute to regional development. Support institutions and other stakeholders are important in promoting non-technological innovations and involving SMEs, but also SMEs should become more proactive.

European regions, not delimited by administrative national borders, but intended extensively as areas of European Territorial Cooperation, are an ideal context for non-technological innovations. The joint management of various issues by partners from different countries could represent an innovation by itself. Hence, a double innovation occurs: innovation across the board and across the border. It could seem that there are too many definitions. Innovation is one, after all, and the differentiation technological/non-technological is artificial. In the end, what matters for SMEs is that good innovations take place, in any form; by considering non-technological innovations we just wider perspectives and increase the amount of possible innovations.

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APPENDIXES

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Appendix A: Summary / Povzetek

Inovativnost je vir konkurenčne prednosti v sodobnem gospodarstvu (Dess & Picken, 2000). V preteklosti je bilo mišljenje o inovacijah v glavnem povezano s pojmi novih tehnologij ter raziskav in razvoja, v zadnjih letih pa se je razširil nov pogled na inovacije, ki upošteva tudi mehke, neotipljive vidike inovacije, na primer inovacije v managementu ali organizaciji (OECD, 2011). Podjetja, ki želijo biti inovativna, bi se morala zavedati, da so tako tehnološke kompetence kot znanja na drugih področjih, na primer trženja in upravljanja, pomembni (Mothe & Thi, 2010). Izraz netehnološke inovacije pogosto razumemo kot sopomenko za inovacije v managementu ali organizaciji, dejansko pa ta izraz zajema vse netehnološke oblike inovacije (Černe, 2013).

Področje magistrske naloge. Raziskovala sem uspešne ukrepe inovacijske politike, ki spodbujajo netehnološke inovacije. Pri tem se nisem omejevala na eno samo državo, osredotočila sem se na učinke inovacijske politike EU pri spodbujanju netehnoloških inovacij in upoštevala EU kot en sam osebek v nadnacionalni perspektivi. Čeprav se pojem netehnoloških inovacij uveljavlja na ravni EU, mnogi programi EU še vedno ciljajo zgolj na tehnološke inovacije oziroma na raziskovanje in razvoj, pri čemer ne omenjajo izrecno netehnoloških inovacij (Schade et al., 2011).

Namesto, da bi upoštevala inovacijske politike EU in njih učinke v vseh 28 državah članicah, sem obravnavala inovacijski vidik v regionalni politiki EU in posebno geografsko osvetlila Slovenijo in Italijo. Odločila sem, da bom preučila in analizirala učinke inovacijske politike v programih EU na regionalni ravni, ki vključujejo obenem Slovenijo in Italijo. Skupno makroregijo, ki zaobjema Slovenijo in Italijo, lahko obravnavamo iz različnih, čezmejnih ali nadnacionalnih, zornih kotov: iz vidika Alpskega območja, Srednje Evrope in Jugovzhodne Evrope. Pomembno je se osredotočiti na regionalne inovacijske sisteme, saj so tako vodilne kot šibkejšje regije enako pomenljive za rast nacionalnih ekonomij (OECD, 2009a). Posebno pozornost sem posvetila programom Evropskega teritorialnega sodelovanja za obdobje 2007-2013.

Raziskovala sem netehnološko inovacijo, ki jo spodbuja regionalna inovacijska politika EU v malih in srednje velikih podjetjih (v nadaljevanju MSP). Poudarek je bil na malih in srednjih podjetjih, saj le-ta predstavljajo povprečno 99% vseh podjetij na območju Organizacije za gospodarsko sodelovanje in razvoj (v nadaljevanju: OECD), ob tem mala in srednja podjetja pomembno prispevajo k zaposlovanju in dodani vrednosti ter nasplošno gospodarski rasti (OECD, 2010). Zato se raziskovalni vprašanji glasita: Kateri so ključni elementi učinkovitih ukrepov regionalne inovacijske politike EU pri spodbujanju netehnološke inovacije v MSP-jih? Kako so povezani netehnološka inovacija in projekti z MSP-ji sofinancirani v okviru programov EU ter teritorialni razvoj?

