

COMPETITIVE ADVANTAGE AND CLUSTERS:
EVIDENCE FROM TEXTILE, WEARING APPAREL, CARPET, AUTOMOTIVE,
TOURISM, AND FURNITURE CLUSTERS IN TURKEY

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TOURISM, AND FURNITURE CLUSTERS IN TURKEY

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DECLARATION OF ORIGINALITY

I, Nigar Çağla Mutlucan, certify that

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Date 11 November 2015

ABSTRACT

Competitive Advantage and Clusters: Evidence from Textile, Wearing Apparel, Carpet, Automotive, Tourism, and Furniture Clusters in Turkey

Though Alfred Marshall first introduced the concept of industrial district into economic thought in 1890, it was Michael Porter who elevated “the cluster” to stardom. Since then, politicians, non-governmental organizations, CEOs, consultants, and the academia have paid more attention to it. However, despite all the research and knowledge about the ability of clusters to promote innovation, regional economic development, and national prosperity, we know very little about the firms that operate from within these clusters and drive their success. Therefore, this thesis tries to answer the following research question: how do firms create and defend competitive advantages through clusters? The present thesis tries to build and test a model to explore the firm characteristics that lead to performance differences among firms. The theoretical model examines the relationships between several constructs and firm performance, namely, business ties, support ties, entrepreneurial orientation and strategic learning capability, while being moderated by the cluster construct. A survey conducted with 160 firms from nine clusters in six industries in Turkey was conducted. The results indicate that ‘entrepreneurial orientation’ and ‘support ties’ have a significant positive impact on both the profitability and the sales performance of the firms, but ‘cluster’, defined in this thesis as consisting of geographical concentration and inter-firm linkages dimensions, does not significantly moderate any of the relationships hypothesized in the theoretical model.

ÖZET

Rekabetçi Avantaj ve Kümelenmeler: Türkiye’deki Tekstil, Hazır Giyim, Halı, Otomotiv, Turizm ve Mobilya Kümelenmelerinden Bulgular

Endüstriyel bölge kavramını iktisadi düşünceyle 1890 yılında Alfred Marshall tanıştırmışsa da, kümelenme konusunu yıldızlığa yükselten Michael Porter olmuştur. O zamandan beri politikacılar, sivil toplum örgütleri, CEO’lar, danışmanlar ve akademisyenler bu konuya eğilmişlerdir. Ancak, kümelenmelerin inovasyon, bölgesel ekonomik gelişme ve milli refah gibi alanlardaki faydalarına dair birçok araştırma ve bilgi bulunmasına rağmen, bu kümelenmelerde yerleşmiş ve burada başarılı olan firmalar hakkında çok az bilgiye sahibiz. Bu nedenle işbu tez, firmaların kümelenmeler vasıtasıyla nasıl rekabetçi avantaj yarattıkları ve bunu nasıl savundukları sorusuna cevap aramaktadır. Bu çalışma, firmalar arasında performans farklılıkları yaratan firma özelliklerini bulmak için bir model oluşturmuş ve test etmiştir. Teorik model birçok değişken ve firma performansı arasındaki ilişkileri incelemektedir; iş bağlantıları, destek bağlantıları, girişimci yönelim ve stratejik öğrenme yetisi ve firma performansı arasındaki ilişkiler ve bu ilişkiler üzerinde kümelenmenin etkisi incelenmektedir. Kümelenme, coğrafi yoğunlaşma ve firmalar arası bağlantıları kapsayan iki boyut içermektedir. Türkiye’deki altı ayrı sektörde bulunan dokuz kümelenmede yer alan 160 firmadan anket toplanmıştır. Bulgular, girişimci yönelimin ve destek bağlantılarının gerek karlılık gerekse satış performansı üzerinde anlamlı ve pozitif bir etkiye sahip olduğunu, kümelenmenin de teorik modelde varsayılan ilişkilerin üzerinde anlamlı bir etkiye sahip olmadığını göstermiştir.

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to my mother...

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ABBREVIATIONS

AVE	Average Variance Extracted
BEEPS	Business Environment and Enterprise Performance Survey
BT	Business Ties
BTSO	Bursa Chamber of Commerce and Industry (Bursa Ticaret ve Sanayi Odası)
BUTEKOM	Uludağ Exporters Union, Bursa Textile and Confection Technology, Education, Research, Consultancy and Energy Efficiency Services (Bursa Tekstil ve Konfeksiyon Ar-Ge Merkezi)
CAN	Competitive Advantage of Nations
CB-SEM	Covariance-based Structural Equation Modeling
CL	Cluster
DSO	Denizli Chamber of Industry (Denizli Sanayi Odası)
ED	Environmental Dynamism
EO	Entrepreneurial Orientation
FDI	Foreign Direct Investment
GLOBE	Global Leadership and Organizational Behavior Effectiveness
GREMI	European Research Group on Innovative Environments (Groupe de Recherche Européen sur les Milieux Innovateurs)
GTO	Gaziantep Chamber of Commerce (Gaziantep Ticaret Odası)
IPO	Initial Public Offering
IT	Information Technology

İTKİB	Istanbul Textile and Apparel Exporter Associations (İstanbul Tekstil ve Konfeksiyon İhracatçı Birlikleri)
LQ	Location Quotient
ML	Maximum Likelihood
MNE	Multinational Enterprise
MSA	Metropolitan Statistical Area
NEG	New Economic Geography
OLS	Ordinary Least Squares
PLS-SEM	Partial Least Squares Structural Equation Modeling
PP	Profitability
RBT	Resource-based Theory
ROA	Return on Assets
ROS	Return on Sales
SEM	Structural Equation Modeling
SGK	Social Security Institution (Sosyal Güvenlik Kurumu)
SIC	Standard Industry Classification
SITC	Standard International Trade Classification
SKD	Strategic Knowledge Distribution
SKIMP	Strategic Knowledge Implementation
SKINT	Strategic Knowledge Interpretation
SLC	Strategic Learning Capability
SME	Small and Medium-sized Enterprise
SOE	State-owned Enterprise
SP	Sales Performance

ST	Support Ties
TÜİK	Turkish Statistical Institute (Türkiye İstatistik Kurumu)
VC	Venture Capital

CHAPTER 1

INTRODUCTION

Michael Porter's influential book *The Competitive Advantage of Nations (CAN)* has received attention from the academic and business world since its publication in 1990. Subsequently, there were many articles that included criticisms or praises or both (Grant, 1991; Bellak & Weiss, 1993; Davies & Ellis, 2000). *Management International Review* published a special issue devoted to Porter's framework in 1993. Some scholars criticized Porter's lack of formal analytic modeling (Ingram, 1991; Gray, 1991; Greenway, 1993), while others challenged the originality of the framework (Bellak & Weiss, 1993; Krugman & Obstfeld, 2003; Smit, 2010). The results of the applications of the diamond framework in different countries and industries included many criticisms directed at Porter's diamond and suggestions for changes and/or improvements in the model (Rugman & D'Cruz, 1993; Dunning, 1993; Moon, Rugman, & Verbeke, 1998). Porter's treatment of multinationals and foreign direct investment were targeted by many critics (Bellak & Weiss, 1993; Dunning, 1993; Hodgetts, 1993; Rugman & D'Cruz, 1993; Rugman & Verbeke, 1993; Rugman, 1991). Also, the role of the government in the framework was questioned (Van den Bosch & Van Prooijen, 1992). These are some of the criticisms about Porter's framework which will be examined in greater detail in this thesis. However, by simply looking at the large number of articles written about the diamond framework, one can assert that Porter has undoubtedly contributed to the discourse on competitive advantage.

Porter brought the concept of cluster into the limelight with his diamond framework; clusters form one of the four elements of the diamond, namely, related

and supporting industries. Nowadays, scholars from many different fields such as economics and strategy and also business practitioners and policy makers study clusters. Consequently, the role of clusters on the regional economic development and national prosperity has recently been explored. However, the review of the cluster literature shows that scholars from several schools of thought assume that all cluster firms are homogeneous; for this reason, little attention was paid to firm-level characteristics that may help firms create and defend competitive advantages through clusters.

Some studies investigate the effects of firm size and age on the relationship between clusters and firm performance, and others examine the firm resources that differentiate high- from low-performing cluster-firms (Kukalis, 2010; Wennberg & Lindqvist, 2010; Zhang & Li, 2008; McCann & Folta, 2011; Liao, 2010). Saric (2012) states that the cluster literature remains unclear about the mechanisms that produce benefits for individual firms within the clusters. His study is an attempt to bring the cluster discourse back to the firm. His findings indicate that the most successful firms are those that have an entrepreneurial orientation of proactiveness, innovation, and risk-taking to identify the opportunities existing in clusters and a well-developed cluster-capability to exploit the value-generating potential of the opportunities. Saric explores the dimensions of the cluster-capability as follows: the ability to gather information and spread it throughout their organization, build and maintain access relationship with other nearby located firms, and recruit, develop, and retain highly skilled personnel and entrepreneurial executives. However, Saric's model used in his research study explains 36% and 48% of variance of sales performance and profitability. Therefore, there should be more firm-level

characteristics that contribute to the relationship between clusters and firm performance.

The present thesis tries to build and test a model to explore the firm characteristics that lead to performance differences among firms. Hence, the research question is as follows: How do firms create and defend competitive advantages through clusters? The theoretical model examines the relationships between several constructs and firm performance, namely, business ties, support ties, entrepreneurial orientation and strategic learning capability, while being moderated by the cluster construct. To the knowledge of the author, the effects of strategic learning capability on firm performance are underexplored in the cluster context; some recent studies have used strategic learning concept (Covin, Grevin, & Slevin, 2006; Garrett, Covin, Slevin, 2009; Siren, Kohtamaki, & Kuckertz, 2012), but this concept is not incorporated in cluster studies yet.

Several provinces of Turkey were chosen for the test of the theoretical model after the calculation of their location quotients. The clusters chosen for this thesis are as follows: the wearing apparel cluster in Istanbul, textile clusters in Denizli and Bursa, the carpet cluster in Gaziantep, the automotive cluster in Bursa, furniture clusters in Kayseri and Ankara, and tourism clusters in Antalya and Muğla. The automotive cluster in Bursa, the towel and bathrobe cluster in Denizli, and the carpet cluster in Gaziantep had already been qualitatively studied by Oz (1999; 2004). These provinces are known to be successful cluster examples in Turkey. This thesis examines these clusters quantitatively after a decade with different research purposes. Also, two service sector clusters, the tourism clusters in Antalya and in Muğla, are included in this thesis, as the studies in the literature focus generally on manufacturing industries.

As for the furniture cluster in Kayseri, it consists of firms that produce in great quantities and export to several countries in the world; the most important firms in the furniture industry in Turkey are located in Kayseri, according to the furniture sector report of the Turkish Ministry of Science, Industry and Technology (2008). The furniture cluster in Siteler, Ankara is an older cluster than the one in Kayseri, but it is deemed as a less successful cluster compared to the one in Kayseri for reasons such as insufficiency of capital, R&D problems, ecological problems, scarcity of skilled workers and so on.

The textile industry in Bursa has its roots in the sixth century AD and the Ottoman Empire era. According to the status report about 81 provinces of Turkey (Turkish Ministry of Science, Industry and Technology, 2012), 34% of the manufacturing companies in Bursa are fabricating textile products, and the percentage of employees working in the textile industry in Bursa is 25%, which is the highest percentage, followed by the percentage of employees working in the automobile industry (21%) (see 81 İl Durum Raporu, 2012, www.sanayi.gov.tr).

The ready-to-wear clothing industry in Istanbul is the prominent industry with the highest percentage in the total number of manufacturing firms in Istanbul (17%). Also, 34% of employees working in the manufacturing industry belong to the ready-to-wear clothing and textile industries (Turkish Ministry of Science, Industry, and Technology, 2012).

The next chapter presents a comprehensive literature review that includes Porter's diamond framework along with the criticisms it received, the viewpoints of several schools of thought about clusters, Porterian clusters and the criticisms directed at them. Towards the end of this chapter, the cluster definition adopted by

this thesis is stated and a brief literature review regarding the relationship between clusters and firm performance is presented.

In Chapter 3, research hypotheses are formulated and the theoretical model is depicted at the end. Chapter 4 is about the research methodology and the measurement of the constructs; location quotients calculated for each cluster are displayed, the scales used for the survey are mentioned and the data collection process is described. Descriptive sample characteristics and the data analysis methodology are explicated. At the end of the chapter, the analyses of the measurement model and the structural model are carried out and the hypotheses are tested.

Chapter 5 discusses the findings of the study. Chapter 6 presents conclusions and limitations and the implications of the study in the academia and in the business environment are provided.

CHAPTER 2

LITERATURE REVIEW

2.1 Porter's diamond framework

Porter (1990a) conducted a four-year study to investigate why a nation gained competitive advantage in particular industries. The study involved ten important trading nations: Denmark, Germany, Italy, Japan, South Korea, Singapore, Sweden, Switzerland, the United Kingdom, and the United States. In the light of information from over 100 case studies, Porter identified four classes of country attributes that underpinned the context which allowed the domestic firms to gain and sustain competitive advantage. These attributes form the National Diamond and are named as follows: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry. Porter proposed also two exogenous variables, government and chance, that influence the functioning of these four major determinants.

1. Factor conditions: "The nation's position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry" (Porter, 2008, p.182). Porter makes two basic distinctions for factors of production. The first one is broken down into two categories: basic and advanced factors. The basic factors are natural resources, climate, location, unskilled and semi-skilled labor, and debt-capital. The advanced factors include "modern digital data communications infrastructure, highly educated personnel such as graduate engineers and computer scientists in sophisticated disciplines" (Porter, 1990a, p. 77). The second distinction is made according to the specificity. There are generalized factors such as "the highway system, a supply of debt capital, or a pool of well-motivated employees

with college educations” and specialized factors such as “narrowly skilled personnel, infrastructure with specific properties, knowledge basis in particular fields, and other factors with relevance to a limited range or even to just a single industry (Porter, 1990a, p.78). Basic and generalized factors may be inherited or easily created and therefore the advantage they offer can be easily replicated, whereas advanced and specialized factors, which are more difficult to imitate for foreign competitors, provide a sustainable basis for competitive advantage. According to Porter (2008), “the stock of factors that a nation enjoys at a particular time is less important than the rate and efficiency with which it creates, upgrades, and deploys them in particular industries” (p.188). He also argues that selective disadvantages in the more basic factors can turn into advantages as they may incite a company to innovate and upgrade. But, disadvantages can become advantages under certain conditions. First, they have to “send companies proper signals about circumstances that will spread to other nations, thereby equipping them to innovate in advance of foreign rivals” (Porter, 2008, p. 189). Second, favorable circumstances elsewhere in the diamond should also exist.

2. Demand Conditions: “The nature of home-market demand for the industry’s product or service” (Porter, 2008, p.182). Porter thinks that the importance of home demand is rising, though many people believe the opposite because of the globalization of competition. He emphasizes three attributes of home demand, namely, the composition, the size and pattern of growth, and the internationalization of home demand. By composition Porter means the nature of domestic buyers; “[a] nation’s companies gain competitive advantage if domestic buyers are the world’s most sophisticated and demanding buyers for the product or service” (Porter, 2008, p. 191). In the same vein, the size and pattern of growth of home demand can

reinforce competitive advantage in an industry as “[h]ome-demand conditions help build competitive advantage when a particular industry segment is larger or more visible in the domestic market than in foreign markets” (Porter, 2008, p.190). The larger market segments in a nation prompt its companies to focus on and invest in the products and services offered to these segments. Finally, “[l]ocal buyers can help a nation’s companies gain advantage if their needs anticipate or even shape those of other nations- if their needs provide ongoing “early-warning indicators” of global market trends” (Porter, 2008, p.191).

3. Related and Supporting Industries: “The presence or absence in the nation of supplier industries and other related industries that are internationally competitive” (Porter, 2008, p.182). Internationally competitive suppliers are a source of competitive advantages for downstream industries for several reasons. First, “they deliver the most cost-effective inputs in an efficient, early, rapid, and sometimes preferential way” (Porter, 2008, p. 192). Second, home-base related and supporting industries have close working relationships that produce “short-lines of communication, quick and constant flow of information, and an ongoing exchange of ideas and innovations” (Porter, 2008, p. 192). Moreover, as the business information is widely shared, new business opportunities arise for firms and spin-offs occur. Consequently, firms from the related competitive industries bring about a source of new entrants which, in turn, prompt the existing firms to upgrade and advance their competitive advantage. But, the new comers bring also a “novel approach to competing”. Furthermore, pull-through effects may happen when international success in one industry creates demand for complementary products or services (Oz, 1999).

4. Firm Strategy, Structure, and Rivalry: “The conditions in the nation governing how companies are created, organized, and managed, as well as the nature of domestic rivalry” (Porter, 2008, p.182). According to Porter, there is not a universal management system that fits every nation. “Competitiveness in a specific industry results from convergence of the management practices and organizational modes favored in the country and the sources of competitive advantage in the industry” (Porter, 2008, p. 194). Also, the goals that firms and individuals seek to achieve may not be similar among countries. By the same token, national capital markets and the compensation practices for managers do not exhibit the same characteristics in different countries. Finally, the presence of strong rivals prods companies to innovate and improve. Porter thinks that domestic rivalry is the most important determinant in the diamond framework as it is a powerful stimulus for all other determinants.

Porter considers the diamond to be a system which involves self-reinforcing points. Especially, domestic rivalry and geographic concentration have the power to transform the diamond into a system. Domestic rivalry generates a stimulus for improvement in all the other determinants and geographic concentration “elevates and magnifies the interaction of the four separate influences” (Porter, 2008, p. 198). The diamond’s systemic nature also creates clusters of competitive industries that are linked together through vertical or horizontal relationships.

As for the government, Porter (2008) thinks that its “proper role is as a catalyst and challenger; it is to encourage—or even push—companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult” (p. 200). Governments should create an environment conducive to competitive advantage generation; its role is

indirect rather than direct. However, Porter accepts that governments assume a more direct role in nations that are in the early stages of development.

The second exogenous variable in Porter's framework, chance, is defined as events beyond the control of firms such as inventions, oil shocks, and wars (Oz, 1999). Chance events may affect the functioning of the diamond by creating situations that alter the industry structure.

The complete framework as devised by Porter is presented in Figure 1. The two-way arrows point out that each determinant is influenced by the others; all elements interact and reinforce each other, consequently, they create a process which yields a dynamic system difficult to replicate in other countries. Porter (1990a) believes that the competitive advantage stems from the entire system not only from one determinant; "where a nation has a disadvantage in one determinant, national success normally reflects unusual advantage in others and some way of compensating for the disadvantages" (p. 145).

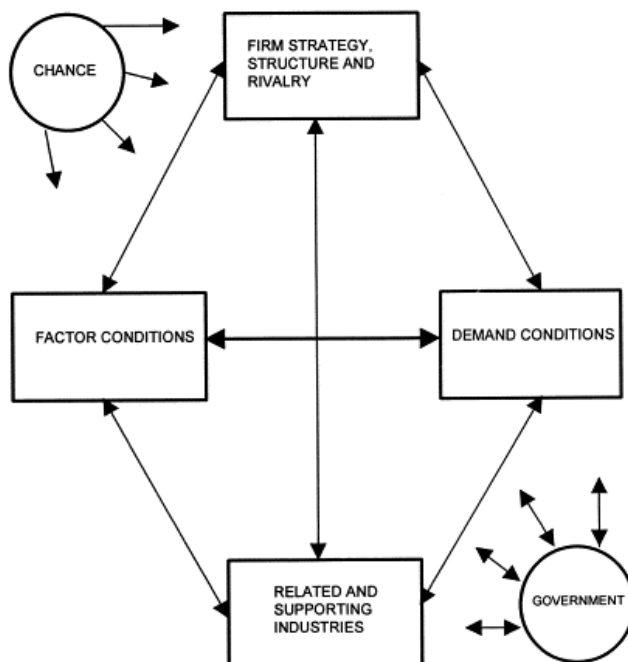


Figure 1 The diamond framework
Source: Porter, 1990: 127

Porter's diamond framework triggered a wave of interest when it was published in *The Competitive Advantage of Nations (CAN)* in 1990. The main argument of the diamond framework is that the national prosperity is created, not inherited.

According to Porter (2008), the competitiveness of a nation stems from the capacity of its industry to innovate and upgrade: "Companies gain advantage against the world's best competitors because of pressure and challenge" (p.171).

Along with many other scholars, I think that Porter's most important contribution is the concept of clusters. Contrary to the general tendency to see location as diminishing in importance, Porter put it into the limelight as the source of national competitiveness in the diamond framework. In an age where globalization decreased the importance of comparative advantages in labor and capital, innovation and productivity growth are the main sources of competitive advantage for firms, and even nations. According to him, "the sophistication and productivity with which companies compete in a location is strongly influenced by the quality of the business environment" (Porter, 2008, p. 226). The cluster represents that business environment in which learning, innovation and operating productivity can thrive. Therefore, cluster thinking, seeing clusters as the main drivers of a firm's and also a nation's competitiveness, prompted companies and policy makers to adopt a new perspective into their strategies.

In recent years, Porter has been working on productivity at locations that can improve the competitiveness of firms located there; he had a more micro approach. Regional clusters and entrepreneurship were the focus of his work too (Delgado, Porter, & Stern, 2010). According to Delgado et al. (2010), "[c]lusters are a particularly important way through which location-based complementarities are realized" (p.1). They think that "[w]hile at a (narrow) industry level firms may

compete for a given pool of resources, the cluster environment that surrounds an industry will increase the pool of competitive resources and reduce the barriers of entry for new firms” (p. 20). Therefore, “[s]trong regional clusters enhance the range and diversity of entrepreneurial start-up opportunities while also reducing the costs of starting a new business” (p. 20). In the final analysis, I think that clusters may be a useful tool to depict the economic vitality of a country and to determine a strategic guideline for firms located there or who wants to be located there.

2.2 Criticisms about Porter’s diamond framework

Porter’s diamond model has been the center of attention and criticisms since its publication in 1990. One of the many criticisms is about the lack of formal analytic modeling (Ingram, 1991; Gray, 1991; Greenway, 1993). However, as the methodology deployed by Porter in *CAN* is inductive rather than hypothetico-deductive, criticisms directed at the lack of formal hypothesis testing are unfair (Davies & Ellis, 2000). As for the methodology used by Porter, it had its share of criticisms too; some scholars (Greenaway, 1993; Bellak & Weiss, 1993) drew attention to the case-specificity of the insights obtained by this method. There were some other concerns about the way in which induction was carried out in Porter’s study; the selection method for the cases is unknown, so sampling problems might have occurred and therefore external validity might be questioned. Porter focused on successful industries, so a bias is present in the study; the presence of the success factors identified as common patterns among these industries could not be checked also in industries which failed (Yetton, Craig, Davis, & Hilmer, 1992; Davies and Ellis, 2000). In short, the analytical methods used to derive conclusions were not clear (Clark, 1991; Davies and Ellis, 2000). Another concern about the methodology

was the bias towards the primary goods category (Jacobs and de Jong, 1992).

Porter's cluster chart tries to display all the industries in which a nation has competitive advantage in a way that highlights the pattern of competitive industries and the connections among them. As his theory emphasizes demand conditions and the vertical linkages among industries, the basic classification system in the chart is based on end-use application. Within broad end-use categories, the chart stresses the vertical connections among industries. The primary goods category comprises self-contained components and end-products. Then the machinery used to make the primary goods is listed. Next, any specialized inputs that go into them are displayed. Finally, any service industries that are closely connected are indicated (Porter, 1990a). Jacobs and De Jong (1992) state that it is not always clear where some kinds of machinery should be placed within clusters. They explain that "many machines are ranked in the 'primary products' category because the emphasis is more on their being traded than integrated as machinery in the cluster" (p. 237). Porter was also criticized for his exclusion of the services sector. Bellak and Weiss (1993) stated that "important relationships between the secondary and tertiary remained unexamined because of the use of Standard International Trade Classification (SITC) statistics" (p.116). Brouthers and Brouthers (1997) mentioned the lack of services sector too; consequently they added services in their study as services accounted for "almost half the GDP of most industrialized countries" (p. 57). In fact, Porter included services sector in his study but due to the lack of detailed statistics, it was not treated as rigorously as manufacturing industries.

Porter's heavy use of world export shares as a measure of international competitiveness was also the target of many critics (Bellak & Weiss, 1993; Cartwright 1993, Rugman & D'Cruz, 1993). Porter's mode of reasoning was also

questioned; the determinants of the diamond along with chance and government were deemed too broad to identify the conditions which contribute to success (Davies & Ellis, 2000). Consequently, the predictive power of the model was called into question; Grant (1991) considered it to be the key weakness of the theory and stated that “[a]mbiguity over the signs of relationships, the complexity of interactions and dual causation renders the model unproductive in generating clear predictions” (p. 542). Firm strategy, structure and rivalry was found to be “an awkward catch-all category” (Grant, 1991, p. 542). Waverman (1995) deemed the diamond too general; according to him, the diamond tried to explain all aspects of trade and competition but in the final analysis it explained nothing.

One of the criticisms was about the culture; the impact of the national culture was overlooked (Van den Bosch & van Prooijen, 1992). Porter (1992) emphasized that he did not neglect the role of the national culture in his study and added that national and even regional cultures were important elements in the analysis of competitive advantage. Later, O’Shaughnessy (1996) stated also that Porter neglected the influence of history, politics, and culture on the competitive advantage, he argued that in both Germany and Japan past militarism played an important role in their present industrial supremacy.

Porter’s treatment of multinationals and foreign direct investment was questioned. Many scholars expressed their opinions about this subject (Rugman, 1991; Dunning, 1993; Rugman & D’Cruz, 1993; Rugman & Verbeke, 1993). Rugman (1991) identified Porter’s definition of foreign direct investment (FDI) as the origin of the problem; according to Porter (1990a) only outward FDI creates competitive advantage and inward FDI is “not entirely healthy” (p. 671). Rugman stated that “the work by Porter actually reveals a branch plant mentality” (p. 24).

Rugman and Verbeke (1993) challenged “Porter’s old fashioned and misguided notion that a multinational enterprise (MNE) needs a home base from which it can export competitive products or services” (p. 83). Dunning (1993) states that Porter’s interpretation of the link between FDI and competitiveness can be explained by the idea that outward FDI reflects the possession of firm-specific tangible assets that give a competitive edge prior to undertaking the FDI. Lin and Song (1997) added multinational business activity as a determinant of competitive advantage and found that China’s recent success owes much to inward FDI. In fact, there are many studies that show that both national and foreign firms are attracted to favorable cluster locations even if corporate ownership is based elsewhere.

After the publication of Porter’s book in 1990, Porter and his collaborators carried out several studies in Canada, New Zealand (Crocombe, Enright, & Porter, 1991) and many other countries. Additionally, many researchers extended the analysis to new locations and some suggested alternative methodologies to test the book’s central assertions. Some found coherence with Porter’s approach to measuring the competitive advantage of a nation (Goedhart & Hardonk, 1991), while others argued that the model had to be changed and developed (Rugman & D’Cruz, 1990, 1991, and 1993; Dunning, 1993; Cartwright, 1993). As Rugman and D’Cruz (1990, 1991; Rugman, 1991) believed that Porter’s single diamond was suitable for large triad economies (i.e. Europe, North America, Japan), they proposed a “Double-Diamond” for smaller nations that are highly interdependent with one or more of the triad economies. They presented the Double-Diamond not as a substitute for Porter’s Home-Diamond but as an extension, a new benchmark for decision. Their claim was that over 90% of the world’s nations potentially could not be modeled by the Porter diamond, not just Canada. Other researchers offered adjustments to Porter’s model

too (Dunning, 1993; Bellak & Weiss, 1993; Cartwright: 1993; Moon, Rugman, & Verbeke, 1998). These scholars offered a multiple-diamond that would include the determinants of a number of neighboring countries in the diamond. Dunning (1993) pointed at the role of MNEs in the world economy, he considered MNEs “one of the main driving forces of economic integration” (p.12), in his opinion, national diamonds had to be replaced by “supranational diamonds”. Bellak and Weiss (1993) stressed the existence of supranational clusters and asserted that the “concept of clustering should be extended to supranational level in the context of a small nation like Austria.” (p.115). Cartwright (1993), who carried out a study in New Zealand, added five “off-shore” variables to Porter’s home-base diamond, which he named “multiple linked diamond”, to include the benefits derived from factors in other countries. Narula (1993) recommended using “different diamonds from different countries” (p. 103) in order to benefit from complementary facets and technological facets.

Moon et al. (1998) suggested the use of a new diamond, the generalized double diamond which incorporated multinational activities. They tested both their new model and Porter’s original model in the context of Korea and Singapore. In the generalized double diamond, the multinational activities included both outbound and inbound FDI. This model admitted that both domestically owned and foreign owned firms might yield sustainable value added in a specific country. Moreover, “sustainability may require a geographic configuration spanning many countries, whereby firm specific and location advantages present in several nations may complement each other (p. 139). Moon et al. provided a new definition for national competitiveness which is as follows: “the capability of firms engaged in value added

activities in a specific industry in a particular country to sustain this value added over long periods of time in spite of international competition” (p. 139).

There were many other proposals to improve the diamond framework. The role of the government in the diamond was the subject of debate. Stopford and Strange (1991) asserted that the government should be added to Porter’s diamond as a fifth determinant because structural changes in the world system necessitate that states and firms take on new roles in the international system. Moon et al. (1998) included government in their model not as “an exogenous parameter, but as an important variable which influences the four determinants of the diamond model” (p. 148). According to them, “the government factor in small economies such as Korea and Singapore is more important than anything else in affecting the other variables” (p. 148).

No model, including Porter’s, is a panacea to all economic and/or strategic issues; new problems and new needs arise over time, so Porter’s framework may well be superseded by a novel model uncovering different relationships among economic variables. However, Porter started a debate on competitive advantage among scholars and brought a different viewpoint unlike economists engrossed in esoteric macroeconomic variables and tools. Porter was able to offer a practicable and comprehensible framework to policy makers and practitioners.

2.3 Clusters

2.3.1 Origins of clusters

2.3.1.1 Industrial districts

Over the past two decades, the cluster concept has attracted increasing attention from academics, consultants, and policy makers, its roots can be traced back to Alfred

Marshall's 1890 classic, the *Principles of Economics*. Marshall scrutinized the geographic concentration of specific industries in particular districts; his discussion of industrial districts was mainly built on external economies of localized specialization (Marshall, 1927). Specialized industrial districts were characterized by a triad of external economies (Asheim, Cooke, & Martin, 2006):

The ready availability of skilled labor, the growth of supporting ancillary trades, and the development of a local inter-firm division of labour in different stages and branches of production, all underpinned and held together by what he referred to as the 'local industrial atmosphere', by which he meant shared knowledge about 'how to do things', common business practices, tacit knowledge, and a supportive social and institutional environment. (pp. 5-6)

According to Marshall (1927), industrial districts presented an alternative mode of industrial organization to the large integrated firm with its internal economies of scale. However, he also pointed at some risks associated with clustering: "A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling-off in the demand for its produce, or of a failure in the supply of the raw material which it uses" (Oz, 2004, p. 2). Nevertheless, some hints about the competitiveness of clusters can be perceived in Marshall's (1927) own words "the mysteries of the trade become no mysteries; but are as it were in the air" (p. 225). Thus, the sources of advantages form a system that is hard to imitate elsewhere, which increases the chance of the resulting advantage to be sustainable (Oz, 2004).

2.3.1.2 Classical theories and neoclassical location models

Following Marshall, Weber (1929) focused on location theory and drew attention to the lower production and transportation costs associated with agglomeration. Weber examined similar industries located in the area where he found it the least cost to produce. In the 1950s and 1960s, Weber's theory had its share of criticisms and

several changes and improvements to his theory were suggested (Lösch, 1954; Isard 1956; Moses 1958; Smith 1966). August Lösch maintained that manufacturing plants choose locations where they can maximize profit, not where they find the least costs of production. He also pointed at the existence of economies of scales as another reason for the geographic concentration of industry. Lösch's ideas served as the theoretical underpinnings of two disciplines, namely, regional science and economic geography during the 1950s and 1960s (Oz, 2004). In fact, Walter Isard (1956), influenced by concepts from location theory, developed the field now known as regional science, a branch of the social sciences that examines the impact of space on economic decision making.

By the late 1970s, regional science had become a highly mathematical theory, whereas economic geography had evolved into a more empirically-orientated theory by importing concepts from other branches of economics such as Keynesian business cycle models, Myrdalian cumulative causation theory, and Marxian notions of uneven accumulation. After the 1980s, economic geography incorporated ideas from French regulation theory, Schumpeterian models of technological evolution, and institutional economics. Recently, economic sociology and cultural theory have contributed to the expansion of economic geography (Martin, 1999). There were also some studies such as Enright's (1990) that claimed that consumers prefer markets with a large number of sellers, "since agglomeration minimizes the opportunities for arbitrage, as well as providing customers with greater variety and lower search costs in the case of differentiated goods" (Oz, 2004, p.3).

2.3.1.3 Regional development, urban economics and international trade theories

Economic localization is also an interesting subject for scholars specializing in regional development, urban economics, and international trade. First, regional development is about the geography of welfare and its evolution. Scholars from the regional development field have usually been preoccupied with two dominant issues; they try to explain how regional welfare is created and they search for policies to handle undesirable interregional welfare discrepancies. There are several well-known regional theories, such as Perroux's (1950) theory of growth poles, Myrdal's (1957) theory of cumulative causation, Hirschman's (1958) notion of unbalanced growth and Friedmann's (1972) core-periphery model.

