

**EU INNOVATION POLICY:  
THE ROLE OF SOCIAL CAPITAL**

By

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Submitted to the Graduate School of Arts and Social Sciences  
in partial fulfillment of  
the requirements for the degree of  
Master of Arts in European Studies  
Sabancı University  
Fall 2009

EU INNOVATION POLICY: THE ROLE OF SOCIAL CAPITAL

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DATE OF APPROVAL: 5 February 2010

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*To my husband Cenker*

## ACKNOWLEDGEMENT

Sincere thanks to my thesis jury, Dr. Işık Özel, Prof. Meltem Müftüler-Baç, and Prof. Bahri Yılmaz. In addition to their stimulating courses, I would also like to thank, Dr. Yaprak Gürsoy, Prof. Korel Göymen and Prof. Ahmet Evin whose classes provided an engaging intellectual environment and inspiration for my research.

Thanks to Sumru Şatır for her encouraging smiles and e-mails.

Thanks to my European Studies crew – Fatma Gerenli, Saliha Metinsoy, Suzanne Adele Carlson, and Doğa Taslardan. – always ready to commiserate with an uplifting word.

Thanks to my Mom and Dad for their constant belief in me.

Thanks to my sister Catherine, who was never more than an SMS away.

I overflow with gratitude for my dear husband Cenker Demir - my eleventh hour hero.

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European Studies, M.A., Thesis, 2010

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Keywords: Social Capital, Innovation, Clusters, European Union and Policy

**ABSTRACT**

This thesis attempts to illustrate how social capital facilitates innovation, leading to economic development and how this conceptualization of social capital provides the basis for innovation policy within the European Union. Social capital embedded within the local economy contributes to economic development by facilitating innovation through the bonds of trust created by shared values and norms, face-to-face contact, and learning. The EU endeavors to create a dynamic, competitive and innovative Europe through a knowledge-based economy. The main objective of this paper is to identify the concepts which support this endeavor by establishing innovation policy based on collaborative networks in clusters within the European Union.

AVRUPA BİRLİĞİ İNOVASYON POLİTİKASI:  
SOSYAL SERMAYENİN ROLÜ

Helen Demir

Avrupa Çalışmaları, M.A., Tez, 2010

Prof. Dr. Bahri Yılmaz

Anahtar Kelimeler: Sosyal Sermaye, Inovasyon, Kümelenme, Avrupa Birliği ve Politika

**ÖZET**

Bu tezin amacı, sosyal sermayenin inovasyonu ne şekilde kolaylaştırdığını, ekonomik gelişime nasıl ışık tuttuğunu, ve sosyal sermaye konseptinin Avrupa Birliği içerisindeki inovasyon politikaları için nasıl bir temel oluşturduğunu izah etmeye çalışmaktır. Lokal ekonomilerde yer alan sosyal sermaye, ekonomik gelişime; paylaşılan değerler ve kurallar, yüz-yüze yapılan çalışmalar ve birbirinden öğrenme yoluyla oluşturulan güven bağlarının inovasyonu kolaylaştırması yoluyla katkıda bulunmaktadır. Avrupa Birliği, bilgiye dayalı bir ekonomi oluşturarak; dinamik, rekabetçi, ve yenilikçi bir Avrupa oluşturulması çabasıdır. Tezimizin ana amacı, bu çabayı, Avrupa Birliği içerisinde bulunan kümelerdeki işbirliği ağlarını temel alan bir inovasyon politikasının oluşturulması yoluyla destekleyen konseptlerin ortaya konmasıdır.

## TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	v
ABSTRACT.....	vi
ÖZET.....	vii
TABLE OF CONTENTS.....	viii
LIST OF FIGURES.....	ix
CHAPTER I: INTRODUCTION.....	1
CHAPTER II: DEFINITIONS AND LITERATURE REVIEW .....	4
2.1 Defining Innovation .....	4
2.2 Defining Social Capital .....	9
2.3 Discussing Agglomeration and Competitive Advantage.....	12
2.3.1 Types of Agglomeration.....	18
2.4 Defining Clusters .....	20
2.5 The Case for Policies for Clusters.....	22
2.6 Conclusion.....	28
Chapter III: EU INNOVATION POLICY .....	29
3.1 Historical Background of the EU’s Innovation Policy.....	29
3.1.1 European Year of Creativity and Innovation.....	30
3.1.2 Lisbon Strategy in 2000 .....	31
3.1.3 Lisbon Strategy – Mid-term Assessment in 2005.....	32
3.1.4 2006 Commission Communication - "Putting knowledge into practice: A broad-based innovation strategy for the EU".....	33
3.1.5 Towards Cluster Policy .....	34
3.1.6 Structural Funds.....	37
3.2 Territorial Competition.....	39
3.2.1 Subnational Particularism .....	42
3.2.2 Social Capital Adds to the Innovation Process.....	43
3.3 Conclusion.....	44
Chapter IV: THE CASE OF SOCIAL CAPITAL IN THIRD ITALY .....	46
4.1.1 Emilia-Romagna vs. Calabria .....	47
4.1.2 Emilia-Romagna vs. Calabria, Round Two.....	48
4.2 Third Italy and the Identification of Industrial Districts .....	49
4.3 Social Capital in Italy.....	50
4.4 Is Third Italy a Model for Cluster Policy in the EU?.....	54
4.5 Conclusion .....	54
Chapter V: CONCLUSION .....	56
<i>References</i> .....	59



## LIST OF FIGURES

Figure 1: Disruptive Innovation .....	6
Figure 2: Social capital as a necessary complement to human capital for successful collaboration .....	11
Figure 3: Porter's Diamond Model .....	14
Figure 4: Cappellin's territorial knowledge management approach. Learning and knowledge creation as indicators and drivers of economic development processes. ....	16
Figure 5: Four Types of Agglomeration .....	18



## **CHAPTER I: INTRODUCTION**

Innovation is the process by which technological advances in products and processes are commercialized and diffused throughout society. Innovation occurs more fluidly in an environment conducive to physical interfacing of participants to spread knowledge and ideas from one organization to another. Social capital facilitates innovation, which leads to economic development.

Social capital embedded within the local economy contributes to economic development by facilitating innovation through the bonds of trust created through shared values and norms, face-to-face contact, and learning. These socio-cultural factors establish a foundation for economic activity. In a globalized world, where more factors of production are mobile, the immobile relational resources which are embedded territorially support the reality of functioning networks. Relationships based on collaboration and cooperation, as well as institutional capacities continue to increase in importance in sustaining competitive advantage (Amin & Thrift, 1994; Storper, 1995; Hudson, 1998; Cooke and Morgan, 1998; Bagnasco, 1999; Evans & Syrett, 2007).

At the heart of the Lisbon Strategy is a need to foster an environment conducive to innovation, which is the commercialization of technological advances. The Lisbon Strategy places emphasis on the need for an innovative Europe, "The most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010." The main objective of this paper is to identify the concepts which support establishing innovation policy based on collaborative networks in clusters within the European Union. A case study of Italy with a long tradition of trust and social capital in the northern Third Italy illustrates the role of social capital in creating opportunities for knowledge transfer through clusters and ultimately to greater economic development. This paper will attempt to illustrate the theoretical validation for EU innovation policy focused on clusters through a comprehensive review of the relevant subject material, as well as enumerate the policies, policy trends, goals and

legislation of the EU related to innovation.

In Chapter II, I attempt to highlight the relevant literature to the topic of this paper and to formulize working definitions of innovation, clusters and social capital. A review of the literature on inter-institutional cooperation to advance innovation and technology in order to achieve a competitive advantage diverges on theoretical approaches, which span the faculties of economics and management. Three basic branches of the research approach the issue framed by a different research question. First, research of a teleological nature delves into the origins of social networks. A second area of research aims to measure the effectiveness of inter-institutional networks. Finally, a branch of research focuses on composition of clusters. The functioning of free markets alone cannot guarantee a sustainable competitive advantage for nations or regions competing in a global environment. In the neoclassical growth theories, focusing on the firm as the primary agent to achieve economies of scale, productivity and international competitiveness overlooks the value added by local actor networks, knowledge accumulation and local entrepreneurship (Cappellin, 2003a, p. 73). Clusters exhibit the benefits of social capital and knowledge exchange.

EU innovation policy aims toward convergence by eliminating stark socioeconomic differences of diverse regions in the Common Market. By exploring Bartolini's concept of subnational particularism in Chapter III, I will attempt to illustrate how EU policy substantiates yet contradicts the phenomenon of territorial differentiation. While the EU espouses a social agenda to correct the natural imbalances of regional resource distribution, perhaps the monolithic juggernaut of the economic common market, misses the more nuanced opportunities afforded by specialization of policy strategy to meet the specific needs of regions. Current trends in innovation policy address these opportunities.

The question of allocation of resources resounds as the EU must determine where to funnel cohesion funds. While economic progress was reinforced through infrastructural projects in the past, the challenge has evolved into a need for deeper development of social networks. In Chapter IV, I review how Putnam's discussion of Third Italy reflects the influence of history on clusters. Putnam (1994) reflects on the fact that "for *economic progress* social capital may be even more important than physical or human capital" (Putnam, 1994, p. 183 – *emphasis added*). One intriguing policy area remains innovation policy, more specifically innovation cluster policy. The field of innovation clusters is multi-disciplinary, spanning political science, economics,

economic geography, management, sociology - just to mention a few. Robert Putnam in *Making Democracy Work* discusses social capital. The role of social capital in the interchange of knowledge significantly increases in order to maintain a competitive industry.

## CHAPTER II: DEFINITIONS AND LITERATURE REVIEW

### 2.1 Defining Innovation

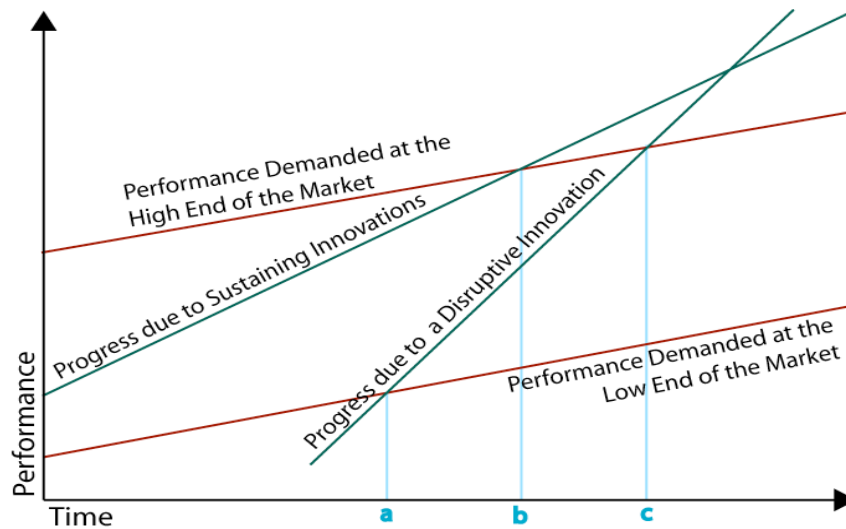
“Innovation is the ability to take new ideas and translate them into commercial outcomes by using new processes, products or services in a way that is better and faster than the competition” (Bendis & Byler, 2009). Innovation can be described from multiple angles, depending on the point of perspective and the methodology of analysis. An economic definition focuses on the factors of production and growth. Schumpeter describes innovation as a change in the economic system causing voluntary investment. Schumpeter makes a distinction between induced investment and autonomous investment in his model explaining economic development. The latter is sparked by innovation.<sup>1</sup> Broadly speaking, Schumpeter proposed that autonomous investment was based on innovation, which can be referred to as resource discovery and/or technological progress. Innovation could be viewed as any change in the production function which would increase output. According to Schumpeter, innovation was the implementation of anything new, whether the something new is a product, natural resource, process, and market or market segment. A biography of Schumpeter written by Thomas K. McCraw (2007) offers a portentous title of Schumpeter’s influence in the field of economic thought, particularly capitalism, *Prophet of Innovation – Joseph*

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<sup>1</sup> “Development in our sense is then defined by the carrying out of new combinations. This concept covers the following five cases: (1) the introduction of a new good—that is, once with which consumers are not yet familiar—or of a new quality of a good. (2) The introduction of a new method of production, that is, one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market, that is, a market into which the particular branch of manufacture or the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials, or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position” (Schumpeter, 1934, p. 66).

*Schumpeter and Creative Destruction.* McCraw divides the book into three parts according to the intellectual journey of Schumpeter: the economics of capitalism, capitalism's social structure, and economics' historical record (McCraw, 2007, p. xi). Schumpeter's emphasis on the role of entrepreneurs, as well as the social structure and cultural institutions conducive to facilitate the creation and functioning of these entrepreneurs, leads in perfectly with the role of innovation for economic development. The roots of present day thinking about capitalism and economic growth can be traced back to Schumpeter. Echoes of Schumpeter's arguments can be heard when Cappellin (2003b) reasons that the basis for an expansive economy rests on the process of innovation. "Economic growth depends on competitiveness and hence on innovation or on the speed of change of technologies and organizational routines." (Cappellin, 2003b, p. 323). "Innovation is a key factor determining productivity growth" (Hollanders, 2009, p. 5).

Schumpeter's digressions regarding creative destruction is directly related to the study of disruptive technologies, later called disruptive innovation, coined by Clayton Christensen. Schumpeter's view on creative destruction revealed that new advances will diminish the value of the preceding technology; hence, destroying the practical application of a previous generation of a product. In describing the reasons for the popularity of a cluster emphasis in industrial policy during the 1990s in the majority of European countries, Borrás and Tsagdis (2008) explain that "flexibility and 'creative destruction' of local production systems were important means of job creation as well as responses to the challenges of globalization" (p. 2). A disruptive innovation is any new product or process which overtakes the previous generation in the marketplace. Later researchers attempt to identify the sources and hindrances of the creation of disruptive innovations.



Source: *Disruptive Library Technology Jester. Pocket-sized Graph of the Theory of Disruptive Innovation* <http://dljtj.org/article/disruptive-innovation-card/> Accessed January 29, 2010.

Figure 1: *Disruptive Innovation*

In his creation of a conceptual model to identify the inhibitors or blockages of firms to adopt disruptive innovation, Assink identifies the crucial role of innovation in creating value for the originating organization. Innovation is “(t)he process of successfully creating something new that has significant value to the relevant unit of adoption” (Assink, 2006, p. 217). It should be noted that Assink makes the distinction in the paper between incremental and disruptive innovations. Disruptive technologies play a crucial role in making the previous generation of a technology obsolete. The extinction of older technologies propels an economy forward. Innovation is the key to growth both for companies and for economies. Inventions may produce a product, but if the product cannot replace the current products in the market, it cannot be an innovation. For example, e-book personal devices, such as the Amazon Kindle or the Sony Reader, are an invention. The e-book personal devices have not taken hold in the market place, despite Sony introducing the product back in the 1990s. Part of the barriers to the success of the product becoming a disruptive technology remains the gap between market demand and the supply. The technology has not yet reached a breaking point to dominate the market place. Assink would refer to this as an exogenous infrastructural barrier. Although his model’s unit of analysis is the large multi-national company and most of his explanatory variables are endogenous and internal to the firms, the conceptual model of disruptive innovation inhibitors mentions how external



market factors and cultural factors may inhibit the successful launching of disruptive technologies. Though Assink does not explicitly state a role for innovation policy within government agencies, certain variables in his model, such as risk adverse climate and the learning gap incorporating a lack of creativity and lack of market sensing and foresight, imply a role for policy to address the creation of a business climate that may bear some of the financial burden of innovation as well as the creation of educational institutions to build a workforce capable of being creative and making tools to better sense the market conditions and trends as well as promoting arenas to create social capital.

Different institutions of the European Union espouse different connotations to the term innovation. The European Cluster Memorandum (2007) suggests that innovation is “the transformation of ideas in new products and services” (p. 1). The definition of innovation listed on the European Commission Enterprise and Industry follows along the lines of Schumpeter. “An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relation. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm.”<sup>2</sup> “All forms of innovation need to be promoted, for innovation comes in many forms other than technological innovation, including organizational innovation and innovation in services. In this context, while increased competition constitutes the most efficient instrument to stimulate innovation, policy measures and innovation support mechanisms may also have an important role to play” (European Commission, 2006). In the Commission document, “An innovation-friendly, modern Europe” COM(2006) 589 final, innovation is understood as “renewing and extending the range of products and services; establishing new methods of design, production, supply and distribution; and changing management and work organization, as well as the working conditions and skills of the workforce.”<sup>3</sup>

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<sup>2</sup> Accessed on January 28, 2010

[http://ec.europa.eu/enterprise/policies/innovation/glossary/index\\_en.htm](http://ec.europa.eu/enterprise/policies/innovation/glossary/index_en.htm)

<sup>3</sup> Accessed on January 29, 2010

[http://europa.eu/legislation\\_summaries/research\\_innovation/general\\_framework/i23034\\_en.htm](http://europa.eu/legislation_summaries/research_innovation/general_framework/i23034_en.htm)

In summary, innovation could be understood as the implementation of something new, in which the implementing process brings value to the originating unit, whether firm, individual, nation-state, regional institution or other organizational structure.