Namen in cilji magistrske naloge. Namen magistrske naloge je raziskava in opredelitev tistih ukrepov regionalne inovacijske politike EU, ki uspešno spodbujajo netehnološko inovacijo v MSP-jih, s poudarkom na programih EU, ki vključujejo Slovenijo in Italijo. Na ta način bi lahko prispevala k raziskovanju pomembnega zunanjega dejavnika, ki vpliva na netehnološko inovacijo in na regionalne inovacijske politike na institucionalni ravni (EU). Poleg tega želim poudariti pomen netehnoloških inovacij na splošno in s posebnim ozirom na mala in srednja podjetja. Kadar govorim o regionalni inovacijski politiki EU, mislim na ukrepe, ki spodbujajo inovacije v okviru regionalne politike EU.

Cilja magistrske naloge sta sledeča: (1) pregled obstoječe literature na področju inovacije na splošno in netehnološke inovacije specifično, na področju regionalne inovacijske politike EU in MSP-jev, z namenom izpostavljanja elementov netehnološke inovacije v okviru ukrepov inovacijske politike; (2) poglobljena analiza o netehnoloških inovacijah v MSP-jih, o regionalnem razvoju in o vplivu programov EU na obravnavano področje z izvajanjem empirične raziskave z intervjuji s predstavniki MSP-jev, institucij in deležnikov, ki so soudeleženi pri programih EU iz Slovenije in Italije.

Metodologija. V magistrski nalogi obravnavam sočasno štiri tematske sklope: netehnološko inovacijo, inovacijsko politiko EU, regionalno raven (tj. primera Slovenije in Italije) in poudarek na MSP-jih. Z večnivojskim pristopom upoštevam poslovne značilnosti okolja ter posamezen institucionalni dejavnik, EU, z lastno inovacijsko politiko na regionalni ravni (makro nivo); hkrati pa upoštevam tudi MSP-je (mikro nivo). "Top-down" in "bottom-up" učinki politik so prikazani v empirični raziskavi. Černe (2013) je poudaril, da so večnivojske raziskave še posebej primerne za študije o netehnoloških inovacijah. Preko intervjujev z MSP-ji in deležniki sem prisluhnila različnim zornim kotom.

V empiričnem delu sem zbrala in analizirala kvalitativne podatke o programih EU, ki vključujejo Slovenijo in Italijo ter ciljajo na MSP-je, zlasti pri programih kohezijske politike EU v obdobju 2007-2013, ki obravnavajo cilje Evropskega teritorialnega sodelovanja (tj. čezmejni in transnacionalni programi). Netehnološka inovacija je relativno nov pojem, zato je koristno, da se z empirično raziskavo raziskuje učinke ukrepov inovacijske regionalne politike EU v obravnavanem območju (tj. Slovenija-Italija) in da se opredeli dejavnike, ki spodbujajo netehnološke inovacije v MSP-jih. Glede na kompleksnost teme in značilnosti raziskave sem se odločila za polstrukturirane intervjuje.

Da bi opredelila ustrezne organizacije za intervjuje, sem opravila pregled obstoječih projektov z MSP-ji, sofinanciranih v okviru programov EU v programskem obdobju 2007-2013, pri katerih so sodelovali slovenski in italijanski partnerji. Interakcije med različnimi deležniki, organizacijami in podjetji vplivajo na regionalno uspešnost (Evropska komisija, 2014c).

Številni pomembni deležniki iz Slovenije in Italije, ki so se v obravnavanem območju spoprijeli s stvarnostjo programov EU, so bili vključeni v raziskavo: javne agencije, organi programov EU, razvojne agencije, tehnološko-raziskovalni centri, podjetniške zbornice in organizacije,

Univerza, strokovnjak na področju inovacijske politike, mala in srednja podjetja. Začetno sem nameravala intervjuvati večje število MSP-jev, vendar sem potem ugotovila, da iz različnih razlogov MSP-ji ne sodelujejo množično v programih Evropskega teritorialnega sodelovanja. Med projekti, ki jih sofinancira program čezmejnega sodelovanja Slovenija-Italija 2007-2013, sem se osredotočila na projekta iCON in T-LAB, ki vsebujeta prvine netehnološke inovacije. Transkripcije 21 intervjujev so bile analizirane s pomočjo programa NVivo po "template analysis" metodi.