Second, urban economics can shed light on the geographic concentration of individual industries as it studies urban spatial structure and the location of households and firms (Quigley, 2008). Two concepts in this literature, namely, economies and diseconomies of agglomeration in urban spaces, should be explained to understand the process of urban concentration. In order to understand the causes of agglomeration, the differences between localization economies and urban economies should be emphasized. Localization economies occur when competing firms in the same industry derive some benefit from being located close to each other, whereas urbanization economies occur when all the firms in the urban area, regardless they are from the same or other industries, benefit from their choice of location (Chakravorty & Koo, 2005). Thus, agglomeration includes both localization economies and urbanization economies. The empirical literature examined that the spatial concentration of manufacturing activity enhances productivity and growth (Henderson, 1986; Ciccone & Hall, 1996). These studies demonstrate that localization economies are of particular importance, whereas urbanization economies

have smaller effects on productivity. However, Audretsch and Feldman (1996), by using a spatial Gini coefficient to measure geographic concentration, observe that innovative activity is substantially more concentrated than overall production and that industries that emphasize research and development tend to be more spatially concentrated. Dumais, Ellison, and Glaeser (1997) find that industries with similar labor mixes derive the largest benefit from proximity; thus, the importance of labor market pooling. In contrast to the empirical work in this field, theoretical work offered several causes of agglomeration, such as labor market pooling, input sharing, and knowledge spillovers (Rosenthal & Strange, 2001). Urban agglomeration diseconomies show that there is an optimal city size as land and housing prices and commuting costs increase with size, along with surges in pollution, crime and victimization rates.

Finally, international trade scholars have also showed interest in the location of industry. Though the unit of analysis is usually the nation, same concepts could be thought for regions. Ohlin's (1967) seminal book *Interregional and International Trade* can be deemed a study of location theory in which the theory of international trade is a special case (as cited in Oz, 2004). Also, the 'new trade theory' studied the role of location in trade. Paul Krugman, the eminent exponent of this new trade theory, describes a world of imperfect competition where international trade is driven as much by increasing returns and external economies as by comparative advantage. Moreover, these external economies are more likely to be realized on the local and regional scale than at the national or international level. Therefore, to understand trade, it is necessary to decipher the processes leading to the local and regional concentration of production. According to Krugman, the interaction of external economies of scale with transport costs explains regional industrial concentration and

the formation of regional "centers" and "peripheries". In other words, high transport costs prevent the geographical concentration of production. But with a reduction in transport costs, firms concentrate in one site to realize economies of scale both in production and in transport (Martin & Sunley, 1996).

2.3.2 Scrutiny of the concept of clusters in the academic literature

There have been several terms to define localized concentrations of specialized activity. Asheim et al. (2006) enumerated many different neologisms found in several different fields of economics and economic geography;

The *industrial districts* of the so-called Third Italy were one of the earliest prominent types to attract discussion (Brusco, 1989, 1990; Becattini, 1989, 1990; Asheim, 2000; Paniccia, 2002). Meanwhile in California, Allen Scott began to highlight the rise of *new industrial spaces* (Scott, 1988). Others have preferred to talk of *local production systems* (Crouch et al., 2001). Still others, focusing on localized agglomeration of high-technology activity, have variously used such terms as *local high-tech milieux* (Keeble & Wilkinson, 2000), *local and regional innovation systems* (Asheim & Gertler, 2005; Cooke, 1998, 2001), or even *learning regions* (Asheim, 1996, 2001; Florida, 1995; Morgan, 1997). (p.2)

However, the most influential neologism was Michael Porter's concept of industrial or business clusters. Porter (1998) defines clusters as "geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, associated institutions (for example universities, standards agencies, and trade associations) in particular fields that compete but also co-operate" (p. 197).

2.3.2.1 Italian industrial districts school

At the time of the discovery of clusters in the 1990s by the business school and by Michael Porter, several Italian economists were interested in industrial district formation (Becattini, 1989, 1990) or districtualization processes (Varaldo & Ferucci,

1996; Lazzeretti, 2003). The Italian school of industrial economics studied the success of the specialized, export-oriented, small-firm based industrial districts of the so-called Third Italy (the regions of the North East – Veneto, Friuli, Emilia; and Central Italy – Tuscany, Marches). Though influenced by Marshall's work, researchers from the Italian industrial districts school had their differences in defining industrial districts; they described the industrial district as a socio-cultural as well as economic entity. Asheim et al. (2006) draw attention to the contribution of this definition to the analysis of industrial districts:

This socio-economic reconceptualization of Marshall's industrial district has strengthened the non-economic, socio-territorial dimension of the concept and has provided valuable insights into the role of trust and co-operation as mechanisms of risk reduction and economic (relational) governance amongst local firms, and how a supportive form of social capital aids the formation and success of industrial districts. (p.6)

Moreover, synthesizing the Neo-Marshallian Italian Research, Piore and Sabel (1984) drew attention to a second industrial divide characterized by a shift from mass production to the flexible specialization of industrial districts. Piore and Sabel (1984) pointed at the transition from Fordism to post-Fordism over the past two decades; the new post-Fordist era is represented by new industrial spaces containing populations of interacting small and specialized firms that compete and cooperate with one another in a manner that is conducive to growth and highly flexible in meeting differentiated and constantly changing markets. Piore and Sabel had their share of criticism and praise; proponents of flexible specialization argue for vertically disintegrated and locationally fixed production that was found in Silicon Valley, Third-Italy and Hollywood (Oz, 2004). Critics of this strand argued that Fordism did not disappear and that localized agglomerations could be part of transnational networks (Amin & Robbins, 1990). Sabel, Piore and Storper (1990) maintained that

all agglomerations could not be viewed as flexible production systems. However, some potentially negative effects of flexible production have been examined by some scholars. Harrison (1994) drew attention to the increase in the use of child labor and exploitation of immigrants in some small and medium-sized enterprises in Third Italy as a result of the intensifying global competition (as cited in Oz, 2004). Another criticism about this school of thought is that its theoretical insights are dependent on the Italian example and culture; therefore, its generalizability to other contexts that “show a strong tendency to more competitive norms of economic behavior or advanced and innovative high-tech industries” (Saric, 2012, p. 26) is limited.

2.3.2.2 The Californian school

This school of thought emerged in the 1980s and scholars (Scott, 1988; Storper, 1997) from this school scrutinized technology districts in southern and central California that were composed of geographically concentrated, specialized and vertically disintegrated networks of firms and institutions. They explained the existence of these districts through a transaction cost based analysis. In case of increased uncertainty caused by external factors, firms externalize production steps to minimize the risk of creating overcapacity and to maximize the benefits of specialization. Consequently, there were many external transactions as the result of this vertical disintegration of production, which, in turn, led to an increase in transaction costs. Moreover, geographical distance increased costs. Therefore, vertical disintegration became difficult at some point. However, firms that use flexible production systems such as the just-in-time system or firms that operate on product customization need a dense set of inter-firm links between selected sets of producers. Thus, agglomeration occurs as the result of firms’ pursuit to reduce

transaction costs and subsequently it increases the advantages of flexibility, risk minimization, and specialization. “These advantages are external economies, because they lower input costs and increase the probability of successful sales and purchases within the regional network of firms” (Saric, 2012, p. 27).

In fact, Storper and Scott made a synthesis of flexible specialization theory and industrial district approaches; they established a theory for the contemporary technology-driven urban agglomeration (Komninos, 2002). “The small specialized company establishes external linkages and networks to a higher degree, and acquires all the necessary technology and skill inputs from the agglomeration, which is also composed of specialized small businesses” (Komninos, 2002, p. 44). Scott (1988) introduced the concept ‘new industrial spaces’ to characterize a variety of agglomerations and regions sharing the same industrial structure, such as Los Angeles, Orange County, Silicon Valley and Route 128 in Boston in the USA; West London, the M4 corridor, and Cambridge in England; Montpellier, Toulouse, Grenoble and Sophia-Antipolis in France; south Bayer and Stuttgart in Germany. He claimed that new industrial spaces were the special manifestation of flexible production and flexible specialization strategies.

Though the Californian school represents a major extension to the Italian industrial districts school by including firms of all size, different sectors, and regions of different historical and institutional contexts, its major weakness is its focus on measurable traded interdependencies (Saric, 2012). Storper (1997) acknowledges that “the direct local input-output relationships between firms are not dense enough to account for either the size of the agglomerations or for a high proportion of what goes on in the sector” (p.12). Hence, he introduced the concept of untraded interdependencies, which are “region-specific socially constructed assets such as

conventions, norms and, informal rules that are responsible for most of transaction cost savings generated through clusters” (as cited in Saric, 2012, p. 27). Storper (1997) referred to the motion picture industry of Los Angeles and showed “how trust and experience regulate repeated transactions among firms and significantly reduce the likelihood of opportunistic behavior” (as cited in Saric, 2012, p. 28). Consequently, these institutionalized norms and conventions form the characteristics of good behavior and “make possible levels of vertical and horizontal disintegration that would not be possible in the presence of other sorts of actions frameworks” (Storper, 1997, p.101).

2.3.2.3 New economic geography theory

New economic geography (NEG) is related to the new trade theory developed by Krugman because the NEG uses the model of monopolistic competition developed by Dixit and Stiglitz (1977) and applied to models of international trade in the presence of increasing returns within “new trade theory”. Krugman (1991) tried to explain geographical concentration through the effect of increasing returns that stem from economies of specialization and scale at the plant level. These scales economies, rooted in Marshall’s external economies, influence firms of all kinds and prompt producers to specialize and concentrate geographically. Moreover, producers have to locate close to demand and supply markets to reduce transport costs for transactions that occur across space. “Once a region develops a comparative advantage against other regions, favorable conditions lead to uneven, self-reinforcing patterns of economic activity, market dominance and specialization” (Saric, 2012, p. 32). Krugman (1998) argues that increasing returns are the main factor that forces producers to concentrate their activities at one location. Otherwise, target markets

would be supplied from many local plants. According to Krugman (1998), the ‘centripetal forces’ that lead to geographical concentration are the same ‘three classic Marshallian sources of external economies’: market size effects, thick labor markets, and pure external economies (p.3). “These geographical promotion forces are involved in a ‘tug of war’ with the (‘centrifugal’) forces that oppose localizations, such as immobility in factors of production, land rents, and ‘pure external diseconomies’ (congestion being the example put forward)” (Becattini, Bellandi, & De Propriis, 2009, p. 99). Otherwise, we would “all live in one big city” (Krugman, 1998, p. 8). Krugman explained with rigorous mathematical models why production and labor can be found clustered in particular places. However, he deliberately ignores technological spillovers among firms, as they “are invisible; they leave no paper trail by which they may be measured and tracked” (Krugman, 1998, p. 53).

It has to be mentioned that Krugman’s and other international economics scholars’ interest in geography is criticized by economic geographers who questioned whether Krugman's work contains anything that is new or useful for economic geographers (Martin & Sunley, 1996).

2.3.2.4 New endogenous growth theory

New endogenous growth theorists were also interested in geography in the last two decades of the twentieth century; they differed from the conventional neoclassical theory by “treating as endogenous to the growth process those factors that the neoclassical growth model relegates as exogenous, in particular technological change and human capital” (Martin & Sunley, 1998, p. 202). They posited that the increasing returns to educated labor and R&D spending are highly localized and that, consequently, regional growth paths may diverge. These theorists stressed the

importance of spatial proximity in the accumulation of human capital through knowledge spillovers; however, they could not explain why or how such endogenous growth processes concentrate in particular localities and not others. Also, “these models have little to say on the local social, institutional, and inter-firm networks through which many such knowledge spillovers occur” (Asheim et al., 2006, p.7).

2.3.2.5 Neo-Schumpeterian and evolutionary economics

Finally, the neo-Schumpeterian and evolutionary economics argued that innovation and entrepreneurship are typically specially embedded and localized processes. According to Schumpeter (1939), when a successful innovation occurs, a swarming process starts; that is, imitators begin to realize the profitable potential of the new product or process and start to invest heavily in that technology. In consequence, the industry in which the innovation took place will grow. Moreover, an important innovation has the potential to stimulate other innovations. Because of such inter-dependency, innovations have the propensity either to intensify themselves in and around some certain sectors or to cluster. In the neo-Schumpeterian cluster literature, the focus is on network theories of innovation and the emergence of ‘regional innovation systems’, localized ‘collective learning’, and local entrepreneurial milieux. Therefore, “much of this literature is also heavily directed to successful ‘high-tech’ districts and clusters” (Asheim et al., 2006, p. 8).

Scholars from the evolutionary theory, Nelson and Winter (1982), argued that innovations occur as a consequence of the knowledge exchange between organizations; thus, the importance of network structures. Though innovation is endogenous to the system and influenced by external influences, it is the result of knowledge exchange between several actors, hence forming an interactive system

(Edquist, 2001). Network relationships are particularly indispensable in the transfer of tacit knowledge. Access to tacit knowledge is one of the main reasons why firms establish networks (Lundvall & Johnson 1994). Since Phil Cooke and Kevin Morgan's (1993) contribution about the 'network paradigm', regional innovation networks have been viewed as stimulating growth and innovation from an individual business perspective and from a regional perspective (Sternberg, 2000). Cooke (2002) posits that "smaller firms show some evidence of recognising the importance of vertical and horizontal networks for collective learning and innovation" (p.133). Through linkages to intraregional networks, they can also tap into international and global networks (Scott, 1996).

2.3.2.6 Nordic school of innovation and learning

The Nordic school sees innovation as the basic factor for the competitiveness of firms, regions and nations. Therefore, in the face of globalization, knowledge is deemed the most 'strategic resource to manage' (Lundvall & Johnson, 1994). Furthermore, besides being the principal force of competitiveness, innovation also involves a learning and social process that stems from the proximity of all the agents involved (firms, scientific organizations, market, institutions) (Asheim, 1995).

Lundvall and Borrás (1997) argue that information and codified knowledge can be easily transferred across the globe at low cost, however knowhow and tacit knowledge is not immediately transferable. Yet these elements are inseparable from their social and institutional contexts (routines, norms and conventions, culture, technical values) (Morgan, 1997). Therefore they cannot be transferred through global networks of innovation; the historical path and the technological legacy of a region form together its tacit knowledge.

Another concept, indicating the shift from national to regional economics, the learning region concept emerged in the early 1990s. Florida (1995) sees regions as a key element of the “new age of global, knowledge-based capitalism” (p. 527). He emphasizes the importance of regions in knowledge-creation and learning in the new age of capitalism, as they take on the characteristics of learning regions. He defines learning regions as “collectors and repositories of knowledge and ideas, and provide an underlying environment or infrastructure which facilitates the flow of knowledge, ideas and learning” (p. 528). Another researcher, Asheim (2001) describes a learning region as a region with an economy embedded in "institutional thickness", and characterized by innovative activity based on localized, interactive learning, and co-operation promoted by organizational innovations in order to exploit "the benefits of learning based competitiveness". He sees learning regions as a policy framework for long-term development and innovation and he underlines the role of “regional development coalitions”, which is defined as the inter-linking of co-operative partnerships ranging from work organizations inside firms via inter-firm networks to different actors of the community. A development coalition refers to a “bottom-up, horizontally based co-operation between different actors in a local or regional setting, based on a socially broad mobilisation and participation of human agency” (pp. 75-76).

2.3.2.7 The GREMI approach

Like regional innovation networks, innovative milieux, coined by the GREMI (Groupe de Recherche Européen sur les Milieux Innovateurs) group, and the regional innovation systems are considered to generate growth and innovation. The milieu idea was developed in the mid-1980s by the French GREMI group and has been

continually improved since then. Milieu is defined as follows: “(...) a territorialized set in which interactions amongst economic agents develop as they learn about multilateral transactions that generate innovation-specific externalities, and as the learning processes converge towards increasingly efficient forms of joint management of resources” (Maillat, 1995, p. 161). In many respects, a milieu can support innovation, and Sternberg (2000) gives several examples:

Joint information acquisition and analysis eases the recognition of successful market and technology decisions (‘search function’), image campaigns increase market visibility for local businesses (‘signaling function’) and exchange processes (like those connected with the mobility of employees between firms) further the collective learning process in some cases (‘transcoding function’). (p. 393)

In short, informal contacts and intensive linkages between participants in a local network contribute to the innovativeness of a milieu.

As mentioned above, the GREMI research group (Aydalot 1986; Aydalot & Keeble 1988) developed the concept of collective learning, which indicates the capacity of a particular regional innovative milieu to generate or facilitate innovative behavior by the members of milieu (Keeble 2000). The GREMI group stresses the importance of localized interaction and interdependencies involving informal interfirm networking, collaboration, and regional collective learning. According to Camagni (1991) collective learning takes place through “skilled labor mobility within the local labor market, costumer-supplier technical and organizational interchange, imitation processes and reverse engineering, exhibition of successful ‘climatization’ and application to local needs of general purpose technologies, informal ‘cafeteria’ effects, complementary information, and specialized service provision” (p. 127). There are several definitions of collective learning in the literature but, mainly, the process of collective learning has been related to spin-offs,

local labor-market turnover, and interfirm interaction (Svetina, 2007). Storper (1999) accuses this approach of being circular in its analysis: innovation occurs because of a milieu, and a milieu exists in regions where there is innovation. According to him, ‘untraded interdependencies’ generate region-specific assets and govern the sustainability of a cluster’s competitiveness; a region should be seen as a ‘nexus of untraded interdependencies’ among three systems: the labor market, the input – output system and the knowledge system. Yet the literature is inconclusive about the conditions that result in an innovative milieu or untraded interdependencies in a locale.

2.3.2.8 .Regional innovation systems

As for the systems of innovation approach, it scrutinizes innovation systems in which actors like firms, governmental institutions and entrepreneurs are embedded (Pyka & Küppers, 2002; Edquist, 2001). This approach became popular in the 1990s because it provided a narrative on the intangible dimension of local economic development and the processes of knowledge circulation and learning at the more manageable regional scale (Doloreux & Parto, 2005). Regional innovation systems approach stresses the role played by institutional infrastructure in supporting collective learning and innovation (Autio, 1998; Doloreux, 2002). Basically, “a regional innovation system is characterized by cooperative innovation activities between firms and knowledge-creating and diffusing organizations, such as universities, training organizations, R&D institutes, technology transfer agencies, and so forth, and the innovation-supportive culture that enables both firms and systems to evolve over time” (Doloreux & Parto, 2005, p .135). Doloreux and Parto (2005) reviewed

several studies on regional innovation systems and concluded that it was hard to determine how a regional innovation system might look in reality:

For instance, how much and what type of innovation must occur within a region for it to be considered a regional innovation system? Do all regions that aspire to take a lead in organizing and innovating become regional innovation systems by default? If something like a regional innovation system already exists, the extant literature on the subject is not clear about it. (p.141)

Some authors draw attention to the importance of local interaction and global connections for understanding the competitive advantages of innovative firms and regional clusters. Bathelt, Malmberg and Maskell (2004) argued that an accurate model of cluster must take into account two types of knowledge flow: the local channels and the global ones. They maintain that both tacit and codified knowledge can be exchanged locally and globally. “A distinction is made between, on the one hand, the learning processes taking place among actors embedded in a community by just being there – dubbed buzz – and, on the other, the knowledge attained by investing in building channels of communication – called pipelines – to selected providers located outside the local milieu” (p. 31). In small as well as large cities, universities can be the pipelines that connect the locality to global knowledge in a variety of scientific fields (Benneworth & Hospers, 2007). Bathelt et al. consider local buzz and global pipelines mutually reinforcing, that is, “the more firms in a cluster engage in the build-up of trans-local networks, the more information and news about markets and technologies are pumped into internal networks and the more dynamic the buzz from which local actors benefit” (Doloreux & Parto, 2005, p. 145).

2.3.3 Industrial districts, networks and clusters

There is a semantic ambiguity in the literature on industrial districts, clusters and networks. From the many definitions that can be found in the academic literature, one can state that agglomeration economies are a common characteristic of industrial districts and clusters. However, a network involves a set of high-trust relationships that are generally contractual and explicit. According to Brown and McNaughton (2002), “in contrast to clusters, networks are generally based on a group of firms with restricted membership and specific, often contractual, business objectives (...) The members of the network choose each other; they agree explicitly to co-operate in some way” (p. 27). Though competitive forces are prominent in relations among cluster participants, network relations are more cooperative (Oz, 2004). Nooteboom (2006) argues that the concept of network is more general than that of cluster and that does not necessitate local embedding, a shared objective, or a specific market, and he concludes that a cluster is a network but not necessarily vice versa. Oz (2004) also points to the differences between a network and a cluster; firms in a network do not have to be tied to the same location, whereas a cluster can be deemed a form of network that is situated in a particular geographic location. She concludes as follows: “(...) clusters can be seen as localized networks involving geographically concentrated firms from a particular sector with links that can be both cooperative and competitive in nature. Defined as such, it appears that clusters are a form of network, whereas industrial districts are a form of cluster” (p.11).

2.3.4 Importance of social capital, cultural factors and trust

The Neo-Schumpeterian approach and Porter (1990a) attribute a great role to the innovation in their conceptions of clusters. In fact, innovation can be deemed to be

embedded in social relationships. These social relationships evolve over time along culturally determined lines. People who live in the same region acquire a set of rules, conventions, and norms that prescribe behavioral roles and shape expectations.

“These rules are derived from economic and socio-cultural factors such as routines, shared values, norms, and trust that facilitate localized interactions and mutual understanding during the process of transmitting information and exchanging knowledge” (Doloreux & Parto, 2005, p. 136). Also, the importance of cultural factors in the milieu theory becomes particularly clear from Camagni’s (1991) definition of an innovative milieu: “The set, or the complex network, of mainly informal social relationships on a limited geographical area, often determining a specific image and specific internal representation and sense of belonging, which enhances the local innovative capability through synergic and collective learning processes” (p. 3).

Sternberg (2000) enumerates several specific conditions for the development of innovative networks or milieux and trust is one of them: “‘complementary assets’ of the participants, close and personal relationships between the participants, economic instability, technological uncertainty and rapid changes in consumer demand, which require speedy reactions and ‘reciprocity’ and trust in potential partners, who can place their trust in sanctions for opportunistic behavior” (p. 395). Morgan (1995) explains the difference between successful regions and less favored regions by their stock of social capital. According to Morgan, social capital is defined as “features of social organizations, such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit” (p. 493). He posits that less favored regions should use intermediary organizations (trade associations, chambers of industry and the professional associations of engineers) as “animateurs”

to exploit and develop their social capital and consequently become more successful. Bathelt et al. (2004) argue that “the diffusion of buzz within a cluster can go smoothly, but it can also be somewhat blocked depending on the structure of social relations between the local actors and firms and the history of interactions between them. Especially in cases where distrust and malfeasance exist, it is unlikely to have high-quality local buzz” (p. 38). Inter-firm relationships thrive on trust among cluster actors, which helps decrease the risk and uncertainty (Svetina, 2007). Moreover, Doloreux and Pardo (2005) posit that “the existence of social capital, and trust as an element of social capital, helps to overcome market failures or reduce market costs for firms in densely related networks, by supporting stable and reciprocal exchange relationships among them” (pp. 136-137).

2.3.5 Clusters in the management literature

Clusters presented an interesting topic not only for economists but also for management scholars. According to the neoinstitutional perspective in organization theory, apart from coercive pressures, actors that coexist in a social structure tend to adopt similar behaviors as they seek to conform to norms and appear legitimate (Mizruchi & Galaskiewicz, 1993). Moreover, organizations may cope with poorly understood technologies, ambiguous goals and unclear cause-effect relationship by imitating others that they perceive as their competitors (Henisz, Holburn, & Zelner, 2005). According to the rationale of the ecological models (Hannan, Carroll, Dundon, & Torres, 1995), the addition of one more organization to a population will yield stronger competitive effects on neighboring organizations than on those further away (Oz, 2004). Also, Hannan and Freeman (1977) suggest that strategies and structures used by organizations of different sizes are not similar and that similarly sized

organizations compete most intensely (Oz, 2004). However, Baum and Haveman (1997) found that a combined perspective was operating in the Manhattan hotel industry; “hoteliers locate new hotels sufficiently close to established hotels that are similar on one product dimension (price) to benefit from agglomeration economies, but different on another product dimension (size), to avoid localized competition and create complementary differences” (p. 304). The reasons behind this logic of clustering were information externalities and the reduction of consumer search costs (Oz, 2004).

Scholars who study networks and interorganizational relationships can also shed some light on clustering. Though many of them prefer to talk about partnerships, strategic alliances, interorganizational relationships, coalitions, cooperative arrangements, or collaborative agreements and pay little attention to location; scholars (Fujita & Hill, 1999) that scrutinize “global Toyotaism” with “global Fordism” can be deemed exceptions (Oz, 2004). According to these scholars, as just-in-time supply system used by Japanese car makers necessitates quick delivery, global Toyotaism localizes more of the production process compared to global Fordism. However, the patterns of investment by Japanese automotive companies vary according to the location; in North America, as American car producers have internalized a very important part of the component production, Japanese car producers have had no choice but to ensure that new component companies are set up nearby to supply them. But in Europe, the case is totally different because the majority of the main European component producers are significant international players. Therefore, new Japanese assembly plants have benefited from the existing system.

In recent years, there have been suggestions that the network and interorganizational relationships literature should also adopt a more macro level approach, which may include location, clusters and regional development. Provan, Fish and Sydow (2007) reviewed the literature and focused on the study of interorganizational networks at the network level rather than at the organizational level of analysis. They emphasized the concept of network-level effectiveness that can promote economic development in a region, act as a catalyst for innovation, stimulate new product development, and foster networkwide learning. They concluded that “the more or less recursive interplay between whole networks and regional clusters, organizational fields, or complete societies should also be put on the agenda of network researchers” (p. 512).

There are some common themes recurring among network scholars, such as social interaction, relationships, connectedness, collaboration, collective action, trust, and cooperation (Provan et al., 2007). In particular, the study of local networks focuses on trust and identity; Biggiero (1999) examined industrial districts in Italy and argues that “the more people trust one another, the more they reinforce their sense of membership, and therefore the more they strengthen their group (network) identity. At the same time, the more they perceive themselves as a group (network), the more they trust one another” (p. 82). Also, geographic proximity reinforces this process (Oz, 2004). The transaction costs approach offers some insight in this regard. The transaction costs approach underlines the reduction of costs related to the coordination of goods and services among the firms in clusters. “The reduced costs are, according to the literature, the result of a market characterized by proximity between agents and firms, where the development of institutions, like confidence and trust, supports the coordination mechanisms” (Aage, 2010, p. 52). For instance, the

Californian school adopted a transaction cost based analysis of clusters. Storper (1999) sees agglomeration as the result of efforts to minimize transaction costs. The argument that vertical integration has transaction cost advantages over the market form is called into question by the cluster approach as clusters represent a form between markets and hierarchies, given that some disadvantages of the market form are diminished by geographic proximity. The cluster environment can prevent opportunistic behavior as cluster participants refrain from tarnishing their reputation in their social and economic exchanges (Oz, 2004). Visser (1999) posits that “spatial clustering promotes the development of networks by lowering transaction costs, in at least two ways: the high density of related economic activities facilitates the screening and selection of business partners on the basis of local information and established reputations” (p. 1555); and “proximity between agents facilitates monitoring of behavior and enforcement of contracts” (p. 1555). Porter, too, mentions transaction costs as he advances the idea of clusters of related industries. “Proximity of managerial and technical personnel, along with cultural similarity, tends to facilitate free and open information flow. Transaction costs are reduced” (Porter, 1990a, p. 103).

Management scholars have examined several aspects of clusters, and the organization of production is one them (Oz, 2004). Steinle and Schiele (2002) posit that “those industries with a divisible production process and a transportable product or service fulfill the necessary conditions for clustering” (p. 849). In the same vein, Saxenian (1994) stresses the importance of industrial organization in her study comparing Silicon Valley and Route 128; Silicon Valley’s resilience and success lie in the network-based industrial system, whereas Route 128’s stagnation and demise is caused by a few large vertically integrated corporations. Saxenian in particular

draws attention to the importance of local networks rather than the size of firms in a cluster. “Silicon Valley firms collaborated with one another in formal and informal ways, developing alliances, contracting for components and services, or simply sharing information (...) In contrast, Massachusetts firms were highly secretive and self-contained, and employees had fewer interfirm contacts. Boundaries among firms were blurred in California but sharply etched in Massachusetts” (Starr, 1995, p. 382). Saxenian recognizes that network-based systems may involve large as well as small firms, as Japanese experience suggests; Japanese producers of electronics and autos are embedded in extensive networks of small and medium-sized suppliers, they are linked to each other through ties of trust and partial ownership. She has also pointed to the coexistence of competition and collaboration in Silicon Valley since the region has long been dominated by individual achievement. In sum, this literature focuses on industrial organization rather than the type of organization that is most successful because it may vary according to particular places (Oz, 2004).

International business scholars have also contributed to the development of the cluster literature by focusing on FDI and MNEs. International business scholars analyze “the geographical concentration/dispersion of FDI conducted by multinational enterprises, which may strengthen the location advantages of the countries in which they operate through spillovers to local networks” (Oz, 2004, p.23). In fact, FDI, exports, licensing and so on are “different ways of utilizing superior, company specific assets such as technology, products, brands, or superior management skills. These assets may be the result of innovative activity in the home country” (Dachs & Ebersberger, 2006, p. 14). With the advantage given by these superior assets, MNEs can manage to enter foreign markets. When MNEs set up affiliates, produce and sell outside their home countries, some of their superior assets

spill over to domestic enterprises, which is deemed a major benefit for domestic enterprises. De Propriis and Driffield (2006) found that inward investment in the UK helped increase productivity in the domestic sector. However, these effects were limited to firms that were located in pre-existing clusters. It has to be mentioned that the use of FDI as a channel to promote new cluster formation is not always seen as a guaranteed way to obtain regional competitiveness or to obtain positive externalities; “FDI-generated clusters have often proven to be fragile and short-term: the MNE does not embed itself in the locality but simply relocates if economic conditions change; there is no or little technology transfer and, finally, if there are spin-offs from the MNE, these tend to be sub-contractors for whom the MNE is the only buyer. The outcome is a monopsonistic cluster (De Propriis, 2001; Markusen, 1996), whose survival depends on the MNE” (De Propriis & Driffield, 2006, p. 281). To reap the benefits of inward investment, there have to be location-specific factors that encourage the MNE to commit itself to a particular locality, such as local tacit or uncodified knowledge and information that cannot be disseminated outside the cluster and which constitute clusters’ intangible assets. “As the latter are immobile and embedded, they can then be a key factor in the attraction of FDI. Location-specific intangible and immobile factors prevent the easy replacement of such localities, and reduce the propensity of MNEs to be ‘footloose’” (De Propriis & Driffield, 2006, p. 281). One can think that clustered FDI may be a way to ease technology transfer and prevent monopsonistic clusters. Indeed, Thompson (2002) conducted a quantitative survey on Hong Kong garment firms with manufacturing investments in mainland China to examine the proposition that FDI within geographical industry clusters should transfer technology more than FDI that is geographically dispersed. The results indicated that clustered FDI is better at

transferring technology than dispersed FDI. Thompson searched for both horizontal and vertical spillovers. The results on vertical effects revealed that clustered FDI attract more suppliers than dispersed FDI. “Such suppliers seem to compete hard with one another for custom and upgrade their products and services as a result of clustered MNCs’ demands and through a process of close cooperation with such MNCs” (p. 886). As for the horizontal effects, clustered FDI facilitates technology and knowledge spillovers more than dispersed FDI, mainly by the agency of labour. “In clusters, MNCs seem to recruit, train and then lose to other parts of the economy previously relatively inexperienced personnel. They also seem more likely to train potential new entrepreneurs.” (p. 886).

As mentioned above, MNE affiliates may benefit from the knowledge stock of the host countries. This “strategic asset seeking” (Dunning & Narula, 1995) involves absorbing spill overs from universities and other research institutes as well as from clients and competitors in the host country (Dachs & Ebersberger, 2006). Also, a competitive local cluster provides multinationals with access to leading-edge ideas and specialist talent (Bartlett & Goshal, 1991). Head, Ries and Swenson (1995) found that foreign firms choose states with a high concentration of similar activities to establish their plants. Birkinshaw and Hood (2000) examined 229 foreign-owned subsidiaries in export-intensive leading-edge industry clusters in three countries and found that over time, they develop characteristics similar to those of the other firms in the cluster. By becoming “fully-fledged insiders”, these subsidiaries can benefit from the agglomeration economies. Moreover, the entire internal MNE network can benefit from the new knowledge acquired by the subsidiaries (Rugman & Verbeke, 2005) and thus contribute to the global diffusion of knowledge (Oz, 2004).

Oz (2004) mentioned Shaver and Flyer's (2000) study to draw attention to an overlooked aspect of agglomeration economies. They examined the location choice and survival of foreign greenfield investments in U.S. manufacturing industries in 1987. The results indicated that firms contribute to the externality in addition to benefiting from the externality. That is, if firms are heterogeneous, they will differ in the net benefits they receive from agglomeration. Shaver and Flyer posit that "firms with the best technologies, human capital, training programs, suppliers, or distributors will gain little, yet competitively suffer when their technologies, employees, and access to supporting industries spill over to competitors" (p. 1175). Therefore, these firms do not tend to geographically cluster, unlike the firms with the weakest technologies, human capital, training programs, suppliers, or distributors. The results show that large firms in particular are less likely to agglomerate compared to small firms, which may explain, according to the researchers, why many large-sample studies have not found a superior performance of agglomerating firms. Cantwell (2009) commented on this adverse selection argument that clusters may drive out the best firms. He states that "leaders derive their strength in part from their greater capacity to embed themselves in local networks (as opposed to building their knowledge in isolation from others), in which case it will tend to be leaders that crowd out laggards in effective local networks rather than the other way round. Thus, when speaking of firm heterogeneity it may be more critical to establish whether firms can be regarded as insiders or as outsiders within local networks" (p. 39). He posits that the differential ability to establish strong social connections is likely to be locally specific, and to vary a great deal between clusters. Therefore, the leaders, or in other words the key insiders in a region, vary from one local network to another. Moreover, the extent of institutional compatibility between the set of locations in

which MNEs are active plays an important role in gaining insider status. According to Cantwell, “acquiring the contacts and building up the degree of trust needed to effectively engage in local contexts takes time, and is more difficult the greater is the institutional distance between the host region and the headquarters location of the MNE” (p. 39).