The concept of innovation has shifted from a linear process to a systematic approach, meaning that participation of multiple areas of an organization are required instead of just a research and development (R&D) department. Previously, innovation was conceptualized as taking place in a lab with scientist in white lab coats, tinkering to discover new processes and create new products. The Schumpeterian view of innovation regards firms producing innovation in isolation through their entrepreneurs instead of a systemic approach viewing innovation as a complex process (Pellegrin, 2007, p. 204). The transformation of the formulation of what and how innovation works has envisioned a dynamic reality that involves actors at multiple layers in the process. Innovation can no longer be conceived of as an isolated activity, but as something kinetic requiring the input of several stakeholders. Innovation is not only creating something new, but creating something new which can be brought to market or contribute to the advancement of the units, organizations or institutions generating the innovation. Invention on the other hand may take place to produce something new, but if that something new is not implemented to create value, the invention cannot be considered as innovation.

Innovation requires input from the cross section of interested stakeholders. The firm must consult with marketing to assess the pulse of trends and demands for goods. Finance must be involved to secure the resources for research. Scientists and technical experts must be equipped to identify customer requirements in order to produce a marketable product and to cater to the specific needs of the end users. A looping effect occurs in the dynamic conceptualization of innovation. Feedback and iterations of interaction are required to leverage the pockets of knowledge spread throughout the value chain. Knowledge is produced and diffused in a more cooperative fashion taking advantage of an aggregated knowledge set. Moreover, innovation can occur in a cross-firm or cross-institutional setting in which face-to-face contact helps to diffuse tacit knowledge, that knowledge which is not easily conveyed through written documentation but remains locked in the experiences and advice of colleagues and collaborators. Human-to-human interactions are required to convey tacit knowledge.

Innovation has arrived at a social process, during which stakeholders engage in dynamic iterative encounters to transfer knowledge which aggregates into a final

product, process or service. Needless to say, networking has evolved into a critical element of innovative production. The broader the network of stakeholders, the easier it is to identify a resource with the specific information to overcome gaps in the knowledge base. Networks also allow ideas and technology to be diffused through the economy more efficiently. Knowledge may be spread more collectively and at a faster pace. Institutions figure prominently in the process, whether formal or informal. Organizations provide the rules, norms, and behavior by which individuals in the network associate with each other. Pooled resources providing different functions in isolation form a network to diffuse know-how and coordinate economic players within networks. Institutions can provide a critical element in removing hindrances and barriers for firms, organizations and individuals to access the required resources, such as financing or easier navigation of national or localized bureaucracy. The EU recognizes the open process and collaborative nature of innovation.<sup>4</sup>

## **2.2 Defining Social Capital**

Collaboration and cooperation which are favorable to the process of innovation require banked social capital. Social capital provides the basis for the effective functioning of a network embedded within a location. The notion of social capital is attractive to many economic development theorists, since it addresses the often overlooked element of a social dimension in the economic development process.

One of the consequences of socializing social capital is that networks, norms and identities are rescued from relegation. There is a welcome irony in the fact that when this is done we seem to learn more about economic development than we do when working with the reductionist conceptions of economics. It seems that by refusing to succumb to the logic of economic rationality we might begin to understand more about the way in which development occurs. (Fevre, 2000, p. 109).

This is not to say that the concept of social capital is easily defined nor its

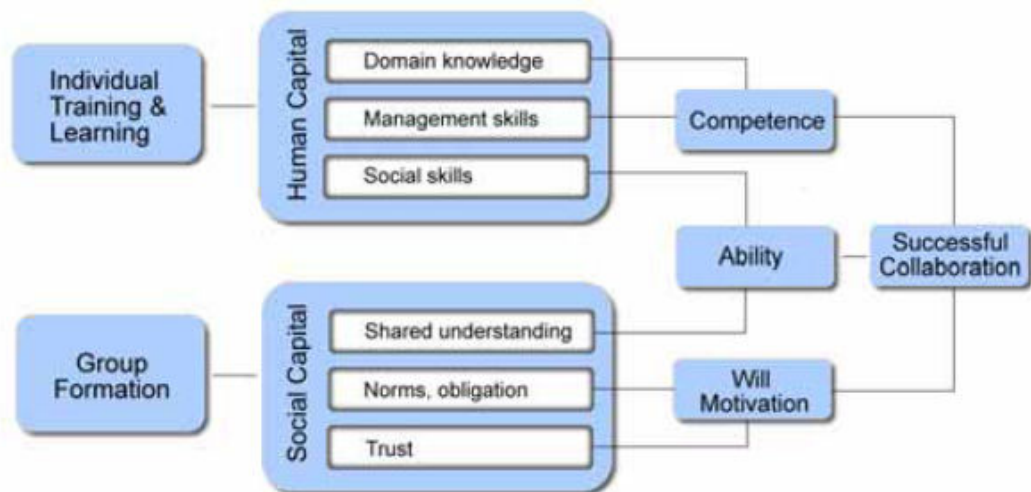
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<sup>4</sup> “Innovation is increasingly characterised as an open process, in which many different actors—companies, customers, investors, universities, and other organisations—cooperate in a complex ways. Ideas move across institutional boundaries more frequently. The traditional linear model of innovation with clearly assigned roles for basic research at the university, and applied research in a company R&D centre, is no longer relevant. Innovation can benefit from geographic proximity which facilitates the flows of tacit knowledge and the unplanned interactions that are critical parts of the innovation process. This is one of the reasons why innovation occurs locally whereas its benefits spread more widely through productivity gains” (European Commission, 2007, p. 4).

definition agreed upon. Debates continue in the literature over the notion of social capital (Woolcock, 1998; Baron et al., 2000; Dasgupta and Serageldin, 2000; Fine, 2001; ONS, 2001b; Halpern, 2005). In the conventional sense, capital is regarded as something tangible, such as land, labor, and finances. The 1960s saw the dawn of the concept of human capital, which is basically the education and health of workers, who apply the previous forms of capital (Becker, 1964). Social capital brings an additional dimension to the concept of human capital, “whereas human capital resides in individuals, social capital resides in relationships” (Woolcock, 2001a, p. 12). Social capital can thus be viewed as a productive resource. Economists normally view human capital and social capital as a type of externality or spillover.

Uphoff (2000) offers two perspectives on the concept of social capital, both objective and subjective. Firstly, there is a structural version of social capital stressing networks, linkages and organizations for information and norms to be transferred. This sociological perspective is based on the research of Coleman (1988, 1990). Secondly, there is a cognitive version stressing shared norms, values, trust, attitudes and beliefs. Putnam’s (1994) work, a political science perspective, represents this perspective (Evans & Syrett, 2007, p. 58). Bourdieu describes social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (1983, p. 249). Bourdieu’s definition emphasizes the value which can be derived from relational interactions on an accrued basis. By relating the realizable tangible economic benefits of social capital for the parties involved, Bourdieu’s reflection on the concept supports the intentional formation of social interactions to develop the resource of social capital. Fukuyama provides a more general description of social capital as “shared norms or values that promote social cooperation, instantiated in actual social relationships” (2002, p. 27). For economic development to succeed and economic growth to increase, Fukuyama argues that social capital is an indispensable precondition. Members of networks benefit from the value created through social capital, such as the positive external effect of knowledge sharing. Self-reinforcing constructive encounters can be fueled by underlying cultural influences and institutions. Social capital established through membership in an assortment of community-based institutions, artisan and commercial associations, and labor organizations laid the groundwork for commercial inter-organization exchanges in the Italian industrial districts. Formal and informal diffusion of information occurs when employees change

companies, visit similar social events, or engage in activities of their school children. Clusters such as Silicon Valley benefit from these informal, market-led, spontaneous communication channels (Andersson et al, 2004, p. 20). Nonaka and Takeuchi (1995) view innovation and knowledge creation as a social process involving individuals who swap both explicit and tacit knowledge. Innovation commences with a group level comprehension or identification as the foundation for collaboration. Storper (1999) discusses how decentralized horizontal cooperation of individuals across and within institutions and firms is enabled by trust based relationships and social capital. “The growth of a locally embedded innovation system is essential in shaping the social routines and strategies of actors in the regional economy” (Öz, 2004, p. 16). Cappellin’s approach of territorial knowledge management identifies five policy tasks, one of which is to “lever common identity.” His definition of the task relates to a cultural explanatory variable: “The change in the corporate culture to promote knowledge sharing and the willingness to collaborate. That requires common aims, shared mental models, trust and loyalty and also the morale, empowerment and commitment of people” (Cappellin, 2003b, p. 322).



Source: Riemer and Klein (2003)

Figure 2: Social capital as a necessary complement to human capital for successful collaboration

Dissimilar to other forms of capital, such as financial, the more social capital is used or applied the greater and stronger it grows and is amplified. Social capital is only as strong as the resources, such as land, labor, financial or human capital, which can be

leveraged through the interpersonal or inter-organizational network. Riemer and Klein illustrate the pairing of human capital and social capital to achieve successful collaboration. Increasing the frequency and number of interactions between parties in a network increases the strength of the network. Local economic development can benefit from social capital banked within networks in order to leverage available immobile resources. Social capital can be a catalyst for innovation within the network of a cluster, leading to improved economic development.

### **2.3 Discussing Agglomeration and Competitive Advantage**

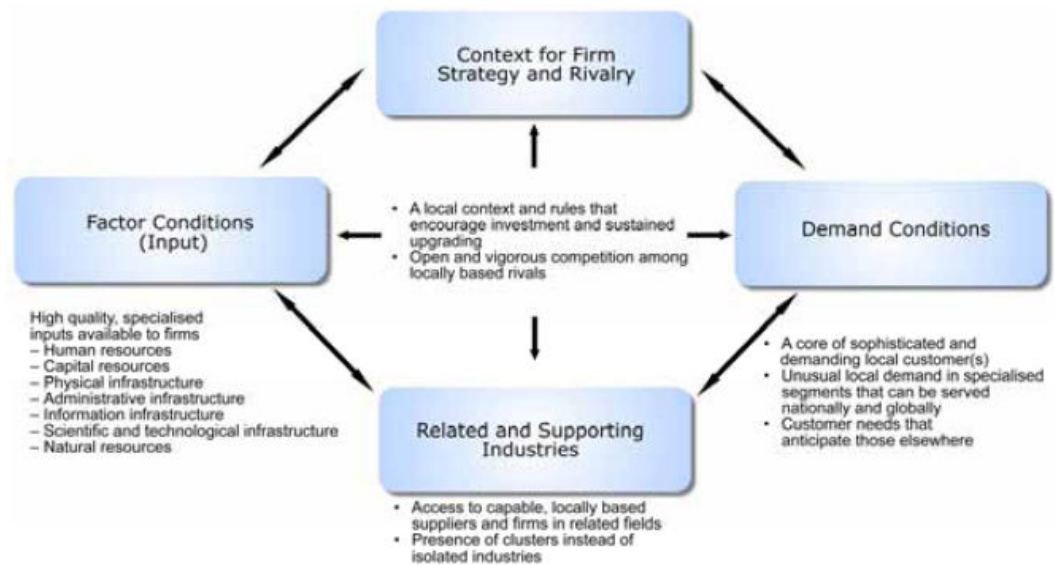
Economic theories have traditionally been devoid of quantifiable variables to account for location of economic production or for the value of human interactions in networks. While Schumpeter's model present the powerful dynamics of innovation as a carrot for autonomous investment, as well as the critical role which entrepreneurs occupy in the value creation process derived from innovation, his model does not address the crucial role played by location. Political and economic theorists such as Adam Smith and Alfred Marshall brought the concept of a spatial element to competition to the forefront. Particularly Alfred Marshall in the 1890s brought the concept of geographic concentrations of industries to the attention of academics (Öz, 2004, p. xi). Alfred Marshall, writing during the late nineteenth century, introduced his observation of 'the concentration of specialized industries in particular localities.' His discussion focuses on three externalities of the localized agglomeration, mainly, 'the ready availability of skilled labor, the growth of supporting and ancillary trades, and the specialization of different firms in different stages and branches of production' (Martin & Sunley, 2003, p. 7). It was not until a century later, when Porter delves into the source of national competitive advantage and international competitiveness that the concepts of localized agglomeration as a source of economic development exploded onto the academic and business scene. Discussion of agglomeration of economic activity would be remiss without a discussion of Porter's contributions to the understanding and popularization of the cluster phenomenon. Porter's demonstration of the competitive diamond model proved to have staying power in explaining the significance of location in regards to economic activity. The diamond model identifies four core drivers of competitive advantage. The model identifies competitiveness as a function of four endogenous variables, including advanced and specialized production

factors, demand conditions, context for firm strategies, structure and rivalry, and lastly, related and supporting industries, which can be termed clusters. Exogenous factors address the influence of government policy on the four variables in the diamond model, as well as the influence of chance, trajectories or junctures, events, war, disruptive technologies, and natural catastrophes. Results from the Innobarometer 2009 conducted by the Gallup Organization reveals that competition and demand conditions more strongly influence innovation than push factors.

Demand-pull factors (e.g. pressure from competitors, demands from clients) were more likely than technology-push factors (i.e. emergence of new technologies or opportunities to cooperate with knowledge centres) to positively influence innovation activities between 2006 and early 2009. Almost three-quarters (72%) of enterprises indicated that at least one of the demand-pull factors tested in the survey influenced their innovation activity in a positive manner (Gallup, 2009, p. 11).

Öz performs a comprehensive review of the evolution of Porter's thoughts regarding clusters. Porter's book *The Competitive Advantage of Nations* (1990) concentrates on the sources of international competitive advantage at the industry level. The study which involved over one hundred industries scattered throughout ten countries stumbled on the revelation that the sources of advantage lay in the local setting. Competitive advantage of domestic or regional firms could be sustained through four local characteristics, mainly factor conditions, demand conditions, related and supporting industries and context for firm strategy and rivalry. The four factors blend in a unique way that may be difficult to duplicate and reproduce in a different location, hence, creating a system with reinforcing sustainable attributes. Öz points out that Porter's later works in 1998 and 2000 reveal his argument that clusters are a manifestation of the diamond theory. Öz also states that Porter claims that the origin of a geographic cluster may often be traced back to irreplaceable historical circumstances or to a distinctively sophisticated local demand. The interpretation of Öz implies a lock-in effect of previously established factor conditions or institutional formation. "Once a cluster begins to form a self-reinforcing cycle promotes its growth since talented individuals are attracted by success stories, specialist suppliers emerge, information accumulates and local institutions develop specialized training programmes, research facilities and infrastructure" (Öz, 2004, p. 25). Martin and Sunley (2003) pronounce that Porter purports clusters both as an analytical concept to understand the competitive advantages of localization of economic activity as well as a

key policy tool to strengthen programs for policy-makers at all levels from international organizations, national governments, regional development agencies, to local or city governments (p. 6). Porter becomes more convinced over time that geographical concentration or clustering of firms increases the advantages of the interchanges of the four elements of the competitive diamond model. “The competitive diamond is the driving force making for cluster development, and simultaneously the cluster is the spatial manifestation of the competitive diamond” (p. 7).



Source: Porter (2001)

Figure 3: Porter's Diamond Model

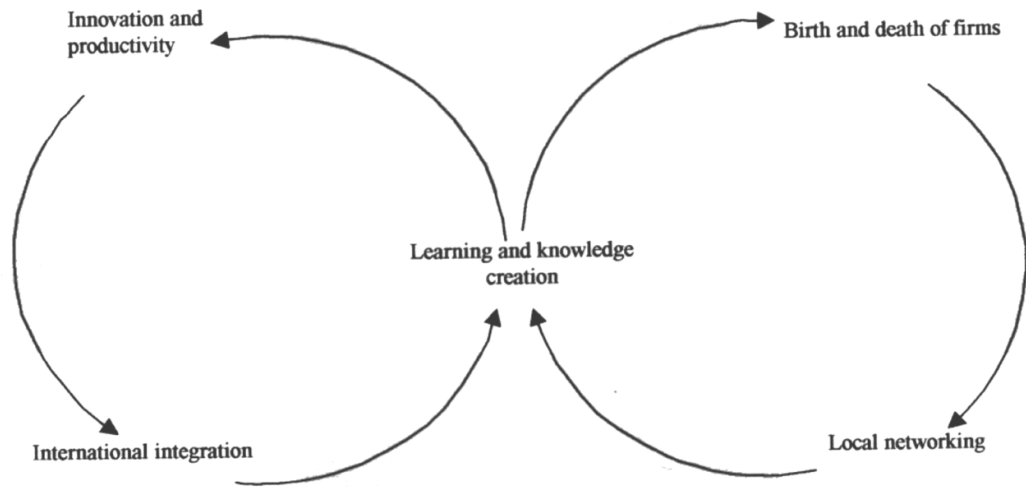
“(T)he failure of economics to take account of space” (p. 29) is a decisive statement of Paul Krugman (1995) in his series of Ohlin lectures at the Stockholm School of Economics during the fall of 1992, in which he builds towards a theory of spatial economics utilizing an approach based on the assumption of the value of location. Though Keynesian economic theory separates itself from neoclassical economics by supporting a role for the government through fiscal and monetary policy, Keynesian economic models often fall short of incorporating a variable to address the pertinent effect of space or location. The question of “where” spawns realms of theoretic thought, such as “...economic geography – the study of where economic activity takes place and why...” (Fujita et al, 1999, p. 1). The phenomenon of “(a)gglomeration – the clustering of economic activity, created and sustained by some sort of circular logic – occurs at many levels, from the local shopping districts that serve



surrounding residential areas within cities to specialized economic regions like Silicon Valley (or the City of London) that serve the world market as a whole” (Fujita et al, 1999, p. 1). Krugman and his crew of spatial economists, who commandeered the term “new economic geography” would have us believe that economics of agglomeration prove to be theoretically tautological. “Broadly speaking, all these concentrations form and survive because of some form of agglomeration economies, in which spatial concentration itself creates the favorable economic environment that supports further or continued concentration” (Fujita et al, 1999, p. 4).