Struktura magistrske naloge. V prvih štirih poglavjih magistrske naloge sem opredelila elemente netehnoloških inovacij v MSP-jih, ki so prisotni v literaturi različnih področij, v skladu z raziskovalnima vprašanji. Prvo poglavje je oris značilnosti netehnoloških inovacij, drugo poglavje obravnava regionalno inovacijsko politiko na splošno. Tretje in četrto poglavje sta osredotočeni na EU in sicer na njeno inovacijsko ter regionalno politiko. Peto poglavje obravnava empirično raziskavo, ki je bila izvedena na primerih Slovenije in Italije z 21 polstrukturiranimi intervjuji. Šesto poglavje povzame glavne ugotovitve raziskave, v sklepnem sedmem poglavju pa so bili ocenjeni rezultati tako iz teoretskega kot uporabnega vidika.

Rezultati študije. Netehnološka inovacija je pomembna. Poleg tradicionalnega koncepta inovacij, ki so povezane s tehnologijo, se je razvil nov, širši koncept inovacij: netehnološke inovacije. Ne gre za novo odkritje, saj netehnološke inovacije obstajajo od vedno, ampak gre za razvoj novega pristopa in nove zavesti o tem.

Tehnološke inovacije so seveda zelo pomembne, vendar smo lahko inovativni tudi v številnih drugih oblikah oziroma področjih. Z združevanjem tehnoloških in netehnoloških inovacij bi verjetno lahko dosegli boljši rezultat. K uspešnosti podjetij bi lahko prispevale same netehnološke inovacije, ki se izvajajo tudi brez potrebe posebnih sredstev ali tehničnega znanja, a predpostavljajo kulturno spremembo. Iz teh razlogov sem osredotočila svoj študij na netehnološke inovacije: raziskovanje in ozaveščanje o tem konceptu.

Z večnivojskim pristopom sem raziskovala poznavanje in zavedanje glede netehnološke inovaciji. Predstavila sem številne primere netehnološke inovacije, ki so jih spodbudili programi EU. Poudarila sem tudi ključne vidike, na katere bi se morala osredotočiti regionalna inovacijska politika EU. MSP-ji potrebujejo poleg subvencij ustrezno okolje s stabilnim političnim kontekstom. Ugotovila sem, da projekti v okviru programov Evropskega teritorialnega sodelovanja spodbujajo netehnološke inovacije in da slednje prispevajo k teritorialnemu razvoju. MSP-ji bi se zato morali povezovati med sabo in z drugimi deležniki, morali bi sodelovati v programih EU, da bi izvajali netehnološke inovacije in posledično prispevali k regionalnemu razvoju. Podporne institucije in drugi deležniki so pomembni pri promoviranju netehnoloških inovacij in pri vključevanju MSP-jev, vendar sami MSP-ji bi morali postati bolj proaktivni.

Evropske regije, ko jih razumemo v širšem smislu, kot področja evropskega teritorialnega sodelovanja in ne le, kot državna ozemlja omejena z nacionalnimi mejami, predstavljajo idealno okolje za netehnološke inovacije. Skupno upravljanje različnih zadev s partnerji iz različnih

držav lahko predstavlja samo po sebi inovacijo. Zato smo priča dvojni inovaciji - čezmejni in na več strani. Lahko bi celo ugotovili, da je preveč definicij. Inovacija je ena, navsezadnje, in razlikovanje tehnološko-netehnološko je umetno. Končno za MSP-je je poglobitno, da pridejo do dobrih inovacij, v kakršnikoli obliki. S tem, da upoštevamo netehnološke inovacije, smo razširili perspektivo in povečali količino možnih inovacij.

Appendix B - Examples of the different uses of the term “non-technological innovation”

Three interpretations of the term:

- **TECH VS. NON-TECH:** not necessarily used as an umbrella term, but in contrast with technological innovation;
- **UMBRELLA TERM:** including all the subsets of the various forms of non-technological innovation, e.g. organisational innovation, marketing innovation, etc.;
- **A TYPE OF NON-R&D INNOVATION:** used as one of the possible types of innovation not directly linked to R&D, assuming that non-technological innovation is at the same level with the other types of non R&D related innovation.