A strand of the strategy literature has also examined how clusters affect innovation. For instance, Bergeron, Lallich and Le Bas (1998) have identified several techno-industrial clusters; among them, three underpin most of the French national system of innovation: chemicals, electronic and communication, transport and mechanical engineering. Baptista and Swann (1998) used regional employment as a measure of a cluster’s strength and found “a firm is more likely to innovate if located in a region where the presence of firms in its own industry is strong” (p. 538). However, following the methodology developed by Baptista and Swann (1998), Beaudry and Breschi (2003) found that clustering alone does not yield better innovative performance of manufacturing firms in the United Kingdom and Italy. More specifically, they found that “a firm is more likely to innovate if located in a region where the presence of innovative firms in its own industry is strong and where there is a large pool of potential spillovers associated with a large accumulated stock of knowledge” (p. 339). Moreover, strong disadvantages arise from the presence of non-innovative firms in a firm’s own industrial sector. Later, Baten, Spadavecchia, Strebz and Yin (2007) confirmed the findings of Beaudry and Breschi’s (2003) study for firms trading in the state of Baden (Germany) around 1900; they found a positive impact of knowledge spillovers from other innovative firms in the same industry and region. Another interesting study, mentioned by Oz (2004), is that by Beal and Gimeno (2001), revealing that technological knowledge spillovers matter little for

US software firms. In fact, marketing spillovers are more important as cluster firms have the advantage of finding markets and customers, as well as tailoring products for them. Therefore, nowadays, “the technologies are not geographically bound. The information that is more tacit or harder to codify, is market information – knowledge of industry trends, market niches and customer needs might be significantly easier to acquire when a firm is focused in a cluster” (Yu, 2002, p. 16).

2.3.6 Rise and demise of clusters

Clusters follow life cycles (Sölvell, 2009). In general, the emergence of a cluster in a particular location can be explained in one of two ways. First, some natural-factor advantage such as a particular climate, soil, ore deposit, forest resource, transportation route or port; or some particular demand or skill within the region (Porter, 1998a) may be the cause of the birth of a cluster. Second, historical accidents may spark the initiation process of a cluster; “that is, an entrepreneurial person in a particular location happened to start a business, which in due time led to increasing local demand, new firm formation, spin-off firms and so on, and ultimately to a cluster. Once the cluster reaches critical mass and starts to grow, there is often a strong cumulative process, or path dependence, that locks in the cluster” (Sölvell, 2009, p. 55). Once a lock-in effect takes place, even if the attractiveness of the site decreases due to exogenous circumstances, economic agents may refuse to move away and forgo the benefits of agglomeration (Oz, 2004). Additionally, the model of Feldman and Francis (2006) can provide some insight into the emergence of an entrepreneur who sparks cluster formation. According to them, there are three stages characterizing the formation of an entrepreneurial environment. In the first stage, the region is inert, there are few, if any, entrepreneurial companies; there may be

universities, government labs, and large companies, but there is no significant entrepreneurial activity. What makes the entrepreneurial activity shift from a latent to an active phase is an exogenous shock. For some regions, the exogenous shock may be corporate mergers and acquisitions or changes in capital gains tax rates. In fact, what is important is that these exogenous shocks make self-employment appear as a viable and attractive choice. In the second stage, namely, the formation of the cluster, entrepreneurs learn and adapt to new events and respond to changes in the policy environment. As each environment has its own characteristics, entrepreneurship reacts differently in each unique environment. “Networks of entrepreneurs, policy makers, and secondary industry contractors spring up; universities, colleges and technical centers recognize the need for high-tech personnel and offer training programs to satisfy that demand (Feldman & Francis, 2006, p. 118). In the final stage, namely, the maturation of the industry, the location has established a reputation as the place for a particular technology, such as the biotech cluster in Cambridge, Massachusetts.

Another question about the birth of a cluster is about the location of an agglomeration; why do some locations host the emergence of an agglomeration and others do not? The reason may be a pure accident, small initial differences or chance events that are partly shaped by the conditions prevailing in the business environment offered by a location (Oz, 2004).

Sölvell (2009) explains the growth of clusters using Porter’s diamond framework; therefore, in order for clusters to grow and prosper, many factors should exist, including demand sophistication, factor upgrading and specialization, emerging strategies of competition and cooperation, institutional conditions favoring innovation and change, political actions and so on. He maintains that, apart from the

emergence of new entrants and the addition of new strategies, cluster growth involves networking and emerging social capital. “Often, the more general social capital within a region must to expand with cluster-specific networks if the cluster is to grow. Often, different “families” or “clans” play a role within the region, where the social fabric is denser” (p.56). The diamond works as an engine of cluster growth and upgrading; all four elements interact and the cluster grows larger along with the formation of upstream and downstream linkages. Also, political setting matters in cluster growth; regulations and political actions such as antitrust, regional policies, industry policies, and science and innovation policies, including patents and intellectual property rights, contribute to cluster growth. Moreover, there should be an inflow of people with different skills, inward investments (in form of foreign direct investment (FDI) and venture capital (VC)), imports of materials, components and products, and new technologies. “Both people and firms must be attracted to the cluster. Conversely, the cluster must reach out to international markets (outward FDI, exports etc.). Dynamic clusters experience a circulation of ideas, skills and resources, including “brain” circulation” (p. 60). But, all clusters do not have the same life cycle; generally, mergers and acquisitions and sharply declining rates of entry of new firms cause clusters to enter a static phase. This phase is characterized by efficiency and important economies of scale. At this stage, clusters may follow two paths: the first one is characterized by technological shifts and /or anti-trust rulings and leads to the “renaissance” of the cluster due to the regained dynamism of the business climate as new entrants, new products, and new business models coexist; the second one leads to the demise of the cluster. Sölvell (2009) cited several factors that may cause the demise of a cluster and turn it into a “museum”: excessive concentration, heavy government involvement in form of saving and subsidizing companies, radical

technological shifts originating from other locations, radical shifts in demand at other locations, war and other extreme circumstances. Dei Ottati (1994) points to the destructive effects of price competitions on clusters. She argues that unless formal institutions intervene, the cluster may dissolve because of destructive forms of competition. Also, Amin and Robbins (1990) cite the globalization of economic activities in general and the impact of multinational enterprises in particular as causes of cluster dissolution. Finally, Porter (1998) draws attention to a situation that occurs in clusters which are locked into rules and routines of the past; this situation that Porter calls “groupthink” can be more damaging if it results in a tendency to exclude newcomers or outsiders (Oz, 2004).

Recently, clusters have drawn the attention of many national and regional governments. In Dubai, Saudi Arabia, Korea, China, and other parts of the Middle East and Asia, governments have been involved in cluster development, whereas in the Anglo-Saxon world governments have established at least direct cluster policy or program. However, in recent years, Europe has adopted a more direct approach to the planning and execution of cluster programs and initiatives. Sölvell (2009) referred to Furre’s study (2008) that reported that almost all EU nations had at least one cluster program in place. Even in the U.S., cluster programs have begun to emerge as part of local and regional economic development policies; Sölvell (2009) cited programs and initiatives in Texas, Maine and Connecticut, all of which have relied heavily on the works of Michael Porter. He observed that “while Professor Porter has been preaching the gospel of rivalry, investments in advanced and specialized factors of production, tough environmental standards and so on, many policymakers, eager to construct world class clusters, were projecting big cluster visions (particularly in new “hot” industries) and often emphasized cooperation over competition” (Sölvell, 2009,

p. 125). He posits that cluster success is a result of a combination of evolutionary and constructive forces; to achieve the constant reconstruction of clusters, he stresses the role of cluster initiative, which can be defined as “organised efforts to increase the growth and competitiveness of clusters within a region, involving cluster firms, government and/or the research community” (Sölvell, Lindqvist, & Ketels, 2003, p. 15). According to Sölvell (2009), “cluster initiatives help by creating a new type of policy process that involves local and regional public-private-academic constellations and encourage members to open up for dialogue and action across organizational and regulatory boundaries” (p.130). Figure 2 presents a summary of the principal approaches in the cluster literature.

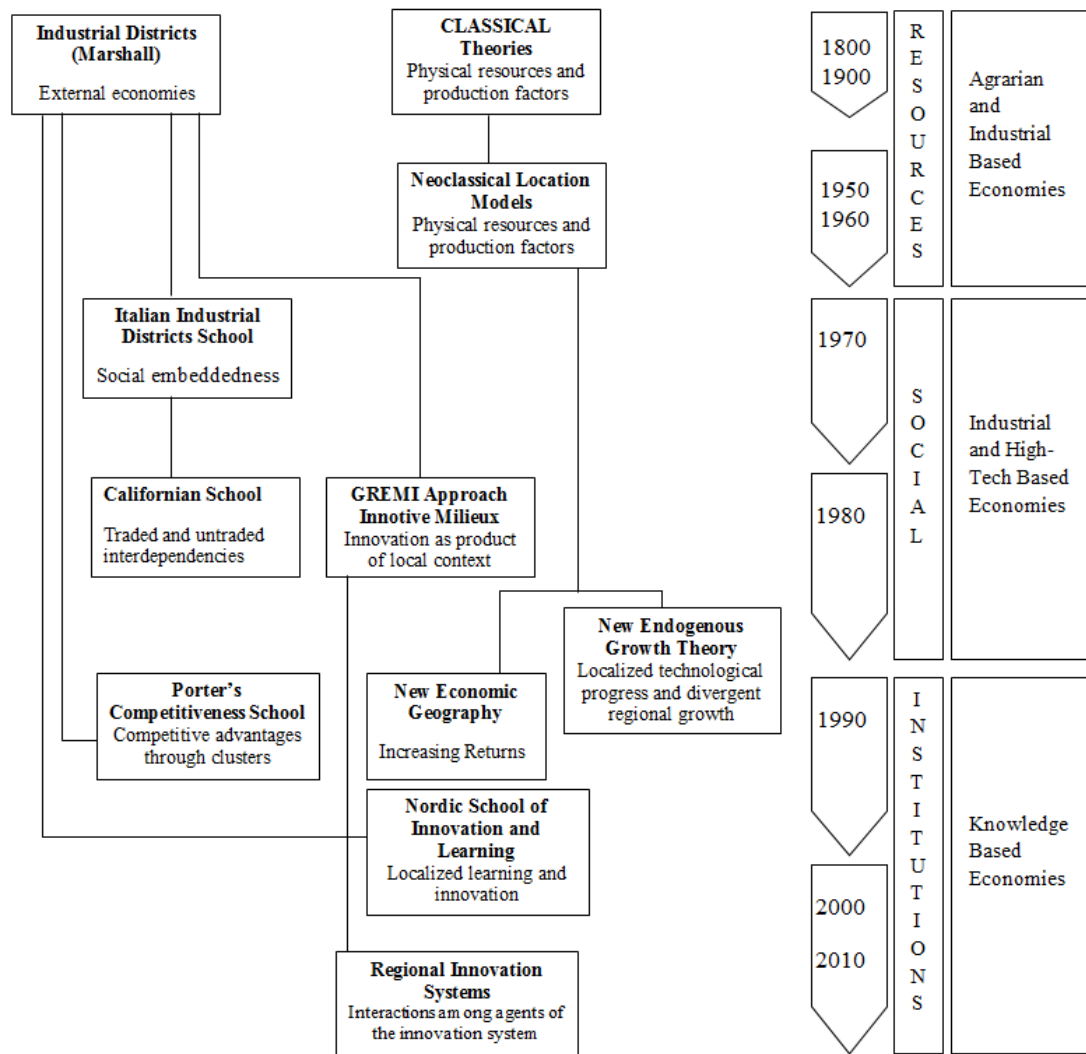


Figure 2 Principal approaches in the cluster literature and their connections
Adapted from: Cruz, S. S. C., & Teixeira, A. A. C, 2007: 6 and Saric, 2012: 21

2.4 Porterian clusters

In *The Competitive Advantage of Nations* (1990), Porter proposed a microeconomically based theory of national, state, and local competitiveness at the industrial level in the global economy. Clusters are the linchpin of his theory as they are a manifestation of the diamond framework; in fact, “clusters constitute one facet of the diamond (related and supporting industries), but they are best seen as a manifestation of the interactions among all four facets” (Porter, 2008, p. 229).

According to Porter (2008), “[c]lusters are geographic concentrations of

interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, trade associations) in a particular field that compete but also cooperate” (p. 213). He posits that “much of competitive advantage lies outside a given company or even outside its industry, residing instead in the *locations* of its business units” (p. 214). In addition, companies, governments, and other institutions should take on new roles to enhance competitiveness.

Boundaries of a cluster can range from a single city or a state to a country or even a network of neighboring countries. Porter (2008) identifies the constituent parts of a cluster as follows: first, large firm or concentration of like firms is taken into account and then upstream and downstream firms and institutions are looked for. Next, in the horizontal dimension, industries that pass through common channels or that produce complementary products and services are identified. Additional horizontal chains of industries are pinpointed according to the use of similar specialized inputs or technologies or with other supply-side linkages. Afterwards, institutions that provide the cluster with specialized skills, technology, information, capital, or infrastructure and any collective bodies covering cluster participants are taken into consideration. Finally, government or other regulatory bodies that significantly affects participants in the cluster are included. Porter asserts that drawing cluster boundaries is a matter of degree; the strength of the spillovers in the cluster and their importance to productivity and innovation should be reckoned to precisely determine the boundaries. In Porter’s words, “[c]luster boundaries should encompass all firms, industries, and institutions with strong linkages, whether vertical, horizontal, or institutional; those with weak or non-existent linkages can safely be left out” (2008, p. 218). As mentioned above, Porter emphasizes the effects

of clusters on competition. In fact, clusters affect competition in three ways: “first, by increasing the productivity of constituent firms or industries; second, by increasing their capacity for innovation and thus for productivity growth; and third, by stimulating new business formation that supports innovation and expands the cluster” (2008, p. 229). Moreover, personal relationships, face-to-face communication, and interaction among networks of individuals and institutions play an important role in all of these three influences of clusters on competition.

2.4.1 Linkages between clusters and productivity

Locating within a cluster can increase the productivity of the constituent firms in several ways. First, if competitive local suppliers are available, by “local” outsourcing, firms can tap into specialized inputs and employees that are superior or offer lower transaction costs, as compared to vertical integration, formal alliances with outside entities, or outsourcing from distant locations. By “local”, Porter refers to a firm with substantial investment within the cluster, including technical resources, even though the headquarters of the parent company is located elsewhere. In fact, by outsourcing locally, firms do not need to keep important levels of inventory as they avoid importing costs and delays. Moreover, local suppliers cannot display opportunistic behavior to overprice or renege on commitments as their reputation can quickly become tarnished. Also, local outsourcing “eases communication, reduces the cost of tailoring, and facilitates the joint provision of ancillary, or support services, such as installation, debugging, user training, troubleshooting, and timely repair” (Porter, 2008, p. 230). Porter posits that the breadth and depth of a cluster contributes more to competitive advantage than the size of individual firms or industries within the cluster. In clusters, suppliers can easily recognize market

opportunities and the existence of multiple customers means risk reduction for them. In addition, externalities and spillovers within clusters lead to greater depth of clusters.

Second, clusters provide the opportunity to have access to extensive market, technical, and other specialized information that is found in firms and local institutions. Consequently, firms within clusters have the chance to enhance productivity and get closer to the productivity frontier. What facilitates the flow of information among the constituent firms of clusters is trust, which is, in turn, the result of repeated personal relationships, supply and technological linkages, and community ties. Also, sophisticated buyers within clusters provide other cluster participants with valuable information about current buyer needs, which gives them a competitive advantage compared to other firms located outside the cluster.

Third, complementarities between the activities of cluster participants can help increase their productivity. If the performance of one part of the cluster is bad, other parts can suffer too. Therefore, participants are willing to establish an ongoing coordination to improve the overall quality or efficiency of the cluster. Another form of complementarity within clusters is joint marketing; co-locating related firms and industries can perform joint marketing activities, such as firm referrals, trade magazines, and marketing delegations. These activities enhance not only the reputation of the firms involved but also that of a location in a particular field.

Fourth, cluster participants can have access to institutions and public goods at a lower cost. Public or quasi-public goods at cluster locations are often “the product of private investments in training programs, infrastructure, quality centers, and so on” (Porter, 2008, p. 235). Cluster participants make these investments by means of

trade associations or other collective mechanisms in anticipation of collective benefits.

Fifth, the rivalry within clusters serves as an incentive for high productivity since the general circumstances are the same for all of the locally based competitors; they have to compete on other things in order to outdo each other and brag about their success. In the same vein, it is easier to measure the performance of in-house activities as other local firms perform similar functions.

Porter (2008) recognizes that clusters “can and do include foreign firms, but only when such firms make a permanent investment in achieving a significant local presence” (p. 236). He also suggests that sub-units within a single company can be co-located to rip the benefits of clusters, such as dynamism and innovation.

2.4.2 Linkages between clusters and innovation

Firms within a cluster have the opportunity to rapidly grasp new buyer trends as there are many firms with buyer knowledge and relationships, several firms in related industries, some specialized information-generating entities and sophisticated buyers. Cluster firms perceive, therefore, buyer trends faster than isolated competitors. Porter (2008) gives the example of Silicon Valley and Austin-based computer companies that “plug into customer needs and trends quickly and effectively with an ease impossible to match elsewhere” (p. 237).

Moreover, ongoing relationships with cluster entities, site visits, and frequent face-to-face contacts inform cluster participants on new technological, operating, or delivery possibilities. Cluster member firms have always the chance of directly observing other firms. The isolated firm, in contrast, has to incur higher costs and meet higher obstacles in acquiring information. In addition, it has to devote more

resources to generate such knowledge internally. In sum, clusters offer advantages in perceiving both the need and the opportunity for innovation, but most importantly they offer the flexibility and capacity to respond rapidly to these insights. It is easier for a firm within a cluster to rapidly source the new components, services, machinery, and other elements needed to implement innovations, whether a new product line, a new process, or a new logistical model. Also, local suppliers can actively take place in the innovation process, thus their supply will exactly meet the firm's requirements. In case of new approaches, firms can easily recruit new, specialized personnel within the cluster. Thus, "[t]he complementarities involved in innovating are more easily achieved among nearby participants" (Porter, 2008, p. 237).

Another advantage of being within a cluster is that firms can experiment at lower cost and can refrain from large commitments until they are confident that a new product, process or service will be successful. In contrast, "a firm relying on distant outsourcing faces greater challenges in contracting, securing delivery, obtaining associated technical and service support, and coordinating across complementary entities, and a firm relying on vertical integration faces inertia, difficult tradeoffs if the innovation erodes the value of in-house assets, and constraints if current products or processes must be maintained while new ones are developed" (Porter, 2008, pp. 237-238).

In addition to these advantages, the pressure to innovate is elevated in geographically concentrated clusters because competitive pressure, peer pressure and constant comparison are abundantly present. As the basic circumstances, such as labor and utility costs, are similar for firms within the cluster, they have to be creative in order to outwit their multiple rivals. Though individual firms in the cluster

cannot protect their position for long time, they progress faster than do those based at other locations.

Porter (2008) warns that sometimes cluster participation can retard innovation; when a uniform approach to competing is unanimously adopted, “a sort of groupthink often reinforces old behaviors, suppresses new ideas, and creates rigidities that prevent adoption of improvements” (p.238). Clusters also may reject truly radical innovation, “which tends to invalidate the existing pools of talents, information, suppliers, and infrastructure” (p. 238). These situations may render a firm oblivious to the need to change and cut off the relationships that no longer contribute to competitive advantage.

Porter asserts that clusters exhibit a combination of competition and cooperation. Firms compete to win customers and retain them, but they also cooperate mostly vertically, with related industries and with local institutions. Hence, firms within clusters compete and cooperate at the same time but on different dimensions and with different players; they cooperate in some dimensions to compete successfully in others. Porter positions clusters as an organizational form in the continuum between markets and hierarchies. Clusters outperform other forms by offering advantages in transactions costs and by improving many incentive programs; repeated interactions, open communication, and trust play an important role in the creation of these advantages.

2.4.3 Linkages between clusters and new business formation

Porter affirms that new businesses generally start up within existing cluster for several reasons. First of all, people working in clusters are better informed on the gaps in products, services, or suppliers. Consequently, they can start new firms to fill

the perceived gaps. Moreover, they can easily take action when they perceive an opportunity because barriers to entry are lower than elsewhere; assets, skills, staff and so on are already available at the cluster location. In addition, several potential local customers, established relationships, and the example of successful firms lower the risk perception for the local entrepreneur. In the same vein, entrepreneurs located outside a cluster are lured into the cluster by the same lower entry barriers and the opportunity to realize their ideas and skills at better conditions. Also, many firms based outside clusters often establish subsidiaries at clusters to benefit from productivity and innovation advantages. They usually position their entire business units to a cluster location or their cluster-based subsidiary becomes their regional or world headquarters for that particular line of business. Sometimes, large firms cannot act on an opportunity; they can face several impediments to innovating. Therefore, they permit spin-off companies to serve niche markets they cannot address economically or they establish close relationships with innovative small companies and acquire them if they succeed.

It has to be mentioned that the concentration of firms, suppliers, and institutions in a location does not always lead to the creation of economic value; it only designates the potential for economic value. Porter (2008) emphasizes that the social structure of clusters plays a major role in contributing to the value creation process. “The benefits of trust and organizational permeability, fostered through repeated interactions and sense of mutual dependence within a region or city, clearly grease the interactions within clusters that enhance productivity, spur innovation, and result in the creation of new businesses” (Porter, 2008, p. 242). Porter affirms that cluster theory bridges network theory and competition; he points to the important role played by trade associations in facilitating the formation of networks.

According to Porter (2008), clusters exist also in developing economies even though the depth and breadth of clusters is greater in developed economies. He claims that clusters in developing economies are different from those in advanced economies in their sociometrics. “Many take the form of hierarchical, hub-and-spoke networks surrounding a few large companies, government entities, or distributors” (p.247). Moreover, communication is limited; the relationships and linkages between existing companies and institutions are weak and stagnant. Porter emphasizes that the development of well-functioning clusters is a necessary condition to move into an advanced economy. He enumerates several facts that retard the development of clusters, such as low local education and skill levels, weaknesses in technology, lack of access to capital, and poorly developed institutions. Government policy restricting industrial location, subsidies artificially spreading out companies and protection from competition work against the healthy development of clusters. In addition, university and technical school curricula should be adapted to cluster needs, which also is a problem in many developing countries where these curricula are centrally dictated.

Porter affirms that low-cost local labor or natural resources exploited with imported technology are not sufficient to raise productivity and increase product value in the long run. In his opinion, a location can become more productive and innovative if a cluster builds up there over time. He considers cluster development to be a controlling factor in moving from a lower middle income to an advanced economy. Porter asserts that the geographic dispersion of clusters and the specialization of geographic regions by cluster seem to be greatest in advanced economies. In developing economies, economic activity tends to concentrate around large capital cities due to the lack of available suppliers, infrastructure and institutions in outlying areas or due to the presence of an intrusive central

government that wants to control competition. Porter favors a number of metropolitan areas, each specializing in an array of clusters instead of one or two huge, diversified cities. According to him, “[m]ost developing countries also suffer from the lack of multiple metropolitan areas that compete with one another” (2008, p. 252).

2.4.5 Cluster lifecycle

As for the birth of clusters, Porter (2008) traces the roots to parts of the diamond, present in a location due to historical circumstances. Factor conditions such as specialized skills, university research expertise, good location or good infrastructure can start a cluster. Or an unusual, sophisticated, or stringent local demand can set the stage for the birth of a cluster. Similarly, prior existence of supplier industries, related industries, or entire related clusters helps the formation of new clusters. A couple of innovative firms can also take on an important role in creating a new cluster by stimulating many others to grow. Finally, chance events may be decisive in the birth of a cluster, but according to Porter, it is never the sole explanation; chance must be considered in its locational context.

Cluster development depends also on the efficacy of the diamond’s arrows of feedback loops. Porter (2008) draws attention to three particular areas: “intensity of local competition, the location’s overall environment for new business formation, and the efficacy of formal and informal mechanisms for bringing cluster participants together” (p. 256). Obviously, Porter is in favor of healthy rivalry because he sees it as the essential driver of rapid improvement and entrepreneurship. The entrepreneurial climate plays an important role in cluster development as it involves the creation of new firms and institutions. Finally, relationships and linkages among

individuals and groups provide the underpinnings of cluster advantages; therefore, organizational and relationship-building mechanisms have to be established. Porter (2008) affirms that it takes clusters a decade or more to develop depth and gain competitive advantage, which explains the failure of governments in creating clusters. He also points to the intersection of multiple clusters; insights, skills, and technologies from different fields merge and create new businesses.

Though Porter found inbound FDI unhealthy for a nation's competitive advantage in *CAN*, he recognizes that "cluster development can be accelerated by attracting cluster participants from other states or nations" (2008, p. 257). He states that a growing cluster attracts in-bound foreign direct investment (FDI) in the form of manufacturing or service operations and supplier facilities. Developing clusters also lure in skilled people and entrepreneurs that reinforce the cluster; cluster participants contribute to this process by searching out people, technologies, and suppliers from elsewhere.

Over time, cluster participants market their products to global markets and internationalize less productive activities to lower costs and improve access to foreign markets. If the cause of this internationalization is the active pursuit of opportunities and not internal rigidities, the cluster becomes more competitive and productive.

Porter explains the decline of clusters again by the elements of the diamond. He classifies the causes of cluster atrophy into two broad categories: endogenous and exogenous causes. Endogenous sources of decline result from internal rigidities that decrease productivity and innovation. Barriers to local rivalry, such as mutual understandings and cartels, restrictive union rules, institutions unable to upgrade and change, and groupthink are some of the causes of cluster atrophy. According to

Porter, internal rigidities are mostly seen in locations where government is prone to suspend or intervene in competition. He accepts that globalization may be a partial cure for internal rigidities as long as local rivalry stays vigorous. However, this can be a temporary solution; eventually, competitive advantage will migrate to other locations.

As for the external causes of cluster decline, Porter points to technological discontinuities as they can neutralize many cluster advantages simultaneously. If local institutions can provide the necessary technology or rapidly develop it, competitive advantage will not shift to another location. Another external threat to cluster productivity and innovation is the divergence between local needs and needs elsewhere. Porter emphasizes that the threat posed by external developments is the result of local choices and policies. Again, it is possible for firms in clusters to source technology from other locations, move product development elsewhere and outsource components and equipment, but, in the long run, “a location that cannot built up a critical mass in a major new technology or in meeting a major new need will wane as a home base for innovative companies” (2008, p. 261). For Porter, the rate of innovation is the sole gauge of cluster health.

2.5 Criticisms directed at Porter-style clusters

There have been many empirical tests of Porter’s approach and criticisms directed at Porter-style clusters since the publication of *The Competitive Advantage of Nations* in 1990. A detailed review of the criticisms directed at the Diamond framework can be found in the section 2.2 of this thesis. Several studies conducted in Ireland showed that there were little association between sectoral clustering and industrial performance (O’Donnellan, 1994), limited evidence of Porterian clusters in Irish

industry and no clear association between such clusters and the growth of indigenous manufacturing (O'Malley & Van Egeraat, 2000). O'Donnellan (1994) examined the existence of Porter-type clustering in Ireland. He concluded that national linkages between clusters were not substantial and that the present spatial concentrations were not the result of sectoral linkages but of general urban economies. O'Malley and van Egeraat (2000) examined "the presence and role of industry clusters in Ireland and their relation to the growth performance of Irish indigenous industry" (p.56). They found "limited or qualified evidence of Porter-type clusters in Irish indigenous industry", and there was "no clear association between the occurrence of such clusters, or established strong sectors, and the growth performance of indigenous manufacturing" (p.55). They recognized the contribution of foreign-owned MNEs to the competitive advantage of Ireland. Hence, "Porter's acknowledgement that foreign multinationals can sometimes help to develop host-country indigenous industries, in certain (apparently exceptional) cases, may refer to a process that actually has quite broad implications in Irish circumstances" (p.76). Clancy, O'Malley, O'Connell and Van Egeraat (2001) studied the geographical location of dairies, popular music and software industries in Ireland. They did not find evidence of fully developed clusters of the same type and scale described by Porter in the Irish case. Moreover, in accordance with critics of Porter, they put forward that in small and open economies, some of the most important factors, such as influential customers, competitors or suppliers were located abroad. In addition, inward foreign direct investment represented a very large segment of Irish economic activity. Rouvinen and Yla-Anttila (1999) examined the "meso" clusters in Finland by following Porter's methodology; their statistical analysis relied heavily on export statistics. They defined clusters more broadly than Porter did; consequently they

included “international business activities as the third outside force of the diamond” (p.363). The study showed that a cluster can be based on a shared resource base, as exemplified in the forestry cluster; they argued that competitive advantage did not have to stem from national clusters: “There is no reason for a cluster to respect national borders and today the forest cluster may be seen as a Scandinavian rather than a Finnish phenomenon” (p.368). Porter’s model does not explain the success of small open economies such as Canada and New Zealand where favorable domestic demand conditions do not exist and rivalry between domestic companies may not be significant (Rugman, A. & D’Cruz, J., 1993; Cartwright, 1993).

Kaufman, Gittel, Merenda, Naumes and Wood (1994) applied the diamond framework and studied the importance of geographical concentration on industrial performance in New Hampshire (USA). They used export shares, productivity and wage levels to identify competitive industries. They carried out a historical analysis of New Hampshire’s four leading industries – fabricated metals, industrial machinery and equipment, electronic and electrical equipment, and instruments – along with a survey. They found that New Hampshire companies did not compete with one another, nor did they generally compete with firms in the region. The authors explained this finding by the fact that firms were operating in different market niches; therefore, they were not having direct competition. Another interesting finding was that nearly half of the respondents stated that proximity to customers was of little importance because the majority of primary products were sold to customers located in the rest of the country. Despite the geographical dispersion of competitors, suppliers were geographically concentrated. In sum, the survey results proved that several of Porter’s conclusions did not hold for New Hampshire economy. The authors acknowledged the usefulness of Porter’s model to analyze regional economic

activity, but showed that New Hampshire economy differed in some very important ways from the predictions of the model.

Martin and Sunley (2003) criticize Porter about the vagueness of his definition of clusters: “although the definitional and conceptual elasticity of the cluster concept can be seen as a positive strength, in that it permits a wide range of cases and interpretations to be included, we consider it to be problematic” (p. 9).

Asheim et al. (2006) also attack Porter’s definition of clusters:

In Porter’s definition, the concept of the cluster is here elasticated into meaningless (...) Even were one to allow that ‘a network of neighboring countries’ expresses a possible geopolitical or georegional entity of sorts, the terminology merely betrays the crudest kind of geographical determinism For why should the propinquity of shared borders denote either networking or, indeed, clustering ? (p. 12)

Moreover, though Porter deems clusters market-driven with reliance on rivalry and competitive advantage, some new cluster forms, such as biotechnology, are science-driven, not primarily market-driven. They claim that most firms in biotechnology clusters do not even make profits, but continue to exist thanks to a new business model in which pharmaceutical firms and research councils co-invest in ideas (Asheim et al., 2006).

Martin and Sunley (2003) question Porter’s method to define cluster boundaries by examining the strength of spillovers and their importance to productivity and innovation; Porter (1998a) claimed that “cluster boundaries should encompass all firms, industries and institutions with strong linkages”, whereas “those with weak and non-existent linkages can safely be left out” (p. 202). Martin and Sunley (2003) inquire about the measures used to define the ‘strength’ of different sorts of linkages and spillovers and asked where the cut-off between ‘strong’ and ‘weak’ ties fell. “The existence of clusters, appears then, in part at least, to be in the

eye of the beholder – or should we say, creator” (p. 11). In addition, they attack Porter on the lack of any precise definition of geographical proximity: “it appears to be highly and ridiculously elastic, for he suggests in fact that clusters can be found at almost any level of spatial aggregation” (p. 11). Asheim et al. (2006) call into question Porter’s methodology; they accuse him of adopting an “operational definition of what counts as *clustering*, using secondary data that show high employment location quotients for specific sectors and sub-sectors” (p.13). They draw attention to the fact that Porter’s diagrams of cluster circuitry are not based on firm interviews. They claim that location quotient data and other aggregate measures of geographical localization and inferred inter-industry linkages can only show the presence of a higher than average specific industrial agglomeration in some location.