While Krugman, Fujita and Venables resurrected the concept of location economics with the help of established quantitative models, such as the von Thünen Model, the Core-Periphery Model, and the Dixit-Stiglitz Model of Monopolistic Competition, economic geographers of the prior generational ilk seek to validate their theories of the “where” question with more qualitative case studies. “Economic geographers” find contention with the tendency of the “new economic geographers” to generalize with grand theories of agglomeration causes and effects glazing over the potentially powerful explanatory nature of nuanced socio-cultural developments married to location. Martin (1999) in his editorial readily offers a solution. “We (economic geographers) need to convince economists as to the significance of these spatial inhomogeneities and specificities: that socio-institutional factors are central determinants of the development of the economic landscape, not just background ‘noise’” (Martin, 1999, p. 388).

Modeling of socio-institutional factors remains a cumbersome task; therefore, the camp of economists falling into categories such as the “new economic geography” gains traction in the halls of policy makers. “The field (economic geography) has been given a big boost in particular by plans to unify the European market and the attempt to understand how this deeper integration will work by comparing international economics within Europe with interregional economics within the United States” (Fujita et al, 1999, p. 2). Marin and Sunley (2003) also suggest that Porter’s packaging of agglomeration concentration advantages vis-à-vis clusters is more easily received and implemented by policy makers, due to posing the phenomenon in relation to “an overarching focus on the determinants of ‘competitiveness’ (of firms, industries, nations and now locations). This resonates closely with the growing emphasis given by politicians and policy-makers to the importance of competitiveness for succeeding in today’s global economy” (p. 8).



*Source: Cappellin, R. (2003b). p. 311.*

*Figure 4: Cappellin's territorial knowledge management approach. Learning and knowledge creation as indicators and drivers of economic development processes.*

Jumping back to the cumbersome task of modeling socio-institutional factors in economic models, the literature examines the role of networks since tracing a direct impact of networks on economic performance is complex. “Because intangibles are, by nature, difficult to measure and to value, the lack of reliable, comprehensive and internationally comparable data is a major barrier to empirical analysis” (Peneder, 2000, p. 117). Still economists attempt to account for these intangible proclivities of human interaction and its significance for economic development. “The model of the territorial networks indicates that the process of economic development is the result of the tight interaction between the process of local networking and of the process of interregional and international networking” (Cappellin, 2003a, p. 70). Certain schools of economic thought stretch beyond the confines of neoclassical and Keynesian models to create generalizable theories to capture the intricacies of the value of knowledge interchange among individuals. Cappellin, who studies the economics of technological change as well as the relationships and roles of public institutions within federal systems, developed the model of territorial networks to address the connectivity between the flows of production factors, technology and production and between the

flows of goods, labor, capital and technology. Cappellin (2003a) identifies several relevant networks in a local production system.<sup>5</sup>

These complex interactions between the six variables considered by the model of territorial networks indicate that the negative or positive impact on economic development of an increasing openness to the international or interregional economy may be very different in the various regions. The final outcome depends mainly on the process of networking between the local actors, the interactive process of knowledge accumulation within the region considered and the local entrepreneurship capabilities in the creation of new firms. These three factors are basically disregarded in the neoclassical growth theories, which in contrast focus mainly on the impact of the remaining three variables: economies of scale, productivity and international competitiveness (Cappellin, 2003a, p. 73).

Cappellin (2003b) also introduces another approach which he terms territorial knowledge management to measure “the cognitive dimension of agglomeration economies” (p. 323). “Territorial knowledge management means the generation of a system of procedures and incentives to convert tacit and localized knowledge into explicit knowledge available to all companies and employees in a region by overcoming cognitive barriers” (Cappellin, 2003b, p. 303). Cappellin touches upon the vital role of knowledge management since “knowledge contributes to the adoption of organizational and technological innovation within existing firms and the creation of new firms (start-ups or spin-offs) incorporating the new technologies” (p. 322). Knowledge is the contributing factor to the adoption of organizational innovation. Cappellin’s research focuses on the spatial dimension of the innovation process which he claims take place in clusters of SMEs. Cappellin’s approach of the critical role played by SMEs may come into contention with the model of Assink, whose unit of analysis is large multi-nationals. Additionally, Assink focuses on disruptive innovation instead of incremental developments at which Cappellin’s unit of analysis the SMEs tend to be more adept. Assink’s conceptual model of disruptive innovation inhibitors and Cappellin’s approach of territorial knowledge management do similarly recognize the added value dimensions of innovation to the originating unit and the importance of removing impediments to the flow of knowledge.

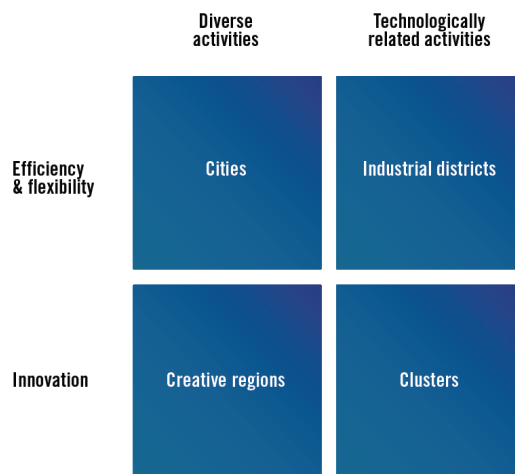
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<sup>5</sup> Technological integration, Integration of the local labor market, Production integration between the firms, Integration between the service sectors and the manufacturing firms, Financial integration of the firms, Territorial integration at the local level, Social and cultural integration, Relationships of institutional integration, and Territorial integration at the interregional and international level (Cappellin, 2003a, p. 55).

### 2.3.1 Types of Agglomeration

Researchers of the phenomenon of agglomeration, use varied terminology often interchangeably. A distinction must be made here between the terms cluster, industrial district (ID), network and regional innovation system (RIS). To clarify what this paper refers to as clusters, is it critical to review the various elements of clusters.

Sölvell identifies clusters as one of four types of agglomeration. Using four categories along two dimensions, the first from efficiency advantages to innovation advantages and the second from agglomeration in general to agglomeration of technologically related actors (Sölvell, 2009, p. 13). The first and most general form of agglomeration are cities, in which diverse activities can achieve efficiency advantages or economies of scale through efficiency and flexibility of inputs, including labor and capital. The second type of agglomeration identified is creative regions, in which diverse activities are carried out with innovation advantages. The third type is industrial districts, where technologically related activities take place with the advantages of efficiency and flexibility. The fourth and final form identified by Sölvell is clusters, where there is an overlap of the innovation advantages and agglomeration of technologically related actors.



*Source: Sölvell (2009).*

*Figure 5: Four Types of Agglomeration*

Öz (2004) attempts to make a distinction among industrial districts, networks and clusters. Her review of definitions for industrial districts (ID) brings out a few common elements in the definitions. The first factor seemingly common to all

definitions is that IDs are comprised of SMEs or small family-owned businesses, thus there is flexibility in labor inputs. Another common element is production of a similar product, sometimes with forward and/or backward linkages between the firms. And a third element, which seems to be similar, is naturally a geographic concentration. Most of the definitions cited by Öz seem to lack a catch-all element to incorporate formal institutions, which sometimes accompany clusters. In particular, A Marshallian industrial district, which is a concentration of specialized industries in particular localities, provides a source of resource exchange, not only of a specialized workforce but also of critical technology to achieve a competitive advantage (Öz, 2004, p. 1). Öz (2004) points out that Capecchi stressed the presence of flexible specialization as well as small and medium-sized enterprises within industrial districts (p. 12). Öz (2004) did catalog a definition gleaned from the new industrial districts (NID) literature, which alludes to the value of informal institutions, “a district is a spatially concentrated cluster of sector specialized firms, with a strong set of forward and backward linkages, a common cultural and social background linking economic agents and creating a behavioral code, sometimes explicit but often implicit, and a network of public and private supporting institutions” (p. 9). Clusters may be distinguished from industrial districts on the factor of innovation advantages. Though Öz may blur the delineation between the terms cluster and ID, she does set apart the functionality of networks, “...a network is defined...as a set of high-trust relationships that are usually contractual and explicit” (Öz, 2004, p. 10). In her review of definitions for networks, she reveals that networks often require formal and explicit links between firms that lead to a cooperative environment. Networks, unlike clusters, are not tied down to a specific geographical location. Ho conceptualizes that all of Europe could be understood as a network, “The whole Europe can be taken as a knowledge network that consists of different RISs possessing diversified resources” (Ho, 2009, p. 1881).

A ‘regional innovation system’ (RIS) is another term within the literature, which is often used interchangeable with the term ‘cluster.’ Howells (1999, p. 82) identifies five processes of an innovation system. Firstly, localized communication patterns relating to the innovation process occur simultaneously at the individual and the firm or group levels. Secondly, search and scanning procedures relating to innovation and technology are localized. Thirdly, learning and invention patterns tend to be localized. Fourthly, knowledge is shared locally. Finally, innovation performance happens locally. In addition to the role of interactions between local actors within a territorial system,

Ho (2009) adds to the description of an RIS, “The combination of the sophisticated needs of customers, technical expertise in suppliers, implicit rules or cultural norms and institutional factors leads to a dynamic learning economy” (p. 1883). Ho also adds that the knowledge base existing within the RIS serves to attract FDI and R&D investment from multinational organizations. The European Commission looks at a regional system of innovation as policy with the objective of regional and business development through a multi-dimensional approach, “different methods may be used, ranging from hands-on methods, like providing information, contacts, assistance, advice or direct funding to hands-off methods, like lobbying, marketing, monitoring and reporting” (European Commission, 2007, p. 16). RIS expand beyond firm involvement, implying some form of policy creation and government institutions.

#### **2.4 Defining Clusters**

“The emergence of any cluster in the first place is intrinsically related to innovation. As clusters evolve over time, however, forces of change both within the cluster itself and its location, and in the external environment, may bring changes that serve to challenge the continued development of the cluster. Success in maintaining strong conditions for innovation is likely to be greatly important for avoiding decay and stagnation, and ultimately for the survival of clusters. It is conceivable that today, and even more likely in the future, all long-living clusters will have to be continuously innovative in one way or the other. While innovative clusters may thus be a tautology, the link between clusters and innovation is critically important. The notion of innovative clusters is associated with their connection to the driving forces of innovation” (Andersson et al, 2004, p. 39).

A generally accepted and comprehensive definition of clusters proves to be elusive. One’s chosen definition is dependent upon the perspective from which one chooses to analyze the phenomenon. Oftentimes definitions reflect an ideal type instead of reality, devolving to best-fit endeavors and toiling case-by-case. As of yet, there is no silver bullet in cluster theory to capture the specific a priori elements of the formation of different clusters under different settings (Martin & Sunley, 2003, p. 16). Agglomeration studies incorporate conceptual frameworks from a diverse group of theories including “Marshallian theory, location theory, transaction-cost and institutional theory, international business theory, regional studies, and strategic management” (Wolfe & Lucas, 2005, p. 4).

“Clustering is generally defined as a process of firms and other actors co-locating within a concentrated geographical area, cooperating around a certain functional niche, and establishing close linkages and working alliances to improve their collective competitiveness” (Andersson et al, 2004, p. 7).

A definition of clusters from an economic perspective would focus on the main drivers of competitiveness and growth. Martin and Sunley (2003) point out the two main characteristics of Porter’s definition for clusters. Firstly, the firms within a cluster must be linked somehow. Commonalities and complementarities link interconnected companies and associated institutions within clusters. Linkages can be both vertical, focusing on buyer-seller process or horizontal, the use of comparable specialized inputs, technologies or institutions, among other linkages. Networks or social relationships play a role within the cluster producing mutual benefits for the actors. Secondly, a cluster is characterized by geographically proximate groups of actors. Increased interaction between actors creates value-added benefits (p. 10). Cappellin (2003b) simply refers to “geographical clusters” as “local production system” (p. 307). “Clusters may embody the characteristics of the modern innovation process: they can be considered as “reduced scale innovation systems” (European Commission, 2007, p. 4). “We conceive a cluster as a regional agglomeration of sector or value chain related firms and other organizations (like universities, R&D centers, public agencies) which derive economic advantages from co-location and collaboration,” writes Fromhold-Eisebeth and Eisebeth (2005, p. 1251).

Borrás and Tsagdis discuss the minimum requirements agreed upon by the WEID (West-East Industrial Districts Re-location Processes: Identifying Policies in the Perspective of EU Enlargement) research team for a collection of firms and institutions to be considered a cluster. Firstly, there must be a geographical concentration of firms, in particular industrial specialization. Secondly, the number of SMEs must be greater than the number of large size enterprises. Thirdly, there must be a presence of inter-firm and institutional networks (2008, p. 9).

Gordon and McCann (2000) propose three ideal type models of clusters. First up to bat is the ‘pure agglomeration economies’ model, resting on the external economies of geographical concentration and evolving from a Marshallian view through to modern urban economic theory. Second on the batting roster is the ‘industrial complex’ model, reflecting a spatial equivalent to the input-output models or regional economics. The ‘industrial complex’ model reflects geographical concentrations based

on links of inter-firm trading and the minimization of transaction costs. Third up at bat is the ‘social-network’ model characterizes clusters from a cultural perspective centered on intense local networks or inter-personal relations, trust and institutionalized practices (Martin & Sunley, 2003, p. 16). Sölvell (2009) identifies four key dimensions upon which clusters can be typified: type of agglomeration, level of dynamism, stage in the life cycle, and level of political involvement (p. 11). Still other researchers emphasize the location aspects of an innovation area.

Two elements which transcend the varied definitions remain the salience of geographical location and the significance of interconnectivity, cooperation or collaboration of firms and institutions within one or more analogous industries. Clusters for the purpose of this paper will be understood to incorporate knowledge spillovers leading to innovation.

## **2.5 The Case for Policies for Clusters**

Clusters matter because of the demonstrated economic benefits to concentrated areas of innovation. The European Cluster Memorandum (2007) indicates, “Clusters – regional concentrations of specialized companies and institutions linked through multiple linkages and spillovers – provide an environment conducive to innovation” (p. 1). EC (2007) explains that “cluster policies” is an inaccurate term, as creating clusters is not the ultimate objective. Policies supporting cluster development generally have a broader goal of strengthening regional and business development (European Commission, 2007, p. 16).

Borrás and Tsagdis take “the stance of regarding policy as an integral part in the daily life of clusters; in other words, the stance that policy is an unavoidable aspect of clusters” (2008, p. 1). The pair regard policy as “public action that can be performed by a series of public and semi-public actors” (Borrás & Tsagdis, 2008, p. 1). The authors admittedly pronounce that their definition is broad but justify its catch-all nature by indicating that policies regarding clusters surface at the meeting point of “a complex set of territorially embedded interactions between (public and semi-public) actors” (p. 2).

“(T)erritorial knowledge management may be defined as the policy aiming to enhance the innovation potential, the competitiveness and the economic growth of clusters or networks of SMEs by managing the interactive learning and knowledge



creation process” (Cappellin, 2003b, p. 322). Cappellin identifies his approach of territorial knowledge management as offering a unique solution to policy regarding regional innovation and technology transfers. His approach is not based on “financial incentives to R&D, technology transfer centers, regional innovation strategies, science and technology parks, incubators or venture capital. Territorial knowledge management is a methodology which aims to promote innovation within existing firms and the birth of innovative firms by enhancing the local endowment of intellectual capital, through a systematic action on those processes, which drive knowledge creation within the firms and between these latter and the local actors” (Cappellin, 2003b, p. 322). Cappellin bases the relevance of his approach on the fact that “small and medium size firms (SMEs) account for over 99% of all European businesses and in many fields provide the channels along which new technologies develop” (Cappellin, 2003b, p. 304). Through the institutional development of learning and innovation networks, SMEs can increase their capabilities in innovation.

The research of Fromhold-Eisebith and Eisebeth explores a similar dichotomy of cluster formation to that of Sölvell’s constructive or evolutionary forces. “Explicit top-down cluster promotion appears to better address the material base and localization economies of a cluster, is more inclusive and expansive, and has wider regional economic impacts. Implicit top-down promotion suits better to support immaterial qualities of socially embedded interaction, creates stronger motivation among cluster members, and induces faster outcomes in terms of functional, innovation-related collaboration affecting firm performance” (Fromhold-Eisebith & Eisebeth, 2005, 1265). The authors deliberately attempt not to make any judgment calls as to which type of cluster promotion approach is more effective. Creating institutions to promote clusters from a top-down or bottom-up approach can be equally effective in achieving the architects’ objectives. “The two parallel processes: downwards towards more decentralization, and upwards towards more supra- and international involvement have created a complex picture of multi-level policy action and governance forms towards clusters and local production systems” (Borrás & Tsagdis, 2008, p. 3).

To assume that cluster policy is a magic elixir to improve economic performance is false. The criticisms of skeptics pointing to the fact that cluster theory is still searching for a strong explanatory model help to identify areas of research to make the cluster policy argument stronger. While theories, approaches and models such as multi-level governance and new institutionalism may help to understand the phenomenon of

clusters, the normative basis for cluster formation remains elusive. “The assumptions that governance and MLG offer an important problem-solving capacity in contemporary complex capitalist societies have not been fully tested empirically, and today there is a relative lack of substantial analytical frameworks to examine the conditions under which such potential is fulfilled or not” (Borrás & Tsagdis, 2008, p. 3). Borrás and Tsagdis attempt to answer two research questions dealing with the learning process. Firstly, does cluster MLG exhibit and learning dynamics? Secondly, does MLG support cluster-learning dynamics? They suggest that most literature on cluster policy and governance remains descriptive, normative and pragmatic, lacking any generalizable qualities.