TECH VS. NON-TECH

“‘Innovators’ includes 3 indicators and measures the number of firms that have introduced innovations onto the market or within their organisations, covering **both technological and non-technological innovations** and the presence of high-growth firms” (European Commission, 2011c, p. 10).

“At European level and probably due to the economic crisis, the message that European institutions want to convey to SMEs is that the innovation process is not necessarily and not only linked to R&TD activities, putting in such a way the emphasis on **non-technological innovation**” (Design as a non-technological innovation, 2013).

“The 2006 Aho report presented the concept of lead markets. It recommended the development of innovation-friendly markets in a more targeted way by creating conditions to facilitate the translation of **technological and non-technological innovation** into commercial products and services” (Demand-side policies - Industrial innovation, 2013).

“European Innovation Scoreboard [...] More on outputs: – Technological (product/process) vs **non-technological** (marketing/organisational) vs. resource efficiency (costs/ resources)” (Sequeira, 2009, p. 12).

“The activities cover both technological and **non-technological innovation**, corresponding to the broad approach to innovation taken in the Innovation Union” (Questions & Answers - Horizon 2020, 2013).

“CIS 2008 makes a distinction between technological (product and process) and **non-technological** (organisational and marketing) **innovation**” (Eurostat, 2012, p. 70).

UMBRELLA TERM

“The Community Innovation Survey mainly asks firms about their technological innovation. Many firms, in particular in the services sectors, innovate through other non-technological forms of innovation. Examples of these are marketing and organisational innovations. This indicator tries to capture the extent that SMEs innovate through **non-technological innovation**” (European Commission, 2011c, p. 68).

“For sure, innovation is a driver of innovation and plays a key role, nevertheless there is at least as much scope for **non-technological innovation**, for example through business models, better design and process organisation” (Design as a non-technological innovation, 2013).

“Confusion between R&D (activities) and **non-technological innovation** (outputs)” (Sequeira, 2009, p. 17).

“They also recognise the importance of **non-technological innovation** (i.e. organisational and managerial innovation) to the economic performance of firms” (OECD, European Commission, & Eurostat, 1997, p. 88).

“Expressed in its simplest form, **non-technological innovation** covers all innovation activities which are excluded from technological innovation” (OECD et al., 1997, p. 88).

“The major types of **non-technological innovation** are likely to be organisational and managerial innovations” (OECD et al., 1997, p. 88).

“This includes building on EU strengths in design, creativity, services and social innovation. [...] **Non-technological innovation** can take place in all parts of the programme” (Questions & Answers - Horizon 2020, 2013).

“ Many firms, in particular in the services sectors, innovate through other non-technological forms of innovation. Examples of these are organisational innovations. This indicator tries to capture the extent that SMEs innovate through **non-technological innovation**” (European Commission, 2012e, p. 40).

“Enterprises reporting marketing or organisational (**non-technological**) innovation were slightly more numerous and represented at EU-27 level 41,0 % of all enterprises (excluding Greece and the United Kingdom)” (Eurostat, 2012, p. 71).

“This survey introduced a new, extended definition of innovation including not only the technological product and process innovations but also **non-technological** organisational and marketing **innovations**” (Eurostat, 2012, p. 130).

“While the role of **non-technological innovation** in the knowledge economy continues to grow and attract more attention across Europe, Seventh Framework Programme (FP7) projects targeting SMEs where the main innovations are non-technological have not been comprehensively addressed” (Reichert, 2012).

“The question of how research could further contribute to **non-technological innovation** projects in knowledge management, business models, organisation, new products and processes for the customer, or in service-oriented sectors such as tourism, education and health, deserves special attention” (Reichert, 2012).

A TYPE OF NON-R&D INNOVATION

“Experts focused on **non-technological innovation**, social innovation as well as innovation processes and management” (Experts for Horizon 2020 Advisory Groups, 2013).

“Main issues to be addressed by the call for proposals are: to develop a joint vision, joint priorities and joint actions for **non-technological**, user centred innovation with participating countries and stakeholders” (Joint actions for non-technological, user-centred innovation, 2013).

“To simplify, the companies’ demand for **non technological innovation** can be clustered into four big categories: Services to industry [...]; Services embedded to products [...]; Services to people [...]; Public support services to enterprises” (Schade et al., 2011, p. 1). (Note: In this case the type of non-R&D innovation is only connected to service innovation.)