Martin and Sunley (2003) also point out that Porter uses the terms ‘competitive advantage’, ‘competition’, and ‘productivity’ interchangeably. They refer to a paper presented by Porter in 2002, wherein he equates regional competitiveness with regional productivity. They argue that equating competitiveness with productivity is to invite tautology and ontological confusion: “is a region more competitive because it is more productive, or is it more productive because it is more competitive?” (p. 15). As for the social dimensions of cluster formation and cluster dynamics, they describe them as a black box in Porter’s work; they argue that even in his case study examples, there is little explicit empirical investigation of social and knowledge networks, which are simply inferred from the presence of particular formal and informal institutions within a cluster. In the same vein, Asheim et al. (2006) contend that Porter’s cluster theory does not explain how spatial proximity actually enhances firm competitive performance or how local knowledge spillovers occur. Porter (1998a) claims that “[t]he presence of clusters

suggests that much of competitive advantage lies outside a given company or even outside its industry, residing instead in the locations of its business units” (p. 198). Martin and Sunley (2003) warn that “cluster policy may sponsor an exaggerated view of the extent to which firm performance is determined by local context” (p. 26); they emphasize that management quality, culture and practices are as important as the competitive advantage of its location. Asheim et al. (2006) examined several implementations of cluster policies. They state that the benefits of cluster policies to the firm that is located within the cluster in question are unclear. However, they mention two cases, involving biotechnology cluster, in support of the thesis that cluster policy may have negligible effects on firm performance, namely, Scotland and the Basque country. In both cases, the outcome was slow firm growth and drastic policy reviews and changes of direction.

Cluster policies in Scandinavia brought up four problematic issues:

- A lack of critical mass. How is it possible to sustain growth in a potential cluster?
- The cluster’s focus is primarily local. How can it be integrated into national and international networks?
- How can a new organization be structured to maintain the benefits of vertical co-ordination and co-operation, yet avoid becoming bureaucratic?
- How can the many initiatives be effectively co-ordinated, and diverse interests appropriately balanced? (Asheim et al., 2006, p.22)

Martin and Sunley (2003) point also at several policy problems. Rapid growth in a cluster can cause disadvantages for other aspects of the local economy, such as high land, wage, and housing costs, and pressure on local transport and public infrastructures. Hence, there may be disagreements between local planners and firms. Moreover, there may be problems of social inequality between different groups of workers, even in successful clusters; some members of the local force may not benefit equally from a cluster’s growth, and sometimes “working conditions for

many of those employed in the lead cluster firms may not be that favourable” (Asheim et al., 2006, p. 22).

Simmie (2006) questions whether clustering is a cause or an effect of competitiveness. He stresses that innovation, and not clustering, leads to competitiveness and exports; firms that create new products or processes that are new to markets obtain first-mover advantage and temporary monopoly profits. This is an important incentive to innovate. Therefore, Simmie argues that “competitive localities would be more successful if they encouraged local systems of innovation rather than clusters” (p. 165). As the key dynamic within clusters is intersectoral linkages between different sectors, institutions and actors, he scrutinizes intersectoral linkages in UK by examining the results of input/output analysis, he concludes that “the mere existence of interlinkages within clusters does not always lead to competitive performance by those clusters” (p. 170); on the contrary, he identifies competitive industries that are not associated with clusters. There can be clusters in some fully functioning systems but, according to Simmie, they can be regarded as an effect of successful innovation rather than as a cause. Hence, Simmie (2006) claims that Porter’s early cluster theory is an extension of traditional agglomeration theory. He states that innovation is concentrated in a limited number of city regions. Moreover, “innovation is an internationally distributed phenomenon with international linkages between different ‘hot’ city regions, which suggests that international connections may be at least as significant as local clustering dynamics” (p. 176). Simmie thinks that Porter’s cluster theory offers “no analytical criteria for establishing the geography of clusters or an explanation of why some clusters grow and are successful while others decline and are not competitive” (p. 165). He also

points out that in Porter's theory, trading clusters are by definition competitive, he posits that functioning innovation systems drive this success not clustering dynamics.

Gertler and Wolfe (2006) studied cluster development in Canada, they examined a range of economic sectors and different types of geographical areas. They focused on the role of local and non-local actors, relationships and forces in the development of more innovative forms of production. In contrast to Porter's diamond, their findings indicate that "in many successful clusters, the markets served are continental or international, that local customers constitute a relatively small proportion of the firms' total market, and that firms' most sophisticated and demanding markets are not local" (p. 228). They criticize the knowledge-based conception of the cluster that takes the key aspects of the Porter diamond and they posit that "relatively few clusters are completely self-sufficient in terms of the knowledge base from which they draw" (p. 222). By referring to Bathelt et al. (2004), they state that knowledge flows that feed innovation in a cluster are mostly both local and global. They also mention the study of Laestadius (1998) and draw attention to the distinction between analytical and synthetic knowledge bases. A synthetic knowledge base exists in industrial settings where innovation occurs mainly through the application or novel combinations of existing knowledge. Innovation results from the need to solve specific problems arising in interaction with suppliers and clients. Generally, the industry examples are seen in these sectors within advanced industrial engineering, such as the development of specialized machinery. In these sectors, development is more important than research and knowledge created inductively rather than deductively at the end of a process of testing, experimenting and simulation. Though the knowledge present in the technical solutions are partly codified, tacit knowledge is more important, because

“shop floor or office experience, on-the-job training, and learning by doing, using, and interacting are crucial to knowledge generation. Much of this knowledge resides in concrete know-how, craft, and practical skill” (p. 225). As for the analytical knowledge base, it is dominant in those industries where scientific knowledge is highly important and where knowledge is created according to formal models, codified science, and rational processes. Biotechnology and the ICT (information, communication, and technology) sectors are the prominent examples of such industries. Here, new products and processes are generated by systematically organized research and development that take place both inside the individual firm and in collaboration with universities and other research organizations. Therefore, knowledge inputs and outputs in this type of knowledge base are rather codified than tacit. Mostly, knowledge outputs appear as new products and processes, which take the form of radical rather than incremental innovations.

Gertler and Wolfe (2006) find this distinction of binary knowledge base too simple to capture the complex geography of knowledge flows and suggest a knowledge-based typology of clusters. Their typology organizes cases along to key dimensions: knowledge dynamics and the geography of knowledge flows. To the two original categories of knowledge base, namely, analytical and synthetic, they add a third hybrid to represent those industries that draw from both synthetic and analytical knowledge bases. Similarly, the categories for the geography of knowledge flows include three situations: strong global sources, strong local sources, and global and local sources. They claim that these results “certainly demonstrate the limits to claims by Porter and others concerning the predominance of local knowledge flows” (p. 231).

2.6 Cluster definition

In this thesis, Rocha and Sternberg's (2005) definition of clusters, which is based on Porter's definition (1998), is adopted: "a geographically proximate group of firms and associated institutions in related industries, linked by economic and social interdependencies" (Rocha, 2005, p. 270). In fact, the previously discussed schools of thought lead to three key elements of clusters: (1) geographic proximity, (2) industry interrelatedness, and (3) cluster links (Saric, 2012).

Geographic proximity is a key dimension of clusters by which one can define the location of labor pools, formal and informal communication links and transaction-intensive relationships between suppliers, customers, and associated institutions as well as inter-firm networks. Moreover, when located near each other, cluster agents share a similar cultural background that facilitates the development of trust (Saric, 2012). Different measures have been used to identify clusters, such as distance-based measures, zip codes, metropolitan statistical areas (MSAs), standard regions, and states (Saric, 2012). All of these measures have their advantages and disadvantages (see Table 1).

Table 1. Advantages and Disadvantages of Cluster Boundary Measures

Conceptual Boundary	Advantages	Disadvantages
<i>Distance-based measures</i>	• Data gathering • Encompass a common sphere of life • Account for cluster benefits • Identification of industry clusters • Theoretical considerations	• Data availability • Arbitrarily drawn boundaries • Difficult to identify resource-based clusters
<i>Zip Codes</i>	• Encompass a common sphere of life • Account for cluster benefits	• Data availability • Arbitrary politically drawn cluster boundaries • Unable to identify boundary crossing clusters
<i>MSAs</i>	• Data availability • Encompass a common sphere of life • Account for cluster benefits	• Arbitrary politically drawn cluster boundaries • Unable to identify boundary crossing clusters
<i>States and standard regions</i>	• Data availability	• Too large to account for cluster benefits • Assumption of state/region-wide clusters • Arbitrary politically drawn cluster boundaries

Adapted from Saric, 2012: 45

To overcome these shortcomings of quantitative measures, qualitative measures must also be used in order to examine the links that firms and institutions form among each other. The Institute for Strategy and Competitiveness at Harvard Business School offers a cluster identification methodology, introduced by Cluster Mapping Project, which employs qualitative and quantitative techniques to analyze the economic activity in the USA over time with a focus on industrial clusters. Information on employment, firm plants, and wages by four-digit Standard Industry Classification (SIC) codes drawn from the annual County Business Patterns database are included in the methodology. Also, patent data is analyzed across regions to discover the collocation behavior of industries. This approach makes use of analytical techniques, such as location quotients (LQ) and input-output data to identify geographically concentrated industries. The LQ approach is based on regional and national employment (or firm plant) data to examine industry concentration in a particular region; an $LQ > 1$ indicates higher than average concentration in that location. As for the input-output analysis, it discovers transactional patterns in the buying and selling behavior of related industries. Afterwards, quantitative and qualitative techniques are used together to assess the degree of interrelatedness between industries concerning particular externalities. First, subjective industry knowledge and focused case studies are used to determine the degree of common externalities among the identified industries. Then, if there are no apparent links, the analysis of input-output data serves to identify the degree of vertical relatedness. Finally, if neither the qualitative nor the quantitative techniques reveal a meaningful degree of relatedness, links are dropped from the analysis (Saric, 2012).

As for industry interrelatedness, it differentiates clusters from pure agglomerations. In fact, firms in pure agglomerations are geographically concentrated but they are neither related nor do they have any links with each other. In clusters, firms develop a common culture and form links among each other when they experience same problems and challenges. Employees from different firms share the same language and mental models, which, in turn, facilitates spillovers and learning from each other by monitoring or observation and leads to the success of every cluster participant (Saric, 2012). The California wine cluster and the Italian leather fashion cluster are the examples of economic success depending on a multitude of firms and institutions from related industries (Porter, 1998b).

As mentioned above, firms from related industries develop links among each other over time, which can take the form of formal, informal, vertical, and horizontal relationships (see Table 2). Formal relationships occur as direct input-output links between buyers and suppliers, similar to the links found in supply chains. They represent the vertical dimension of a cluster. Firms in vertical links tend to have a high degree of relatedness because they have similar transaction patterns. As they specialize on different products, they depend on distinctive resources and benefit from the different knowledge stocks of other cluster members by engaging in vertical learning process (Maskell, 2001). On the horizontal dimension, firms depend on similar resources and target similar product markets. Hence, competitors engage in formal cooperation such as strategic networks in order to improve their competitive positions (Saric, 2012). Strategic networks are “composed of interorganizational ties that are enduring, are of strategic significance for firms entering them, and include strategic alliances, joint ventures long-term buyer-supplier relationships, and a host of similar ties” (Gulati, Nohria, & Zaheer, 2000, p. 203).

Informal relationships point to relations that are socially embedded in a cluster. They range from casual encounters of individuals from different firms and institutions occurring at bars, sports and cultural facilities to trade shows. Inter-firm mobility of employees contributes to the formation of informal networks as they continue to meet at trade shows, industry conferences, and similar conventions (Saric, 2012).

Table 2. Links in Clusters

<i>Formal</i>	• Input-output transactions • Supply chains	• Cooperative networks • Strategic alliances • Joint ventures
	• Social networks • Inter-firm mobility of employees • Industry events	• Technical meetings • Interpersonal communication
<i>Vertical</i>		<i>Horizontal</i>

Source: Saric, 2012: 48

2.7 Clusters and firm performance

The previously mentioned schools of thought claim that firms in clusters should perform better than isolated firms. There are several studies that examine the effects of cluster on firm performance and, subsequently, competitive advantage. However, the definitions and levels of observation used in these studies differ significantly. Saric (2012) reviewed these studies and classified them into two categories: studies that investigate the effects of pure agglomerations on firm performance and studies that investigate the effects of clusters on firm performance.

2.7.1 Pure agglomerations and firm performance

As mentioned before, Shaver and Flyer (2000) found that FDI firms tend to fail in states with a higher degree of own industry agglomeration. The results point to the fact that large firms are less likely to agglomerate compared to small firms, which may explain, according to the researchers, why many large-sample studies have not found a superior performance in agglomerating firms.

Stuart and Sorenson (2003) try to explain how geographic proximity to experts in biotechnology, incumbent biotechnology firms, and venture capitalists influence founding rates and the performance of start-ups in the USA between 1978 and 1995. They measure geographic proximity by distance-weighted measures of the local concentration of the three factors relative to the focal firm. Agglomerations are assessed according to the geographical distribution of biotechnology firms and firm performance is measured as the time between the founding of a startup and its initial public offering (IPO). The results show that proximity to experts, venture capitalists, and other biotechnology firms significantly and positively increases founding rates. However, proximity to many competitors and venture capital firms decreases firm performance, while proximity to biotechnology experts increases it. Proximity to firms enhances the intensity of local competition. They maintain that “with the size of the technical labor force held constant, high firm concentration implies greater demand (and higher prices) for specialized labor with an adverse impact on focal firm performance” (p. 246). Also, with a certain degree of strategic and structural convergence among firms and increasing personnel flows between firms, companies experience intense competition in factor and product markets. As for the negative effect of proximity to venture capitalist firms, the authors explain it by high availability of funding for an organization’s nearby, privately-held competitors. In

addition, the attractiveness of the opportunities for a firm's key managers and technologists encourage them to leave their current employers to start a new company. Finally, "local competition has the severest consequences for poorly financed startups" (p. 251), as financially strong firms are able to lure the top talent away from nearby competitors.

Folta, Cooper and Baik (2006), utilizing data on biotechnology firms (1973-1998), find an inverse U-shaped relationship between agglomeration size and firm performance; that is, when agglomerations get too large, firm performance tends to decrease. They measure geographic proximity by metropolitan statistical area (MSA) counts of firms and firm performance by patenting, firm alliances, and private equity findings. The results of the study seem to corroborate the findings of Shaver and Flyer's (2000) article that claims the best firms in clusters are more likely to suffer from technological spillovers, and hence, have reduced performance. However, Folta et al.'s finding that cluster size enhances firms' performance (rate of patenting, rate of alliance partnering, and rate of private equity partnering) is not similar to that explanation. They conclude that "firms in larger clusters have different performance thresholds than firms in smaller clusters. That is, for a given level of performance, entrepreneurs in larger clusters require a higher level of performance to stay in business (i.e., they are more willing to abandon the firm), perhaps because they have greater access to alternative business opportunities in larger clusters" (p. 218).

Drawing from the knowledge-based view, McCann and Folta (2011) examine which firms are most likely to profit from agglomeration economies. They use a sample of United States biotechnology firms and examine the impact of agglomerating on these firms' patenting performance during the period of 1973–1998. They find a relationship between agglomeration and firm performance.

Specifically, they find that “both larger cluster size and larger cluster knowledge stocks are associated with increased probability of patenting” (p. 105). The results also show that firms do not benefit equally from agglomeration. Firms with higher knowledge stocks, as reflected by their stock of prior patents, and younger firms benefit more from agglomeration. The first finding can be explained by the absorptive capacity argument (Cohen & Levinthal, 1990); firms with larger knowledge stocks benefit more from knowledge spillovers present in such clusters. Note that these results can be contrasted with the adverse selection argument of Shaver and Flyer’s article (2000). The second finding can be explained by “young firms’ greater need to rely on outside knowledge sources given their limited internal resources” (McCann & Folta, 2011, p. 121). These findings seem to corroborate Stuart and Sorenson’s (2003) findings by suggesting that superior and resource-dependent firms profit the most from agglomeration externalities (Saric, 2012). Appendix A summarizes the aforementioned studies.

2.7.2 Clusters of related industries and firm performance

The studies in the previous section shed light on the agglomeration phenomenon, but their results cannot be used directly for cluster studies. In the last decade, there have been a few studies that investigate the effect of clusters on firm performance (see Appendix B).

Gilbert, McDougall and Audretsch (2008) investigate whether technological spillovers explain the performance of new ventures in cluster regions. They define knowledge spillovers as “the direct or indirect transfer of knowledge from one party to another” (p. 405) and use patenting activity to determine knowledge spillovers. They examine the citation number of a given patent by other patents. Therefore, a

high citation number indicates that there are strong spillovers from one patent to another. Using sales growth and the number of new products that have been introduced between 1990 and 2000 as performance indicators, the authors find that “ventures located within geographic clusters absorb more knowledge from the local environment and have higher growth and innovation performance, but contrary to conventional wisdom, technological spillovers are not the contributing cause of higher performance observed for these firms” (p. 405). They explain that technological knowledge spillovers play a secondary role to other factors which help cluster new ventures succeed under competitive conditions. They propose that these firms may be able to innovate more because of their superior internal development capacities. Also, the market knowledge incorporated from the cluster location can be the determining cause for new ventures’ sales growth rather than the technical knowledge spillover. As mentioned above, “the information that is more tacit or harder to codify, is market information – knowledge of industry trends, market niches and customer needs might be significantly easier to acquire when a firm is focused in a cluster” (Yu, 2002, p. 16). Notably, the results of this study are congruent with the findings of Shaver and Flyer’s (2000) study: new ventures confronted with high uncertainty can be thought as “weaker” firms that improve their innovation performance by being located in an industry cluster. However, they measure technological spillovers by using patenting activity, for which reason they cannot examine other mechanisms such as formal and informal communication channels, inter-firm mobility of employees and cooperative mechanisms. Furthermore, the researchers cannot investigate how external knowledge is incorporated into a firm’s knowledge stock and used to produce a patent. Inventors

may get hints when communicating with others in conferences or conventions; they may not cite conference speakers in their patent applications (Saric, 2012).

Kukalis (2010) investigates whether locating in an industry cluster affects a firm's financial performance. After reviewing the literature on clusters, he concludes that cluster firms should have better financial performance compared to isolated firms. However, he could not find studies in the literature that have specifically explored such a relationship. And the few empirical studies that investigated the influence of spatial proximity on some aspects of organizational performance have yielded equivocal results. Therefore, he examined the relationship between agglomeration economies and financial performance by using thirty-one years (1976-2006) of performance data for 194 firms from the semiconductor and pharmaceutical industries. These firms are the largest 100 US-headquartered semiconductor and pharmaceutical firms. Kukalis uses quantitative and qualitative methodologies to identify clusters. The quantitative methodology he used is similar to that used by Gilbert et al. (2008). He also conducts telephone interviews with 15 industry experts of firms and industry associations within each of the two industries. Then, if a firm's primary R&D facility is physically located within the boundaries of one of the previously identified clusters, this firm is accepted as belonging to this cluster. Firm performance is measured in terms of return on assets (ROA) and return on sales (ROS). The study first examines whether firms that cluster systematically perform better or worse. Afterwards, Kukalis scrutinizes "whether geographical clustering is better for certain firms in the context of the industry life cycle (early clustered movers vs. early nonclustered movers, and nonclustered laggards vs. clustered laggards) or at certain times in relation to the industry life cycle stage and the economic cycle (at times when markets contract)" (p. 474). The results indicate that

there are no significant differences between clustered and nonclustered firms in the early stages of the industry life cycle. However, isolated laggards outperform clustered laggards in the late stages of the industry life cycle. Similarly, Kukalis finds no significant differences in financial performance between the groups during periods of economic contraction at an early stage of the industry life cycle, but isolated firms outperform clustered firms in the late stages of the industry life cycle.

Wennberg and Lindqvist (2010) draw attention to the rarity of studies that have systematically investigated the effect of clusters on the performance of new entrepreneurial firms, and at the inconsistency of the results of the existing research concerning whether new firms are positively affected, not affected, or even negatively affected by locating in a cluster. Therefore, they study the effect of clusters on the survival and performance of newly founded firms. They suggest that “one reason for the inconsistent results of these studies is the variation in methodologies applied” (p. 225). They posit that previous studies have applied different levels of industry aggregation and that “none of the empirical studies of cluster effects on new firms has aggregated multiple groups of related industries, despite the strong theoretical claims that firms in a cluster benefit from the competition and cooperation in geographic concentrations of firms in related industries” (p.227). They adopt Porter’s (1998a) definition of a cluster as a “geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities” (p. 199). They define aggregate groups of related industries forming cluster categories that are wider than the industry level, but narrower than the broad sector level. They use the same method as Gilbert et al. (2008) and Kukalis (2010), and their sample comprises all Swedish firms that were started between 1993 and 2002 in knowledge

intensive industries such as telecom and consumer electronics, financial services, information technology (IT), medical equipment, and biopharmacy. They measure the influence of clusters on firm performance in terms of survival, tax payments, job creation and wages paid per employee. The results of the study indicate that new firms located in clusters with a high concentration of own-employment (in same industry and related industries) have better chances of survival, higher employment, higher tax payments, and higher salary payments. Therefore, the findings of this study corroborate previous findings indicating that clusters offer economic benefits not only for firms in general, but also for newly started entrepreneurial firms in particular. They also contradict earlier findings of agglomeration studies drawing attention at the harmful effects of own industry concentrations on firm performance. Hence, one can presume that the existence of related industries in clusters creates the differences in the performance of new firms when compared with the similarity of firms in own industry agglomerations (Saric, 2012).

Drawing upon the resource-based view, Li and Geng (2012) examine the relationships between various types of cluster-based shared resources and cluster firm performance in China. They measure shared resources in six categories: common reputation, intensity of exchange and combination of resources, mutual trust between firms, network of collective learning and knowledge-sharing, dense atmosphere of co-petition, and participation and support of the local institutions. Survey results from 294 small- and medium-sized enterprises from industrial clusters in the Zhejiang province indicate that cluster firms have higher perceptions of shared resources compared to non-cluster firms and that shared resources help cluster firms have better performance. Again, these results are congruent with the findings of research that draw attention to the performance advantages of cluster firms compared

to non-cluster firms. Li and Geng use ZIP codes to identify the boundary of a cluster. Additionally, they have three criteria to define a collection of firms in a specific location as a cluster: (1) whether the percentage of manufacturing employees in the area is higher than national average, (2) whether the area specializes in a specific manufacturing sector and (3) whether the number of manufacturing firms and associated businesses exceeds 50. As for the control variables used in this study, they find a strong positive link between performance and firm size and age; they explain this result by the uniqueness of the Chinese business context. The concept of *guanxi*, originating from Confucianism which praises a hierarchy of interpersonal relationships with an emphasis on implicit mutual obligations, reciprocity, and trust, has become the lifeblood of social interactions and business conduct in Chinese society (Luo, Huang, & Wang, 2011). Guanxi building, which is very common in Chinese social life, is also present in clustering activity and those entrepreneurs that can transform functional *guanxi* into familial *guanxi* appear to have a competitive advantage over their rivals. Therefore, as *guanxi*-building is a time-consuming activity, the longer a firm exists, “the more likely it will build a web of extended family ties, the more social network resources it can possess and utilise, thus the better performance” (Li & Geng, 2012, p. 375). Furthermore, the Chinese business model is based on low-cost manufacturing; firms compete on production volume rather than product innovativeness. Therefore, larger firms operating with economies of scale have better performance. Additionally, “due to the insignificance of non-equity capital in cluster firms, firm size implies the availability of more financial resources in support of business expansion, thereby contributing to a better performance” (p. 375).

As for studies that investigate firm characteristics, other than firm size and firm age, which yield different performance levels, there are only a few (see Appendix B). Boschma and Ter Wal (2007) posit that the traditional view on districts tends to overemphasize the role of geographical proximity in the transfer of knowledge between firms. According to them, the traditional district literature neglects “the importance of knowledge creation within the firm, while it overestimates (local) external relations as key sources of knowledge” (p. 178). Firms are seen as homogeneous entities in their knowledge and competence bases; however, firms widely differ in terms of absorptive capacity and economic power. Boschma and Ter Wal do a case study of 33 firms in the Barletta footwear district in the South of Italy. Based on social network analysis, the results of the study demonstrate that the local knowledge network is quite weak and unevenly distributed among the local firms. The innovative performance of the footwear firms is measured by three indicators: product innovations, process innovations, and share of innovative sales in last year’s turnover. A strong local network position of a firm tends to increase its innovative performance, along with its connectivity to extra-local firms, but only being co-located is not enough. Contrary to the expectations of the researchers, the findings indicate that the absorptive capacity of firms does not influence their position in the local knowledge network. The authors conclude that a combination of geographical and cognitive proximity between firms does not automatically result in important local knowledge relationships. There was, also, no direct impact of absorptive capacity on innovation. However, according to the results, firms with high absorptive capacity are more connected non-locally. According to Boschma and Ter Wal (2007), “as firms with non-local knowledge relationships also tended to perform better, it might suggest that absorptive capacity

impacts only indirectly, through non-local relationships, on the innovative performance of firms” (p. 197).

Zhang and Li (2008) examine how managerial ties and firm resources affect the performance of the firms located within one geographically concentrated cluster. Using data from 163 firms in two Chinese clusters, they find that managerial ties and firm resources—independently and in combination—contribute to the market performance of the firms within the clusters. Drawing from an institutional perspective, the authors postulate that firms in institutionally less developed countries rely more on the network-centered strategy in order to cope with environmental uncertainties. Therefore, external personal ties have to be cultivated in China. Firm executives’ personal efforts contribute directly to the accomplishment of some activities such as obtaining market information, interpreting regulations, and enforcing contracts, which are undertaken by the market in developed economies. “The managerial ties may serve as substitutes of formal institutions, playing an important role in accessing the critical external resources and overcoming the institutional, technological, and behavioral uncertainties” (Zhang & Li, 2008, p. 616). Hence, the network-centered strategy is supposed to be one of the driving forces for the growth of cluster firms. Zhang and Li (2008) define the term managerial ties as executives’ interpersonal contacts with external entities. Executives develop business ties and support ties. While business ties comprise ties with executives at other firms, such as suppliers, buyers, and competitors, support ties are those non-business ties with other supportive institutions, such as government and business associations. Also, managerial ties include ties within a cluster and ties going beyond a cluster. According to the resource-based theory (RBT), firms’ internal resources that are valuable, rare, and costly to imitate are the

sources of firms' competitive advantage. Zhang and Li (2008) posit that, in competitive settings, a market-based strategy based on internal resources and capabilities is the key to sustained growth along with a network-centered strategy focusing on relational capabilities. The results of their study indicate that business ties have greater positive effects on sales growth than support ties. Moreover, managerial ties within a cluster are more important than ties beyond a cluster to the growth of sales. As for market-centered strategies, the combination of best price and superior quality strategies would contribute more to firm growth than either of them alone. Finally, the authors find partial support for the interactive effects of the network-centered strategy and market-strategy on firm performance. Though Zhang and Li (2008) find positive coefficients between managerial ties and firm performance, this relationship can be considered from a different perspective; firm performance may facilitate the establishment of managerial ties; successful firms may be more capable of cultivating external ties since managers at better-performing firms become more attractive business associates compared to managers at less successful firms. In fact, the causality may be working as a reinforcing cycle; the more a firm fosters managerial ties, the more its performance increases and the more it becomes attractive to business associates who want to develop external ties.

Liao (2010) carried out a study to determine whether the enhancement of firm performance is a result of clustering at the location level, interorganizational trust at the relationship level, or resource and knowledge management at the firm level. Using a sample of 102 Taiwanese manufacturers investing in China, the author finds that interorganizational trust, resources, and system dependence have a direct impact on the performance of firms. The most important factor contributing to the overall firm performance, in this study, is resources. Additionally, the interaction effect of

resources and clustering also has a positive effect on firm performance. In contrast to the author's expectations, the interaction effect of clustering and interorganizational trust is negatively related to performance. After separating the samples into two groups by means of interorganizational trust, the results indicate that for groups with high levels of interorganizational trust, foreign firms located within clusters have improved performance. However, for groups characterized by less trusting relationships, foreign firms co-locating with others will demonstrate inferior performance. Liao explains that foreign firms, lacking trusting relationships in a host country, may have difficulties in attracting partners with whom to cooperate. Therefore, the capacity of foreign firms to respond to market needs will suffer. Also, in the absence of trusting relationships, partners may divulge the knowledge of foreign firms to other geographically proximate firm. Consequently, the performance of foreign firms would be greatly damaged. Another interesting finding of the study is about system dependence. A situation of system dependence means that each individual is a specialist in a specific aspect of the task, rather than the whole task, and that each of the manufacturing tasks must draw on the expertise of different people within the firm. In this way, firms try to prevent imitation. The results show that the adoption of system dependence tends to prevent imitation, as well as to encourage intra-firm communication. However, the interaction of system dependence with clustering does not significantly increase the performance of foreign firms. The author suggests that, in certain circumstances, knowledge management is less potent in the Chinese context; "the availability in other locations or alternative manufacturers may cause employees to engage in opportunistic behaviors, resulting in spillovers of firm-specific knowledge" (p. 167).

Saric (2012) draws upon the fields of entrepreneurship and strategic management as theoretical framework of analysis in order to identify which internal characteristics of firms help them create and defend competitive advantage through clusters. He concludes that firms need an entrepreneurial orientation to perceive the opportunities that are largely found in clusters and mobilize the required resources in response. He also supposes that firms must have a distinct cluster-capability to appropriate the rents that are created and to defend the competitive advantages in the long run. Therefore, he undertakes a case study with 14 German manufacturing companies that do business in Chinese industrial clusters to identify the skills that constitute a firm's cluster-capability. Saric (2012) reports the following:

A cluster-capability is a higher-order capability that consists of the skills to effectively communicate with external cluster actors to gather information on upcoming market trends, changing customer needs, and new combinations that could potentially disrupt industry structure and lead to new market niches, disseminate this information to internal organizational units that can make the most use out of it, coordinate and maintain access relationships, and continuously recruit, develop, and retain skilled personnel and entrepreneurial leaders. (p. 204)

Then, an empirical survey with 227 domestic firms was carried out to explore the effects of these internal characteristics under different cluster contingencies. The findings confirm the results of previous studies that argue for the positive effect of clusters on firm performance. "That is, unless they pursue an entrepreneurial strategy that is not backed up by a well-developed cluster-capability" (p. 204). These firms have particularly low performance outcomes. Saric (2012) explains that pursuing an entrepreneurial strategy in clusters can be risky if it leads to a resource-consuming frenzy of experimentation, search, and innovation. Hence, firms must also be able to appropriate the returns they create in order to be successful; entrepreneurship and capability should co-exist in clusters. On the other hand, firms that have a strong

cluster-capability and enough resources to turn opportunities into lasting competitive advantages have the highest levels of performance. Saric therefore concludes that “while the leverage in weak cluster environments lies in a firm’s entrepreneurial orientation, firms in strong clusters should first develop a distinct cluster-capability” (p. 205). The configurational model of the study explains 36% and 48% of variance of sales performance and profitability, which indicates that there are more firm-level characteristics that moderate the relationship between clusters and firm performance. Appendix B summarizes the aforementioned studies.

CHAPTER 3

RESEARCH HYPOTHESES

According to Granovetter (1985), “most behavior is closely embedded in networks of interpersonal relations” (p. 504), and so are actions of economic agents; “they are embedded in concrete, ongoing systems of social relations and these relations facilitate and constrain agents’ profit and rent-seeking actions” (Batjargal, 2003, p. 535). Empirical evidence shows that social capital, defined as networks of relationships and assets located in these networks (Batjargal, 2003), has positive effects on firm performance (Baker, 1990), product innovation (Tsai & Ghoshal, 1998) and industry-wide network formation (Walker, Kogut, & Shan, 1997).

Batjargal (2003) examines the impact of entrepreneurs’ social capital on their firm performance in post-Soviet Russia. Doing face-to-face interviews with 75 Russian entrepreneurs in 1995 and follow-up interviews in 1999, he examines the effects of the three dimensions of social capital (structural embeddedness, relational embeddedness and resource embeddedness) on firm performance. Batjargal finds that relational embeddedness and resource embeddedness have direct positive impacts on firm performance, whereas structural embeddedness has no direct impact on performance.

Another study on the relationship between social capital and firm performance is that of Maurer & Eber (2006), who carry out longitudinal case analyses of six new biotechnology firms in order to explore how the configuration, management, and evolution of entrepreneurial firms’ social capital influence firm performance. They find that, in their start-up phase, all new biotechnology firms have a similar configuration of their social capital, characterized by cohesion and

closure based on norms of reciprocity, and that they share cognitive schemes among a limited set of partners, mostly in scientific community. However, they also find that “the very configuration of a firm’s social capital that is conducive for a firm’s start-up hinders its performance in the subsequent business development” (p. 285). They explain this finding by the inability of these ties to provide the information and resources needed to further develop the firm. In fact, firms that are more successful in the business development phase can both retain the quality of their established ties and develop new cohesive ties with other constituencies that respond to their evolving information and resource needs. This study emphasizes the importance of the firm-level configuration and management of organization members’ social capital; “strong and cohesive individual-level ties can have very different consequences depending on whether they result in a homogenous or in a differentiated composition of social capital at the firm level” (p. 286), and only the firms that establish close external relations with diverse partners can tap into a broader array of information, resources and opportunities necessary for their continued development.

Following the same logic, managerial ties are also a kind of manager’s social capital that can promote firm performance. Though social networking and ties are prevalent in the emerging economies of Africa, the Middle East, and Asia because of their strong collectivistic cultures, a few empirical studies have examined the effects of social capital developed from managerial networking and social ties on a firm’s activities in such emerging economies. Yet there are some exceptions such as Peng and Luo’s (2000) research in China. Their findings indicate that managers’ micro interpersonal ties with top executives at other firms and with government officials contribute to the macro organizational performance. Peng and Luo show that ties

with officials are more important than ties with managers at other firms. In other words, firms may have greater resource dependence on officials than on other firms. However, the strength of the relationship between managerial ties and firm performance differs according to ownership type, business sector, size, and industry growth rate. Peng and Luo find that the impact of personal ties with managers at other firms on market share tend to be stronger for firms in low-growth industries, regardless of their ownership, size, and sector. The impact on ROA of ties with other managers is greater for firms that are in the service sector, small, and/or in low-growth industries; these ties, however, have little influence on ROA for both state-owned enterprises (SOEs) and non-state-owned-enterprises (non-SOEs). “These ties seem to be equally useful for firms in both high- and low-growth industries”(p. 497). Moreover, the researchers point out that managerial ties are necessary but insufficient for good performance; a firm also needs to have capabilities in areas such as quality and advertising. Finally, they conclude that it is easier for managerial ties to have an impact on market share than on ROA. They offer three underlying reasons for their conclusion. First, developing managerial ties requires cash outflows in the form of banquets, gifts, and entertainment, which may diminish the financial returns of the firm but improves its market share in the short run. Second, “there may be a time lag effect in that firms need to improve their market positions first before financial performance can be improved” (p. 498). Third, managers, especially in large SOEs that inherit the output-driven legacy of the planned economy, may be more interested in increasing market share than ROA.