Venables (2001) suggests analyzing the agglomeration and cumulative causation of clusters as the tension between centripetal and centrifugal forces. Centripetal forces encourage economic actors to locate near to one another, while centrifugal forces push economic actors away from each other. Centripetal forces can be classified into three categories. First of all are knowledge spillovers, which could also be termed as technological externalities. Marshall (1920) used the phrase, “the mysteries of the trade become no mysteries, but are, as it were, in the air...” Secondly, the effects of labor market pooling provide a fertile supply of readily available skilled workers. Thirdly, linkages between buyers and sellers, both backwards (demand) linkages and forwards (supply) linkages, advance the positive interdependence and embeddedness between different firms, institutions and other economic actors. Centrifugal forces such as congestion, pollution, and other externalities may compel economic actors to disperse. As immobile factors, such as land or the inflated costs associated with the concentration of skilled labor, become scarcer within the centers of economic activity, firms may be persuaded to locate outside the agglomeration. Additionally, firms may wish to locate closer to a customer base outside of the clustered domain to reduce trade barriers or transport costs (Venables, 2001, pp. 211-212).

Martin & Sunley (2003) critically review the fad-like nature of the plethora of cluster policies. The duo brings up various negative impacts of clusters. Technological isomorphism occurs as normative behavior sets into the agglomerated firms, meaning the firms begin to act like each other removing variety from the process of innovation. Network actors may slip into a lock-in effect generated from a dependence on face-to-face contact for exchange of knowledge. As over-specialization occurs, firms within the cluster may not be able to respond to rapidly changing conditions of global competition.

An intense clustering of firms may also lead to steep price increases in labor, land and housing costs, as such inputs are more immobile and limited. Some critics argue that cluster based policy may also lead to wider gaps in income disparity. Workers within the core cluster firms may garner higher wages to compensate for growing congestions. The segment of labor employed within the non-core activities of the cluster, may incur inferior real wages and experience lower living standards. Additionally, congestion may stretch and create an imbalance over environmental concerns.

Martin and Sunley (2003) are critical of the lack of clarity in definition for clusters provided by Porter over time, suggesting that no measurement guide is provided to delineate when an agglomeration is categorized as a cluster. Enright (2003), a student of Michael Porter, provides a more comprehensive typology of dimensions, including geographic scope, density, breadth, depth, activity base, geographic span of sales, strength of competitive position, stage of development, the nature of the technological activities, innovative capacity, and ownership structure.<sup>6</sup> Rosenfeld

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<sup>6</sup> Enright's (2003, p. 102) detailed explanations for dimensions of regional clusters include:

- The *geographic scope* of a cluster refers to the territorial extent of the firms, customers, suppliers, support services, and institutions that are embedded in the ongoing relationships and interdependent activities that characterize the cluster.
- The *density* of the cluster refers to the sheer number and economic weight (in terms of market shares of relevant industries) of the firms in the cluster.
- The *breadth* of clusters refers to the range of horizontally related industries (industries related common technologies, end users, distribution channels, and other non-vertical relationships) within the cluster.
- Cluster *depth* refers to range of vertically related industries within the cluster, in particular whether the cluster contains all steps or only a few steps in a supply chain.
- The *activity base* of a cluster involves the number and nature of the activities in the value added chain that are performed within the region.
- The *geographic span of sales* provides an indication of the reach of the cluster.
- The *strength of competitive position* of a cluster can range from world-leading, to leading within a supranational region, to leaders within a nation, with firms that are strong competitors, moderately capable competitors, or weak competitors.
- The *stage of development* of a cluster can be embryonic, emerging, or mature and the cluster can be growing, stagnating, or declining.
- The nature of the *technological activities* in the cluster. In general, clusters can be technology generators, technology adapters, or technology users.
- The *innovative capacity* of the cluster refers to the ability of the cluster to generate the key innovations that are relevant to competitive advantage in the industries in question.
- The *ownership structure* of regional clusters refers to whether the cluster largely

(2002) catalogs multiple factors as a benchmarking guide for clusters: R&D capacity, workforce skills and availability, education and training, proximity to suppliers, capital availability, specialized services, machine builders and software designers, networks and alliances, social capital, entrepreneurial climate, innovation and imitation, presence of market leaders and innovators, external connections, and lastly shared vision and leadership (pp. 18-19). Fostering an atmosphere conducive to the interchange of social capital is a challenge the EU faces as the Union attempts to fortify its mission of creating an environment in which organizations, private and public, furthermore formal and informal, may maintain a competitive advantage in their respective fields. Application for EU funds requires stakeholders to formulate applications based on a broad range of specifications, which in turn reinforce the escalating and seemingly divergent trends of regionalism and trans-national cooperation. The question arises as to the appropriate level – local, national, regional, European - at which to apply resources.

Tandem initiatives aiming to record existing clusters and to standardize cluster metrics include two projects, the Cluster Mapping Project and the Cluster Meta-Study at the Institute for Strategy and Competitiveness at Harvard Business School<sup>7</sup> as well as the European Cluster Observatory<sup>8</sup> at the Stockholm School of Economics, both on a USA-wide and EU-wide scale, respectively. The Harvard project has identified 120 variables to categorize clusters including a dimension based on Porter's diamond analysis (van der Linde, 2003, pp. 132-133). The innovation strategy at the local, national and EU levels may impact the performance of the clusters.

The popularity of interest in clusters as a policy dimension presents challenges of measuring the effectiveness of clusters as well as the effectiveness of policy to facilitate cluster formation, viability and survival under the pressures of globalization. To address the issue of measuring effectiveness of policy the EU attempts to benchmark performance based on established metrics. PRO-INNO Europe, an innovation policy initiative of the Director-General for Enterprise and Industry, started publishing the

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consists of locally owned firms, foreign owned firms, or some combination of the two.

<sup>7</sup> For more details on Clusters and Cluster Development at Harvard Business School, please see <http://www.isc.hbs.edu/econ-clusters.htm>.

<sup>8</sup> For more details on the European Cluster Observatory, please see <http://www.clusterobservatory.eu/index.php?id=78&nid=>.

European Innovation Scoreboards (EIS) in 2001. The EIS 2008 contains comparative information about innovation performance at the national level for the EU27 Member States as well as for Croatia, Turkey, Iceland, Norway and Switzerland. The annual report uses the nation-state as the unit of analysis. To counter the limitations of broad stroke analysis at the national level, the Regional Innovation Scoreboard (RIS) was first published in 2006 using the NUTS 2 regions of the European Union and Norway. The RIS 2009 while providing data for 201 Regions across EU27 and Norway, does not include information about associated or candidate countries.

The European Cluster Observatory Mapping Database uses a Porter inspired cluster categorization. “(C)lusters are defined by the agglomeration of employment in co-located industries” (Wise, 2009, p. 17). Other researchers emphasize the role of agents within the cluster in a definition, a cluster is “a dynamic set of economic agents located in the same region, active in complementary or similar professions, technologies, sectors or markets which join together to form a critical mass which is a source of competitiveness in important constituent parts of their activities” (Calay et al, 2007, p. 254). This definition while including an element on competitiveness may fail to include clusters which are in the declining phase of the cluster life cycle. If a renaissance of the declining cluster cannot be achieved through exogenous policy impacts, the definition including a competitive element may fail to overlook the ageing cluster. The definition does not explicit address the relevance of institutions created through cluster policies. Wise (2009) defines clusters as “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also cooperate (Michael Porter in *On Competition*, 1998). Market and competition form clusters” (p. 50).

The ultimate objective of creating the document “The use of data and analysis as a tool for cluster policy” aims “to forge a strong, unbiased position from which to make recommendations on fact based cluster policy in Europe” (2009, p. 4). The document uses a wheel to illustrate the concentric elements of cluster policy research and initiatives.

The European Cluster Observatory collected survey data from 31 countries regarding national and regional cluster policy activity. Quantifying the data from the survey can be analyzed through regression analysis to reveal the relationship between cluster policy and economic performance and innovation scores. Quantifying and

coding the results from the participatory responses of the qualitative surveys can elicit the significance of cluster programs within the European Union member states and associate countries. While means of data collection was conducted under a more qualitative nature, the data can be used in a quantitative manner to demonstrate if the explanatory nature of the existence of government support through agencies and finances for cluster development and strengthening.

## **2.6 Conclusion**

In conclusion, the evolution of the concept of innovation and the deeper research of the economic value of embedded networks fostering cooperation and building social capital open up a new arena in which clusters may be defined and studied. The literature does not resound with a unifying definition of what a cluster is. Even the minimal requirements for defining a cluster remain fuzzy. What remains true, is that innovation clusters are linked to economic growth. By creating policy to accentuate the possibilities of transfer of knowledge spurred by social capital and of the increase in competitiveness of co-located firms, nations and regions may enhance the development of their respective areas. Social capital facilitates innovation and ultimately to increased economic development.

## **Chapter III: EU INNOVATION POLICY**

### **3.1 Historical Background of the EU's Innovation Policy**

The European Economic Community (EEC) Treaty, the first of the two Treaties of Rome signed in March 1957 did not grant the new body legislative powers to coordinate or to finance research outside of a minuscule role in agriculture. The Maastricht Treaty, formerly the Treaty on European Union (TEU), signed on February 7, 1992 provided provisions giving the EU legal personality to make decisions regarding research and innovation. Article 163 of the TEU made research and technological development a Community policy. Article 163 had the purpose to increase the EU's competitiveness at the international level, as well as to build up the technological and scientific underpinnings of industry. The article also granted the EU the power to promote research activities valued as pertinent to the Community through other Community policy areas. Article 165 ensures that Member States and the Community create mutually consistent national policy and Community policy. Finally, Article 164 recognizes several Community actions to complement Member State R&D activities. Cooperation between universities and research centers, as well as with third countries outside of the EU was promoted through the implementation of programs focusing on technological development, demonstration and research, the results of which were disseminated. Article 164 promoted the mobility and training of researchers in the Community.

Innovation and research policies continued to be bolstered by successive Treaties. The Amsterdam Treaty signed on October 2, 1997 granted Parliament a larger role in developing the Framework Programs. Under the Treaty of Lisbon signed on December 13, 2007 and entered into force on December 1, 2009, also called the Treaty on the functioning of the EU (TFEU), research policy became a shared competence. Article 4 of the TFEU specifies that, "In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programs; however, the exercise of that competence

shall not result in Member States being prevented from exercising theirs.” Moreover, the TFEU gave the European Research Area (ERA) legal footing, “The Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely, and encouraging it to become more competitive, including in its industry, while promoting all the research activities deemed necessary by virtue of other Chapters of the Treaties.”

### **3.1.1 European Year of Creativity and Innovation**

2009 is the European Year of Creativity and Innovation (EYCI 2009). The main objective of EYCI 2009 is "to raise awareness of the importance of creativity and innovation for personal, social and economic development; to disseminate good practices; to stimulate education and research, and to promote policy debate on related issues" (Europa, 2009). Economic development rests on the constant improvement process provided by innovation. Since the formation of the Common Market aims at making Europe a formidable competitor within the global arena, investments in research and development (R&D) seem a natural extension of the policy areas covered by the EU. While the innovation entered the focus of the EU during the 1990s, theoretical concepts and competitive value of innovation has a long history in social sciences and the business world.

The value placed on innovation can be derived from the Copenhagen Criteria of 1993 – Candidate countries must have "the capacity to cope with competitive pressure and market forces within the Union" (European Commission, Enlargement, 2009). Candidate countries must not only have a functioning market economy, but must also exhibit the ability to compete within the common market. Pressures to create an innovation strategy stem from the interests of multinationals located within the Union. "...(W)ith the goal of increasing their competitiveness in world markets, European multinationals pressed for active EC high-technology programs (ESPRIT, RACE) as well as the creation of a genuine internal market..." (Sandholtz et al , 1998, p. 15). The cluster policies of the EU aim to leverage resources dually trans-boundary in conjunction with intra-boundary. "...(B)oundaries 'lock-in' crucial resources and actors within the system and determine the internal configuration of politically relevant resources" (Bartolini, 2005, p. 13). While Bartolini argues that differentiation will occur to establish more highly specialized regions, EU policy seems to aim to take advantage



of innovation wherever it is organically or evolutionarily occurring, moreover the policy attempts to duplicate and repeat the successes of other successful clusters, the archetype being Silicon Valley.

### **3.1.2 Lisbon Strategy in 2000**

The Lisbon Strategy was born out of The Lisbon Special European Council meeting on March 23 and 24, 2000, during which a Europe of Innovation and Knowledge was envisioned. The Seventh Framework Program covering the period from 2007 to 2013 focuses on the Lisbon Strategy developed in 2005, which embraces knowledge - one of the three components of the knowledge triangle, completed secondly by innovation and thirdly by education. The Lisbon Special European Council met with the objective to invigorate the Community's policies to tackle the creeping threat of the twin trends of globalization and information and communication technologies (ICT). A suitable instrument for leveraging the latent and active educational and industrial policies for continuous life learning and innovation catalysts had already been erected through the Cardiff, Cologne and Luxembourg processes to jump-start economic growth, job creation and social cohesion. Borrás and Tzagdis point out that the "EU started to coordinate national economic and social policy areas, particularly in education and labor market, where it has no legal competences" (2008, p. 3). The optimism surrounding Lisbon in 2000 was summarily squelched by the economic slowdown, not to mention the more challenging in practice of structural applications of the grandiose schemes of the meeting. One of the core challenges associated with the fast paced progression of ICT may leave certain segments of the population behind and devoid of the benefits of growth. A knowledge based society requires a review of educational policies to ensure that education and technological innovative industries keep pace with one another. To make the EU more competitive, the Union aims to diminish the bureaucratic costs of doing business for entrepreneurs, in addition to continuing the liberalization process towards completion of the internal market in industries such as gas, electricity, postal services, and transport. The Lisbon strategy, likewise hailed the Euro as an opportunity to further integrate financial markets and coordinate macroeconomic policies. Furthermore, the European social model was identified as requiring additional modernization and strengthening in order to raze the misaligned treatment of men and women, to overturn latent racism, xenophobia and hindrances for the disabled (Lisbon Special, 2005).

### **3.1.3 Lisbon Strategy – Mid-term Assessment in 2005**

In 2005, the Lisbon Strategy was revisited and assessed as falling short of the anticipated results. The results in the mid-term of the project were disappointing, failing to hit the goals of growth, productivity and employment. By focusing on a simplified coordination procedure and national action plans (NAP), the Commission proposed to infuse some new energy into the policy. The ambitious agenda was scaled back, but retained the main objective of spending 3% of GDP on research and development by 2010. The Commission based its assessment on the Lisbon Strategy based on the November 2004 report by the high-level group entitled "Rising to the challenge: the Lisbon strategy for growth and employment," which had been requested by the March 2004 European Council. Apparently, a lack of political resolve moreover the inability to execute the completion of the internal market in goods and to found the internal market for services prove to be the sticking points of the high-level report, in addition to a top-heavy agenda, poor coordination and irreconcilable priorities. The Commission realized that it must change its focus from setting goals to preparing a roadmap for specific actions. To re-energize the Lisbon Strategy and to stimulate more growth, the Commission intended firstly to make the EU more attractive to investors and secondly to encourage knowledge and innovation. To boost knowledge and innovation, the Commission aimed to support investment in research and development, to facilitate innovation, the adoption of information and communication technologies (ICT) and the sustainable use of resources, and to aid in forming a resilient yet competitive industrial base. This halfway through the period report of the Lisbon Strategy relates likewise to governance. The Commission proposed a simplified coordination process focusing on the national program level instead of at sub-national levels. Additionally, the reporting process was revamped to focus on the three established coordination tools: the Luxembourg process relating to labor market policies, the Cardiff process focusing on microeconomic and structural reforms, and bringing up the rear, the Cologne process dealing with macroeconomic and budgetary measures. A single document will incorporate both employment and the broad economic policy guidelines. The Commission also recommended that each Member State should appoint a dedicated resource at the government level to oversee the reform process (Barroso, 2005).

The 2005 assessment showed that additional incentives would be required to

boost the initiatives to bump up the attainment of set goals. Structural funds were identified as a means to revive the Lisbon Strategy and would earmark the paradigm shift in the funds in policy from a principle of equality and cohesion to one of innovation and furthermore gaining a competitive advantage for EU stakeholders. Research and technological development and innovation (RTDI) initiatives merged along the historical path to join with regional policy in order to target and leverage the small to medium sized enterprises in localities where organic cultures of solidarity sprung up (Pellegrin, 2007, pp. 207-209).

The reassessment of the Lisbon Strategy in 2005 reveals the difficulties of managing the periphery from the center, moreover the overlapping nature of boundaries within the EU creates a cacophonous web from which it is difficult to extricate ownership of a particular reform. While Europe has a fancy for the exit option, exit provides an escape for ownership or responsibility for a particular task. "Exit is the transfer of a component part from one system to another. At the most general level, exit is always the crossing of an established boundary" (Bartolini, 2005, p. 12). Boundaries firmly established at the national level to stimulate domestic innovation or technological change were initially softened by the Lisbon Strategy; however, the mid-term appraisal of the strategy revealed that the national level plays a critical role in coordination of policy, since institutions are *ex ante* entrenched in the broader system of government. Established institutions would only be absorbing an additional mandate or even new institutions would be created to handle the additional burden of governance.