“Only a minority of projects was designed specifically to support other sources of innovation /**non-technological innovation** in the four regions” (Schade et al., 2011, p. 6).

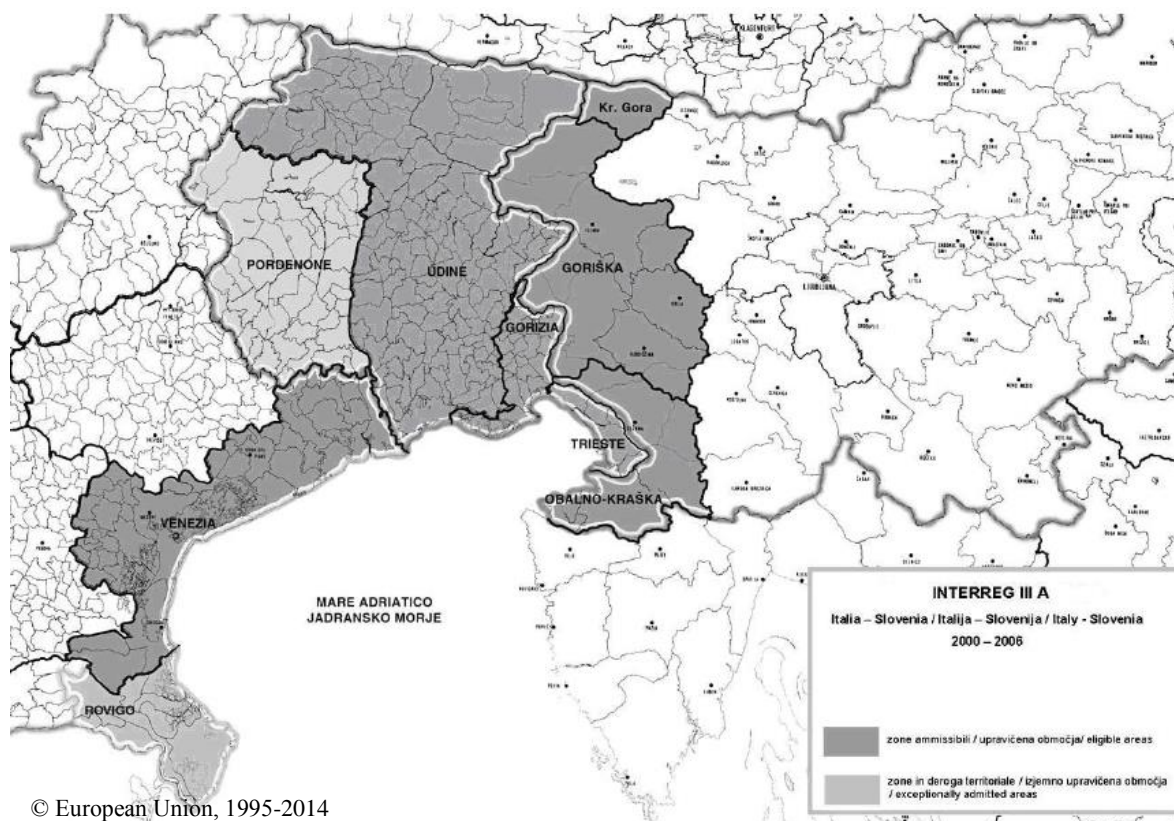
“This is true even for projects that specifically address **non-technological** and non-R&D driven **innovation**” (Schade et al., 2011, p. 7).

“The Structural Funds regulation allows support to service industry, service innovation as well as **non technology innovation** both directly and indirectly” (Schade et al., 2011, p. 11).

“The 2009 RIS paid more attention to wider measures of innovation including among others non-R&D and **non-technological innovation**” (European Commission, 2012e, p. 8).