Acquaah (2007) replicates Peng & Luo’s (2000) research by using data from Ghana. His study extends previous work by “examining the impact of social capital derived from managerial social networking relationships and ties with community

leaders on organizational performance” (p. 1235). The cultures in sub-Saharan Africa are highly collectivistic; the extended family and broader community perform a substantial role in the lives and activities of individuals and organizations. “In Africa, community leaders such as local chiefs and kings and religious leaders are very influential in garnering resources and providing access to valuable information and knowledge to businesses” (p. 1240). According to Acquah (2007), in Ghana there are two parallel political systems and authorities: (1) the formal political system of the modern nation state, and (2) traditional political systems that pre-date the modern nation state. Traditional political authority and leadership are in the hands of kings and chiefs of ethnic groups, cities, towns, and villages. Therefore, “relationships developed by an organization’s managers with community leaders provide the organization with valuable access to resources and information as the community leaders endorse the organization and its activities and refer it to their communities” (p. 1241). In short, community leaders may act as a means for the organization to obtain financial resources, enter new market segments or gain access to new customers, and/or acquire technological know-how.

Acquah (2007) discovers that social capital developed from managerial networking and social relationships with top managers at other firms, government officials (political leaders and bureaucratic officials), and community leadership enhance organizational performance. The findings corroborate those derived from Peng & Luo’s (2000) research: “social capital from the networking relationships with top managers at other firms and government officials are beneficial to firms in emerging economies” (Acquah, 2007, p. 1251). However, unlike those of Peng & Luo (2000), Acquah’s results indicate that social capital from top managers at other firms in Ghana is more important than those from government officials.

Acquaah (2007) also examines how the relationship between social capital and organizational performance is contingent on an organization's competitive strategic orientation. The impact of social capital on organizational performance differs between firms that pursue the different competitive strategies (low-cost, differentiation, and combination of low-cost and differentiation) and those who do not pursue those strategies. For example, the impact of social capital from top managers at other firms for both firms implementing the low-cost strategy and those who do not was not statistically different. Acquaah explains this finding by supposing that managers of both organizations pursuing low-cost and non-low-cost orientations build relationships with peers for reasons other than acquiring resources, capabilities, and knowledge to implement new technological advances, meet customer needs, and/or gain access to new markets. However, social capital from community leaders and government officials impacted performance more for low-cost organizations than for non-low-cost organizations. Moreover, the findings show that the impact of each of the three dimensions of social capital (top managers at other firms, government officials, and community leaders) on performance is higher for differentiation organizations than for non-differentiation organizations.

In summary, managerial ties, both with managers at other firms and with government officials, have been argued to have an impact on firm performance in emerging economies such as China (Li, Poppo, & Zhou, 2008), Hungary (Danis, Chiaburu, & Lyles, 2010), Russia (Puffer & McCarthy, 2007), and South Korea (Kwon, 2011), where the absence of formal market-supporting institutions is prevalent. Therefore, Ismail, David, Wu and Peng (2013) conducted a study drawing on cross-country data from Central Asia and the Caucasus, to address the following questions: "Are more developed market-supporting institutions associated with less

use of managerial ties in emerging economies? How do market-based strategic initiatives impact performance? What role do managerial ties play in the relationship?” (p. 443). The researchers draw on archival data from two World Bank sources. The first source is the World Bank’s Business Environment and Enterprise Performance Survey (BEEPS), whose data were collected through interviews with top managers. The second source is the World Bank’s Governance Indicators (Kaufmann, Kraay, & Mastruzzi, 2005). The final sample of the study is composed of 1,214 firms in seven countries: Armenia (153), Azerbaijan (140), Georgia (157), Kazakhstan (214), Kyrgyzstan (158), Tajikistan (159), and Uzbekistan (233). Ismail et al. use four dimensions from the 2002 indicators to measure institutional efficiency: (1) regulatory efficiency, (2) governmental efficiency, (3) legal system efficiency, and (4) corruption. Managerial ties are measured in two dimensions: (1) managers at other firms and (2) government officials. Ties with managers at other firms are captured by membership in a professional business association or chamber of commerce. Ties with government officials are captured by the percentage of senior management’s time that was spent in dealing and networking with government officials. To measure the frequency of strategic initiatives, Ismail et al. asked the firms to report whether they undertook each of the following six initiatives within the past three years: (1) development of a new product line, (2) upgrading of an existing product line, (3) introducing new technology, (4) opening a new plant, (5) obtaining a new licensing agreement, and (6) obtaining a new quality accreditation. Finally, firm performance was calculated as follows: the gross profit margin by which their sales price exceeded their operating costs (i.e., the cost of material inputs plus wage costs but not overheads and depreciation) for their main product/service line in the domestic market.

The results indicate that lower levels of institutional development may increase the frequency with which firms seek to form ties with managers at other firms but not necessarily with government officials. Ismail et al. presume that “firms do not view such ties to be valuable, and, instead, rely more on ties with managers at other firms (often through professional associations) as the means to get things done” (p. 442). These findings do not corroborate findings coming from China, which generally emphasize the greater importance of ties with government officials as opposed to ties with managers at other firms (Peng & Luo, 2000). But the present findings are consistent with the results of a study conducted in Ghana (Acquaah, 2007). In short, there are two findings unique to the region: “(1) institutional inefficiency does not appear to impact the decision of firms in the study’s sample to cultivate ties with government officials, and (2) cultivating ties with government officials may be counter-productive for firms that are able to undertake strategic initiatives” (p. 444). Ismail et al. note, though, that within the institutional context of Central Asia and the Caucasus, ties with government officials still play a critical role. Managerial ties with government officials has a moderating effect on the relationship between strategic initiatives and firm performance; “[t]hese ties not only help firms undertake strategic initiatives when the level of institutional efficiency is low, but they also enable firms to achieve higher performance” (p. 443). However, firms that are able to undertake high levels of strategic initiatives may refrain from spending time and energy in maintaining ties with officials as it may be a non-value adding distraction for them.

In this thesis, managerial ties will be placed into one of two categories, following Zhang & Li (2008), who suggest that executives develop business ties and support ties. While business ties comprise ties with executives at other firms, such as

suppliers, buyers, and competitors, support ties are those non-business ties with other supportive institutions, such as government and business associations. In fact, when managers develop networking relationships with top managers of other firms, they have access to resources, valuable information, and knowledge, all of which can help mitigate uncertainties and thus enhance performance. Networking relationships between managers and their key customers and suppliers facilitate the creation, acquisition, and exploitation of knowledge. In addition, networking relationships with customers may result in both customer and brand loyalties, and increased sales, while those with suppliers will offer access to quality raw materials, superior service, and fast and reliable deliveries. Moreover, ties with competitors facilitate the sharing of information about how to reduce operations cost, or collaborate to share resources, and implicitly collude to deal with competitive uncertainties in their environment (Acquaah, 2007).

As mentioned above, managerial ties have been argued to have an impact on firm performance in several emerging economies. Turkey is described as an emerging economy with a collectivistic culture. Recent research by Kabasakal and Bodur (2007), who have studied leadership and culture in Turkey for the global leadership and organizational behavior effectiveness (GLOBE) Research Program, demonstrates that Turkish society is perceived as having practices that are high in In-group Collectivism (ranked 5 among 62 countries). In-Group Collectivism describes “the degree of collectivism and solidarity among in-group members, particularly in families and organizations” (p.846). That is, family and other in-group relations play an important role in society and organizations. Notice that there are many family-owned enterprises in the Turkish work environment. Having attended the same school or being from the same region can result in in-group collectivism, where

people are committed to their relationships in a network of close interdependent relationships. Networks of close ties are seen in the Turkish business context, where family and friendship connections provide material opportunities and interdependencies in addition to social relatedness (Oba & Semerciöz, 2005).

Therefore, we put forth the following hypothesis:

Hypothesis 1: The strength of a firm's business ties will have a positive effect on firm performance.

When describing the Turkish business environment, one should recognize that the state played a central role in its industrialization. Therefore, it has developed certain state-dependent characteristics where state-created big business groups have dominated the economy for a long time. After the implementation of liberalization policies in the early 1980s, Turkey became an emerging economy that is more integrated with the world capitalist system. However, the dominating economic actors are still family-controlled business groups that benefited from state-supporting policies. The presence of retired/resigned bureaucrats from key public organizations sitting on boards of directors can be seen as a means of establishing good relationships with governmental institutions by using their connections for risk-reduction and opportunity-seizing (Berkman & Özen, 2008). The Turkish state used to change major economic policies at any moment without due notice, creating an uncertain economic environment for businessmen. Consequently, Turkish businessmen strove to develop an institutionalized form of relations with bureaucrats and politicians by seeking individually, or through networking, the support of influential bureaucrats (Oba & Semerciöz, 2005). Though Turkey achieved rapid and comprehensive privatization and developed market regulations after the financial

crisis in 2001, there is a state-coordinated business system. This context leads to the second hypothesis of this study.

Hypothesis 2: The strength of a firm's support ties will have positive effect on firm performance.

Clusters have also been studied as environments that enhance managerial ties in the performance of the firms located within them. Previous findings of studies in a Chinese context affirm that managerial ties have a positive influence on the performance of cluster firms (Zhang & Li, 2008; Li & Geng, 2012). Zhang's (2008) study demonstrates that ties with business associations within a cluster have significant and positive effect on sales growth. As for the ties with government officials within a cluster, they have only a marginally significant impact on sales growth. He states that ties with government officials still play a significant role in firm performance; however, their impact diminishes in line with the decreased control and regulation of the government of firm business operations. As for Turkey, many clusters are city-based and sociocultural environment plays an important role for cluster firms. For example, borrowing and buying machinery from other firms owned by relatives or friends are common practices during the early years of an enterprise in Denizli. Spin-offs are started by partners who are relatives or fellow townsmen (Oz, 2004). Therefore, social networking is supposed to play an important role in the functioning of clusters and on the performance of firms in Turkey.

Hypothesis 3: Cluster environment positively moderates the relationship between business ties and firm performance in such a way that the positive relationship will be more salient in the presence of a cluster environment.

In the same vein,

Hypothesis 4: Cluster environment positively moderates the relationship between support ties and firm performance in such a way that the positive relationship will be more salient in the presence of dense support relationships in the cluster environment.

Another concept that will be investigated in this thesis is entrepreneurial orientation. Entrepreneurship will be explicated first, however.

3.1 Entrepreneurship in clusters: Exploring opportunities

The literature indicates a need to explore firm-level characteristics other than size and age that lead to performance differentials among cluster-firms. Entrepreneurship theory can shed light on how firms explore short-term economic opportunities through clusters. The Austrian school of economics, the prominent logic within entrepreneurship theory, has two fundamental assumptions:

- a) The market is considered to be in a constant state of motion swinging between equilibrium and disequilibrium since supply and demand can change in a permanent fashion.
- b) Firms earn rents by means of entrepreneurial discovery and exploitation of market imperfections and inefficiencies.

3.1.1 The Austrian school of economics and the market

While the mainstream theory in the Austrian school posits that markets are always in disequilibrium, Schumpeter argues that markets are prone to business cycle fluctuations that move from equilibrium to disequilibrium and vice versa (Saric, 2012).

According to Schumpeter, market disruptions are an act of creative destruction, which lead to competitive advantages. Creative destruction is a process of revolution, since market equilibrium is destroyed and competitive positions become obsolete. It is also a creative process as it stems from innovation. Schumpeter postulates that creative destruction occurs in cycles separated from each other by neighborhoods of equilibrium (Tichy, 2011). That is, the economy is either in a state of revolution or in a phase in which the effects of past shocks get absorbed by the economy. Consequently, revolution and absorption create the economic cycle and keep the market in motion (Saric, 2012). Economic development takes place when innovative agents introduce new combinations, such as new products, production processes, and organizational structures in the market. For a while, the innovator outperforms his competitors and earns economic rents. However, competitors are tempted to imitate the innovator and win some of his profits. As a result, the increased competition causes the gradual diminution of the profits until they finally disappear. Then the market gets into a new state of equilibrium. The gains obtained from innovation provide firms the means to pursue new innovations, which restarts the cycle of creative destruction. In sum, supranormal profits are only temporary as they get competed away (Jacobson, 1992).

As for the Austrian school of economics, it sees the market as constantly in disequilibrium because of entrepreneurial errors. Entrepreneurial errors inevitably occur when market participants try to meet each other's needs by means of expectations, hunches, intuitions, and heuristics, which render their decisions incorrect some of the time. Therefore, customer needs may not be fully met by new and existing products, or some resources may be overpriced and others underpriced (Saric, 2012). Entrepreneurs are the first to notice that a discrepancy exists between

what is currently done and what could be done. Entrepreneurs, who are alert to opportunities, discover errors or inefficiencies and try to eliminate them (Jacobson, 1992). Kirzner (1973) argues that entrepreneurs are “able to perceive opportunities for entrepreneurial profits; that is, they are able to see where a product can be sold at a price higher than that for which it can be bought” (p. 14). In this sense, entrepreneurs are arbitrageurs who buy goods or resources and recombine them to sell the output in the anticipation of making a profit. Their actions result in the fulfillment of customer needs and the elimination of the inefficiencies in the market. In the end, the market moves towards equilibrium. Yet because there are numerous inefficiencies that go unnoticed, the market is in constant disequilibrium. According to Kirzner (1973), opportunities are the result of the imperfect knowledge of market participants, and they can be seized by anyone discovering their existence before others have done so. Hence, opportunities occur if there is differential access to existing information. As entrepreneurial profit depends on the possession of superior information, entrepreneurial role involves gathering, evaluating, and utilizing information. “Resources flow toward the firms that are most competent in using information, and the least efficient firms are forced out of business” (Jacobson, 1992, p. 788). Firms can choose to either imitate their competitors or innovate and introduce new combinations to the market. The process of competition is in both cases named as a discovery procedure (Saric, 2012). In the end, information asymmetries among market participants decrease and profits are competed away. The market is never in equilibrium because knowledge is continually changing and the market is continually changing. Consequently, new disequilibrium situations and therefore, new profit opportunities arise. “When the competitive process eliminates one opportunity, changes in the stream of knowledge produce other opportunities. Thus, there are

constant profit opportunities resulting from ever-changing sources” (Jacobson, 1992, p. 789).

In short, both perspectives envisage two strategies: imitation and innovation. Whereas imitation leads to a stabilizing equilibrium in the market, innovation disrupts the status quo and moves the economy forward (Saric, 2012). Firms can imitate a successful competitor to catch its performance level or introduce an innovation and create a temporary competitive advantage. Often, imitators profit more from an innovation than does the firm first to commercialize it since an imitator's development costs are lower than those of the innovator. When the knowledge about the actions of the innovator is ambiguous, imitators can be delayed from imitating the innovator (Jacobson, 1992).

3.1.2 The Austrian school of economics and the entrepreneur

Entrepreneurship is the linchpin of the Austrian school of economics as firms obtain competitive advantages by discovering market inefficiencies or by creative destruction.

According to the Schumpeterian perspective, entrepreneurs pursue opportunities by creating new combinations and bringing these into the marketplace. Consequently, the entrepreneur is pushing an equilibrium market away from equilibrium. Hence, the characteristic of entrepreneurship is the ability to change the routine and to move the system away from the even, circular flow of equilibrium (De Jong & Marsili, 2010). Schumpeter differentiates between entrepreneurs and managers. The entrepreneur introduces innovative products, process or organizational structures, while the manager is focused on managerial functions. The manager imitates the innovation of the entrepreneur in order to keep up with the

changes in the external environment, and by doing so, he diffuses the relevant information to other market participants and the system moves towards a new equilibrium (Saric, 2012).

In contrast to Schumpeter, Kirzner emphasizes the informational aspect of entrepreneurship. For Kirzner (1973), the existence of opportunities requires only differential access to existing information. People use the information that they possess in order to form beliefs about efficiently using their resources. However, they make errors when making decisions, which, in turn, create shortages and surpluses. Firms can generate profits by responding to these people. Kirzner's opportunities stem from information asymmetries, but they do not require new information (De Jong & Marsili, 2010). Entrepreneurs therefore need to receive information from several resources in order to explore opportunities. In addition, an entrepreneur must have previous knowledge to which he can relate the new information; otherwise, he may be unable to recognize the opportunity. Granovetter (1983), a sociologist, posits that “our acquaintances (weak ties) are less likely to be socially involved with one another than are our close friends (strong ties)” (p. 201). Therefore, individuals with many weak ties will receive information from social circles that he does not frequently visit and “individuals with few weak ties will be deprived of information from distant parts of the social system and will be confined to the provincial news and views of their close friends” (p. 202). Empirical studies confirm Granovetter’s arguments on weak ties as characteristic of social networks and show that aspiring entrepreneurs can receive information and resources from different social circles. These networks can be used for both exploring the opportunities and acquiring the resources to exploit them. Kirzner’s entrepreneur, therefore, does not generate innovative ideas out of nothing — he knows how to

mobilize resources and how to combine them in order to exploit opportunities he discovered (Saric, 2012).

3.2 Entrepreneurial orientation and opportunity exploration

Entrepreneurial orientation (EO) has recently become a central concept in the domain of entrepreneurship. Rauch, Wiklund, Lumpkin and Frese (2009) define EO as follows: “strategy-making processes that provide organizations with a basis for entrepreneurial decisions and actions” (p. 762). In general, three dimensions of EO have been identified and are used consistently in the literature: innovativeness, risk-taking, and proactiveness. Lumpkin and Dess (1996) proposed two other dimensions, such as competitive aggressiveness and autonomy, but in this thesis the aforementioned three dimensions will be used.

Innovativeness is “the predisposition to engage in creativity and experimentation through the introduction of new products/services as well as technological leadership via R&D in new processes” (Rauch et al., 2009, p. 763). This definition is in line with Schumpeter’s creative destruction concept, which involves the introduction of new goods or services that shift resources away from existing firms and causes new firms to grow (Lumpkin & Dess, 1996). Firms combine and experiment with new and existing resources and use their creativity to introduce new products, services, processes, and technologies. Innovative firms strive to move away from existing technologies and practices and venture beyond the current state of the art. Thus, innovativeness is an essential element of the entrepreneurial orientation as it is an important means by which firms pursue new opportunities (Lumpkin & Dess, 1996).

Risk-taking involves “taking bold actions by venturing into the unknown, borrowing heavily, and/or committing significant resources to ventures in uncertain environments” (Rauch et al., 2009, p. 763). But it is not reckless action; rather it is premeditated decision-making; financially, risk is used in terms of the famous risk-return trade-off and refers specifically to the probability of a loss or negative outcome. Therefore, firms with an entrepreneurial orientation engage often in risk-taking behavior, “such as incurring heavy debt or making large resource commitments, in the interest of obtaining high returns by seizing opportunities in the marketplace” (Lumpkin & Dess, 1996, p. 144).

Proactiveness is an “opportunity-seeking, forward-looking perspective characterized by the introduction of new products and services ahead of the competition and acting in anticipation of future demand” (Rauch et al., 2009, p. 763). As mentioned in the previous section, aspiring entrepreneurs can receive information and resources from different social circles and explore opportunities if they have a related knowledge base. Hence, in order to introduce new products and services to the market, proactive firms should expand their information and knowledge base by building a network of weak ties with other firms (Saric, 2012).

These three dimensions of EO are closely related; proactiveness allows firms to pursue opportunities, while innovativeness in combining new and existing resources entails the risk of failure, yet moving away from the present line of operations and venturing into new markets give firms the chance to have the first-mover advantage and earn supranormal profits. In short, “EO provides businesses the ability to find and/or discover new opportunities that can differentiate them from other firms and create a competitive advantage” (Wiklund and Shepherd, 2005, p. 86).

As mentioned previously, entrepreneurial orientation (EO) has received substantial conceptual and empirical attention in entrepreneurship research. Rauch et al. (2009) reviewed 51 published studies in a meta-analysis including 14,259 companies and found a positive and moderately large correlation of EO with firm performance. This leads to the fifth hypothesis, detailed below.

Hypothesis 5: A firm's entrepreneurial orientation will have a positive effect on firm performance.

Though EO is not extensively treated in the cluster literature, its effects on firm performance and its impact on networks and relationships have been examined by several scholars. These studies can shed light on how firms explore opportunities in clusters.

Zahra and Covin (1995) collected data from three diverse samples of firms over a seven-year period to examine the effect of EO on firm performance. The results show that EO has a positive impact on financial measures of firm performance, which increases over time. They consider EO an effective means for improving long-term financial performance. Thus, managers are advised to have a long-term perspective in developing, managing and evaluating EO. Furthermore, the findings suggest that EO is a particularly effective practice among firms operating in hostile environments. Hostile environments are defined as having "high levels of competitive intensity, a paucity of readily exploitable market opportunities, tremendous competitive-, market-, and/or product-related uncertainties, and a general vulnerability to influence from forces and elements external to the firm's immediate environment" (p. 48).

Using a sample of 413 small Swedish firms and a longitudinal design over a two-year period, Wiklund and Shepherd (2005) examined the impact of a firm's EO

under different external contingencies. The results indicate that small firms with an EO always have better performance than less entrepreneurial firms. In addition, EO serves to surmount external performance constraints, such as stable environment and limited access to capital, by helping firms differentiate themselves from their competitors and thereby obtain competitive advantage. Firms with EO also create disequilibrium by “shaking-up” their industry and start a stream of opportunities. Consequently, when the environment becomes dynamic, investors want to supply capital and there is no paucity of opportunities and resources. Wiklund and Shepherd, then, advise small businesses facing disequilibrium to adopt a more “inwardly focused orientation that better capitalizes on these abundant opportunities by focusing on efficient exploitation” (p. 85) rather than having a high EO.

Using data from U.S. companies, Zahra and Garvis (2000) examined the effects of international entrepreneurial orientation on firm performance and explored the moderating effect of perceived hostility of the international environment on the relationship between international EO and firm performance. They used the following two indicators of financial performance: overall performance, including return on assets (ROA) and sales growth, and foreign performance, including foreign profitability and foreign growth. As in Zahra and Covin’s (1995) study, environmental hostility is defined as “unfavorable environmental conditions that result from radical industry changes, intense regulatory burdens placed on the industry, fierce rivalry among competitors [...]perceived competitive-, market-, and product-related uncertainties, changing demand conditions and radical innovations that render the firm’s basic technology obsolete” (p. 475). The results show a positive relationship between EO and a company’s financial performance. Furthermore, when hostility is high, EO can enhance company performance,

expressed as higher returns on assets (ROA). However, under excessive environmental hostility, ROA starts to fall after a certain point. Therefore, when hostility is high, Zahra and Garvis suggest a more proactive but calculated risk-taking approach for managers instead of pursuing more conservative options. Nevertheless, they warn against the excessive pursuit of EO, as it can be counter-productive when environmental hostility in foreign markets is high. The results of post-hoc analyses reveal that high performing firms in placid environments also pursue an EO in order to “safeguard against strategic surprises, solidify their reputation, exploit their past successes, protect their markets, widen their growth options, and remain strategically focused” (p. 486).

Another study examining the effect of EO in the international context comes from Dimitratos, Lioukas and Carter (2004). Drawing upon a sample of 152 internationalized Greek firms, the authors investigated the effect of environmental conditions on the relationship between entrepreneurship and international performance. They define two dimensions of environmental context: uncertainty and hostility. Uncertainty “refers to the degree of environmental instability and turbulence over time, and reflects change that is hard to predict” (p. 24). As for hostility, it “relates to the extent of scarcity of environmental resources and the degree of competition for them” (p. 24). Firm performance is measured with foreign sales ratio and satisfaction with performance. The results indicate that uncertainty of the domestic environment reinforces the outcomes of entrepreneurial activities in the international marketplace. This important finding is consistent with Porter’s argument in terms of seeing domestic clusters as the key driver for international competitive advantage. Uncertainty of the home country reinforces the positive effects of an EO since firms in such an environmental context are not prone to

organizational inertia and can benefit from the domestic uncertainty as a source of competitive advantage abroad.

The studies reviewed so far reveal that firms perform better when they pursue an EO in environments marked by rivalry, uncertainty and frequent changes. There are also several studies that examine the impact of EO on networks. Sarkar, Echambadi and Harrison (2001) examined the effect of alliance entrepreneurship on firm market performance. Alliance entrepreneurship is defined as alliance proactiveness, which is conceptualized “in terms of efforts to identify potentially valuable partnering opportunities, and to initiate preemptive actions in response to identified opportunities” (p. 702). As for the market-based firm performance, it is defined in terms of sales growth, market share, market development and product development. According to the network literature, firms that engage in external networks can earn entrepreneurial profits because sources of innovation are “commonly found in the interstices between firms, universities, research laboratories, suppliers and customers” (Powell, Koput, & Smith-Doerr, 1996, p. 118). By forming alliances with partners that own complementary resources and capabilities, entrepreneurial firms can benefit from the opportunities they have previously identified and thereby gain a competitive advantage over those that are either unable or unwilling to do so. Moreover, asymmetric information and differing expectations among firms about the future value of a specific alliance allow better-informed firms to exploit imperfections in their favor. In addition, there is a scarcity of potential alliance partners with valuable complementary resources and know-how, which leaves late movers with suboptimal options. Entrepreneurial firms enjoy the benefits of being first-movers in forming valuable strategic alliances and “the unique resource configurations or ‘constellations’ that result from proactive alliance activity may thus

be difficult to imitate, leading to sustainable performance differences” (Sarkar et al., 2001, p. 703). The sample of their study was composed of 182 US technology companies that have alliance experience. The results show that alliance entrepreneurship has a positive influence on firm performance, which indicates that “access relationships represent opportunities for firms to create value through learning new skills, and leveraging the complementary resources of their partners” (p. 708). Furthermore, market dynamism moderates that relationship; in conditions marked by volatile customer preferences and increasing heterogeneity across emerging and existing consumer segments, firms with alliance entrepreneurship can rapidly develop new resource combinations thanks to their access relationships and thereby improve their market-related performance. The study also reveals that small firms benefit more from alliance entrepreneurship than large firms. Sarkar et al. explain that proactiveness allows small firms to select among the limited number of less opportunistic and more cooperative partners.

In another study, Marino, Strandholm, Steensma and Wever (2002) examine the influence that national culture has on the relationship between entrepreneurial orientation and strategic alliance formation. They used a sample composed of small- to medium-sized enterprises located in Finland, Greece, Indonesia, Mexico, the Netherlands, and Sweden. They argue that small and medium-sized enterprises (SMEs) can obtain many benefits from cooperative agreements such as uncertainty reduction, the exploitation of opportunities through the combination of complementary assets, risk and cost sharing, and gaining access to the knowledge and skills that reside in other organizations. Innovative firms, for instance, can reach high levels of innovation by using different resources provided by cooperative agreements. Furthermore, SMEs reduce the power of any single resource provider

over them by increasing the number and variety of agreements in their portfolio and building multiple paths to these resources. Consequently, “the firm's strategic options are increased and its ability to absorb environmental uncertainty is enhanced” (p. 146). The authors posit that a firm's propensity to enter into alliances and gain the aforementioned benefits will be directly influenced by its entrepreneurial orientation. The results show that firms with higher levels of EO use strategic alliances more extensively than those firms with a weaker entrepreneurial orientation. This finding sheds light on how SMEs leverage their limited resources to survive in challenging environments characterized by rapid technological evolution, globalization, and increasingly sophisticated competitors. The findings also reveal that entrepreneurial SMEs from cultures that demonstrate either feminine or collective characteristics benefit more from the extensiveness of their strategic alliance portfolio.

In short, both studies demonstrate that firms with an EO benefit from alliances by accessing complementary resources of their partners and thereby gain competitive advantages such as uncertainty reduction, access to diverse knowledge and skills, risk and cost sharing, opportunity exploitation.

Saric (2012) uses the EO concept in the cluster context and argues that firms with an EO should be better able to explore emerging opportunities in clusters and mobilize the necessary resources to exploit them, as clusters are a key source of information and valuable resources. Along the horizontal and vertical dimensions, proactive firms can draw upon a diverse set of information and knowledge bases through their informal networks that go beyond their immediate circle and therefore gain insight about upcoming market trends, changing customer needs, and new combinations that shake up the industry and create new market niches. In this context, firms are not in search for information; rather it comes indirectly from

rumors, impressions, recommendations and such. In the horizontal dimension, as cluster firms can observe their competitors, firms with an EO are supposed to respond better to emerging opportunities by introducing new combinations. As for the vertical dimension, it consists of suppliers, buyers and service providers in close relationship with each other. These networks benefit from the opportunity, offered by clusters, to “close information gaps that emerged due to vertical industry specialization” (p. 74). By engaging in joint cooperation, firms perceive each other’s needs and explore existing but unexploited opportunities. Surprisingly, the results of a survey with 227 Chinese firms show that the contingency model indicates a negative interaction effect between clusters and EO. However, a configurational model involving the interaction effects between clusters, EO, and cluster-capability reveals more useful explanations than a contingency model. In weak cluster environments (i.e. low cluster levels), firms that strive for high sales performance rely heavily on their EO. In this case, entrepreneurial firms can differentiate themselves from their competitors by searching for and finding the few growth opportunities present in their environment. This finding is in congruence with Wiklund and Shepherd’s (2005) finding, which states that EO has its biggest positive influence on firm performance in resource constraint environments. As for profitability, in weak cluster environments, non-entrepreneurial firms with a strong-cluster capability score higher on profitability than on sales performance. That is, “while entrepreneurial firms may identify more opportunities than non-entrepreneurial but capable firms, the latter may be able to fully capitalize on their exploitation” (p. 194). In contrast, in strong (i.e. high cluster levels), firms with cluster-capability achieve high levels of sales and profitability performance compared to entrepreneurial firms. This finding is consistent with those of previous

studies (Zahra & Garvis, 2000; Wiklund & Shepherd, 2005) that warn against excessive pursuit of EO in environments with abundant resources and opportunities; it is better to adopt an inwardly focused strategy that capitalizes on efficient opportunity exploitation.

Entrepreneurial orientation (EO) is also a research topic that is explored within a developing country context. Roxas and Chadee (2012) investigate the effects of informal institutions and entrepreneurial orientation on the performance of microenterprises at the subnational level in the Philippines. Microenterprises are defined as “businesses with limited financial resources including access to finance, managed by the owners’ themselves, simple organizational structures, and informal and highly flexible management systems” (p. 325). They maintain that informal institutions refer to “the cultural factors shared by members of a society in a given place or locality that serve as constraints and/or standards and the violation of which entails social rather than legal penalties” (p. 323). They consider culture as embodiments of informal institutions; “culture influences the conduct and strategic configurations of the firm through the owner-manager and employees who join the organization” (p. 323). The study uses the GLOBE cultural framework (House et al., 2004). The GLOBE framework focuses on five main cultural components that represent a society’s informal institutions: performance orientation, future orientation, collectivism, humane orientation, and uncertainty avoidance. The result of the survey indicates that entrepreneurial orientation has a strong mediating role in the informal institutions-firm performance relationships.

As for clusters in Turkey, Oz (2004) cites entrepreneurial outlook as one of the common characteristics of competitive clusters. For instance, the emergence of the towel and bathrobe cluster in Denizli cannot be explained purely by a chance

event. Denizli entrepreneurs deliberately focused on the manufacture of these products and their export and benefited from the economic infrastructure of Denizli, the main dimensions of which were a long history of textile production and the availability of major inputs, semi-skilled workers and related/supporting industries. The local business environment was propitious for cluster development, but its potential was realized by entrepreneurs of Denizli who exploited the opportunities and who are still pursuing new opportunities by doing R&D work.

In sum, firms that exhibit an EO are more adept at exploring opportunities and procuring and combining the necessary resources in their response. Therefore, clusters provide a propitious environment for entrepreneurial firms to benefit from the intensity of the information flows and network alliances.

Hypothesis 6: Cluster environment positively moderates the relationship between EO and firm performance in such a way that the positive relationship between EO and firm performance will be more salient in the presence of a cluster environment.

3.3 Strategic learning

The learning school of strategy, which builds on the resource-based (Barney, 1991; Wernerfelt, 1984) and knowledge-based views (Grant, 1996), draws upon organizational learning theories to shed light on how firms can interpret, disseminate, and incorporate strategically important knowledge to facilitate and continuously recreate competitive advantages (Siren, Kohtamaki, & Kuckertz, 2012). In a nutshell, the resource-based theory postulates that superior resources result in superior performance (Barney, 1991). Yet rents, generated by a particular stock of resources, are transitory and, therefore, the firm should be able to create new resources and assemble them into competences; sustained competitive advantage depends on

continual competency accumulation (Danneels, 2012). Thus, organizational learning can play an important role in this continual competency accumulation.