#### **3.1.4 2006 Commission Communication - "Putting knowledge into practice: A broad-based innovation strategy for the EU"**

Yet the concept of reinforcing the role of the state in regards to implementation of RFDI initiatives under the Lisbon Treaty is negated when a closer look is taken at the wide spanning initiatives of the innovation strategy for the EU as contained in the 2006 Communication, "Putting knowledge into practice: A broad-based innovation strategy for the EU." Here within, the Commission explicitly admonishes that the EU must become an innovation-based society, by embracing all innovation initiatives through a comprehensive framework. What is more, the seeds must be germinated to allow the EU to become an innovation-friendly lead market, meaning that consumers, both at the individual and organizational levels, are informed and educated enough to make consumption decisions regarding advanced technological products as well as have

a zest for consuming the latest innovative products. To make Europe more inventive, to allow the EU to innovate at a higher level and faster pace, furthermore to allow government agencies and commercial ventures to respond more rapidly and accurately to the preferences and needs of consumers, a comprehensive plan of action is proposed in the 2006 Communication. While the 2006 Communication. "Putting knowledge into practice: A broad-based innovation strategy for the EU" lists the previous attempts of the EU to foster a more conducive environment for innovation, firstly, in the 2005 Lisbon Strategy for Growth and Jobs detailing policies and reforms to make Europe's regulatory and economic framework more innovation-friendly; secondly, with the Commission Communication of October 2005 "More Research and Innovation" itemizing 19 fields of action for the EU and the Member States; and thirdly, the National Reform Programmes, as based on the Integrated Guidelines of the 2005 Lisbon Strategy, stimulating the Member States to take targeted measures to promote innovation, by utilizing the Structural Funds. Despite these three initiatives, the EU economy persists in failing to meet its innovation potential (Europa, 2007).

The Commission realizes in the 2006 Communication that the innovation process must involve public and private stakeholders, including business, the public sector and consumers. To encourage cooperation among the stakeholders, the EU has and continues to develop policy to hike the level of facilitation of programming and funding to produce marketable, profitable products. Forms of encouragement include knowledge transfer between the public research base and industry, strategic partnerships between business and universities, the European Institute of Technology (EIT), and finally clusters (Europa, 2007). Regulation (EC) No 294/2008 dated March 11, 2008 established the European Institute of Innovation and Technology (EIT) to unite the three sides of the knowledge triangle being education, research and innovation by smoothing the effects of the fragmented European knowledge sector, by experimenting and suggesting new reference models based on excellence , integrating the economic and innovative dimensions into research and education, and finally, by addressing the innovation gap (Europa, 2008).

### **3.1.5 Towards Cluster Policy**

According to the European Commission clusters are business groupings in the same sector of activity (Europa, 2007). Section 2.4 entitled "Promoting cooperation between stakeholders" of the 2006 Communication, "Putting knowledge into practice: A

broad-based innovation strategy for the EU" focuses on the significance of clusters within the EU. The Commission recognizes the advantages which being part of an innovation cluster provide for companies. Clusters facilitate bringing knowledge more quickly to market by closing the gaps between resources, business and research. Clusters are unique in the fact they increase competition in a cooperative environment.

Clusters intensify productivity, draw in investment, elevate research, fortify the industrial base, and germinate specific products or services and transform into a focus for developing skills. World class clusters, the archetype of which is Silicon Valley, draw in the best minds in their fields who furthermore sustain innovation (European Commission, 2006).

Although there may be inconsistencies among agglomerated areas of economic activity in regards to dispersion over space and to impact on the local economy, one benefit common to most clusters is the advantage of spillovers. The diffusion of knowledge gains fluidity within the clustered locations. "Just knowing that there are substantial spillovers provides a legitimacy to government policy, it does not give an indication of how, and in which domains, such an intervention should be performed" (Guellec, 2000, p. 306). The existence of powerful spillovers lends legitimacy to a role for government policy. While a role for government institutions is legitimized by the empirical evidence of the benefits of the agglomeration of economic activity, the absolute objective of innovation and cluster policies can be hazy. Policy makers need to take into consideration both of what Sölvell terms "constructive" and "evolutionary" forces in cluster creation, maintenance, and stimulation.

The Science-Business Innovation Board (SBIB) suggests three principles on which to base cluster policy. Firstly, "(c)lusters should be based on local strengths." Secondly, "The European Union and the Member States should aim to provide the enabling framework, by, for example, reforming higher education and removing regulatory barriers." Thirdly, "Policies should centre on allowing companies, and especially small and medium enterprises (SMEs) to grow and innovate, and become world-leading in open competition" (Aho et al, 2009, p. 8). "Cluster policies are efforts directed at strengthening the economic dynamism of existing clusters and to improving the opportunities for new clusters to emerge" (Laffitte, 2009, p. 5). "The cluster-approach policies in the 1990s have been complementing these traditional sectoral policies (research and development, competition, financial and fiscal incentives, employment and vocational training, corporate governance, or physical

infrastructure development) by giving them an important territorial dimension” (Borrás & Tsagdis, 2008, p. 2). Focusing on local strengths may also include a heightened sensitivity to the historical development of the area, which may have played a critical role in influencing local strengths. Delving into several Canadian cluster case studies, the volume edited by Wolfe and Lucas (2005) exhorts, “The assertion that history matters as much as geography is particularly directed to policymakers attempting to help cluster adjust to recent internal and external shocks...to be effective, policies need to consider historically rooted institutional dynamics and regional culture” (2005, p. 13).

The embracing of a "cluster policy" by the EU Member States within the National Reform Programs, in addition to the support of a "cluster policy" in EU level Community instruments is supported by the advantages attained for states, regions, companies, and individuals through participation in the clusters. The European regional programs for the period from 2007 to 2013 provide a new thrust in regional innovation clusters, not only in developed regional centers, but additionally in rural or under developed areas. Operating at a regional level is natural for innovation clusters, since numerous commercial enterprises, in particular small to medium sized enterprises (SMEs) interact with each other at the regional level in centers of learning and technology. The “novel and complex dynamics of multi-level governance (MLG) are producing learning processes in clusters” (Borrás & Tsagdis, 2008, p. 3). Needless to say, proximity plays a key role in furthering knowledge transfer and collective use and interchange of input factors and resources.

Currently, EU innovation and research policy focuses on producing documents, communications and studies delineating the main pillars on which actions and measures are to be implemented. The primary goal of the EU’s efforts are to establish the most favorable environment for a world-class research base, to bring to fruition a single European labor market for researchers, and finally to promote the “fifth freedom,” incorporating the free movement of knowledge to increase the free transmission of research, researchers, and their skills. Policy trends reveal a bent towards flexible and dynamic policy which can respond more quickly to opportunities and challenges. Both demand-side and supply-side approaches complement strategic and structuring efforts within EU innovation and research policy. A heightened awareness that approaches and strategies must be specifically designed allows the EU to address the particular needs of certain sector and issue areas. Three policy areas which address clusters include the DG

Enterprise, DG Science and DC Regio. Competitiveness is tackled through Enterprise and Industry through multiple initiatives including the Lead Market Initiative for Europe, Europe Innova, Pro Inno Europe, European Cluster Alliance and the Enterprise Europe Network. Regions policy area supports competitiveness with Interreg IVC: Innovation & Environment, Regions of Europe Sharing Solutions. Research policy contributes to competitiveness through the Competitiveness and Innovation Framework Program (CIP). Overall, the policy of the EU attempts to break down the uneven development of economic activity and increase the competitiveness of the Community by targeting research and development, as well as innovation within clusters.

### **3.1.6 Structural Funds**

The EU vis-a-vis Structural Funds places a growing emphasis on innovation. In the first period (1989-1993) of the Structural Funds programming, Objective 1 funding comprised a minuscule amount of funding, while Objective 2 regions the average was 9%. The second period (1994-1999) suggests a growing emphasis on research and technological development and investment (RTDI) with Objective 1 areas receiving between 2% in Spain and 9% in Austria, whereas Objective 2 regions received between 10% and 14%. RTDI infrastructure projects funded enterprise innovation aid as well as training and environmental technologies. RTDI infrastructure includes laboratories, science parks, and research centers (Pellegrin, 2007, p. 211). The third iteration (2000-2006) in Structural Funds to the regions saw a more softened approach to supporting innovation, as the focus shifted from specific infrastructure projects to financing concerns. Infrastructure strengthening was relegated to the back burner on the focus switched to demand-led measures, technology transfer, diffusion and absorption capacity. The 2000-2006 period saw an increase in RTDI investment from between 5.5% to 7.5% of total Structural Funds. Studies reveal a link between intensity of national R&D as percentage of GDP and the amount of Structural Funds allocated for regional RTDI purposes (Pellegrin, 2007, pp. 211-212).

The EU realizes the critical role that Structural Funds play in helping underdeveloped regions to catch up with better resource endowed areas, whether physical capital or human capital or knowledge capital.

The less developed regions have few chances of catching up with the prosperous regions if they do not perform RTDI strategies comparable to the prosperous regions. Basically, they are equally exposed to all challenges stemming from globalization and competition. Therefore they have to pursue genuine RTDI

approaches if long-term perspectives are sought. Thus, a cohesion policy that does not manage less favoured regions progressing fast on this track will fail in the long run (European Commission, 2001).

The question arises if the adoption of an umbrella research innovation system (RIS) policy will cause a convergence of areas or exacerbate pre-existing advantages in regions of the EU. Bartolini would argue that the cluster policy of the EU tends to widen the gap between economically developed divergent areas. Amiti (1999) reviews the empirics of increasing specialization within during the trade liberalization period between 1980 and 1990. The evidence using country Gini coefficients calculated with production and employment data from EUROSTAT shows an increase in specialization. ‘... (E)ach country’s industrial structure has become increasingly different from the rest of the EU countries. With continuing trade liberalization, we should expect increasing geographical concentration...’ (Amity, 1999, p. 585). Empirics may suggest this as well, since there is a link between the amount of R&D spending at the national level and the amount of assigned Structural Funds for RTDI projects. In contradiction, the role of the state at the national level contradicts Bartolini's view that the role of the territories will trump the effectiveness of the national levels of governance. The EU's RIS policies tend to tackle the problems of resource imbalances from every level of issue, whether at the national or the regional levels.

The Science – Business Innovation Board (SBIB) is critical of the innovation policy pursued by the EU claiming that EU measures are too broad to be effective.

Europe needs to focus. Too many initiatives in the European Union are blunted by lack of clarity – trying to please too many constituencies at once, and in the end pleasing none. Now the EU is about to embark on another policy initiative where clarity and focus are needed. This letter, based on our collective experience in academia, industry and policy, is a plea for single-minded efficiency (Aho, 2009, p. 5).

The SBIB makes a few suggestions to the EU including: build on existing strengths; focus resources; be open; benchmark, monitor and be transparent; and encourage risk-taking, cross-disciplinary work, bold innovation and experimentation (Aho, 2009, p. 6). The SBIB suggests that priorities of social cohesion, in other words convergence of the regions within the EU may not produce efficient and effective economic results leading to growth and encouraging local investment. The research on Turkish clusters results in a policy suggestion ‘to mobilize the potential that exists in a



location for a particular area of activity with the help of suitable strategies” (Öz, 2004, p. 168), which parallels the suggestions of the SBIB. Bartolini's theory of territorial differentiation would line up with the SBIB's and Öz's policy recommendations to focus on the areas of organic clusters, mainly in areas where clusters are already successful and perhaps need some help greasing the wheels to attain financing and may need a disinterested third party (vis-a-vis local governance) to settle stalemated issues. The EU at the SBIB's suggestion would aim to scale back Structural Funds to areas where the funding would be the most powerful catalyst to achieve economic growth. Convergence is not necessarily the best method to achieve growth or a competitive advantage for European firms in the global economy.

### **3.2 Territorial Competition**

The Single Market has a convergence effect, which reduces the differentiation of nations or regions. The lack of control to differentiate mobile factors, creates a space for regional differentiation. Bartolini (2005) provides a theoretical explanation which could be applied to the adoption of national and transnational innovation strategies, which create a space for competitive advantage in an increasingly homogeneous environment of input supplies for production. Increased competition can only be met through the differentiation of the availability of inputs in order to attract companies to an area. The EU's Single Market aims to dismantle entrenched barriers of trade within member states, barriers which in the past created advantages for states, regions, or organizations. The development of national innovation strategies, particularly during the 1990s, indicates an attempt on the part of the nation-state to reclaim some boundaries in providing social contingencies for its citizens. "Accrued territorial competition" without any outlet to counterbalance regional shocks in a federalized system will aptly lead to the process of substate territorial differentiation suggests Bartolini. "The underlying logic of this aspect of territorial differentiation is that the higher the systemic interdependence (the boundaries of the social division of labour), the higher the need for localized forms of social integration (the community solidarity bonds)" (Bartolini, 2005, p. 275).

Bartolini discusses territorial competition and how EU policy impacts competition and differentiation. Mobile factors become more fluid in a single market in which movement from one jurisdiction to another can be achieved without salient hindrances. Economic boundaries dissolve or decrease under the EU regime as

traditional trade barriers, such as tariffs and quotas are diminished. The only remaining barriers may be social costs and regulatory burdens placed upon mobile factors (goods, firms, individuals, investments, taxpayers). Governments must comply with the requirements of European and international competitiveness by changing their economic and social policies to meet European-wide market regulations. "National competitiveness becomes more important, and national programs and regimes are exposed to competition that can no longer be contained at the national level" (Bartolini, 2005, p. 273). Bartolini offers a list of empirical changes that manifest the pressures on governments for de- and re-regulation: "(a) the shifting of taxation from mobile to immobile factors; (b) the shifting of financing of the welfare state from employers' contributions to general tax revenues; (c) the limitation of state aids and subsidies to domestic industries for employment protection; (d) the pushes towards the privatization of previously nationalized industries that protected sectors of the labour force; (e) the constraints on public borrowing and the overall public deficit; and (f) the rising autonomy of central banks, no longer allowed to extend credit to governments" (Barolitni, 2005, p. 273).

Bartolini continues to posture that the process of market opening in Europe and throughout the globe provides less of a carrot for countries to improve their lower economically developed areas.

In order to foster national competitiveness, governments are inclined to divert resources focusing more attention on the most dynamic sectors and territories and on those activities that promote growth. In other words, there has been a certain amount of change in the priority of territorial politics: from redressing within-state territorial imbalances to fostering territorial endogenous resources and to promoting national competitiveness, and from territorial to sector intervention (Bartolini, 2005, p. 273).

Perhaps a stick, vis-à-vis thicker institutions, is the proper motivation to encourage the development of underperforming geographical areas. The focus on homegrown specialized industries and areas pulls resources from the overall objective of evening out the playing field of lesser developed areas in the country. Each country theoretically becomes a specialist in a particular technology or in the manufacturing of a particular product. The state concentrates on a specific commercial enterprise instead of fulfilling a social agenda of redistribution of resources to equalize natural imbalances. Bartolini admits that social goals may be achieved through the organic formation of "territorial collective identities, institutional strength, cooperation traditions" which may

serve the role as a foundation basis for future investment as well as production of public goods. These unique conditions can "help overcome external diseconomies of competition." Bartolini continues that these formal and informal local institutions might be conducive, moreover flexible, enough to adapt and respond to the needs of localized territories. Local territorial identities based on "historical traditions and the endogenous resources of a cultural, institutional, or social nature" may naturally respond to the external forces of competition (Bartolini, 2005, p. 274).

Supply-side and demand-side causality play a role in inducing innovation, thus widening the gap of competitive advantage for certain regions. EU and national policies may increase the incentives to innovate. Demand-side public policies seem to have a greater impact on influencing innovation than supply-side policies according to the 2009 Innobarometer Gallup survey of 5,238 firms from innovation-intensive industry sectors<sup>9</sup>. Both a supply-side and demand-side causality are presented by Bartolini to explain the possibility of intensifying territorial competition. A potential demand arises from the territorial mobility of factors, such as goods, firms, individuals, investments, taxpayers. Without mobile factors, competition for resources between territories does not exist; furthermore, there are no customers for whom to compete. Immobile factors play a role as well in the equation, as the less mobile factors may have to bear the cost (or advantage) of the decisions of the more mobile resources. At least one demand-side policy positively impacted 48% of enterprises surveyed in the Innobarometer 2009. Out of all demand-side policies, the newly drafted environmental regulations, encouraging or requiring 35% of EU enterprises to innovate proved to be most influential on the innovative process (Gallup, 2009, pp. 10-11).

Supply is created by the territorial differentiation of the production of public goods. Public goods in reference, to transportation, labor market, financing, or tax incentives of varying types, quantities or qualities, may be offered in a differentiated

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<sup>9</sup> Aerospace engines, Aerospace vehicles, Defence, Analyt. Instr., Constr. Equipment, Apparel, Automotive, Build. Fixtures, Equip., Services, Business services, Chemical Products, Communications equipment, Construction / Materials, Distribution services, Energy, Entertainment, Financial services, Fishing and fishing products, Footwear, Furniture, Heavy construction services, Heavy machinery, Hospitality and tourism, Information technology, Jewellery and precious metals, Leather products, Lighting and electrical Equipment, Lumber & Wood Mfrs, Medical devices, Metal Manufacturing, Oil and gas products and services, Other, Paper, (Bio)Pharmaceuticals, Plastics, Power Generation & Transmission, Processed Food, Publishing and Printing, Sport and Child Goods, Textiles, Transportation and Logistics, Utility, (Gallup, 2009, p. 4).

manner in various regions. In the 2009 Innobarometer, just one third of the enterprises surveyed, approximately 1,750 enterprises, “confirmed that newly introduced public policies in the field of taxation or direct subsidies for innovation provided them with increased opportunity to innovate” (Gallup, 2009, p. 11), when asked if supply-side policies positively affected innovation activities since 2006. The capacity of subnational or regional territories to differentiate the supply of a public good can fluctuate dramatically between territories. Bartolini explains the relationship as such, "The lower the local resources and the stronger the central hierarchical control of the public goods supply, the less possible a differentiation is" (p. 274).