Appendix C – Eligible areas of EU programmes including Slovenia and Italy

Figure 1. Map of the eligible areas of CIP INTERREG IIIA Italy-Slovenia 2000-2006



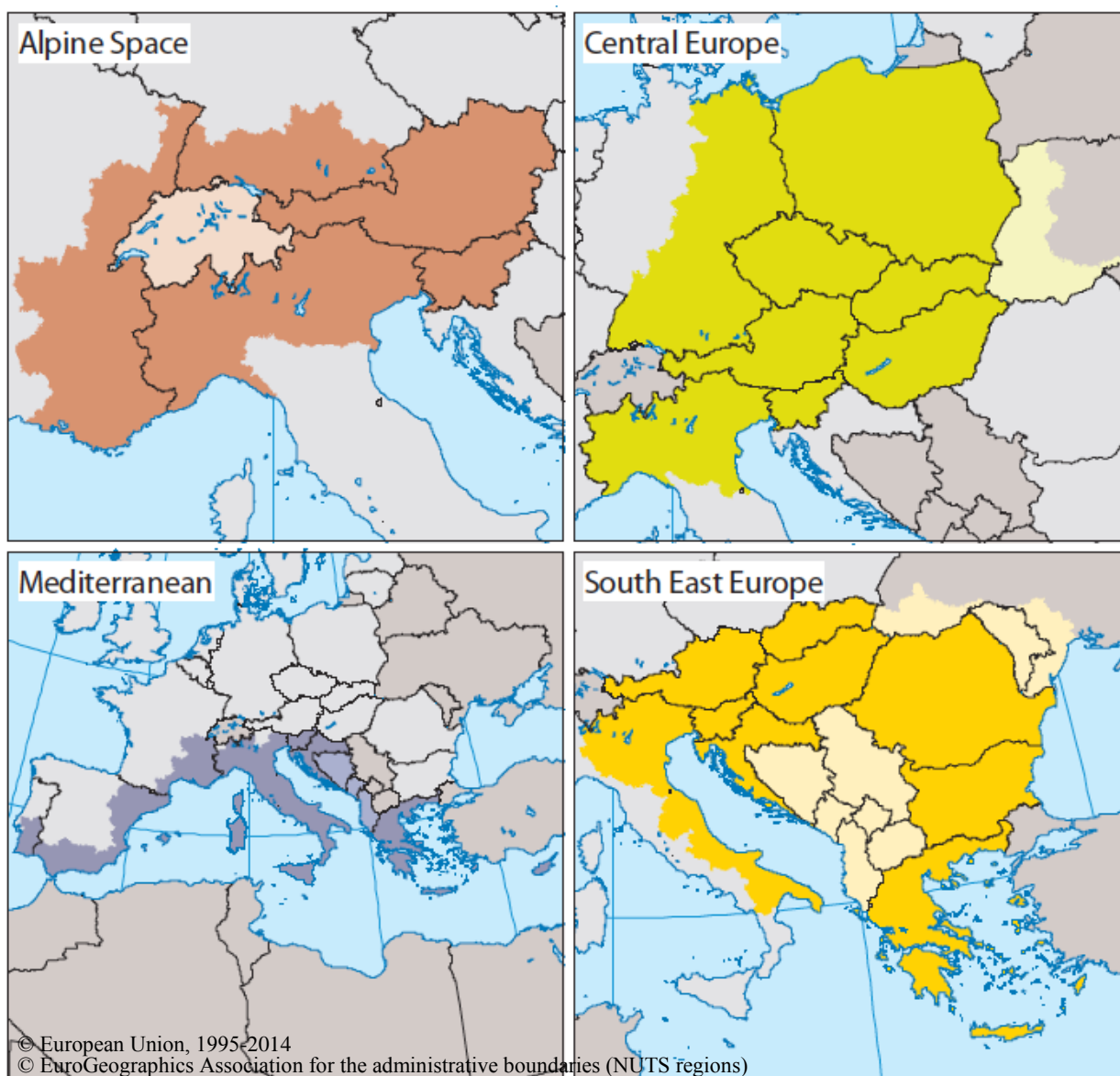
Source: *Interreg Italy Slovenia*, 2014.

Figure 2. Map of the eligible areas of O.P. Italy-Slovenia 2007-2013



Source: *Italia - Slovenija: Cross-border co-operation programme*, 2014.

Figure 3. Map of the eligible areas of the transnational cooperation programmes 2007-2013



Source: *Transnational Cooperation areas EU-28, 2014.*

Appendix D – Interviews

The verbatim transcripts of all 21 interviews in their original languages (i.e. Slovenian and Italian) were reviewed and approved by the interviewees. The data are available from the author (lara9ak@gmail.com) upon request.