Kuwada (1998), a strategy scholar from the learning school, defines two types of organizational learning: “business learning, whereby organizations acquire business-level knowledge within a given set of basic assumptions, and strategic learning, whereby organizations acquire corporate-level knowledge and reconstruct the strategic routines as a consequence” (p. 722). While business learning generates changes in strategic behaviors at an observable level, strategic learning generates changes in the strategic orientation of the organization. In the case of strategic learning, basic assumptions underlying corporate-level knowledge are reframed and lead to a renewal of the organization's strategic capability. Strategic learning involves an integrating process of knowledge creation and acquisition, information interpretation, information transformation and distribution, and retention of knowledge in the organizational memory. Kuwada (1998) argues that “the concept of strategic learning represents how organizations realize long-run adaptation. Through strategic learning, organizations change the procedural routines that govern their innovation process at the corporate level” (p. 733). Therefore, strategic learning is deemed an organization’s dynamic capability, which is defined as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece, Pisano, & Shuen, 1997, p. 516). Siren et al. (2012) describe strategic learning as a process in which strategic knowledge gained from strategic activities and used for subsequent strategic purposes, diffuses from the individual to the group and finally to organizational level and back again to facilitate individual learning. They argue that “strategic learning is organizational, socially constructed and collective in nature” (p. 21).

Strategic learning concept was used in several recent studies. Covin et al. (2006) postulated that entrepreneurial firms should learn from strategic failures to achieve better sales growth rate. As entrepreneurial behaviors are deemed risky by nature and often result in failures, strategic learning from these failures is supposed to provide information about what changes should be made in order to render new efforts successful. However, they considered only one specific aspect of strategic learning, and they were unable to find empirical support for their hypothesis. The hypothesized positive moderation effect of strategic learning from failure on the EO–performance relationship was found in the opposite direction. That is, conservative firms benefit more than entrepreneurial firms in a growth-facilitating sense when they learn from their strategic mistakes. However, when they cannot learn from their failures, the future performance of conservative firms is in more danger compared to that of entrepreneurial firms, as conservative firms strongly emphasize the exploitation of known opportunities over the exploration of new ones; “if a strategic initiative is perceived as having failed in a conservative firm, the chances are lower than in entrepreneurial firms that new initiatives will be available for consideration and for possible adoption” (p. 73).

Garrett et al. (2009) found that the strategic learning capability of top management increases the effectiveness and efficiency of market pioneering. Market pioneering is defined as “a particular form or manifestation of entrepreneurial behavior whereby the organization proactively creates or is among the first to enter a new product-market arena that others have not recognized or actively sought to exploit” (Covin, Slevin, & Heeley, 2000, p. 177). Garrett et al. (2009) use the ‘strategic learning self-efficacy’ concept as a managerial attribute in their study, which is “reflected in a belief among top managers that they will be able to recognize

when a strategy is not working to their satisfaction, understand why it is not working, learn from their mistakes, and modify the approach to achieving business objectives” (p. 783). This study shows that in unoccupied product-market spaces, strategic learning ability prevents unproductive experimentation in the organization as it leads to identifying deficient business practices, recognizing alternative approaches, and changing behaviors. Managers who learn from their strategic actions and outcomes tend to respond to truly novel market opportunities (Siren et al., 2012).

Siren et al. (2012) developed a model of strategic learning including three underlying dimensions: strategic knowledge distribution, interpretation, and implementation. Strategic knowledge distribution involves “the sharing of strategic knowledge, which is acquired at an individual level and is shared through interactions between individuals within and across organizational units” (p. 22). Siren et al. require the interpretation and development of a shared understanding, otherwise learning will not occur. “A firm’s ability to develop a shared interpretation of knowledge influences how individuals act and how the organization performs” (p. 22). Finally, strategic knowledge implementation is a “formal process that institutionalizes new strategic knowledge into the nonhuman facets of organizations, such as organizational systems, structures, procedures, and routines (collectively referred to as organizational memory)” (p.23). Siren et al. suppose that strategic learning enables firms to capitalize on the benefits of both exploration and exploitation strategies. The results of the empirical research with 206 Finnish software firms show that strategic learning fully mediates the relationship between exploration, exploitation, and profit performance; it allows both types of strategies to improve profit performance. They also emphasize the importance of strategic learning processes in conjunction with entrepreneurial exploration strategies.

However, they point out that the strategic learning capability is a path dependent capability that tends to choose exploitation over exploration when stretched. If firms overinvest in exploitation, it obstructs learning from explorative action and therefore, the long-term viability of the firm can be in danger.

In summary, strategic learning capability can have a positive impact on firm performance. In this context, hypothesis 7 is presented.

Hypothesis 7: A firm's strategic learning capability will have a positive effect on firm performance.

Surprisingly, the strategic learning concept has not been studied in the cluster context so far. Yet clusters are environments where dynamic capabilities such as strategic learning are needed to outperform competitors. Information, rivalry and opportunities are abundant in clusters, compared to other business context. The high competition and dynamism involved in clusters necessitates a different strategy process for cluster firms. Firms have to continuously craft and reformulate strategies in order to be successful. To keep pace with the dynamism of their environment, firms should create the free flow of the strategic knowledge contained within their departments or in their members' memory; it should become part of the organizational memory. Consequently, through strategic learning, organizations will change the procedural routines that govern their innovation process at the corporate level and outperform their competitors by sensing and responding to the opportunities within clusters. Strategic learning facilitates the integration of knowledge into the organization, enhances the speed of opportunity capitalization and increases firms' profit performance (Siren et al, 2012). Gilbert et al. (2008) investigate whether technological spillovers explain the performance of new ventures in cluster regions. They find that "technological spillovers are not the contributing

cause of higher performance observed for these firms” (p. 405). They explain that technological knowledge spillovers play a secondary role to other factors which help cluster new ventures succeed under competitive conditions. They propose that these firms may be able to innovate more because of their superior internal development capacities. These internal development capacities can be the result of their strategic learning capability.

Hypothesis 8: Cluster environment positively moderates the relationship between strategic learning capability and firm performance in such a way that the positive relationship between strategic learning and firm performance will be more salient in the presence of a cluster environment.

Figure 3 depicts the theoretical model.

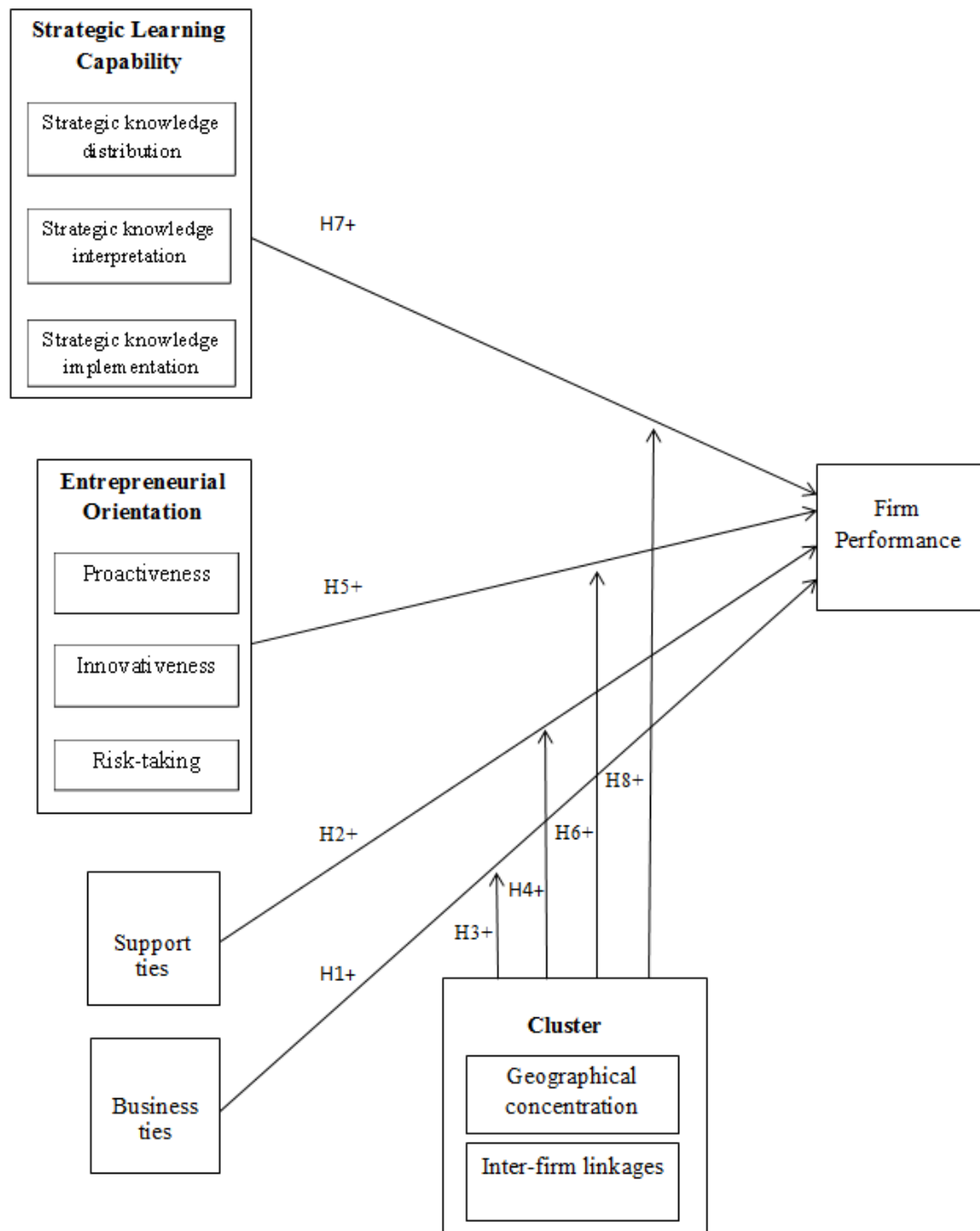


Figure 3 The theoretical model

CHAPTER 4

RESEARCH METHODOLOGY AND MEASUREMENT

In this thesis, clusters are conceptualized as Saric (2012) has done, that is, as a higher-order construct that consists of only two dimensions: geographical concentration and inter-firm linkages. The interrelatedness dimension is supposed to be a precondition for inter-firm linkages in clusters. Therefore, measuring the extent to which firms in clusters form links among each other also reflects the extent to which they are interrelated. A survey was conducted in clusters in Istanbul (wearing apparel), Bursa (textile and automotive), Kayseri (furniture), Ankara (furniture), Denizli (textile), Gaziantep (carpet), Muğla (tourism), and Antalya (tourism). The questionnaires were sent to C-level executives.

Location quotients (LQ) are calculated and presented below for these provinces. However, a purely statistical approach to identify clusters can be problematic, as it can fail to spot some places that are highly concentrated — Silicon Valley, for instance (Oz, 2004). With the available data, location quotients present the best option as a quantitative method. Data are presented at the two-digit level for all cities in the sample. The data are taken from the Turkish Statistical Institute (TÜİK) website (see General Census of Industry and Business Local Units Provinces, 2002) for the year 2002 and the Social Security Institution (SGK) website (see SSI Statistical Yearbook) for the year 2012. Location quotients are calculated from data belonging to years 2002 and 2012 on purpose, to assess the evolution of clusters found by location quotients. Moreover, Porter (2008) affirms that it takes clusters a decade or more to develop depth and gain competitive advantage. The sectors are classified according to the statistical classification of economic activities

in the European Community (for the year 2002, NACE Rev. 1.1 and for the year 2012, NACE Rev. 2).

4.1 The wearing apparel cluster in Istanbul

Textile production goes back to sixteenth century; it was widespread and advanced during the Ottoman Empire era. Production capacity developed in Turkey between 1923 and 1962. As a major cotton-producing country, Turkey kept the growing pace of the industry in the following years. The clothing industry showed a development parallel to that of the textile sector and the industrialization efforts of the 1970s led to the creation of the modern apparel industry in Turkey. In the 1980s, the clothing industry continued its growth and started to export its products. With a high export performance in the 1990s, the export share of the clothing industry exceeded 20% of Turkey's total exports. Turkish clothing industry exports reached 12.9 billion USD in 2009. There are more than 11,000 clothing manufacturers producing for Turkey's clothing exports. Clothing production has been expanding in Marmara and Aegean regions of Turkey. Istanbul, Bursa, Tekirdağ, Izmir and Gaziantep are the major provinces in terms of physical capacity and export value (The General Secretariat of Istanbul Textile & Apparel Exporters' Associations (İTKİB), <http://www.itkib.org.tr>). Table 3 shows the location quotients calculated for 2002.

Table 3. Location Quotients (2002) – Istanbul

NACE Rev. 1.1.	Sector	LQ Istanbul
66	Insurance and pension funding, except compulsory social security	3.6472
62	Air transport	2.8667
61	Water transport	2.1244
30	Manufacture of office machinery and computers	2.1234
18	Manufacture of wearing apparel; dressing and dyeing of fur	2.0113
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	1.8283
72	Computer and related activities	1.7854
22	Publishing, printing and reproduction of recorded media	1.7777
24	Manufacture of chemicals and chemical products	1.7747
31	Manufacture of electrical machinery and apparatus n.e.c.	1.7239
67	Activities auxiliary to financial intermediation	1.7171
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	1.4804
25	Manufacture of rubber and plastic products	1.4469
70	Real estate activities	1.4371
32	Manufacture of radio, television and communication equipment and apparatus	1.4298
33	Manufacture of medical, precision and optical instruments, watches and clocks	1.4293
21	Manufacture of pulp, paper and paper products	1.3250
35	Manufacture of other transport equipment	1.3150
92	Recreational, cultural and sporting activities	1.3134

LQs calculated for 2012 are presented in Table 4.

Table 4. Location Quotients (2012) – Istanbul

NACE Rev. 2	Sector	LQ Istanbul
59	Motion picture, video and television programme production, sound recording and music publishing activities	2.8185
98	Undifferentiated goods-and services-producing activities of private households for own use	2.6296
78	Employment activities	2.2037
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	2.0511
60	Programming and broadcasting activities	2.0483
58	Publishing activities	2.0108
64	Financial service activities, except insurance and pension funding	2.0099
32	Other manufacturing	2.0060
73	Advertising and market research	1.9835
14	Manufacture of wearing apparel	1.9798
62	Computer programming, consultancy and related activities	1.9172
70	Activities of head offices; management consultancy activities	1.8992
51	Air transport	1.8812
50	Water transport	1.8753
18	Printing and reproduction of recorded media	1.7468
53	Postal and courier activities	1.7226
65	Insurance, reinsurance and pension funding, except compulsory social security	1.7063

4.2 The automotive cluster and the textile cluster in Bursa

As seen in Table 5 and Table 6, the automotive and textile industries are clustered in Bursa. There are two factories that produce automobiles and one factory that produces minibuses and a few pickup trucks. According to the Bursa Municipality (see <http://www.bursa.bel.tr/hizmetler/sayfa/777>), 9,000 employees work in these factories. There are 471 automotive firms registered with the Chamber of Commerce and Industry in Bursa. The Oyak Renault factory was ranked as the first factory among the 38 Renault factories worldwide. Oyak-Renault, founded in 1969, functions as a subsidiary that manufactures and exports Renault passenger cars and powertrain components produced in Turkey. The company is headquartered in Istanbul and owns a plant in Bursa that can manufacture up to 360,000 cars per year. Tofaş, founded as a joint venture between the Koç Group and Fiat Auto in 1968, creates 25.9% of the total sector production by itself. Tofaş exported to 80 countries by the year of 2011 and its share in the total automotive industry export is at the level of 22.8% with 180,698 units (TOFAS, n.d.). Founded in 1966, Karsan has been producing commercial vehicles with 100 percent local capital since 1981. The investment for its manufacturing plant located in Akçalar/Bursa was started up in 1998 and the manufacture of vehicles in this facility was launched in October 1999. The Karsan Akçalar plant, which currently has a capacity to manufacture 67,000 vehicles in two, and 95,000 vehicles in three shifts, also has the potential capacity to produce more than 100,000 vehicles with additional investments (<http://www.karsan.com.tr>). In 2011, 55.4% of all vehicles produced in Turkey (except tractors) were fabricated in Bursa, according to the Bursa Chamber of Commerce and Industry (BTSO) (<http://www.btso.org.tr>).

Table 5. Location Quotients (2002) – Bursa

NACE Rev 1.1	Sector	LQ Bursa
34	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	6.2625
17	Manufacture of textiles	3.0621
29	Manufacture of machinery and equipment n.e.c.	1.6026
36	Manufacture of furniture; manufacturing n.e.c.	1.5934
28	Manufacture of fabricated metal products, except machinery and equipment	1.2006
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.0764
25	Manufacture of rubber and plastic products	1.0417
18	Manufacture of wearing apparel; dressing and dyeing of fur	1.0290
27	Manufacture of basic metals	1.0143

As for the textile industry in Bursa, it has its roots in the sixth century AD with the first production of silk outside China. It continued to be a textile center during the Ottoman Empire period. In 1938, the Merinos factory was founded in Bursa and the industry kept growing (Alpay, 2007).

Table 6. Location Quotients (2012) – Bursa

NACE Rev. 2	Sector	LQ Bursa
29	Manufacture of motor vehicles, trailers and semi-trailers	8.0244
13	Manufacture of textiles	3.3566
31	Manufacture of furniture	2.9165
11	Manufacture of beverages	2.5645
28	Manufacture of machinery and equipment n.e.c.	2.2210
20	Manufacture of chemicals and chemical products	1.8340
25	Manufacture of fabricated metal products, except machinery and equipment	1.6933
39	Remediation activities and other waste management services	1.3830
24	Manufacture of basic metals	1.2628
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.2125
22	Manufacture of rubber and plastic products	1.1769
36	Water collection, treatment and supply	1.0072
69	Legal and accounting activities	1.0049
93	Sports activities and amusement and recreation activities	1.0012

By the end of January 2012, the number of members in the textile and apparel industry registered with BTISO is 5,564, constituting 17.2% of all members. The construction industry has the second highest share (15%), followed by the food industry (12.1%) and minerals and machinery industries (9%).

R&D work is also present in the Bursa textile industry; a research center, the Uludağ Exporters Union, Bursa Textile and Confection Technology, Education, Research, Consultancy and Energy Efficiency Services (BUTEKOM), was

established in 2008. BUTEKOM's purpose is to "encourage and support the textile and apparel companies in and around Bursa for the production of innovative technical textiles and apparel products, for the development of high value-added fashion and brand named products, for the increased energy efficiency and to establish necessary training, coordination and communication on time between sector joint owners" (BUTEKOM, n.d.). In addition, Uludağ University offers courses on textile engineering.

4.3 The furniture cluster in Kayseri

Kayseri has a higher LQ in the manufacture of furniture in 2012, compared to 2002. According to the Chamber of Furniture Producers of Kayseri, among the biggest 20 furniture factories in Turkey, 11 are located in Kayseri. The industry started to develop in the early 1990s and now Kayseri is known as the city of sofas, chairs and beds. The industry comprises more than 3,500 furniture producers, but 400 firms can make factory productions for exportations. In 2004, 183 factories were founded in the Kayseri Organized Industry Zone and more than 50% of these factories are in the furniture industry. There was no governmental subvention for these factories, as Kayseri was not included in the subvention law, which proves the power of the private sector in Kayseri. Table 7 and Table 8 show the LQs for 2002 and 2012, respectively.

Table 7. Location Quotients (2002) – Kayseri

NACE Rev 1.1	Sector	LQ Kayseri
13	Mining of metal ores	5.8792
36	Manufacture of furniture; manufacturing n.e.c.	5.4409
31	Manufacture of electrical machinery and apparatus n.e.c.	2.6851
29	Manufacture of machinery and equipment n.e.c.	2.2280
80	Education	1.9594
28	Manufacture of fabricated metal products, except machinery and equipment	1.8789
17	Manufacture of textiles	1.7783
41	Collection, purification and distribution of water	1.5526
40	Electricity, gas, steam and hot water supply	1.3227
93	Other service activities	1.2131
64	Post and telecommunications	1.1761
25	Manufacture of rubber and plastic products	1.1455
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	1.1449

Table 8. Location Quotients (2012) – Kayseri

NACE Rev. 2	Sector	LQ Kayseri
31	Manufacture of furniture	8.2860
07	Mining of metal ores	4.9480
03	Fishing and aquaculture	3.4655
95	Repair of computers and personal and household goods	3.3369
36	Water collection, treatment and supply	2.6797
35	Electricity, gas, steam and air conditioning supply	2.4579
25	Manufacture of fabricated metal products, except machinery and equipment	2.3280
27	Manufacture of electrical equipment	1.9927
63	Information service activities	1.7915
33	Repair and installation of machinery and equipment	1.6077
30	Manufacture of other transport equipment	1.4546
17	Manufacture of paper and paper products	1.3459
65	Insurance, reinsurance and pension funding, except compulsory social security	1.3357
38	Waste collection, treatment and disposal activities; materials recovery	1.2527
86	Human health activities	1.2425
96	Other personal service activities	1.1859
09	Mining support service activities	1.1859
13	Manufacture of textiles	1.1748
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.1338

4.4 The furniture cluster in Ankara

The furniture cluster in Ankara started to thrive after the removal of the timber merchants from their central location to a more a peripheral one, Siteler, in the late 1950s. Later, more timber merchants joined the cluster and they formed a subdistrict of their own towards the end of the 1960s. In the following years, the construction of residential buildings led to the expansion of production activities into the new areas, blurring the boundaries of the district. Finally, larger firms joined the district and firms started to target regional, national and even international markets, though to a lesser extent. However, furniture firms could not compete with other fledgling furniture districts in other parts of Turkey as they did not turn their earnings into investments and had little experience in exporting (Oz, 2004). In addition, the liberalization of imports in the 1980s only worsened their position in the sector.

The cluster is mainly composed of SMEs which use traditional methods of production; they have low technological capacity and labor-intensive production processes. Moreover, they do not specialize in particular types of furniture; they try to produce all kinds of furniture. In this region, small firms without complex production processes establish the dominant type of production. The big corporations moved to the periphery of Ankara and established their factories. They do have showrooms in Siteler, however (Kepenek, 2009). Table 9 and Table 10 show LQs for 2002 and 2012.

Table 9. Location Quotients (2002) – Ankara

NACE Rev. 1.1.	Sector	LQ Ankara
73	Research and development	8.1412
45	Construction	3.5019
32	Manufacture of radio, television and communication equipment and apparatus	3.0273
72	Computer and related activities	2.6552
13	Mining of metal ores	2.0953
33	Manufacture of medical, precision and optical instruments, watches and clocks	2.0730
70	Real estate activities	2.0599
65	Financial intermediation, except insurance and pension funding	1.9918
74	Other business activities	1.9055
22	Publishing, printing and reproduction of recorded media	1.8407
40	Electricity, gas, steam and hot water supply	1.6899
35	Manufacture of other transport equipment	1.6563
36	Manufacture of furniture; manufacturing n.e.c.	1.4893
64	Post and telecommunications	1.4731
80	Education	1.4137
31	Manufacture of electrical machinery and apparatus n.e.c.	1.4027
63	Supporting and auxiliary transport activities; activities of travel agencies	1.3848
85	Health and social work	1.3448
14	Other mining and quarrying	1.2531

Table 10. Location Quotients (2012) – Ankara

NACE Rev. 2	Sector	LQ Ankara
99	Activities of extraterritorial organisations and bodies	5.6331
06	Extraction of crude petroleum and natural gas	2.7524
85	Education	2.6006
71	Architectural and engineering activities; technical testing and analysis	2.5341
97	Activities of households as employers of domestic personnel	2.3376
82	Office administrative, office support and other business support activities	2.3122
26	Manufacture of computer, electronic and optical products	1.9416
94	Activities of membership organisations	1.9403
30	Manufacture of other transport equipment	1.8505
72	Scientific research and development	1.8250
90	Creative arts and entertainment activities	1.7401
58	Publishing activities	1.6378
70	Activities of head offices; management consultancy activities	1.0892
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	1.0843
35	Electricity, gas, steam and air conditioning supply	1.0838
31	Manufacture of furniture	1.0624

In 2011, the Ankara Development Agency devised a plan called the Ankara Region Plan in order to increase the competitiveness of the Siteler furniture cluster. After having done several interviews with people from chambers and academia, the agency identified several problems such as insufficiency of capital, R&D problems,

ecological and energy problems, scarcity of skilled workers, and lack of organization due to the scale of the incumbent firms.

By the end of 2012, there were 2,285 firms and 12,643 employees working in the furniture sector in Ankara (SGK, statistical yearbook 2012). In 2002, there were 5,614 firms and 15,472 employees in the cluster (see General Census of Industry and Business Local Units Provinces, 2002). The cluster declined over the ten years because of the problems mentioned above.

4.5 The tourism cluster in Antalya

Antalya is at the heart of the tourism cluster in the Mediterranean region of Turkey. The tourism sector started to appear in the 1960s and was first confined mainly to the domestic market with state holiday camps and holiday homes, but after the mid-1980s, the fledgling international tourism sector started to take off (<http://www.antalyaguide.org>). As shown in Table 11 and Table 12, the high LQs in hotels and restaurants, air transport, water transport and recreational, cultural and supporting activities confirm the aforementioned statement. With the development of tourism in Antalya, there have been numerous segments of tourism that started to grow also, such as golf tourism, trekking, hunting activities, convention tourism and so on. The LQ figures for 2012 prove that the tourism cluster in Antalya has grown substantially in ten years; the total of the LQs for accommodation and food and beverage service activities tripled the LQ of hotels and restaurants in ten years.

Table 11. Location Quotients (2002) – Antalya

NACE Rev 1.1	Sector	LQ Antalya
55	Hotels and restaurants	3.3436
71	Renting of machinery and equipment without operator and of personal and household goods	3.1767
62	Air transport	2.8999
63	Supporting and auxiliary transport activities; activities of travel agencies	2.3547
70	Real estate activities	1.3778
61	Water transport	1.3371
92	Recreational, cultural and sporting activities	1.2430
85	Health and social work	1.2070
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	1.1874
93	Other service activities	1.1351
80	Education	1.0602
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	1.0331
74	Other business activities	1.0274

Table 12. Location Quotients (2012) – Antalya

NACE Rev. 2	Sector	LQ Antalya
55	Accommodation	9.6029
79	Travel agency, tour operator reservation service and related activities	4.0744
37	Sewerage	3.3238
39	Remediation activities and other waste management services	2.7274
90	Creative arts and entertainment activities	2.6237
36	Water collection, treatment and supply	2.4564
01	Crop and animal production, hunting and related service activities	2.2549
61	Telecommunications	2.0267
93	Sports activities and amusement and recreation activities	1.9488
68	Real estate activities	1.9404
02	Forestry and logging	1.8010
66	Activities auxiliary to financial services and insurance activities	1.6281
82	Office administrative, office support and other business support activities	1.4471
51	Air transport	1.4316
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	1.3985
74	Other professional, scientific and technical activities	1.3746
41	Construction of buildings	1.3744
47	Retail trade, except of motor vehicles and motorcycles	1.3686
86	Human health activities	1.2634
56	Food and beverage service activities	1.0018

Antalya attracts a third of the foreigners coming to Turkey.

Table 13. Foreigners Arriving in Antalya

	Antalya	Turkey	Ant. / Tr. (%)
1990	808 379	5 389 308	15.00
2000	3 145 598	10 428 153	30.16
2005	6 882 246	21 124 886	32.58
2006	6 011 183	19 819 833	30.33
2007	7 291 356	23 340 911	31.24
2008	8 564 510	26 336 677	32.52
2009	8 260 399	27 077 114	30.51
2010	9 246 814	28 632 204	32.30
2011	10 464 425	31 456 076	33.27

Source: Turkish Culture and Tourism Ministry, 2012

By the end of 2011, there were 862 touristic establishments in Antalya. Table 14 presents the number of establishments, rooms, and beds.

Table 14. Tourism Capacity of Antalya in 2011

	Number of Establishments	Number of Rooms	Number of Beds
Touristic Establishments and Establishments with Investment Certificate	862	186 656	400 622

Source: Antalya Governorship website (<http://www.antalya.gov.tr>), 2012

4.6 The tourism cluster in Muğla

Muğla is a vacation destination for Turkish and foreign tourists with several counties such as Bodrum, Marmaris, Datça and Fethiye. According to the SGK's Statistical Yearbook (2012), there were 1,490 hotels and similar accommodations with 10,574 employees.

The hotels are generally SMEs targeting only customers who come there in the summer. They are not equipped with the necessary conference rooms or similar venues to serve different customers all year round. Muğla has the advantage of being easily accessible by all forms of transportation; highways link its counties to Muğla, there are several harbors in Bodrum, Marmaris, Fethiye, and Güllük; and there are two airports, located in Bodrum and Dalaman.

Table 15 and Table 16 present the LQs for 2002 and 2012, respectively.

Table 15. Location Quotients (2002) – Muğla

NACE Rev 1.1	Sector	LQ Muğla
61	Water transport	14.6224
71	Renting of machinery and equipment without operator and of personal and household goods	4.5136
55	Hotels and restaurants	3.3801
14	Other mining and quarrying	2.7120
40	Electricity, gas, steam and hot water supply	2.1805
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.3230
60	Land transport; transport via pipelines	1.2758
21	Manufacture of pulp, paper and paper products	1.2588
93	Other service activities	1.1756
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	1.1653
10	Mining of coal and lignite; extraction of peat	1.1069
85	Health and social work	1.0022

Table 16. Location Quotients (2012) – Muğla

NACE Rev. 2	Sector	LQ Muğla
03	Fishing and aquaculture	22.418
50	Water transport	4.9932
55	Accommodation	4.9783
02	Forestry and logging	4.0457
08	Other mining and quarrying	3.6169
07	Mining of metal ores	3.5755
51	Air transport	3.4948
68	Real estate activities	3.1261
77	Rental and leasing activities	2.2990
97	Activities of households as employers of domestic personnel	2.2882
33	Repair and installation of machinery and equipment	2.0033
05	Mining of coal and lignite	1.9470
37	Sewerage	1.9054
61	Telecommunications	1.8307
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.8148
79	Travel agency, tour operator reservation service and related activities	1.7555
56	Food and beverage service activities	1.6489
35	Electricity, gas, steam and air conditioning supply	1.5950
93	Sports activities and amusement and recreation activities	1.5491
41	Construction of buildings	1.4861
43	Specialised construction activities	1.4685

4.7 The textile cluster in Denizli

Denizli has been a textile province since antiquity. In 1927, there were 1,581 enterprises in Denizli, 27 per cent of which were textile-related and 98 per cent of which had fewer than 10 workers. In the mid-1930s, cooperatives emerged in Denizli and individuals and firms started to join forces to buy cotton yarn at favorable terms. This event set the stage for industrialization in Denizli. In the 1940s, the number of small textile cooperatives continued to increase because a state enterprise, the Sümerbank Yarn Factory, was supplying cotton yarn to manufacturers via the cooperatives. In the 1960s, electrical looms were being used by Denizli textile manufacturers. In the early 1970s, Denizli was one of the provinces that were given priority in terms of development status. In 1974, the Denizli Dyeing and Printing Factory was founded and it provided high-quality cotton yarn treatment, dyeing and printing services to producers. In the 1980s, the textile industry gained momentum thanks to the liberal government policies of the era. Producers had the opportunity to import the required machinery easily, which triggered the transition from home/workshop production to larger, sometimes factory-based production. The real increase in exports occurred in the second half of the 1980s and throughout the 1990s (Oz, 2004).

According to the Denizli Chamber of Industry (DSO), by the end of the year 2009, there were 617 firms belonging to the textile and apparel industry in Denizli, which was nearly the half of all firms in Denizli, 1,240 firms in total. The LQs point to the importance of the industry for the city. Table 17 and Table 18 show the LQs for 2002 and 2012, respectively.

Table 17. Location Quotients (2002) – Denizli

NACE Rev 1.1	Sector	LQ Denizli
17	Manufacture of textiles	4.8536
18	Manufacture of wearing apparel; dressing and dyeing of fur	2.0531
26	Manufacture of other non-metallic mineral products	1.7347
21	Manufacture of pulp, paper and paper products	1.7256
14	Other mining and quarrying	1.5956

Table 18. Location Quotients (2012) – Denizli

NACE Rev. 2	Sector	LQ Denizli
13	Manufacture of textiles	6.0897
07	Mining of metal ores	3.0026
23	Manufacture of other non-metallic mineral products	2.9057
08	Other mining and quarrying	2.1474
03	Fishing and aquaculture	1.8581
02	Forestry and logging	1.6338
17	Manufacture of paper and paper products	1.5712
49	Land transport and transport via pipelines	1.5629
36	Water collection, treatment and supply	1.4675
11	Manufacture of beverages	1.2533

The main textile product exported by wearing apparel industry in Denizli is towels, followed by bathrobes and dressing gowns, and bed sheet and bedclothes industries.

Table 19 shows Denizli's share in Turkey's textile exports.

Table 19. Denizli's Share in Turkey's Textile Exports

Products	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)
Towel	70.93	70.77	74.58	72.21	75.05	74.03
Bathrobe-Dressing Gown	69.63	69.42	65.19	66.14	66.70	69.05
Bed Sheet- Bad Cloth	24.11	32.95	42.96	49.40	49.99	44.47

Source: DSO, <http://www.dso.org.tr>, 2012

4.8 The carpet cluster in Gaziantep

The Gaziantep machine-woven carpet industry emerged in the 1970s and production levels were satisfying at the end of that decade. The sector grew as a result of an export drive in the 1980s, and in the 1990s the upgrading of technology led to improved quality (Oz, 2004). Currently, Gaziantep has three organized industrial zones covering 12 million m². The first Organized Industrial Zone was established on 210 hectares of land, with 138 active firms. In general, such firms are medium sized and are active in sectors such as textile, machinery metal, chemicals, plastics and food. There are 20,000 employees working in the First Organized Industrial Zone. The second Organized Industrial Zone was established on 450 hectares of land and spaces have been allocated to 277 industrials. Although its substructure has not been completed yet, 150 large scale firms have started acting, and currently 100 firms are at the construction stage in this zone. The main industries found here include textiles, chemicals, plastics and food. There are 20,000 employees working there. The third Organized Industrial Zone has been planned on 540 hectares of land. Currently 100 firms have already started acting in the textile, food, building materials and synthetic weaving sectors. In addition to this, a fourth Organized Industrial Zone is at the establishment stage to satisfy the demands of the remaining industries in Gaziantep

(Gaziantep Chamber of Industry website, <http://www.gso.org.tr>). The yarn sector is also very competitive in Gaziantep and serves as a supplier to the industry, too. Another closely-related industry in Gaziantep is the machinery sector; it is especially competitive in machinery for yarn production (Oz, 2004).