Bartolini delves into an expose of the European obsession with exit options which helps to explain the emergent possibility of substate territorial differentiation. A brief typology of the dichotomy of the vertical state-society dimension versus the horizontal interstate territorial dimension becomes relevant. In the vertical relationship between state and society, state policies impact the competition among social interests for resources, while the horizontal interplay of interstate territories reveals competition among territorial units for economic development and resources. In the nation-state framework, the vertical state-society relationship is dominant. The open market of the EU fosters an environment for the horizontal interstate territorial competition to dominate. While the salience of the horizontal dimension in EU may appear similar to the federalist structure of the USA, it is deceptive, since the underlying goal of the EU Single Market is to dismantle the barriers to trade. Harmonizing regulations across state lines may have the objective of free mobility of capital, goods, services and workers, but may cause the unintended externalities of diminishing the varying segments in the market and widening the gaps of factor prices, economic structure and growth rates. Bartolini surmises that EU states and/or regions will tend to become more specialized, similar to sector and territorial development in the USA (p. 275).

### **3.2.1 Subnational Particularism**

Subnational particularism or new regionalism erupts from the pressure of three forces, hypothesizes Bartolini. Firstly, territorial differentiation emerges from the current logic of the internal market's competition. Territorial and sector interests aggregate according to the new logic to form cleavages similar to well-known concept of center and periphery of trade and production. Local interest groups will tend to form institutions, which will not hurt them in a competitive way, but may create competitive

advantages for them with organizations outside of the territory. Localized actors with similar aggregated interests may seek to pattern functional regimes which fulfill their preferences and needs in efficient and flexible methods bounded within the territory. The second factor contributing to subnational particularism is EU regional policy itself which tends to encourage subnational identities by setting "incentives for the formation...of territorially narrower risk-community and solidarity areas" (Bartolini, 2005, p. 276). This solidarity allows social capital to be banked through similar interests. Borrás and Tsagdis (2008) observe that "most European countries have also engaged in a decentralization process of their political structures devolving powers to their subnational levels (e.g. regions and municipalities)" (p. 2). The third and final factor is the dynamic logic of national political competition (Bartolini, 2005, p. 276).

I would like to venture that the first factor of aggregated preferences of localized actors proposed by Bartolini which contributes to the trend of territorial differentiation may result in the formation of social capital which allows innovation to occur within clusters. The regional innovation system (RIS) approach focuses on supporting organic industrial districts in order to foster improved knowledge networks and lower barriers of access to the critical resources for innovation, particularly financing and social capital.

### **3.2.2 Social Capital Adds to the Innovation Process**

As mentioned earlier the recognition of the exchange of tacit knowledge in the creative process as well as the unique pockets of knowledge and specialization contained within firms, institutions or organizations, reveal the competitive necessity of collaborative exchanges. "The emphasis is on the role of 'tacit' as against 'codified' knowledge, in that the former is viewed as being especially dependent on localized face-to-face contacts and spillovers. Indeed, the assumed link between localization and tacit or informal, uncodified knowledge is now almost accepted axiomatically" (Martin & Sunley, 2003, p. 17). Proximity of knowledge embodiments increases the probability of fluid exchange of know-how.

The proximity argument holds that, the greater the complexity, uncertainty and tacitness of an activity, the more it will require physical as opposed to virtual proximity to be transacted. As opposed to more traditional views of innovation, the systemic approach plays down the role of tangible techn(ological) assets, while it underscores the intangible, social, organizational and relational dimension, all elements for which proximity may matter. In fact, some would even argue that the link between tacit knowledge and proximity is almost

axiomatic (Cooke et al., 2004; Kitson et al., 2004). Overall, proximity is no longer valued in order to reduce transaction costs as in older static economic models, but rather for enhancing learning in a dynamic framework of analysis (Morgan & Nauwelaers, 1999). As a result, innovation is considered not only as a socially embedded process but also as a spatially structured one (Pellegrin, 2007, p. 205).

The knowledge based global playing field is dependent upon critical elements in the value chain including speed to market, reduction of the life cycle of products, and quality design differentiation, customization. These elements all or in part rely upon the outputs of knowledge to function efficiently and produce desired economic results. The successful implementation of the value chain elements requires a degree of social capital which is developed through the unique unwritten codes of networks within relational infrastructures located within a fairly close proximity.

### **3.3 Conclusion**

In this chapter, I have provided a brief historical account of the EU's expanding competence regarding innovation policy, as well as the established measures to create a sustainable competitive advantage through a knowledge based economy. EU innovation policy incorporates the concept of social capital to strengthen innovation clusters. By explaining Bartolini's hypothesis that regional differentiation rather than convergence is enhanced by the trends of globalization and by the removal of barriers for free movement of mobile factors in the production and innovation processes, I have attempted to show that there is a vast difference between creating policy and implementing policy effectively to create an economic convergent effect between divergent economic performance of EU regions. While Bartolini, cites not only organic trends to support his argument, he also offers EU regional policy as a force contributing to subnational particularism. As this chapter has shown, EU policy initiatives attempt to achieve the goals of economic growth and development by correcting the imbalances of regionally endowed resources. Critics of EU policy, particularly an umbrella regional innovation system policy, include the Science-Business Innovation Board (SBIB), which urges the EU to sharpen its focus and strategies to achieve its economic development objectives. Pellegrin offers that RIS policy should be catered specifically to meet the needs of regions and benchmarking should be adopted to identify and learn from best practices. Perhaps by focusing innovation policy further and continuing to lay ownership of RTID projects in the hands of primary stakeholders, the EU will more

effectively achieve its goals and produce tangible measurable outcomes.

#### **Chapter IV: THE CASE OF SOCIAL CAPITAL IN THIRD ITALY**

Reflecting upon Robert Putnam's discussions of social capital, I would like to explore the development of Marshallian industrial districts in the Third Italy. Trust is a critical element to the successful development of innovation clusters. In this chapter, I will shed light on the historical factors leading to the unique conditions of social capital in the Third Italy to allow the creation of innovation clusters. Additionally, I will explore the broader concept of social capital as a crucial ingredient to the success of innovation clusters.

A Marshallian industrial district, which is a concentration of specialized industries in particular localities, provides a source of resource exchange, not only of a specialized workforce but also of critical technology to achieve a competitive advantage. In order for the system to continue working, self-perpetuating mechanisms to prevent cheating must be organic or established through institutional change. Alfred Marshall in the 1890s brought the concept of geographic concentrations of industries to the attention of academics (Öz, 2004, p. xi). The so termed "Third Italy" provides an interesting research avenue for economic development. The third Italy was named in the late 1970s when the traditional First Italy – the rich Northwest and the Second Italy – the poor South showed signs of a deep crises and stagnated economic growth respectively. The concept of Third Italy was introduced by Arnaldo Bagnasco in 1977 (Hadjimichalis, 2006, p. 84). The Third Italy glimmered as a source of economic progress for the country. (Ginsborg, 1996, p. 21). Michael Porter's thoughts are summarized as, "Italian industry's 'remarkable ability' to innovate in products as well as to incorporate state-of-the-art manufacturing." The SME (small to medium enterprises) clusters flourished in four industries: Textile (Carpi, Prato), Leather (Arzignano), Ceramic tiles (Sassuolo) and Furniture (Manzano). The clusters of the Third Italy entailed a long-term process which stood not only on technical know-how, a flexible labor force, but also social cohesion. The linkages formed through horizontal interactions between equal peers or organizations create an atmosphere of trust in which innovation can be promoted and diffused. An atmosphere of trust is created through



repeated face-to-face interactions. Institutional form fosters flexibility and opportunity for members to interact.

#### **4.1.1 Emilia-Romagna vs. Calabria**

To emphasize his theory, Putnam selects two regions with relatively similar levels of social well-being and economic structure at the turn of the century but varying levels of civic involvement. While the levels of socioeconomic development devolve in the two regions over the century, the relative civic involvement levels remain constant in each area. In Emilia-Romagna in 1901, 65 percent of the workforce was occupied in agriculture, while 20 percent achieved a livelihood in the factories. At that point in time, Emilia-Romagna ranked at the national median level in terms of industrialization. By contrast, Calabria with 63 percent of its workforce tinkering on the soil and 26 percent sweating in the factories was slightly above the national averages. Putnam adds that the agricultural sector in Emilia-Romagna was relatively prosperous, while the industrial sector in Calabria was relatively crude. The citizens in Calabria were also less educated and poorer than in Emilia-Romagna; however, the infant mortality rate in Calabria was lower than in Emilia-Romagna. Calabria ranked better than the national average for infant mortality rate, while Emilia-Romagna fared worse than the average region. Needless to say, at the turn of the century both Emilia-Romagna and Calabria economies were primitive and backward (Putnam, 1994, p. 154).

Putnam uncovers an interesting transformation in the Emilia-Romagna and Calabria during the eight decades from 1901 to 1977. Emilia-Romagna's share of workforce in industry nearly doubled from 20 percent to 39 percent, in contrast Calabria's share of workforce in industry remained relatively constant over the period decreasing slightly from 26 percent to 25 percent. Infant mortality rates naturally improved over the period due to advancements in public health and medicine; however, Calabria's rate chased after Emilia-Romagna's performance. In the 1980s, Emilia-Romagna exhibited signs of a world class, dynamic economy and was easily the most advanced region in Italy, in the interim Calabria sunk to the bottom of Italy's regions in terms of economy and social well-being. Between 1970 and 1988, Emilia-Romagna leaped from 45<sup>th</sup> place to 17<sup>th</sup> place in regards to GDP per capita, whereas Calabria precipitated to the bottom of the GDP rankings (Putnam, 1994, p. 154). One example of the high civic engagement of the Emilia-Romagna Region was the creation ERVET Regional Agency for Socio-Economic Development in 1974. Originally operating as a

private company with Emilia-Romagna Region as the major share-holder, ERVET aimed to create and execute projects to support firm innovation process and improve international exchange capacity, to broker agreements between actors (the local administration, public entities, social organizations and private operators) to further territorial economic development, and technically to assist the region with its program execution (Dall'Olio, 2006, pp. 64-65). Putnam stopped his review of vital statistics in the 1980s. To give a more current picture of socioeconomic statistics, EUROSTAT provides detailed information. The regional gross domestic product (PPS per inhabitant) in 2006 for Calabria was 15,800 versus 29,900 in Emilia-Romagna, placing Calabria in the lowest 40% of the NUTS (Nomenclature of Territorial Units for Statistics) regions in the EU meanwhile, Emilia-Romagna rates in the top 20% of NUTS regions (Eurostat1, 2009). Data from 2000 shows an infant mortality rate of 3.6% in Emilia-Romagna, in contrast to an infant mortality rate of 6.0% in Calabria (Eurostat2, 2009).

#### **4.1.2 Emilia-Romagna vs. Calabria, Round Two**

Italy ranks in the second highest quartile of EU countries having firms in innovation clusters with 25% to 50% of all firms active in cluster-like environment (Gallup, 2006, p. 4). Emilia-Romagna ranks as the fifth European region by cluster portfolio strength with a medium regional innovation system (RIS) with approximately 33 stars. Lombardia in Italy ranks first with 41 stars (European Commission, 2007, p. 8). Emilia-Romagna makes it twice onto the list of Top-15 clusters by stars, employment and specialization in Italy. With a cluster in production technology, Emilia-Romagna comes in second position. The production technology cluster receives three out of five stars with 60, 722 employees and a specialization score of 2.76. "...[O]ne star [is assigned] for each of the following criteria: Employment size in a particular industry cluster within a region, Degree of specialization within the region, Cluster focus of employment within a region. On this basis, 155 regional clusters register three stars (8%), 524 regional clusters two stars (25%), and 1338 one star (67%)" (European Commission, 2007, p. 7). In fourteenth place, Emilia-Romagna's Finance cluster holds two stars with 67,184 employees and a specialization score of 0.98. Emilia-Romagna is third on Italy's Top-10 regions by total number of stars and share of employment in cluster with 33 stars and 75.22% share of employment in clusters with stars (European Commission, 2007, p. 46).

In regards to EU Regional Policy, Emilia-Romagna is a success story, while Calabria requires finances from the European Regional Development Fund (ERDF). Calabria was approved on December 7, 2007 by the European Commission for the Calabria Regional Operational Programme for 2007-2013. The project falls under the Convergence Objective with an approved total budget of €3 billion, €1.5 of which will be in aid from the EU through the ERDF. This figure represents 5.2% of the EU's total investment in Italy in the context of Cohesion Policy for the period 2007-2013 (European Commission, 2009). On the other hand, Emilia-Romagna stands out as an economic knowledge based center and will strengthen its position through the Regional Program for Industrial Research, Innovation and Technology Transfer (PRRIITT).<sup>10</sup>

#### **4.2 Third Italy and the Identification of Industrial Districts**

Putnam brings up a critical question. "Through what mechanisms might the norms and networks...contribute to economic prosperity?" (Putnam, 1994, p. 159). To answer the question, Putnam delves into the research of political economists, Arnaldo Bagnasco who coined the term 'Third Italy' in 1977 (Hadjimichalis, 2006, p. 84) and Michael Piore and Charles Sabel who jointly discuss flexible specialization, which is "the paradigm of industrial districts (IDs) with their small, networked, craft industries" (Hadjimichalis, 2006, p. 82). The identification of Third Italy by Bagnasco in tandem with the hints of the designation of IDs by Marshall during the dawn of the 20<sup>th</sup> century lays the groundwork for a body of academic and industrial literature emphasizing the concept of innovation clusters or regional innovation systems. The conceptualization of IDs shifted over time and gained varying tautological definitions, at whose common

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<sup>10</sup> "The Emilia Romagna Region (North-East Italy) is considered to be one of the most prosperous in Europe. Its income per inhabitant is over 25% higher the average for Italy and 36.4% higher than that of the Europe of 25. Established in 2005, the Regional Programme for Industrial Research, Innovation and Technology Transfer (PRRIITT) is a network of 57 structures, i.e. 27 industrial research laboratories, 24 innovation centres and 6 innovation parks, which have launched 660 projects in 7 sectors: advanced mechanics, the environment, sustainable development and energy, agri-food, construction and public works, life sciences and health, organisational innovation, along with information and communication technologies (ICTs). The main challenge is to promote synergies between the research groups which can stimulate the transfer of new technologies to businesses. The network is operated by ASTER, the technological development agency for Emilia Romagna. ASTER is responsible for coordinating the network, as well as launching and conducting strategic projects, together with local, European and non-European partners" (European Commission2, 2009).

foundation of the constructional "concept of local external economies lie the advantages of territorial concentration and sectoral specialization" (Hadjimichalis, 2006, p. 83). One definition of Becattini reiterated by Hadjimichalis, which includes and alludes to further enrichment of the concept to include human networks, is “. . . a socio-territorial entity which is characterized by the interactive presence of a community of people and a population of firms in one both historically and naturally bounded area” (p. 83). In Becattini's definition both individuals and firms are critical for the functioning of the ID. Social capital built up over time created trust among the networked members.

### **4.3 Social Capital in Italy**

The human element mentioned in Becattini's definition complies with Putnam's causal mechanism for the smooth functioning of IDs – trust. Individuals form social networks which are critical for the functioning of an innovation cluster. "For political stability, for government effectiveness, and even for *economic progress* social capital may be even more important than physical or human capital" (Putnam, 1994, p. 183 – *emphasis added*). Social capital may be banked through the incessant contact provided by "networks of civic engagement" as expounded by Putnam. “Some of a region's stock of social capital resides in its civic and professional associations, and its economic value is deeply embedded in the functions of groups that bring people together to share ideas and knowledge” (Rosenfeld, 2002, p. 8). Dense layers of a network of horizontal interaction, meaning interplay between equals at a similar social level, guarantee repeated interchanges. As the frequency of interchange increases, so does the likelihood for cooperation to achieve mutual benefit. Putnam offers four reasons to explain the powerful side effect of cooperation in networks to make internal parties more competitive with external forces. Firstly, the cost to defect in one transaction increases in a network of civic engagement. If member cheats in one transaction, the network may be alerted; therefore, simultaneous and future transactions may be tainted by a reputation as a cheater. In game theory jargon, networks of civic engagement guarantee the likelihood of repeated and interconnected games. Secondly, norms of reciprocity develop in networks of civic engagement. A culture of compliance with the norms of the group is inculcated into members. Reinforcing encounters warrant the transmission of mutual expectations to comply with acceptable behaviors. Establishing a reputation of trustworthiness and acceptance of unwritten rules and norms helps to fortify the relationships that comprise the network. Thirdly, the networks provide a highway of

communication regarding the reputation of members. Information about individuals and organizations is spread quickly and efficiently throughout the web of contacts in order to intercept any cheaters. Reliable information regarding past behavior and current interests of potential partners helps to gird the thickness of the network, whereas uncertainly increases risks of the network failure and dilemmas of collective action. All in all, mutual trust increases as participants engage in more interactions, thus facilitating cooperation. Finally, the networks of civic engagement offer a template of past collaborative successes, which become ingrained in the networks culture and offers a blueprint for future interactions. In other words, continuity is maintained since solutions in the past may be applied to similar exchange problems that may arise in the future. The wheel does not need to be reinvented, when analogous difficulties spring up (Putnam, 1994, pp. 173-174).

Cappellin (2003b) identifies elements of social capital within his approach of territorial knowledge management.