Table 1 presents the list of the 21 interviewees; the interviews were conducted from the end of June 2013 to the beginning of November 2013.

Table 1. Interviewees

Name	Position	Organisation	Location
M. BUČAR	Professor - Senior researcher on research and innovation policy in transition countries	Univerza v Ljubljani Fakulteta za družbene vede / University of Ljubljana Faculty of Social Sciences	Ljubljana (SLOVENIA)
T. RENER	Secretary, Department of international affairs and national authorities, Regional Development and European Territorial Cooperation Directorate	Republika Slovenija Ministrstvo za gospodarski razvoj in tehnologijo / Republic of Slovenia Ministry of Economic Development and Technology	Štanjel (SLOVENIA)
S. D'EREDITÀ L. GOVER P. PANJEK	Project manager Project manager Project manager	Informest - Agenzia per lo Sviluppo e la Cooperazione Economica Internazionale / Informest - Agency for development and international economic cooperation	Gorizia (ITALY)
F. TOMASI	Head of Project Drafting and Management Unit for International Projects	AREA Science Park	Trieste (ITALY)
S. DE MONTE	Director	A.P.E. Research S.r.l.	Trieste (ITALY)
R. KOCINA	Project manager	Friuli Innovazione	Udine (ITALY)
I. ŠKERLIČ	Head of Joint Technical Secretariat	Joint Technical Secretariat – Operative Programme Italy-Slovenia 2007-2013	Trieste (ITALY)
T. VADJUNEC	Economic Adviser	RRA SEVERNE PRIMORSKE d.o.o. Nova Gorica / Regional Development Agency of Northern Primorska Ltd Nova Gorica	Nova Gorica (SLOVENIA)
F. BENEDETTI	Professor of Organic Chemistry, Department of Chemical and Pharmaceutical Sciences, Vice-Rector for research 2009-2013	Università degli Studi di Trieste / University of Trieste	Trieste (ITALY)

“(table continues)”

“(continued)”

Name	Position	Organisation	Location
A. MUBI ZALAZNIK	Sector undersecretary, Division for the Promotion of Entrepreneurship, Innovation and Technology	SPIRIT Slovenija, javna agencija / SPIRIT Slovenia, public agency	Ljubljana (SLOVENIA)
P. GONELI	Project manager, EU projects – project T-lab, Tourism Division	SPIRIT Slovenija, javna agencija / SPIRIT Slovenia, public agency	Ljubljana (SLOVENIA)
L. COMELLI	Managing Authority Operative Programme Italy-Slovenia 2007-2013	Regione Autonoma Friuli Venezia Giulia / Autonomous Region of Friuli Venezia Giulia	Trieste (ITALY)
L. VODEB	Senior Consultant for International Projects	Obrtno-podjetniška zbornica Slovenije / Chamber of Craft and Small Business of Slovenia	Ljubljana (SLOVENIA)
S. RATAJ	Responsible for innovation and technology development support activities, Institute for Business Education	Gospodarska zbornica Slovenije / Chamber of Commerce and Industry of Slovenia	Ljubljana (SLOVENIA)
M. CVIRN K. OBER	Project Manager Expert Adviser for Project Management, Public Relations and Marketing	Tehnološki park Ljubljana / Technology park Ljubljana	Ljubljana (SLOVENIA)
M. RUZZIER	Professor, Chair of Entrepreneurship department, Faculty of Management	Univerza na Primorskem / University of Primorska	Koper (SLOVENIA)
A. RENER	International projects coordinator, International office	Univerza v Novi Gorici / University of Nova Gorica	Nova Gorica (SLOVENIA)
E. ŠVAB, A. ŠIK	President and CEO Director	Euroservis S.r.l. Slovensko deželno gospodarsko združenje - Unione regionale economica slovena (SDGZ – URES) / Slovene Regional Economic Association	Trieste (ITALY) Trieste (ITALY)
L. MULEJ	Marketing & PR	XLAB d.o.o.	Ljubljana (SLOVENIA)
H. OGRIC	Deputy director	COBIK Center odličnosti za biosenzoriko, instrumentacijo in procesno kontrolo / Centre of Excellence for Biosensors, Instrumentation and Process Control	Ajdovščina (SLOVENIA)