Gaziantep became a huge production center for machine-made carpets in Turkey, and there are more than 250 companies active in the sector employing more than 40,000 people. In 2010 Gaziantep produced 90% of the machine-made carpets produced in Turkey. Again in 2010, the total export figure for Turkey in machine-made carpets was 1.1 billion US dollars and 890 million USD of machine-made carpets (78%) was exported by companies in Gaziantep to 108 countries all over the world. According to International Trade Center-Trade Map, Turkey was the third largest exporter of machine-made carpets in the world in 2010. Belgium was in the lead in the sector while China and Turkey are closing the gap for becoming the world leader (Gaziantep Chamber of Commerce (GTO), <http://www.gto.org.tr>, 2012).

The machine-made carpet industry is highly equipped with large-scale and latest technology machinery. It is estimated that there are more than 250 companies in Gaziantep with a machinery park formed by a total of 850 machineries with the latest technology. The raw materials used for production such as polypropylene yarn are produced mainly in Gaziantep. The jute yarn is imported from Bangladesh, India or Pakistan and the machinery used in the industry comes from Belgium. The industry is very well integrated with the producers of carpet yarn, carpet, and other sub-industries such as carpet sticker producers and chemical producers for the industry in Gaziantep (GTO, <http://www.gto.org.tr>). Table 20 and Table 21 present the LQs for 2002 and 2012, respectively.

Table 20. Location Quotients (2002) – Gaziantep

NACE Rev 1.1	Sector	LQ Gaziantep
17	Manufacture of textiles	4.1400
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	2.3818
15	Manufacture of food products and beverages	1.9413
24	Manufacture of chemicals and chemical products	1.9053
25	Manufacture of rubber and plastic products	1.5804
41	Collection, purification and distribution of water	1.5694
93	Other service activities	1.1475
85	Health and social work	1.1097
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	1.0402

Table 21. Location Quotients (2012) – Gaziantep

NACE Rev. 2	Sector	LQ Gaziantep
13	Manufacture of textiles	6.3512
15	Manufacture of leather and related products	3.5473
22	Manufacture of rubber and plastic products	2.7805
17	Manufacture of paper and paper products	2.1176
10	Manufacture of food products	1.5246
36	Water collection, treatment and supply	1.4483
81	Services to buildings and landscape activities	1.3541
77	Rental and leasing activities	1.2957
92	Gambling and betting activities	1.2416
41	Construction of buildings	1.2066
97	Activities of households as employers of domestic personnel	1.2009
88	Social work activities without accommodation	1.1880
86	Human health activities	1.1461
87	Residential care activities	1.0847
46	Wholesale trade, except of motor vehicles and motorcycles	1.0556
20	Manufacture of chemicals and chemical products	1.0424
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	1.0200
91	Libraries, archives, museums and other cultural activities	1.0082

A high LQ quotient in the manufacture of textiles show that the machine-made carpet industry plays an important role in Gaziantep's economy.

4.9 Measurement of the constructs

The following scales will be used for the measurement of the constructs involved in the theoretical model of this thesis. The scales can be found in Appendix C.

The cluster scale is taken from Saric (2012). The cluster construct is defined as a second-order construct, and it has two dimensions:

- 1) Geographical concentration
- 2) Inter-firm linkages

The third item on the geographical concentration scale is modified and Regional Gross Value Added (GVA) is used instead of gross industrial output value in order to adapt the scale to the Turkish statistical data. TÜİK defines Regional Gross Value Added (GVA) as a value which is equal to the sum of the values of all goods and services produced by resident local units engaged in domestic production activities in a region in a given period of time less the total inputs which are used in the production of these goods and services.

The entrepreneurial orientation (EO) scale is also taken from Saric (2012). The entrepreneurial orientation construct is defined as a second-order construct having 3 distinct dimensions:

- 1) Proactiveness
- 2) Innovativeness
- 3) Risk-taking

Proactiveness is operationalized with four items, three of which originate from well-established scales. The first indicator is adapted from Venkatraman (1989) and the following two indicators are taken from Lumpkin and Dess (1996); the last one is from Saric's (2012) case study in China. For innovativeness and risk-taking, the four items are adapted from Lumpkin and Dess (1996).

For business ties, the respondents are asked to evaluate the questions on a five-point scale, ranging from very little to very much, with items taken from Li, Poppo, and Zu (2008). As for support ties, the first item is adapted from Li, Poppo, and Zu (2008) and the other items were created by the author of the thesis.

The strategic learning scale is taken from Siren et al. (2012). They adapted the items from Bontis, Crossan & Hulland (2002), and Tippins & Sohi (2003) for strategic knowledge distribution; Bontis et al. (2002), Sinkula, Baker, & Noordewier (1997), and Tippins & Sohi (2003) for strategic knowledge interpretation, and Bontis et al. (2002), Crossan & Berdrow (2003) for strategic knowledge implementation.

Finally, the performance scale items are taken from Saric's (2012) study. This thesis uses subjective measures of firm performance based on the judgment of the respondents. This method of performance measurement is often used in the Turkish context (Tatoglu and Glaister, 1998; Kula, 2005). In fact, Covin, Slevin and Schulz (1994) and Venkatraman and Ramanujam (1986) report consistency between the performance perceptions of managers and objective performance measures.

Control variables will be firm age, firm size, and environmental dynamism. The literature review on the relationship between clusters and firm performance showed that firm age and size can have an impact on firm performance. Also, prior studies suggest that strategic learning plays a particularly important role in dynamic business environments (Lichtenthaler, 2009; Teece, 2007). The control variable for environmental dynamism reflects the demand uncertainty in the market, and the aim is to rule out as much of the environment's effects on strategic learning and firm performance as possible.

The construct and the three items are taken from Siren et al.'s (2012) study; they adapted items from Green et al. (2008), and the items measure the difficulty of

forecasting product demand, the difficulty of forecasting customer requirements and preferences, and the level of instability in the industry resulting from major economic, technological, social, or political forces.

4.10 Data collection

The empirical analysis follows a survey-based research design using primary quantitative data. The data collection was conducted through a questionnaire using existing measures with some minor changes in order to adapt them to the Turkish business environment. The questionnaire consists of eight parts. The first part comprises items about the geographical concentration. The second part seeks information regarding the inter-firm linkages in clusters and the entrepreneurial orientation of the firm. The third and the fourth parts address social ties related questions in which the respondents can assess the degree to which they used their business and support ties in the last three years. The fifth part consists of items related to the strategic learning capability of the firm. The sixth part is formed of items to measure the profit and sales performance of the firm compared to its rivals in the last three years. Finally, the seventh and eighth parts include the relevant control variables and general information about the company and the person who filled out the questionnaire.

As the questionnaire focuses on strategic issues, it requires respondents that are highly knowledgeable about their firms' overall goals, past, present, and future directions as well as their rivals, markets and customers. Therefore, the targeted respondents were C-level Turkish managers in the previously mentioned nine clusters. The questionnaire was translated using the back-translation method. A native Turkish speaker proficient in English first translated the questionnaire from

English to Turkish; it was then translated back into English by a second independent native Turkish speaker. This was repeated until both versions turned out to be consistent. A pre-test in five Turkish companies gave the opportunity to test the questionnaire for clarity, wording, and logic. The companies that participated in the pre-test were not included in the final data sample.

The questionnaire was attached to an email written in Turkish along with an official letter signed by the Head of the Management Department and thesis advisor, stating the purpose of the study and guaranteeing anonymity for the respondents. The data collection process took seven months, from February to August 2015.

The contact information and email addresses of the targeted cluster firms were extracted from the databases of the chambers of commerce and/or industry of the chosen clusters. The websites SITELER (<http://www.sitelerankara.com>) for the Ankara furniture cluster and ETS Tours (<http://www.etstur.com>) for the Antalya and Muğla tourism clusters were also useful in this process. Respondents were contacted twice; firms that had only a fax number were sent two faxes, the second of which was sent one week after the first one. Firms that had only an email address were sent two emails and firms that had both a fax number and an email address were sent an email and a fax with a one-week interval. In total, it was possible to reach 4,676 firms, from whom 167 responses were obtained. Two firms turned out to be working in the construction industry, so they were removed from the sample.

In the final step, the data examination process was carried out. Lack of normality in variable distributions can distort the results of multivariate analysis. This problem is much less severe with Partial Least Squares Structural Equation Modeling (PLS-SEM) because it is a nonparametric statistical method. Different from maximum likelihood (ML)-based Covariance-based Structural Equation

Modeling (CB-SEM), it does not require the data to be normally distributed. Nevertheless, normality checks were performed to check for extremely non-normal data as they can be problematic in the assessment of the parameters' significances. Only four items had skewness and kurtosis values out of the range -1 and +1: the first indicator of the geographical concentration construct, the first indicator of the inter-firm linkages construct and the first and the last indicators of the support ties construct. There was no need of transformation for these variables, as they were not considered extremely non-normal and were expected to be skewed because of the content of the items. However, the variable size had extreme skewness (5.377) and kurtosis (33.624) values; therefore, log transformation was applied and skewness and kurtosis values decreased to 0.215 and -0.190, respectively. To identify outliers, standardized values were checked. Two cases exceeded the -3.5 and +3.5 range, and box plots indicated them as outliers for many indicators. Mahalanobis distance values also indicated these two cases for elimination. Thus, they were removed from the sample. As for missing values, there were no cases with missing values exceeding 15% of the observation, but three cases were eliminated because of low quality and inconsistent responses. There were only 5 cases with missing values, and respondents were contacted immediately after they returned the questionnaire to get answers for the missing few items. Finally, there were no missing values, the final sample consisted of 160 valid responses, bringing the total response rate to 3.42%. The minimum sample size in a PLS-SEM analysis should be equal to the larger of the following (10 times rule): (1) ten times the largest number of formative indicators used to measure one construct or (2) 10 times the larger number of structural paths directed at a particular construct in the structural model. In the present conceptual model, the most complex endogenous construct is the dependent variable

performance. Including the control variables, it has 12 exogenous constructs. Hence, the minimum sample number is 120, which is below the number of 160 valid responses.

To further ensure quality, the final sample was subjected to tests for Common Method Bias and Nonresponse Bias. In this study, respondents answer questions regarding both independent and dependent variables at the same time. Therefore, Common Method Bias may arise as responses by a single source can inflate or deflate correlation values between two or more variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To eliminate this bias to happen, two precautions can be taken. First, ensuring anonymity reduces the respondent's urge to provide socially desirable, expected, or accommodating answers (Podsakoff et al., 2003). Second, separating dependent and independent variables from each other and arranging them into different parts of the questionnaire decreases the likelihood that the respondent artificially answers every question in the same way (Podsakoff & Organ, 1986). The present study included both elements in the design of the questionnaire. Ex-post, the Harman-Single-Factor-Test serves as a statistical test for Common Method Bias. Basically, this test subjects all items to exploratory factor analysis. A Common Method Bias is said to exist if a single factor emerges or a first factor explains the majority of the variance (Podsakoff & Organ, 1986). In the present study, the Harman-Single-Factor-Test does not yield any evidence for the existence of Common Method Bias. The principal component factor analysis revealed the presence of four distinct factors with eigenvalue greater than 1.0, rather than a single factor. The four factors together accounted for 66 % of the total variance; the first (largest) factor did not account for a majority of the variance (36 %). Thus, no general factor is apparent.

Lastly, the final sample was tested for Nonresponse Bias. This test examines differences between the answers of early respondents and those that have not participated in the study. The test posits that late respondents resemble the behavior and attitudes of non-respondents. The sample is therefore divided into early and late respondents. A Nonresponse bias is said to exist, if a t-test reveals significant differences between both groups in terms of demographic variables and key constructs. However, in the present study the questionnaires were sent out over an extended period of time as opposed to a specific point in time. Consequently, it was not possible to divide the group into early and late respondents, so an alternative approach was adopted; the first group consisted of those responses obtained after the first email or fax had been sent out, whereas the second group consisted of those who answered after the second email or fax. This second group represents the late respondents. The comparison of the groups in terms of key variables revealed no significant differences, indicating no Nonresponse Bias.

4.11 Descriptive sample characteristics

Figure 4 shows the age of the surveyed companies. The average company was 19.59 years old, while the median company was 19 years old.

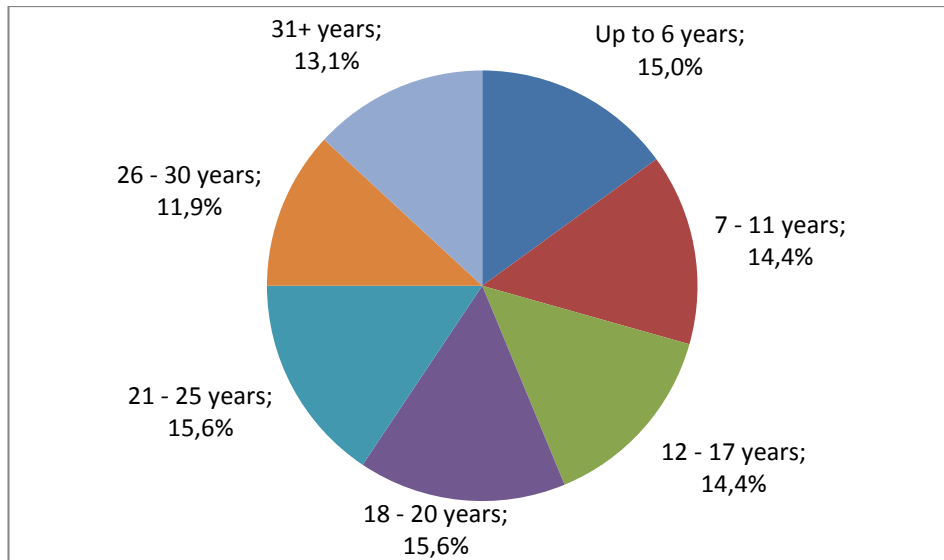


Figure 4 Age distribution of the surveyed companies

Designed as a cross-industry survey, the final sample of this study included respondents from different industries. As shown in Figure 5, companies from the textile (30%) as well as the tourism (22.5%) and furniture (20.0%) industries account for more than 70% of the respondents, while the wearing apparel (11.3%), the automotive (10.6%), and the carpet (5.6%) industries come in third, fourth and fifth, respectively. The final sample therefore approximately reflects the overall pattern of Turkey's traditionally dominant key industries.

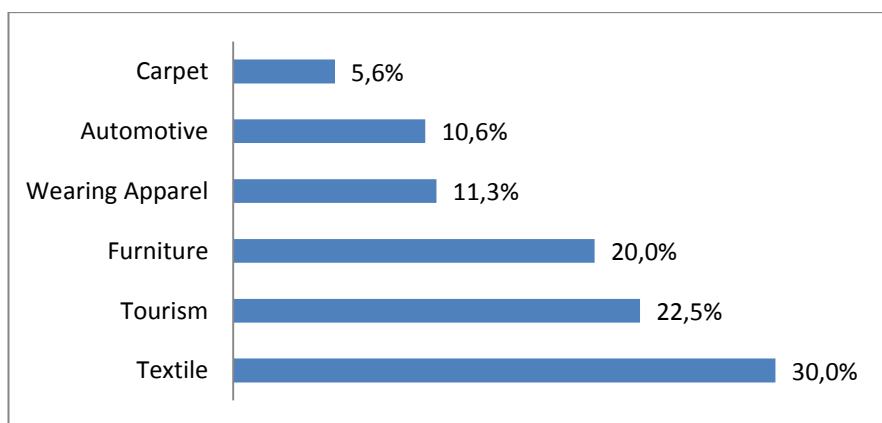


Figure 5 Surveyed industries

Figure 6 presents the distribution of responses according to the chosen clusters.

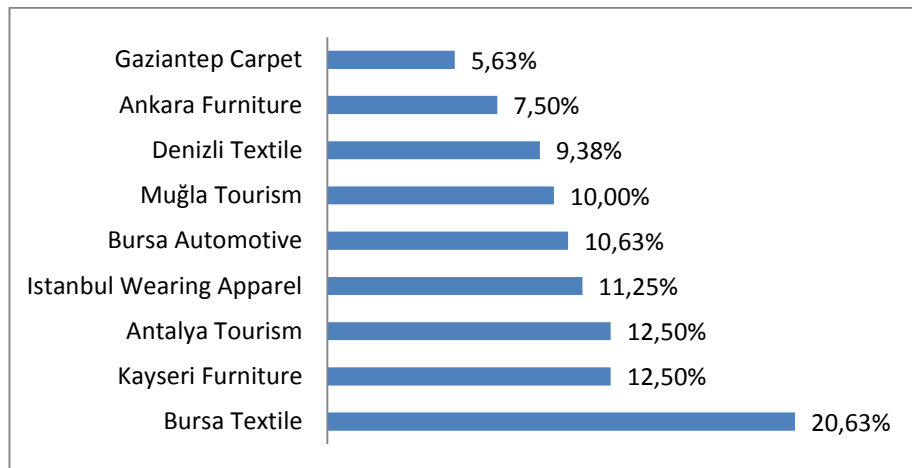


Figure 6 Surveyed clusters

Figure 7 shows the size of the surveyed companies. The average firm size was 187 employees, while the median company had 67 employees. The minimum firm size was 3, while the maximum was 3,500 employees. Nearly half of the companies had up to 50 employees. Descriptive statistics can be found in Appendix E.

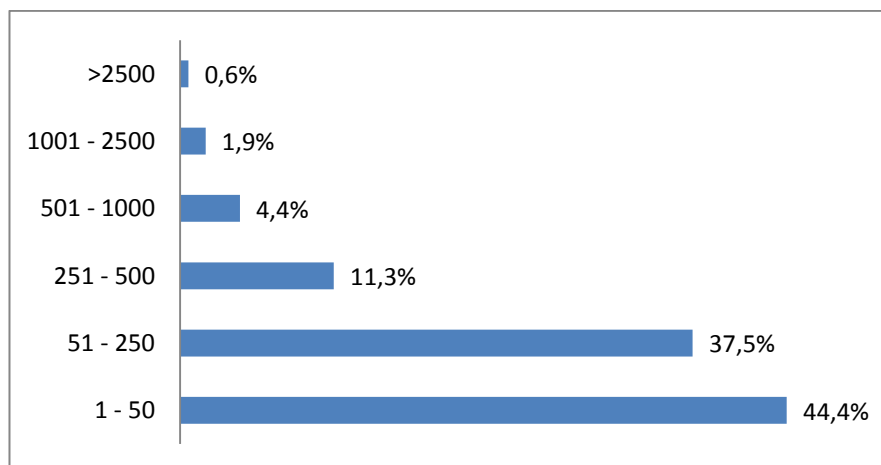


Figure 7 Number of employees of the surveyed companies

4.12 Data analysis methodology: Partial least squares

This study makes use of advanced SEM techniques to express and analyze causal networks of independent and dependent variables and their underlying relationships.

To assess a structural equation model, either CB-SEM or PLS techniques can be

used. These methods differ in their objectives and analyses, the assumptions on which they are based, and the nature of the fit statistics they produce.

4.12.1 Structural equation modeling using PLS-SEM

A structural equation model is formally defined by two submodels (see Figure 8).

First, there is a structural model (inner model in the context of PLS-SEM) that represents the constructs (circles or ovals). The structural model also displays the relationships (paths) between the constructs. Second, there are the measurement models (outer models in PLS-SEM) of the constructs and the indicator variables (rectangles). In Figure 8, there are two types of measurement models: one for the exogenous latent variables (i.e., those constructs that explain other constructs in the model) and one for the endogenous latent variables (i.e., those constructs that are being explained in the model).

The error terms are connected to the endogenous constructs and reflectively measured variables by single-headed arrows. Error terms represent the unexplained variance when path models are estimated. In contrast, the formatively measured indicators x_1 to x_6 , where the relationship goes from the indicator to the construct, do not have error terms. The structural model also contains error terms (z_3 and z_4). In contrast, the exogenous latent variables that explain only other latent variables in the structural model do not have an error term.

The process of defining the relationships between latent variables and their assigned measure is also known as operationalization. The actual analysis and interpretation of a structural model equation model proceeds in two steps: (1) The assessment of reliability and construct validity of the measurement model, and (2) the assessment of the structural model. This sequence ensures that the chosen

measures are valid and reliable, before the quality of the structural model itself is evaluated (Hair, Hult, Ringle, & Sarstedt, 2014).

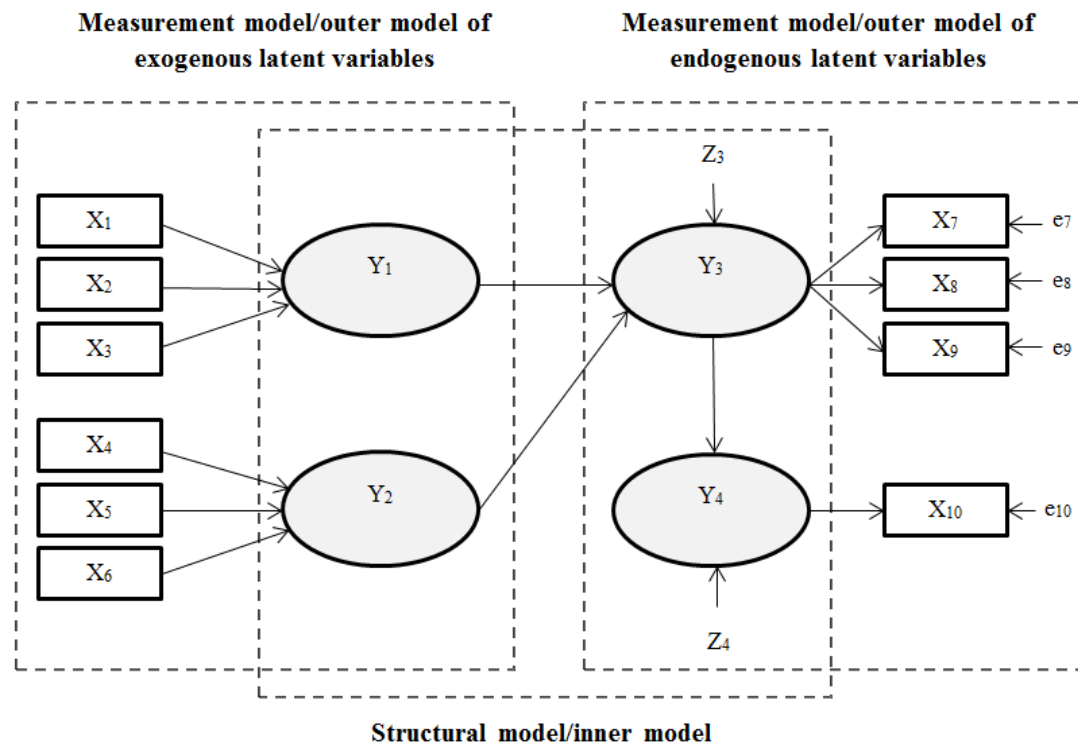


Figure 8 A simple path model
Source: Hair et al., 2014: 11

To decide when to use PLS-SEM versus CB-SEM, researchers should focus on the characteristics and objectives that distinguish the two methods. In situations where theory is less developed, researchers should consider using PLS-SEM as an alternative approach to CB-SEM, especially if the primary objective of applying structural modeling is prediction and explanation of the target construct. In situations where prior theory is strong and the objective lies in further development and testing, CB-SEM is the most appropriate statistical methodology (Saric, 2012, p. 157).

The estimation procedure for PLS-SEM is an ordinary least squares (OLS) regression-based method rather than maximum likelihood (ML) estimation procedure for CB-SEM. PLS- SEM uses available data to estimate the path relationships in the model with the objective of minimizing error terms of the endogenous constructs. Thus, PLS-SEM estimates coefficients that maximize the R^2 values of the

endogenous constructs. This feature achieves the prediction objective of PLS-SEM. Therefore, researchers should choose PLS-SEM when their objective is theory development and explanation of variance (prediction of constructs).

PLS-SEM works efficiently with small sample sizes and complex models and makes practically no assumptions about the underlying data. Also, PLS-SEM can easily handle reflective and formative measurement models, as well as single-item constructs, with no identification problems. In addition, PLS-SEM has a greater statistical power than that of CB-SEM. That is, PLS-SEM is more likely to render a specific relationship significant when it is in fact significant in the population (Hair et al., 2014).

Further research characteristics that favor the use of PLS in this study are depicted in Table 22.

Table 22. Reasons for the use of PLS in this study

Research Characteristics suitable for PLS	Yes / No
The research objective is exploratory in nature.	Yes
The sample size is relatively small.	Yes
Constructs are operationalized using formative measures.	Yes
The theoretical model involves moderator effects.	Yes

The present study is primarily concerned with new theory development and elaboration. The aim was to identify characteristics that allow firms to create and defend competitive advantages through clusters and examine how these characteristics influence performance under different cluster-contingencies. To the knowledge of the researcher, the effects of strategic learning capability on firm performance are underexplored in the cluster context; some recent studies have used

a strategic learning concept but there is no connection with cluster firms. Though the sample is adequate for this conceptual model, it comprises 160 responses and would be considered rather small. Also, some constructs are operationalized in a formative mode. Finally, the conceptual model includes moderator effects. Moderator effects are calculated as the product of a predictor and a moderator variable. Their error terms are therefore partially correlated with the error terms of the predictor and moderator variables. Unlike CB-SEM, PLS does not assume uncorrelated error terms and therefore is more appropriate to model and assess moderator effects.

4.12.2 Operationalization of latent variables

A measurement model can either include formative or reflective indicators, or consist of both, depending on the nature of the latent variables. The decision to operationalize a construct as reflective or formative should be based on theoretical considerations regarding the hypothesized causal relationship to its indicators.

Reflective constructs reflect the unobserved construct like a mirror; the construct gives rise to or causes the indicators. The causality is from the construct to the indicators. The parameter value of reflective indicators depends on the value of the construct. As long as the indicators are reliable, their variance is determined completely by the variance of the construct. Therefore, reflective indicators must be strongly correlated (Saric, 2012, p. 158).

Formative indicators define or cause the construct. An important characteristic of formative indicators is that they are not interchangeable, as is true with reflective indicators. Hence, each indicator for a formative construct captures a specific aspect of the construct's domain. Taken together, the items ultimately determine the meaning of the construct, which means that omitting an indicator

potentially alters the nature of the construct. Therefore, it is important to be meticulous about the breadth of coverage of the construct to ensure that the domain of content of the focal construct is adequately captured (Hair et. al, 2014, p. 43).

Constructs can also be conceptualized as higher-order constructs consisting of multiple dimensions of lower-order constructs. The decision to model a construct as a first- or higher-order construct depends on the level of abstraction. In practice, its use is generally limited to second-order constructs due to increasing complexity. The key advantage of second order constructs is the ability to distinguish between different effects of their underlying first-order constructs. Consequently, second-order constructs are useful to test abstract theoretical concepts (Saric, 2012, p. 159).

There are four possible types of second-order factor operationalization (see Figure 9). However, not all of them are regarded as equally meaningful:

1. Type I (reflective first-order, reflective second-order): This model consists of reflective first-order constructs and a reflective second-order construct. It is the most common model in literature, but it is criticized because the second-order construct can be measured directly by the indicators of the first order-constructs (Saric, 2012).
2. Type II (reflective first-order, formative second-order): As the error term is measured on the first level, it is the most appropriate type to model independent dimensions of an abstract construct.
3. Type III (formative first-order, reflective second-order): This model is deemed problematic, as the first-order constructs represent reflective, interchangeable indicators of the second-order construct. Therefore, they are not independent dimensions of the second-order construct.
4. Type IV (formative first-order, formative second-order): As both first-order and second-order constructs are measured formally, it is possible to determine the

influence of individual indicators and first-order constructs and is commonly used in studies on success factors (Saric, 2012, p. 160-161).

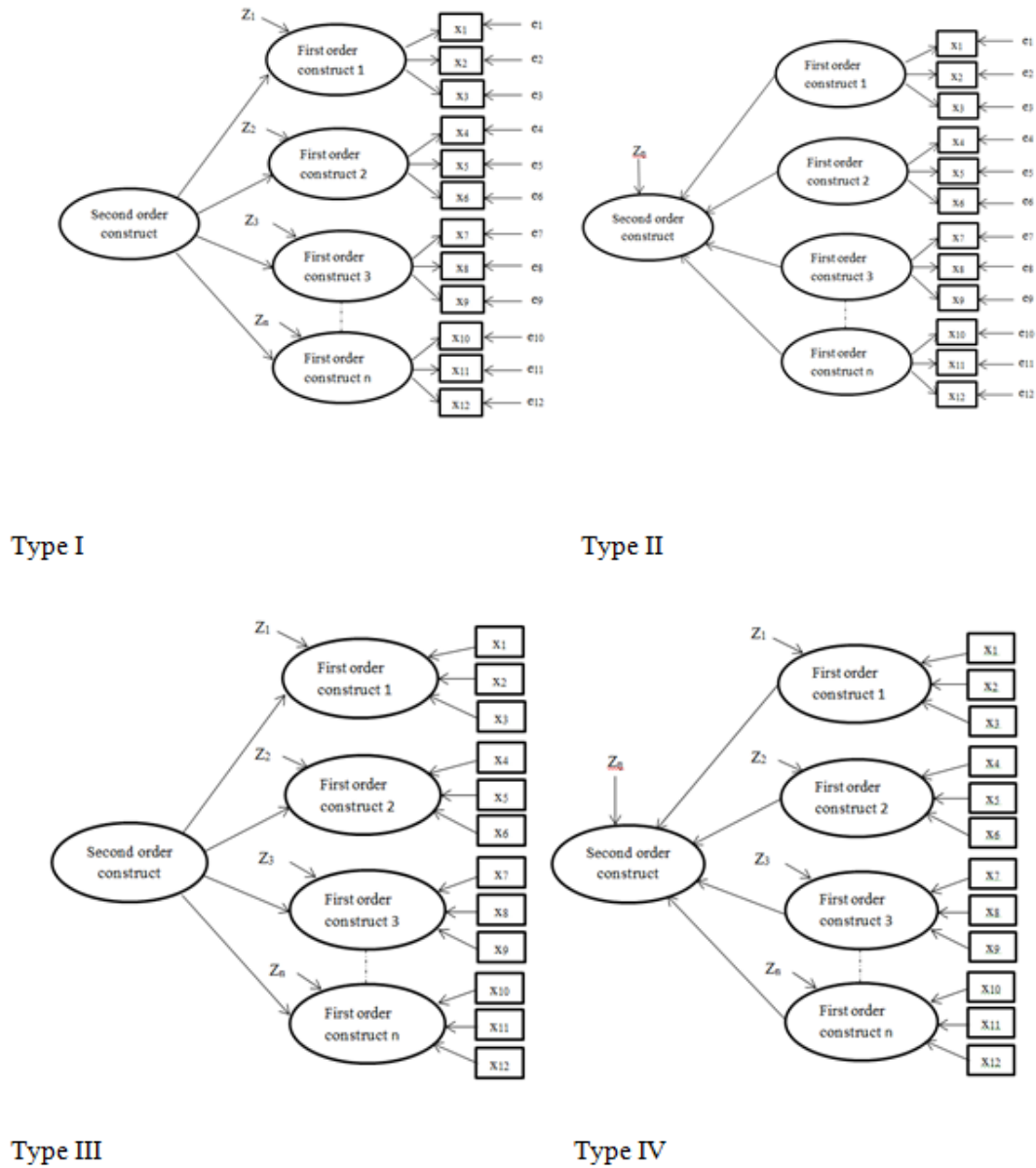


Figure 9 Alternative second-order factor operationalizations
Adapted from Saric, 2012: 160

In this study, the constructs cluster and EO are defined as Type II second-order constructs and strategic learning capability is defined as a Type I second-order construct. The model will be assessed by SmartPLS 3.2.1.

4.12.3 Evaluation of the PLS-SEM results

Model estimation delivers empirical measures of the relationships between the indicators and the constructs (measurement models), as well as between the constructs (structural model). The empirical measures allow comparison of the theoretically established measurement and structural models with reality, as represented by the sample data. In other words, it is possible to determine how well the theory fits the data.

Unlike with CB-SEM, a single goodness-of-fit criterion is not available in PLS-SEM. Fit statistics for CB-SEM are derived from the discrepancy between the empirical and the model-implied (theoretical) covariance matrix, whereas PLS-SEM focuses on the discrepancy between the observed (manifest variables) values or approximated (latent variables) values of the dependent variables and the values predicted by the model in question. Hence, researchers using PLS-SEM rely on measures indicating the model's predictive capabilities to judge the model's quality.

4.12.3.1 Assessment of reflective measurement models

Assessment of reflective measurement models includes composite reliability to evaluate internal consistency, individual indicator reliability, and average variance extracted (AVE) to evaluate convergent validity. In addition, the Fornell-Larcker criterion and cross loadings are used to assess discriminant validity.