Geographical clusters...are characterized by a shared cognitive frame or by common conceptions and an idiosyncratic knowledge, which teach the various firms belonging to the cluster how to look at things from a different perspective. Mutual knowledge and trust reduce opportunistic behaviour and uncertainty in the overall economic system” (Cappellin, 2003b, p. 307).

Cappellin suggests that unique ways of thinking develop over time, which implies a lock-in factor. Boschma (1999) uses the terms "trust" and "social capital" interchangeably (Boschma, 1999, p. 1). His main objective is to assess the impact of social capital on regional economic development. Boschma borrows the definition of social capital from Putnam, "features of social organization, such as trust, norms and networks that improve the efficiency of society by facilitating coordinated action” (p. 3). Essentially, trust is critical in economic parlance as a means of lowering transaction costs, in other words removing risk from the system. While costs drop, the transfer of knowledge increases. Social capital or trust acts as a catalyst for the efficient and responsive implementation of government policy (Boschma, 1999, p. 6). Cappellin’s approach of territorial knowledge management “implies the leveraging of ‘social capital’, which is made by the various types of intellectual capital and particularly by intellectual relational capital, within a cluster or network of SMEs” (Cappellin, 2003b, p. 322). Recalling how Cappellin emphasizes the dynamic role played by territorial knowledge management in the implementation of innovation within SMEs can add relevance to Boschma’s argument.

"...(A)ccording to a large body of literature, a culture of trust could largely be held responsible for the industrial rise of the Third Italy," Boschma conclusively asserts (p. 21). Boschma illustrates five ways in which the concept of social capital is linked to economic performance. To begin with, social capital proves to be a prerequisite for transactions to occur. Trust reduces the amount of risk involved in a transaction, particularly when future payment is involved for goods or services rendered. Logically, societies in which a high level of trust exists, there is a lower reliance on institutions to act as a reinforcement mechanism (Boschma, 1999, p. 6).

In second place, social capital could reduce transaction costs. Formal written contracts which are costly to produce and enforce become extra precautionary or redundant in an institution with a culture of high trust. Opportunistic behavior, such as free riding, is strongly suppressed by the accepted norms and accordant conduct of network members. Naturally, the costs of solving irreconcilable disputes reduce as the number of judicial complaints slackens. Boschma sites "For example, Harrison (1992) has interpreted the tremendous growth in lawsuits in Silicon Valley in the United States as evidence of 'potential erosion in the social basis' for further economic development of this region" (p. 6). In conclusion, transactions with trust and shared norms at their core tend to be less costly and more efficient than state enforced codes (Boschma, 1999, p. 6).

Reason number three demonstrates how social capital encourages the transfer and exchange of information and knowledge. Communication proceeds in a smooth fashion, when a high level of trust persists. Trust facilitates the transfer of tacit knowledge which is not physically captured in a tangible form, but requires human interaction or experience in order to transmit. Continued research in the field, indicates that innovations more often occurs through human interaction and cooperation than through individuals or organizations operating independently. "In a knowledge economy, innovation is based on interactive learning processes, which require higher accessibility to knowledge and innovation networks, greater openness to external actors, high internal cohesion and also consistent effort in the search for original solutions to key problems and entrepreneurship capabilities. Innovation does not circulate on markets but on networks. Networks are assets, because they affect knowledge creation and generate profits for the firms" (Cappellin, 2003b, p. 323). The bottom line is that interactive learning occurs more readily in organizations where there is a high level of

trust, leading to transmission of ideas and innovative production of processes or goods (Boschma, 1999, p. 6). Social capital is something that may be built up over time requiring patience and effort, but is never automatic. In a United Nations Industrial Development Organization (UNIDO) report regarding service centers for industrial districts, the elements of trust are identified as a necessary requirement to attain critical information to operate in an efficient and effective manner. "The first task [uncovering the latent needs of the cluster SMEs] invariably requires the creation of a solid and trust based link with the district entrepreneurs for the latter to disclose sensitive data about their problems. Initially it is significantly time-consuming, but it becomes easier as the reputation of the (will-be) service centre's managers becomes better established and as communication barriers fade" (Clara, 1995, p. 8). To function smoothly a certain degree of trust or social capital is required for industrial districts or for institutions, particularly a service center<sup>11</sup>, which provides services such as "credit guarantee, export insurance and/or promotion, organization of fairs, access to information on the evolution of markets/technology, client rating, consultancy, training, waste management, pollution control, quality certification and award of trademarks, product promotion, support to innovation, bulk purchase of inputs, and product testing" (UNIDO, 2009). Stakeholders must accept the norm of cooperation and be willing to act in a manner of reciprocity.

The fourth way in which social capital aids in cooperation is that trust may improve institutional performance. Civic norms may help to reduce the costly process of keeping an eye on politicians and other actors working in a capacity for the public. As institutional performance increases, the climate in which businesses operate becomes less risky. High-trust societies tend to have a reliable and trustworthy government.

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<sup>11</sup> The capacity of a real service centre to impact upon the structure of an ID has been related repeatedly to the balance between its embeddedness in the local economy and its ability to autonomously identify the challenges faced by the district. This balance is not a characteristic that can be artificially inspired but it emerges as the result of the mutually balancing (but otherwise only marginally converging) expectations of the various representatives of the local economy. What is being emphasized is that the managers of the real service centre are in a position a) to set the agenda for such a process and b) to act as impartial referees for the establishment of a consensus within the district. In order to deploy such a capacity, they however need to win over the trust and support of the local players, and especially of the most skeptical among them, namely the entrepreneurs. Trust-building does not appear to be an especially easy task in IDs characterised by a great deal of individualism and bitter inter-firm competition. Under such settings, trust can only result from repeated interactions whereby the managers of the real service centre and the local entrepreneurs learn to know and

Long-term investments become less risky.

The fifth and final way that social capital facilitates economic development by encouraging a meritocracy instead of clientalism and nepotism. Rent-seeking is sullied. People are hired based on their educational and experiential qualifications rather than their relationships with someone in power (Boschma, 1995, p. 7).

#### **4.4 Is Third Italy a Model for Cluster Policy in the EU?**

Trust and social capital as described in the Third Italy case may be a unique case; however, the impact of innovation clusters have a similar competitive impact wherever the industrial districts have sprung up. "Most surprising, however, is the finding that many small businesses – or at least the industrial districts that are constituted by them – exhibit a dynamism in the creation of new products and in the evolution of productive technology which we conventionally associated with large corporate organizations. The technical dynamism of industrial districts is especially prominent in central Italy, but it can be found in all of the countries studied" (Piore, 1992, p. 307).

While the majority of opinions in this chapter have been quite positive in regards to the results of Third Italy, a more recent article tended to be more critical of the relevance of Third Italy as a model for economic development, suggesting that unique problems and challenges plague the area.

To be sure, mergers, de-localization and the immigrant flow have exacerbated problems in Third Italy and require a new approach. But the combination of various forms of production, of various firm strategies, of a high-wage core and a periphery of low-wage sweatshops, is not a post-2000 development. This kind of structure has a long history in Third Italy, which was downplayed for political reasons. In this respect the suggestion that Third Italy can be used as a blueprint for the development of other local economies and that Italian IDs constitute a progressive, even radical alternative, is much more contentious and one that I would like to strongly oppose (Hajdimichalis, 2006, p. 103).

#### **4.5 Conclusion**

Trust or social capital proved to be a critical in the development of industrial districts or innovation clusters within Third Italy. Whether the cases involving Third Italy contain valuable lessons, which can be applied to developing countries to boost socioeconomic development remains debatable, as some political economists may argue

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understand each other (Clara, 1995, p. 15).



that the path dependent nature of the historical junctures in northeastern and central Italy's past created a set of unique conditions under which high level of trust developed through iterations of civic engagement. The comparison between the regions Emilia-Romagna and Calabria emphasize the different trajectories that each area followed in regards to institutional formations. With a tradition of social capital, Emilia-Romagna seemed blessed with favorable conditions to align social and economic performance in the modern era. While Putnam would argue that trust allowed industrial districts to form in Emilia-Romagna, thus amplifying the intrinsic resources of the areas, Bartolini offers a rational perspective based on actors' preferences. Finally, the pragmatic voice of a naysayer regarding the Third Italy's economic miracle in the 1980s reveals that Third Italy may not be the economic development role model hailed by many.

## **Chapter V: CONCLUSION**

This paper attempted to demonstrate how the concept of social capital has shaped EU innovation cluster policy. Social capital is conducive to cooperation fostering innovation, ultimately leading to economic development. The result shows that a silver bullet definition for clusters does not exist. One's academic or professional perspective will determine how one views the phenomenon of agglomeration. Political economists, economists, and researchers from the field of management bring different definitions to the table. The popularity of the incorporation of cluster language into EU policy shows the influence of research on policy. Defining the concepts of innovation, clusters and social capital reveal the economic impact on development.

An in-depth review of Bartolini's hypothesis that regional differentiation rather than convergence is enhanced by the trends of globalization and by the removal of barriers for free movement of mobile factors in the production and innovation processes shows the critical role of policy on the innovation process. While Bartolini cites not only organic trends to support his argument, he also offers EU regional policy as a force contributing to sub-national particularism. As this paper has identified, EU policy is not focused only on one initiative to achieve the goals of economic growth and development and correcting the imbalances of regionally endowed resources but has its hand in many pots to heat up economic activity.

Social capital proves to be a critical cause of the development of industrial districts or innovation clusters within Third Italy. Whether the cases involving Third Italy contain valuable lessons, which can be applied to general EU cluster policy remains debatable, as some political economists may argue that the path dependent nature of the historical junctures in northeastern and central Italy's past created a set of unique conditions under which high levels of trust developed through iterations of face-to-face engagement. These distinctive characteristics or variables are difficult to produce externally or constructively in a different location. The comparison between the regions Emilia-Romagna and Calabria emphasize the different trajectories that each area followed in regards to institutional formations. With a tradition of civic activity,

Emilia-Romagna seemed blessed with favorable conditions to align social and economic performance in the modern era. While Putnam would argue that trust allowed industrial districts to form in Emilia-Romagna, thus amplifying the intrinsic resources of the areas, Bartolini offers a rational perspective based on actors' preferences.

The identification of agglomeration and clusters as arenas for economic activity and competitive advantage shapes EU policy. The cluster and social capital literature lacks a coherent, agreed upon definition or even minimal requirements for characterizing the concepts. Innovation clusters are linked to economic growth. By creating policy to accentuate the possibilities of knowledge transfer and of the increase in competitiveness of co-located firms, nations and regions may enhance the development of their respective areas. Attempts to quantify the performance of clusters have progressed significantly within the last decade as data collection and analysis tools have improved. Critics of EU policy, particularly an umbrella regional innovation system policy, urge the EU to sharpen its focus and strategies to achieve its economic development objectives. Critics suggest that policy be catered specifically to meet the needs of regions and benchmarking should be adopted to identify and learn from best practices. Perhaps by focusing innovation policy further and continuing to lay ownership projects in the hands of primary stakeholders, the EU will more effectively achieve its goals and produce tangible measurable outcomes.

This paper's objective is to demonstrate how social capital facilitates innovation, which leads to economic development. The process by which technological advances in products and processes are commercialized and diffused throughout society is innovation. In an environment conducive to physical interfacing of networked participants to spread knowledge and ideas from one organization to another, innovation happens more frequently. Social capital embedded within the local economy contributes to economic development by facilitating innovation through the bonds of trust created through shared values and norms, face-to-face contact, and learning. These socio-cultural factors establish a foundation for economic activity. Globalization forces more factors of production to be mobile, while the immobile relational resources which are embedded territorially support the reality of functioning networks. Relationships based on collaboration and cooperation, as well as institutional capacities continue to increase in importance in sustaining competitive advantage.

The EU endeavors to foster an environment conducive to innovation. The

Lisbon Strategy places emphasis on the need for an innovative Europe. The concepts of social capital, innovation and clusters support establishing innovation policy based on collaborative networks in clusters within the European Union. Future research is still required to confirm the theoretical concepts of the effects of social capital on innovation and ultimately on economic performance with empirical data. Data collection and analysis through such efforts as the European Cluster Observatory will help to shape innovation and cluster policy in the future, as well indicate to what degree social capital can explain overall economic development.

## References

- Acs, Z. (Ed.). (2000). *Regional innovation, knowledge and global change*. London; New York: Pinter.
- Aho, E., Brown, J.F., Courtois, J.P., Cox, P., Doliveux, R., Payre, D., Pouletty, P., Sauquet, A., Schühslser, H.M., Wallberg-Henriksson, H. (2009) Clustering for growth: How to build dynamic innovation clusters in Europe. Science|Business Innovation Board (SBIB), January 2009. Portsmouth, Hampshire: Holbrooks Printers Ltd. Retrieved June 8, 2009 from, <http://www.sciencebusiness.net/documents/clusterbooklet.pdf>
- Amin, A. (2004). An institutionalist approach on regional economic development. In Barnes, T.J., Peck, J., Sheppard, E., & Tickell, A. (Eds.), *Reading economic geography*, (pp. 48-58). Malden, MA; Oxford, UK: Blackwell Publishing Ltd.
- Amin, A. & Thrift, N. (1994) Living in the Global. In Amin, A. & Thrift, N. (Eds.), *Globalization, Institutions and Regional Development in Europe*. Oxford: Oxford University Press.
- Amiti, M. (1999). Specialization patterns in Europe. *Weltwirtschaftliches Archiv*, 135(4), 573-593.
- Amyot, G. (2004). *Business, the state and economic policy: The case of Italy*. New York: Routledge.
- Andersson, T., Schwaag-Serger, S., Sörvik, J., & Wise Hansson, E. (2004). *The cluster policies whitebook*. Malmö, Sweden: IKED (International Organisation for Knowledge Economy and Enterprise Development).
- Archibugi, D., Howells, J., & Michie, J. (Eds.). (1999). *Innovation policy in a global economy*. Cambridge, England; New York: Cambridge University Press.
- Assink, M. (2006). Inhibitors of disruptive innovation capability: a conceptual model. *European journal of innovation management*, 9(2), 215-233.
- Audretsch, D.B. (1998). Agglomeration and the location of innovative activity. *Oxford review of economic policy*, 14(2), 18-29.
- Bagnasco, A. (1999). Trust and social capital. In Nash, K. & Scott, A. (Eds.), *Blackwell companion to political sociology*. Oxford: Blackwell.
- Baron, S., Field, J., & Schuller, T. (Eds) (2000) *Social capital – Critical perspectives*. Oxford: Oxford University Press.
- Barroso, J.M. (2005). Communication to the Spring European Council - Working together for growth and jobs - A new start for the Lisbon Strategy - Communication from President Barroso in agreement with Vice-President Verheugen {SEC(2005) 192} {SEC(2005) 193} Brussels, 2.2.2005. /\*

COM/2005/0024 final \*/ Retrieved May 31, 2009 from, [http://eur-lex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!DocNumber&lg=en&type\\_doc=COMfinal&an\\_doc=2005&nu\\_doc=24](http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2005&nu_doc=24)

- Bartolini, S. (2005). *Restructuring Europe: Centre formation, system building, and political structuring between the nation state and the European Union*, Oxford: Oxford University Press.
- Becker, G. (1964). *Human capital: A theoretical and empirical analysis with special reference to education*. Princeton, NJ: Princeton University Press.
- Bendis, R. & Byler, E. (2009). Creating a national innovation framework - Building a public-private support system to encourage innovation. *Science Progress*, April 22, 2009. Retrieved January 23, 2010 from, <http://www.scienceprogress.org/2009/04/creating-a-national-innovation-framework/>
- Borrás, S. & Tsagdis, D. (2008). *Cluster policies in Europe: firms, institutions, and governance*. Cheltenham, UK; Northampton, MA: Edward Elgar Publishing.
- Boschma, R.A. (1999). Culture of trust and regional development: an empirical analysis of the Third Italy. Paper presented at the 39th Congress of the European Regional Science Association, August 23- 27, 1999, Dublin, Ireland. Retrieved June 6, 2009 from, <http://www.sre.wu-wien.ac.at/ersa/ersaconfs/ersa99/Papers/a009.pdf>
- Bourdieu, P. (1986). The Forms of Capital. In Richardson, J. (Ed.) *Handbook of theory and research for the sociology of education*. Westport, CT: Greenwood Press.
- Bröcker, J., Dohse, D., & Soltwedel, R. (Eds.). (2003). *Innovation clusters and interregional competition*. Berlin; Heidelberg; New York: Springer.
- Buigues, P., Jacquemin, A., & Marchipont, J.F. (Eds.). (2000). *Competitiveness and the value of intangible assets*. Cheltenham, UK & Northampton, MA, USA: Edward Elgar.
- Cappellin, R. (2003a). Networks and technological change in regional clusters. In Bröcker, J., Dohse, D., & Soltwedel, R. (Eds.), *Innovation clusters and interregional competition* (pp. 52-78). Berlin; Heidelberg; New York: Springer.
- Cappellin, R. (2003b). Territorial knowledge management: towards a metrics of the cognitive dimension of agglomeration economies. *International Journal of Technology Management*, 26(2-4), 303-325.
- Clara, M. (1995) *Real service centres in Italian industrial districts - Lessons learned from a comparative analysis*. United Nations Industrial Development Organization. Case Study prepared for project US/GLO/95/144 - UNIDO/Italy Programme for SME Development.
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology* 94(Suppl.), S95-S120.

- Coleman, J. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Cooke, P. & Morgan, K. (1998). *The associational economy: Firms, regions and innovation*. Oxford: Oxford University Press.
- Cooke, P. & Wills, D. (1999). Small firms, social capital and the enhancement of business performance through innovation programmes. *Small Business Economics*, 13:3, 219-234.
- Cowan, R., Jonard, N. & Sanditov, B. (2009). Fits and misfits: Technological matching and R&D networks. Retrieved October 23, 2009, from <http://www.merit.unu.edu/publications/wppdf/2009/wp2009-042.pdf>.
- Çarkoğlu, A., Eder, M., & Kirisci, K. (1998). *The political economy of regional cooperation in the Middle East*. London: New York.
- Dall'Olio, R. (2006). Regional development and governance in Emilia-Romagna: the ERVET experience. Retrieved February 11, 2010 from [http://www.tepav.org.tr/sempozyum/2006/bildiri/bolum2/2\\_1\\_dallolio.pdf](http://www.tepav.org.tr/sempozyum/2006/bildiri/bolum2/2_1_dallolio.pdf)
- Dasgupta, P. & Serageldin, I. (2000). *Social capital: a multifaceted perspective*. Washington, DC: The World Bank.
- Diamandouros, P. N., Gunther, R., Sotiropoulos, D. & Malefakis, E. E. (2006). Introduction: Democracy and the state in the new Southern Europe. In Gunther, R., Diamandouros, P. N., & Sotiropoulos, D. (Eds.), *Democracy and the state in the new Southern Europe* (pp. 1-42). New York: Oxford University Press.
- Europa. (2007). A broad-based innovation strategy for the EU. Retrieved June 4, 2009 from, <http://europa.eu/scadplus/leg/en/lvb/i23035.htm>
- Europa. (2008). Developing a knowledge flagship: the European Institute of Innovation and Technology (EIT). Retrieved June 3, 2009 from, <http://europa.eu/scadplus/leg/en/lvb/i23030.htm>
- Europa. (2009). Creativity and innovation European year 2009. Retrieved June 2, 2009 from, [http://create2009.europa.eu/index\\_en.html](http://create2009.europa.eu/index_en.html)
- Europe INNOVA / PRO INNO. (2008). The concept of clusters and cluster policies and their role for competitiveness and innovation: main statistical results and lessons learned. Location: Europe INNOVA / PRO INNO Europe paper N° 9. Commission Staff Working Document SEC (2008) 2637.
- European Commission. (2001). The regional dimension of the European Research Area. October 3, 2001. COM(2001) 549 Final, Brussels.
- European Commission. (2006). Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the

- Committee of the Regions - Putting knowledge into practice: A broad-based innovation strategy for the EU. /\* COM/2006/0502 final \*/ Retrieved June 1, 2009 from, [http://eur-lex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!DocNumber&lg=en&type\\_doc=COMfinal&an\\_doc=2006&nu\\_doc=502](http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2006&nu_doc=502)
- European Commission, Enterprise and Industry Directorate-General. (2007). Innovation clusters in Europe: A statistical analysis and overview of current policy support. DG Enterprise and Industry Report, published October 25, 2007. Retrieved May 25, 2009 from, [http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc\\_id=559&userservice\\_id=1&request.id=0](http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc_id=559&userservice_id=1&request.id=0)
- European Commission. (2009). Enlargement – The policy – Conditions for enlargement. Retrieved June 3, 2009 from [http://ec.europa.eu/enlargement/the-policy/conditions-for-enlargement/index\\_en.htm](http://ec.europa.eu/enlargement/the-policy/conditions-for-enlargement/index_en.htm)
- European Commission. (2009). Italy - Operational Programme 'Calabria.' Retrieved June 8, 2009 from [http://ec.europa.eu/regional\\_policy/country/prordn/details\\_new.cfm?gv\\_PAY=IT&gv\\_reg=ALL&gv\\_PGM=1165&gv\\_defL=7&LAN=7](http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=IT&gv_reg=ALL&gv_PGM=1165&gv_defL=7&LAN=7)
- European Commission2. (2009). Italia - Laboratories of the future. Retrieved June 8, 2009 from [http://ec.europa.eu/regional\\_policy/projects/stories/details\\_new.cfm?pay=IT&the=51&sto=1577&lan=7&region=ALL&obj=ALL&per=2&defL=en](http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=IT&the=51&sto=1577&lan=7&region=ALL&obj=ALL&per=2&defL=en)
- European Court of Auditors. (2009). 'Networks of Excellence' and 'Integrated Projects' in community research policy: Did they achieve their objectives? Retrieved October 23, 2009 from [http://www.europolitics.info/pdf/gratuit\\_en/258391-en.pdf](http://www.europolitics.info/pdf/gratuit_en/258391-en.pdf).
- European innovation scoreboard 2008: Comparative analysis of innovation performance. (2009) January 2009.
- Eurostat1. (2009). Regional gross domestic product (PPS per inhabitant), by NUTS 2 regions. Table Retrieved June 3, 2009 from, <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tgs00005&plugin=1>
- Eurostat2. (2009). Infant mortality. Table Retrieved June 3, 2009 from, <http://nui.epp.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do>
- Evans, M. & Syrett, S. (2007). Generating social capital?: The social economy and local economic development. *European urban and regional studies*, 14(1), 55-74.
- Fevre, R. (2000). Socialising social capital: Identity, the transition to work and economic development. In Baron, S., Field, J. and Schuller, T. (Eds.), *Social capital—Critical perspectives*. Oxford: Oxford University Press.



- Fine, B. (2001). *Social Capital versus Social theory: Political economy and social science at the turn of the millennium*. London: Routledge.
- Fromhold-Eisebeth, M. & Eisebeth, G. (2005). How to institutionalize innovative clusters? Comparing explicit top-down and implicit bottom-up approaches. *Research Policy*, 34, 1250–1268.
- Fujita, M., Krugman, P., & Venables, A.J. (1999). *The spatial economy. Cities, regions and international trade*. Cambridge, MA & London, England: The MIT Press.
- Fukuyama, F. (2002). Social capital and development: the coming agenda. *SAIS Review*, 22(1), 23-37.
- Furre, H. (2008). Cluster policy in Europe - A brief summary of cluster policies in 31 European countries. January 2008. Norway: Oxford Research AS.
- Gallup Organization, The. (2006). 2006 Innobarometer on cluster's role in facilitating innovation in Europe: Summary. Flash EB Series #187. Retrieved June 6, 2009 from, [http://ec.europa.eu/public\\_opinion/flash/fl\\_187\\_sum\\_en.pdf](http://ec.europa.eu/public_opinion/flash/fl_187_sum_en.pdf)
- Gallup Organization, The. (2009). 2009 Innobarometer: Strategic trends in innovation 2006-2008. Flash EB Series #267. Retrieved January 24, 2010 from, [http://ec.europa.eu/enterprise/policies/innovation/files/innobarometer\\_2009\\_en.pdf](http://ec.europa.eu/enterprise/policies/innovation/files/innobarometer_2009_en.pdf)
- Gertler, M.S. (2004). *Manufacturing culture. The institutional geography of industrial practice*. New York: Oxford University Press.
- Ginsborg, Paul. (1996). Explaining Italy's crisis. In S. Gundle & S. Parker (Eds.), *The new Italian Republic: From the fall of the Berlin Wall to Berlusconi*. New York: Ratledge.
- Gordon, I.R., & McCann, P. (2000). Industrial clusters: complexes, agglomeration and/or social networks? *Urban Studies*, 37(3), 513-532.
- Gundlach, E., Hiemenz, U., Langhammer, R.J., & Nunnenkamp, P. (1994). *Regional integration in Europe and its effects on developing countries*. Tübingen : J.C.B. Mohr (Paul Siebeck).
- Gunther, R., Diamandouros, P. N., & Sotiropoulos, D. (Eds.). (2006). *Democracy and the state in the new Southern Europe*. New York: Oxford University Press.
- Hadjimichalis, C. (2006). The end of Third Italy As we knew it? *Antipode*, 38(1), 82-106. Retrieved June 1, 2009 from, <http://www3.interscience.wiley.com/cgi-bin/fulltext/118562125/PDFSTART>
- Hall, P. A. & Taylor, R. (1996). Political Science and the three new institutionalisms. *Political studies*, 64, 936-957.

- Halpern, D. (2005). *Social capital*. Cambridge: Polity Press.
- High Level Advisory Group on Clusters. (2007). The European cluster memorandum – promoting European innovation through clusters: an agenda for policy action, September 2007, report coordinated by the Center for Strategy and Competitiveness, Stockholm School of Economics and performed under the Europe INNOVA initiative of the European Commission.
- Ho, M.H. (2009). How regional innovation systems play a relative competitive role within knowledge networks, *European Planning Studies*, 17(12), 1881-1905.
- Hollanders, H., Tarantola, S., & Loschky, A. (2009). Regional Innovation Scoreboard (RIS) 2009. Brussels: PRO INNO Europe – INNO Metrics.
- Howells, J. (1999). Regional systems of innovation? In Archibugi, D., Howells, J., & Michie, J. (Eds.), *Innovation policy in a global economy*. (pp. 67-93). Cambridge, England; New York: Cambridge University Press.
- Hudson, R. (1998). 'What makes economically successful regions in Europe successful? Implications for transferring success from West to East', Sussex European Institute Working Paper No. 27. Brighton: University of Sussex.
- Ketels C.& Sölvell Ö. (2006). Clusters in the EU-10 new member countries. Report, Europe INNOVA Cluster Mapping, Centre for Strategy and Competitiveness, Harvard Business School.
- Krugman, Paul. (1995). *Development, geography, and economic theory*. Cambridge, MA & London, England: The MIT Press.
- Lester, R.K. & Piore, M.J. (2004). *Innovation: The missing dimension*. Cambridge, MA & London, England: Harvard University Press.
- The Lisbon Special European Council (March 2000): Towards a Europe of Innovation and Knowledge. (2005). EUROPA website, last updated 13.12.2005. Retrieved May 25, 2009 from, <http://europa.eu/scadplus/leg/en/cha/c10241.htm>
- Magone, J.M. (Ed.). (2003). *Regional institutions and governance in the European Union*. Westport, Connecticut; London: Praeger.
- Malerba, F. (2002). Sectoral systems of innovation and production. *Research Policy* 31(2): 247.
- Marshall, A. (1920). *Principles of economics*. London: Macmillan.
- Martin, R. (1999). Editorial: The 'new economic geography': challenge or irrelevance? *Transactions of the Institute of British Geographers*, New Series, 24: 4, 387-391.
- Martin, R. & Sunley, P. (2003). Deconstructing clusters: chaotic concept or policy panacea? *Journal of economic geography*, 3, 5-35.

- McCraw, T.K. (2007). *Prophet of innovation: Joseph Schumpeter and creative destruction*. Cambridge, MA: The Belknap Press of Harvard University Press.
- Muet, P. & Stiglitz, J.E. (Eds.). (2001). *Governance, equity, and global markets. The annual bank conference on development economics – Europe*. Oxford: Oxford University Press.
- Nonaka, I. & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press, New York.
- Nauwelaers, C. (2001). Path-dependency and the role of institutions in cluster policy generation. In Mariussen., A. (Ed.), *Cluster Policies – Cluster Development?* Stockholm: Nordregio Report 2001:2.
- North, Douglass C. (1990). *Institutions, institutional change and economic performance*. New York: Cambridge University Press.
- ONS (Office for National Statistics ). (2001a). Analysis of social capital workshop sessions 16 November 2001. Retrieved January 15, 2010 from, <http://www.statistics.gov.uk/hub/index.html>
- ONS (Office for National Statistics). (2001b). Social capital: A review of the literature. Retrieved January 15, 2010 from, <http://www.statistics.gov.uk/hub/index.html>
- Ozman, O. (2009). Inter-firm networks and innovation: a survey of literature. *Economics of innovation and new technology*, 18:1, 39-67.
- Öz, Ö. (2004). *Clusters and competitive advantage: The Turkish experience*. New York: Palgrave Macmillan.
- Pellegrin, J. (2007). Regional innovation strategies in the EU or a regionalized EU innovation strategy? Conceptual and empirical underpinnings of the EU approach. *Innovation*, 20(3), 203-221.
- Peneder, M. (2000). Intangible assets and the competitiveness of European industries. In Buigues, P., Jacquemin, A., & Marchipont, J.F. (Eds.), *Competitiveness and the value of intangible assets* (pp. 117-153). Cheltenham, UK & Northampton, MA, USA: Edward Elgar.
- Piore, M. J. (1992). Work, labor, and action: Work experience in a system of flexible production. In Kochan, T. & Useem, M. (Eds.), *Transforming organizations* (pp. 307-319). New York: Oxford University Press. Retrieved May 25, 2009 from, [http://books.google.com/books?id=qU96bV4OtdgC&pg=PR3&source=gbs\\_select\\_ed\\_pages&cad=0\\_1#PPA307,M1](http://books.google.com/books?id=qU96bV4OtdgC&pg=PR3&source=gbs_select_ed_pages&cad=0_1#PPA307,M1)
- Porter, M.E. (1990). *The competitive advantage of nations*. New York: The Free Press.
- Porter, M.E. (2001). *Clusters of innovation: Regional foundations of U.S. competitiveness*. Washington, D.C.: Council on Competitiveness.

- Putnam, Robert D. (1994). *Making democracy work: Civic traditions in modern Italy*. Princeton: Princeton University Press.
- Riemer, K. & Klein, S. (2003). Challenges of ICT-enabled virtual organisations – a social capital perspective. ACIS 2003 Proceedings, Paper 8. Retrieved January 15, 2010 from, <http://aisel.aisnet.org/acis2003/8>
- Rosenfeld, S.A. (2002). Creating Smart Systems. A guide to cluster strategies in less favoured regions. European Union-Regional Innovation Strategies. Carrboro, North Carolina. In: Paper Presented at a Seminar on European Union Regional Innovation Strategies, Brussels, Retrieved January 21, 2010 from, [http://www.rtsinc.org/publications/pdf/less\\_favoured.pdf](http://www.rtsinc.org/publications/pdf/less_favoured.pdf)
- Sandholtz, W. & Stone Sweet, A. (1998). Integration, supranational governance, and the institutionalization of the European polity." In Sandholtz, W. and Stone Sweet, A. (Eds.), *European integration and supranational governance*, Oxford: Oxford University Press.
- Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge: Harvard University Press. (New York: Oxford University Press, 1961.) First published in German, 1912.
- Sölvell, Ö., G. Lindqvist & C. Ketels. (2003). The cluster initiative greenbook. Stockholm: Ivory Tower.
- Sölvell, Ö. (2008). Clusters and cluster policy in Europe. Lisbon 2010: Challenges for European regional innovation strategies. Conference proceedings Pamplona 20-21 November 2008.
- Sölvell, Ö. (2009). *Clusters – Balancing evolutionary and constructive forces*. Stockholm: Ivory Tower.
- Storper, M. (1995). The resurgence of regional economies, ten years later: the region as a nexus of untraded interdependencies. *European urban and regional studies*, 2:3, 191–221.
- Storper, M. (1999). Globalization and knowledge flows. In Dunning, J.H. (Ed.), *Globalization, regions and the knowledge-based economy*. Oxford: Oxford University Press.
- Ulijn, J., Drillon, D. & Lasch, F. (Eds.). (2007). *Entrepreneurship, cooperation and the firm. The emergence and survival of high-technology ventures in Europe*. Cheltenham, UK & Northampton, MA, USA: Edward Elgar.
- UNIDO. (2009). *The UNIDO Cluster/Network Development Programme: The Italian Experience of Industrial Districts*. Retrieved April 27, 2009 from, <http://www.unido.org/index.php?id=o4310>
- Uphoff, N. (2000). Understanding social capital: Learning from the analysis and experience of participation. In Dasgupta, P. & Serageldin, I. (Eds.), *Social*

*capital: a multifaceted perspective*. Washington, DC: World Bank.

- van der Linde, C. (2003) The demography of clusters – findings from the cluster meta-study. In Bröcker, J., Dohse, D., & Soltwedel, R. (Eds.), *Innovation clusters and interregional competition* (pp. 52-78). Berlin; Heidelberg; New York: Springer.
- Venables, A.J. (2001). Regional integration agreements: a force for convergence or divergence? In Stiglitz, J.E. & Muet, P.A. (Eds.), *Governance, equity, and global markets. The annual bank conference on development economics –Europe* (pp. 201-214). Oxford: Oxford University Press.
- Weber, M., Schaper-Rinkel, P., & Butter, M. (2009). Sectoral Innovation Foresight. Introduction. Interim Report. Accessed on November 3, 2009 from <http://archive.europe-innova.eu/index.jsp?type=page&previousContentId=5077&cid=11817&lg=EN>
- Wise, E., Langkilde, L. & Degn Bertelsen, M. (2009). The use of data and analysis as a tool for cluster policy: An overview of international good practices and perspectives prepared for the European Commission. European Cluster Alliance (ECA) Green Paper, January 2009. Retrieved June 3, 2009 from, [http://www.proinno-europe.eu/admin/uploaded\\_documents/GreenpaperECA\\_web.pdf](http://www.proinno-europe.eu/admin/uploaded_documents/GreenpaperECA_web.pdf)
- Wolfe, D.A. & Lucas, M. (Eds.). (2005). Global networks and local linkages. The paradox of cluster development in an open economy. Montreal & Kingston, London & Ithaca: McGill-Queen's University Press.
- Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27(2), 151–208.
- Woolcock, M. (2001a). The place of social capital in understanding social and economic outcomes. *ISUMA, Canadian Journal of Policy Research*, 2(1), 11–17.
- Woolcock, M. (2001b). Microenterprise and social capital: A framework for theory, research and policy. *Journal of Socio-economics*, 30(2), 193–8.