Internal consistency reliability

The first criterion to be evaluated is internal consistency reliability. The traditional criterion for internal consistency is Cronbach's alpha, which provides an estimate of the reliability based on the intercorrelations of the observed indicator variables. It

assumes that all indicators are equally reliable (i.e., all the indicators have equal outer loadings on the construct). But PLS-SEM prioritizes the indicators according to their individual reliability. Furthermore, Cronbach's alpha is sensitive to the number of items in the scale and generally tends to underestimate the internal consistency reliability. Therefore, it can be used as a conservative measure of internal consistency reliability. Because of Cronbach's alpha's limitations in the population, a different measure of internal consistency reliability, composite reliability (ρ_c), can be used instead. This type of reliability takes into account the different outer loadings of the individual indicator variables and is calculated as follows:

$$\rho_c = \frac{(\sum_i l_i)^2}{(\sum_i l_i)^2 + \sum_i \text{var}(e_i)}$$

whereby l_i symbolizes the standardized outer loading of the indicator variable i of a specific construct, e_i is the measurement error of the indicator variable i , and $\text{var}(e_i)$ denotes the variance of the measurement error, which is defined as $1-l_i^2$.

The composite reliability varies between 0 and 1, with higher values indicating higher levels of reliability. Its interpretation resembles that of Cronbach's alpha. Specifically, composite reliability values of 0.60 to 0.70 are acceptable in exploratory research, while in more advanced stages of research, values greater than 0.70 regarded as satisfactory. Finally, composite reliability values below 0.60 indicate a lack of internal consistency reliability.

Convergent validity

Convergent validity is the extent to which a measure correlates positively with alternative measures of the same construct. To establish convergent validity, researchers consider the outer loadings of the indicators, as well as the average variance extracted (AVE).

High outer loadings on a construct indicate the associated indicators have much in common, which is captured by the construct. This characteristic is also called indicator reliability. A common rule of thumb is that the (standardized) outer loadings should be 0.708 or higher. The rationale behind this rule can be understood in the context of the square of a standardized indicator's outer loading, referred to as the communality of an item. Communality represents how much of the variation in an item is explained by the construct and is described as the variance extracted from the item. Generally, a latent variable should explain a substantial part of each indicator's variance, usually at least 50%, which, in turn, implies that the variance between the construct and its indicator is larger than the measurement error variance. Therefore, the indicator's outer loading should be above 0.708 since that number squared (0.708^2) equals 0.50.

In general, indicators with outer loadings between 0.40 and 0.70 should be considered for removal from the scale only when deleting the indicator leads to an increase in the composite reliability (or the AVE) above the suggested threshold value. Also, it is important to pay attention to the effects of item deletion on content validity; indicators with weaker loadings are sometimes retained because of their contribution to content validity. However, indicators with very low outer loadings (below 0.40) should always be eliminated from the scale.

A common measure to establish convergent validity on the construct level is the average variance extracted (AVE). This criterion is defined as the grand mean value of the squared loadings of the indicators associated with the construct (i.e., sum of the squared loadings divided by the number of indicators). Hence, the AVE is equivalent to the communality of a construct. An AVE value of 0.50 or higher indicates that, on average, the construct explains more than half of the variance of its

indicators. Conversely, an AVE of less than 0.50 indicates that, on average, more error remains in the items than the variance explained by the construct.

Discriminant validity

Discriminant validity is the extent to which a construct is truly distinct from other constructs by empirical standards. Therefore, establishing discriminant validity means that a construct is unique and captures phenomena not represented by other constructs in the model. Two measures of discriminant validity have been proposed.

One method is to examine the cross loadings of the indicators. Specifically, an indicator's outer loading on the associated construct should be greater than all of its loadings on other constructs (i.e., the cross loadings). The presence of cross loadings that exceed the indicators' outer loadings represents a discriminant validity problem.

The Fornell-Larcker criterion is a second and more conservative approach to assessing discriminant validity. It compares the square root of the AVE values with the latent variable correlations. Specifically, the square root of each construct's AVE should be greater than its highest correlation with any other construct. The logic of this method is based on the idea that a construct shares more variance with its associated indicators than with any other construct.

4.12.3.2 Assessment of formative measurement models

Researchers should focus on establishing content validity before empirically evaluating formatively measured constructs. This requires ensuring that the formative indicators capture all (or at least major) facets of the construct.

The rules of thumb for the evaluation formative measurement indicators are presented in Table 23.

Table 23. Rules of Thumb for the Evaluation of Formative Measurement Indicators Results

- Assess the formative construct's convergent validity by choosing one of the three suggested procedures to examine convergent validity:
 - (1) Each indicator can be correlated to a global item that fully captures the content of the latent variable, and only those indicators that are significantly correlated with the item are retained.
 - (2) The formative indicators can be augmented by reflective indicators to a multiple effect indicators for multiple causes (MIMIC) model.
 - (3) Based on a thorough theoretical base, the formative latent construct can be linked to other reflectively measured constructs with which it is expected to be linked.
- Collinearity of indicators: Each indicator's tolerance (VIF) value should be higher than 0.20 (lower than 5). Otherwise, consider eliminating indicators, merging indicators into a single index, or creating higher-order constructs to treat collinearity problems.
- Examine each indicator's outer weight (relative importance) and outer loading (absolute importance) and use bootstrapping to assess their significance.
- When an indicator's weight is significant, there is empirical support to retain the indicator.
- When an indicator's weight is not significant but the corresponding item loading is relatively high (i.e., > 0.50), the indicator should generally be retained.
- If both the outer weight and outer loading are nonsignificant, there is no empirical support to retain the indicator and it should be removed from the model.

Adapted from Hair et al., 2014: 132 and Saric, 2012: 165

4.12.3.3 Assessment of structural model results

After examining the construct measures for reliability and validity, the next step involves examining the model's predictive capabilities and the relationships between the constructs.

First, the structural model should be checked for collinearity. The reason is that the estimation of path coefficients in the structural models is based on OLS regressions of each endogenous latent variable on its corresponding predecessor constructs. Just as in a regular multiple regression, the path coefficients might be biased if the estimation involves significant levels of collinearity among the predictor constructs. Analogous to the assessment of formative measurement models, tolerance levels below 0.20 (VIF above 5) in the predictor constructs indicate collinearity.

Second, path coefficients should be assessed. The path coefficients have standardized values between -1 and +1. Estimated path coefficients close to +1 represent a strong positive relationship (and vice versa for negative values). The closer the estimated coefficients are to 0, the weaker the relationship. Very low values close to 0 are usually nonsignificant (i.e., not significantly different from zero). Whether a coefficient is significant ultimately depends on its standard error, which is obtained by means of bootstrapping. The bootstrap standard error allows computing the empirical t value.

After examining the significance of relationships, it is important to assess the relevance of significant relationships. The structural model path coefficients can be interpreted relative to one other. If one path coefficient is larger than another, its effect on the endogenous latent variable is greater. More specifically, the individual path coefficients of the path model can be interpreted, just as the standardized beta

coefficients in an OLS regression. These coefficients represent the estimated change in the endogenous construct for a unit change in the exogenous construct.

Third, the coefficient of determination (R^2) should be examined. This coefficient is a measure of the model's predictive accuracy and is calculated as the squared correlation between a specific endogenous construct's actual and predicted values. The coefficient represents the exogenous latent variables' combined effects on the endogenous latent variable. The R^2 value ranges from 0 to 1 with higher levels indicating higher levels of predictive accuracy. It is difficult to provide rules of thumb for acceptable R^2 values as this varies according to the model complexity and the research discipline. For example, R^2 values of 0.20 are considered high in disciplines such as consumer behavior whereas R^2 values of 0.75 are expected in success driver studies.

In addition to evaluating the R^2 values of all endogenous constructs, the change in the R^2 value when a specified exogenous construct is omitted from the model can be used to evaluate whether the omitted construct has a substantive impact on the endogenous constructs. This measure is referred to as the f^2 effect size. The effect size can be calculated as

$$f^2 = \frac{R_{included}^2 - R_{excluded}^2}{1 - R_{included}^2},$$

where $R_{included}^2$ and $R_{excluded}^2$ are the R^2 values of the endogenous latent variable when a selected exogenous latent variable is included in or excluded from the model. Guidelines for assessing f^2 are that values of 0.02, 0.15, and 0.35, respectively, represent small, medium, and large effects of the exogenous latent variable.

After evaluating the magnitude of the R^2 values as a criterion of predictive accuracy, one should also examine Stone-Geisser's Q^2 value. This measure is an

indicator of the model predictive relevance, that is, how well a model and its estimated parameters reproduce observed values. It can only be applied to latent constructs that are defined in a reflective mode and is described by the following equation:

$$Q^2 = 1 - \frac{\sum_k E_{jk}}{\sum_k O_{jk}}$$

where E_{jk} represents the squares of the prediction errors and O_{jk} represents the squares of the trivial prediction error provided by the mean of the remaining data. Index j indicates the observed endogenous measurement model, and k represents the index for all indicators of the measurement model. Q^2 values larger than 0 suggest that the model has predictive relevance for a certain endogenous construct. In contrast, values 0 and below indicate a lack of predictive relevance. The Q^2 values estimated represent a measure of how well the path model can predict the originally observed values. Table 24 summarizes the evaluation process of the PLS-SEM.

Table 24. Systematic Evaluation of PLS-SEM Results

Evaluation of the Measurement Models	
<i>Reflective Measurement Models</i>	<i>Formative Measurement Models</i>
• Internal consistency (composite reliability > 0.70) • Indicator reliability: outer loadings > 0.708 • Convergent validity (AVE > 0.50) • Discriminant validity - outer loading of a construct > all its cross loadings with other constructs - Fornell-Larcker criterion ($\sqrt{AVE}$ > highest correlation with any other construct)	• Convergent validity: (1) correlation with a global item (2) MIMIC model (3) Strong and significant relationship with subsequent reflective constructs. • Collinearity among indicators: - Tolerance > 0.20 or VIF < 5 • Significance and relevance of outer weights: - if indicator's weight significant, retain the indicator - if indicator's weight not significant but item loading > 0.50, indicator should generally be retained - if both outer weight and outer loading non significant, remove it from the model
Evaluation of the Structural Model	
• Each predictor construct's Tolerance > 0.20 or VIF < 5 • Size and significance of path coefficients: critical values for two-tailed test are 1.65 (significance level = 10%), 1.96 (significance level = 5%), and 2.57 (significance level = 1%) • Coefficients of determination R^2: R^2 in this study > 0.2 (No agreed threshold values) • f^2 effect sizes: 0.02 (small), 0.15 (medium), 0.35 (large) • Predictive relevance (Q^2): only for reflective constructs, $Q^2 > 0$	

Adapted from Hair et al., 2014: 97 and Saric, 2012: 165

4.12.4 Modeling and evaluation of moderator models

Moderators are commonly defined as “a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent and dependent or criterion variable” (Baron & Kenny, 1986, p. 1174). The left-hand side of Figure 10 depicts a moderator model with three variables and X being the independent, M the moderating, and Y the dependent variable. The moderating effect d is indicated by an arrow that points to the direct relationship between the exogenous and the endogenous variable presented by b .

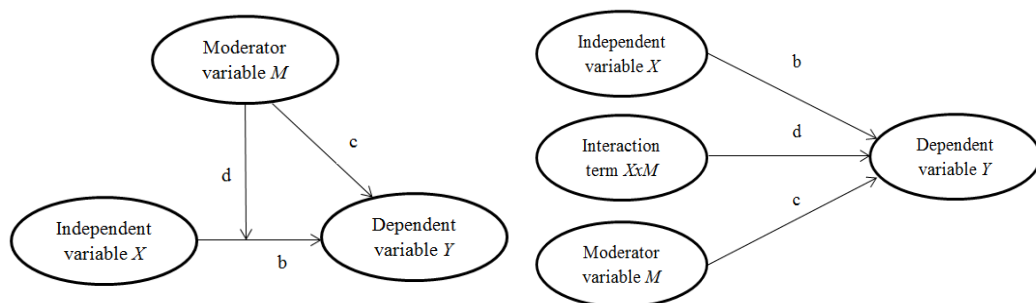


Figure 10 Example of a simple PLS moderator model
Source: Saric, 2012: 168

Generally, two-way interaction effects are estimated using the product term approach for continuous variables and the group comparison approach for discrete variables. In this study, the moderator variable, namely, cluster, is a continuous variable; therefore, the focus will be on modeling moderating effects as product terms. In the product term approach, the moderator effect is added to the main effects model by including the product term between the independent and the moderating variable. The main effects model:

$$Y = a + b X + c x M$$

thus becomes:

$$Y = a + b x X + c x M + d x (X x M)$$

where $X x M$ represents the interaction term that is added to the PLS path model as additional latent variable. Consequently, the slope of the independent variable X

becomes dependent on the level of M ; therefore, M is influencing the strength of the effect of X on Y . To properly assess the effect of the moderator effect, all components of the product term must be included in the PLS model in a direct form. Otherwise, the size of the moderating effect would be overestimated. The right-hand side of Figure 10 describes this procedure.

Once the interaction terms are included in the PLS path model, the interaction terms have to be properly modeled. The variables' mode of measurement is the key factor in this modeling process. In case the independent and moderating variables are defined in a reflective mode, all indicators have first to be centered or standardized to avoid multicollinearity. The product term is then built by multiplying each indicator of the independent variable with each indicator of the moderating variable(s). These product terms then serve collectively as indicators of the interaction terms.

If at least one variable is defined in a formative mode, first the factor scores of the independent and the moderator variable(s) are computed and then mean-centered. Finally, the interaction term is built by multiplying the standardized factor scores of the independent and the moderator variable(s).

In both cases, moderator effects are analyzed by estimating the path coefficients and their significance. The hypothesized relationship between X , Y , and M is supported, if the path coefficient d is significant; regardless of the coefficients b and c . The moderator effect can further evaluated by its contribution to explain the variance of the dependent variable Y . It is sufficient to compare the R^2 of the main effects model including all direct single effects with the R^2 of the full moderator model including the interaction term(s). This effect size f^2 is calculated as follows:

$$f^2 = \frac{R^2_{\text{model with moderator}} - R^2_{\text{model without moderator}}}{1 - R^2_{\text{model with moderator}}}$$

Moderating effects with effect sizes of 0.02, 0.15 and above 0.35 are regarded as weak, moderate, and strong respectively. However, low effect sizes do not indicate that the hypothesized model is irrelevant, because even a small interaction effect can be meaningful under extreme conditions, if the beta changes are meaningful, in which case it is important to take these conditions into account (Saric, 2012, pp.168-169).

4.13 Analysis of the measurement model

The data analysis starts with an assessment of the measurement model. In this respect, the current chapter is split into two parts. Section 4.13.1 deals with the operationalization and validation of the measurement models of the reflexively measured constructs including the relevant control variables. Section 4.13.2 then presents the operationalization and validation of the formatively measured second-order constructs. All items were measured using a Likert scale ranging from 1 to 5.

4.13.1 Operationalization and validation of reflexively measured constructs

Cluster

The cluster construct is defined as a second-order construct. Based on the conceptual model, it is formed by two dimensions:

- 1) Geographical concentration, and
- 2) Inter-firm linkages.

Table 25 shows the assessment of the geographical concentration dimension. The assessment shows that the loadings of GC2 and GC3 are above the 0.708 threshold. GC1 has an outer loading below the recommended value, but it is not lower than 0.40. Also, the composite reliability and the AVE values are above their

thresholds. Therefore, GC1 was not eliminated due to content validity reasons. The composite reliability (0.761) and the AVE (0.529) are above their recommended values indicating acceptable levels of reliability and convergent validity.

Table 25. Assessment of the Geographical Concentration Construct

Geographical Concentration: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
Please compare your industry to other industries in your region		
GC1	The number of companies operating in our industry compared to the number of companies operating in other industries.	0.473
GC2	The number of people employed in our industry compared to the number of people employed by other industries.	0.812
GC3	The percentage our industry contributes to the regional gross value added compared to the total regional gross value added	0.838
Geographical Concentration: Factor Assessment		
Composite reliability: 0.761		AVE: 0.529

Table 26 presents the outer loadings for the inter-firm linkages dimension. On the indicator level, LC2 and LC3 have loadings greater than 0.708. Though the loading of LC1 is below the threshold value, LC1 is retained to ensure content validity. As for LC4, it was eliminated to ensure reliability and validity values above their thresholds. On the construct level, the composite reliability measure 0.756 and the AVE 0.516 indicate acceptable levels of reliability and convergent validity.

Table 26. Assessment of the Inter-Firm Linkages Construct

Inter-Firm Linkages: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
LC1	Our region is home to a large number of suppliers and potential customers.	0.628
LC2	We have built networks and alliances with our local business partners.	0.801
LC3	Our employees regularly participate in relevant local industry events.	0.787
LC4	In our local business environment, it is common that employees who switch jobs move from one local company to another.	eliminated
Inter-Firm Linkages: Factor Assessment		
Composite reliability: 0.785		AVE: 0.551

Entrepreneurial orientation

The entrepreneurial orientation construct is defined as a second-order construct that is formed by three distinct dimensions:

- Proactiveness
- Innovativeness
- Risk-taking

Table 27 presents the outer loadings for the proactiveness dimension.

Table 27. Assessment of the Proactiveness Construct

Proactiveness: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
PRO1	Overall, my firm regularly scans the environment and gathers information from our local business partners to seek and identify new opportunities.	0.737
PRO2	In general, the top managers of my firm initiate preemptive actions in response to perceived opportunities which competitors then respond to.	0.844
PRO3	We are very often the first to introduce new products or services to our customers.	0.864
PRO4	In general, my firm is eager to be a leader rather than a follower.	0.897
Proactiveness: Factor Assessment		
Composite reliability: 0.903		AVE: 0.702

The loadings of all four indicators are above the 0.708 threshold. The composite reliability (0.903) and the AVE (0.702) are also above their recommended values indicating acceptable levels of reliability and convergent validity.

Table 28 presents the outer loadings for the innovativeness dimension.

Table 28. Assessment of the Innovativeness Construct

Innovativeness: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
IN1	During the past three years my firm has marketed very many new lines of products and services.	0.992
IN2	Changes in product and service lines have been quite dramatic.	0.992
Innovativeness: Factor Assessment		
Composite reliability: 0.992		AVE: 0.984

For the innovativeness construct, all outer loadings are greater than 0.708. Reliability and convergent validity are also ensured.

For the risk-taking construct, all outer loadings are greater than 0.708.

Reliability and convergent validity are also ensured as the composite reliability and AVE values are above their recommended thresholds. Table 29 presents the outer loadings for the risk-taking dimension.

Table 29. Assessment of the Risk-Taking Construct

Risk-Taking: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
In my firm...		
RT1	...managers have a strong proclivity for high-risk projects (with chances of very high returns).	0.927
RT2	...managers believe that owing to the nature of the environment, bold wide-ranging acts are necessary to achieve the firm's objectives.	0.918
Risk-Taking: Factor Assessment		
Composite reliability: 0.920		AVE: 0.851

Business ties

The loadings of all four indicators are above the 0.708 threshold. The composite reliability (0.827) and the AVE (0.615) are also above their recommended values indicating acceptable levels of reliability and convergent validity (see Table 30).

Table 30. Assessment of the Business Ties Construct

Business Ties: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent have you utilized personal ties, networks, and connections with the top executives		
BT1	... at supplier firms during the past three years?	0.754
BT2	...at buyer firms during the past three years?	0.823
BT3	...at competitor firms during the past three years?	0.769
Business Ties: Factor Assessment		
Composite reliability: 0.827		AVE: 0.615

Support ties

The loadings of all four indicators are above the 0.708 threshold. The composite reliability (0.821) and the AVE (0.605) were also above their recommended values indicating acceptable levels of reliability and convergent validity (see Table 31).

Table 31. Assessment of the Support Ties Construct

Support Ties: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent have you utilized personal ties, networks, and connections with		
ST1	political persons from the government during the past three years?	0.560
ST2	people from educational institutions during the past three years?	0.669
ST3	officials in municipalities during the past three years?	0.827
ST4	officials in state banks during the past three years?	0.604
ST5	officials in tax bureaus during the past three years?	0.798
ST6	officials in chambers of commerce during the past three years?	0.838
ST7	officials in chambers of industry during the past three years?	0.730
ST8	officials in cooperatives during the past three years?	eliminated
Support Ties: Factor Assessment		
Composite reliability: 0,884		AVE: 0.526

Though the indicators ST1, ST2, and ST4 have outer loadings below the recommended value of 0.708, they were retained to ensure content validity. As for item ST8, it was eliminated to increase the AVE value above its recommended value. On the construct level, the composite reliability and AVE measures are above their thresholds indicating reliability and convergent validity.

Strategic learning capability

The strategic learning capability construct is defined as a second-order construct and comprises three distinct dimensions:

- Strategic knowledge distribution
- Strategic knowledge interpretation
- Strategic knowledge implementation

Tables 32, 33 and 34 present the loadings of the three dimensions of the strategic learning capability construct.

Table 32. Assessment of the Strategic Knowledge Distribution Construct

Strategic Knowledge Distribution: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
SKD1	Within our firm, sharing strategic information is the norm.	0.814
SKD2	Within our firm, strategically important information is easily accessible to those who need it most.	0.812
SKD3	Representatives from different departments meet regularly to discuss new strategically important issues.	0.790
SKD4	Within our firm, strategically important information is actively shared between different departments.	0.877
SKD5	When one department obtains strategically important information, it is circulated to other departments.	0.759
Strategic Knowledge Distribution: Factor Assessment		
Composite reliability: 0.906		AVE: 0.658

All indicators are above the threshold value of 0.708. Reliability and convergent validity were also established as they were also above their recommended values.

Table 33. Assessment of the Strategic Knowledge Interpretation Construct

Strategic Knowledge Interpretation: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
SKINT1	When faced with new strategically important information, our managers usually agree on how the information will impact our firm.	0.744
SKINT2	In meetings, we seek to understand everyone's point of view concerning new strategic information.	0.899
SKINT3	Groups are prepared to rethink decisions when presented with new strategic information.	0.877
SKINT4	When confronting new strategic information, we are not afraid to critically reflect on the shared assumptions we have about our organization.	0.848
SKINT5	We often collectively question our own biases about the way we interpret new strategic knowledge.	0.870
Strategic Knowledge Interpretation: Factor Assessment		
Composite reliability: 0.928		AVE: 0.721

All loadings are above the threshold value. Composite reliability and AVE values are above their recommended values too. Hence, reliability and convergent validity are established.

Table 34. Assessment of the Strategic Knowledge Implementation Construct

Strategic Knowledge Implementation: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
SKIMP1	Strategic knowledge gained by working groups is used to improve products, services, and processes.	0.847
SKIMP2	The decisions we make according to any new strategic knowledge are reflected in changes to our organizational systems and procedures.	0.846
SKIMP3	Strategic knowledge gained by individuals has an effect on the organization's strategy.	0.768
SKIMP4	Recommendations by groups concerning the use of strategic knowledge are adopted by the organization.	0.820
Strategic Knowledge Implementation: Factor Assessment		
Composite reliability: 0.892		AVE: 0.674

All outer loadings are above 0.708. Composite reliability and AVE values are also above their threshold values. Therefore, reliability and convergent validity are established.

The reflective-reflective Type I construct, namely, the strategic learning capability, is assessed in Appendix F.

Though the outer loadings of SKD1, SKD2, SKD5, and SKIMP3 are below the critical values, there are not removed from the scale as the composite reliability and the AVE values are satisfactory. As for the outer loadings of the three dimensions of the strategic learning capability construct, they are all above the

recommended value of 0.708 and load significant ($p < .01$) on the strategic learning capability construct.

Table 35 presents the factor loadings of the strategic learning capability construct.

Table 35. Factor Loadings of the Strategic Learning Capability Construct

Dimensions	Factor Loadings	P value
SLC → SKD	0.789***	.000
SLC → SKINT	0.927***	.000
SLC → SKIMP	0.902***	.000

* $p < .10$, ** $p < .05$, *** $p < .01$.

Performance

For the operationalization of performance, two subjective measures that are widely used in the field of strategic management and entrepreneurship, i.e. profitability and sales performance, were chosen.

Table 36. Assessment of the Profitability Construct

Profitability: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
Please assess your firm's performance relative to your competitors over the three years 2012/2013/2014 in terms of		
PP1	...return on investment.	0.913
PP2	...profit margin	0.964
PP3	...net profits	0.947
Profitability: Factor Assessment		
Composite reliability: 0.959		AVE: 0.886

All outer loadings are above their recommended values. High values for composite reliability and AVE indicate acceptable levels of reliability and convergent validity (see Table 36).

Table 37. Assessment of the Sales Performance Construct

Sales Performance: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
Please assess your firm's performance relative to your competitors over the three years 2012/2013/2014 in terms of		
SP1	...sales volume	0.962
SP2	...growth in sales volume	0.966
Sales Performance: Factor Assessment		
Composite reliability: 0.963		AVE: 0.929

All outer loadings are above their recommended values. High values for composite reliability and AVE indicate acceptable levels of reliability and convergent validity (see Table 37).

Environmental dynamism

The environmental dynamism construct is incorporated in the model as a control variable on the endogenous variable performance. Table 38 shows the outer loadings.

Table 38. Assessment of the Environmental Dynamism Construct

Environmental Dynamism: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
How would you assess your firm's business environment with the following statements?		
ED1	Product demand is hard to forecast.	0.844
ED2	Customer requirements and preferences are hard to forecast.	0.919
ED3	My industry is very unstable with huge change resulting from major economic, technological, social, or political forces.	eliminated
Environmental Dynamism: Factor Assessment		
Composite reliability: 0.875		AVE: 0.778

The indicator ED3 is eliminated because of low value. All outer loadings are above their recommended values. High values for composite reliability and AVE indicate acceptable levels of reliability and convergent validity.

4.13.2 Test for discriminant validity on the construct level

Discriminant validity is established when an indicator's loading on a construct is higher than all of its cross loadings with other constructs. Table 39 shows the loadings and the cross-loadings for every indicator: there is no violation.

Lastly, after the operationalization and validation of all first-order constructs, discriminant validity on the construct level was assessed using the Fornell-Larcker criterion across all first order constructs (see Table 40). A comparison of all correlations in the off-diagonal rows and columns with the square roots of the AVEs

on the diagonal indicates adequate levels of discriminant validity on the construct level.

Table 39. Cross-Loadings with Other Constructs

	AGE	BT	ED	GC	IN	LC	PP	PRO	RT	SIZE	SLC	SP	ST
AGE	Single Item	-0,060	-0,066	-0,040	-0,036	-0,013	-0,021	-0,138	-0,087	0,183	-0,146	-0,016	-0,029
BT1	-0,070	0,758	-0,068	-0,011	0,172	0,264	0,070	0,320	0,288	0,116	0,274	0,063	0,222
BT2	-0,078	0,823	-0,138	0,042	0,193	0,280	0,137	0,353	0,289	0,005	0,330	0,088	0,255
BT3	-0,011	0,769	-0,155	0,173	0,115	0,316	0,139	0,301	0,353	0,122	0,362	0,135	0,426
ED1	-0,077	-0,073	0,844	-0,170	-0,117	-0,113	-0,005	-0,095	-0,072	-0,001	-0,051	-0,151	-0,045
ED2	-0,045	-0,202	0,919	-0,146	-0,056	-0,151	-0,127	-0,063	-0,176	-0,063	-0,122	-0,143	-0,176
GC1	-0,138	-0,031	0,024	0,473	0,044	-0,045	-0,059	0,103	0,023	-0,146	-0,006	-0,144	-0,028
GC2	-0,051	0,052	-0,090	0,812	0,058	0,112	0,075	0,047	0,071	0,097	0,054	0,090	0,148
GC3	0,019	0,149	-0,223	0,838	0,110	0,298	0,078	0,090	0,144	0,247	0,187	0,076	0,154
IN1	-0,022	0,164	-0,083	0,114	0,992	0,241	0,273	0,688	0,485	0,081	0,267	0,373	0,118
IN2	-0,049	0,226	-0,100	0,092	0,992	0,242	0,275	0,721	0,502	0,052	0,286	0,379	0,140
LC1	0,013	0,189	-0,062	0,196	0,042	0,628	0,093	0,165	0,204	-0,035	0,258	0,143	0,074
LC2	-0,064	0,279	-0,113	0,122	0,122	0,801	0,062	0,351	0,192	0,136	0,356	0,063	0,277
LC3	0,024	0,347	-0,156	0,195	0,353	0,787	0,216	0,494	0,411	0,181	0,430	0,190	0,297
PP1	-0,056	0,189	-0,129	0,054	0,285	0,199	0,913	0,242	0,256	-0,040	0,316	0,705	0,306
PP2	0,011	0,140	-0,059	0,041	0,248	0,146	0,964	0,245	0,154	-0,039	0,264	0,707	0,321
PP3	-0,013	0,114	-0,051	0,109	0,247	0,137	0,947	0,258	0,148	-0,053	0,256	0,704	0,338
PRO1	-0,075	0,341	-0,120	0,094	0,385	0,559	0,184	0,737	0,426	0,028	0,579	0,245	0,391
PRO2	-0,120	0,388	-0,086	0,075	0,517	0,419	0,222	0,844	0,466	0,015	0,495	0,245	0,308
PRO3	-0,133	0,329	-0,049	0,083	0,735	0,311	0,211	0,864	0,618	-0,020	0,386	0,289	0,190
PRO4	-0,126	0,332	-0,051	0,081	0,689	0,330	0,263	0,897	0,531	0,041	0,404	0,314	0,278
RT1	-0,072	0,351	-0,148	0,096	0,477	0,312	0,149	0,592	0,927	0,030	0,391	0,234	0,322
RT2	-0,089	0,392	-0,126	0,141	0,440	0,371	0,218	0,543	0,918	0,087	0,407	0,275	0,402
SIZE	0,183	0,100	-0,042	0,171	0,067	0,136	-0,047	0,018	0,063	Single Item	0,012	0,035	0,206
SKD1	-0,086	0,214	-0,095	0,130	0,160	0,255	0,261	0,234	0,239	0,061	0,607	0,202	0,314
SKD2	-0,024	0,234	-0,033	0,177	0,126	0,246	0,256	0,225	0,116	0,033	0,593	0,193	0,285
SKD3	-0,051	0,270	-0,119	0,210	0,159	0,360	0,239	0,370	0,255	0,087	0,711	0,224	0,339
SKD4	-0,043	0,226	-0,100	0,153	0,185	0,339	0,272	0,388	0,304	0,037	0,709	0,320	0,356
SKD5	-0,074	0,250	-0,029	0,105	0,088	0,294	0,266	0,252	0,218	0,007	0,593	0,193	0,214
SKIMP1	-0,106	0,401	-0,080	0,060	0,217	0,393	0,183	0,478	0,342	-0,006	0,783	0,243	0,281
SKIMP2	-0,183	0,384	-0,068	0,106	0,232	0,468	0,170	0,478	0,337	0,006	0,772	0,201	0,316
SKIMP3	-0,116	0,299	0,005	-0,008	0,136	0,120	0,174	0,323	0,314	-0,037	0,624	0,135	0,236
SKIMP4	-0,109	0,274	-0,043	0,100	0,236	0,397	0,331	0,390	0,375	-0,059	0,755	0,240	0,280
SKINT1	-0,051	0,285	0,051	-0,006	0,276	0,353	0,193	0,494	0,370	-0,005	0,744	0,257	0,346
SKINT2	-0,166	0,422	-0,119	0,112	0,273	0,388	0,183	0,505	0,373	0,005	0,845	0,238	0,395
SKINT3	-0,159	0,324	-0,131	0,129	0,254	0,376	0,135	0,421	0,359	0,017	0,791	0,110	0,285
SKINT4	-0,160	0,337	-0,143	0,030	0,227	0,374	0,180	0,429	0,397	0,029	0,757	0,176	0,276
SKINT5	-0,125	0,315	-0,123	0,129	0,204	0,373	0,181	0,415	0,317	-0,043	0,776	0,217	0,275
SP1	-0,010	0,135	-0,211	0,040	0,346	0,168	0,751	0,302	0,249	0,005	0,244	0,962	0,282
SP2	-0,020	0,118	-0,110	0,079	0,384	0,176	0,695	0,330	0,281	0,061	0,320	0,966	0,280
ST1	0,113	0,149	-0,156	0,035	-0,050	0,174	0,233	0,059	0,061	0,249	0,112	0,203	0,560
ST2	-0,018	0,223	-0,139	0,214	0,050	0,351	0,200	0,244	0,256	0,235	0,346	0,101	0,669
ST3	-0,020	0,292	-0,151	0,185	-0,006	0,127	0,362	0,194	0,273	0,101	0,308	0,277	0,827
ST4	-0,147	0,263	-0,076	0,059	0,100	0,212	0,169	0,253	0,235	0,138	0,233	0,117	0,604
ST5	-0,087	0,358	-0,036	0,093	0,175	0,218	0,266	0,343	0,430	0,114	0,363	0,295	0,798
ST6	-0,039	0,428	-0,046	0,118	0,201	0,309	0,238	0,369	0,399	0,114	0,432	0,195	0,838
ST7	0,029	0,357	-0,091	0,106	0,235	0,243	0,183	0,277	0,301	0,168	0,328	0,189	0,730

Table 40. Discriminant Validity on the Construct Level with Fornell-Larcker Criterion

	AGE	BT	ED	GC	IN	LC	PP	PRO	RT	SIZE	SLC	SP	ST
AGE	Single Item												
BT	-0,060	0,784											
ED	-0,066	-0,166	0,882										
GC	-0,040	0,111	-0,176	0,727									
IN	-0,036	0,197	-0,093	0,104	0,992								
LC	-0,013	0,372	-0,153	0,229	0,244	0,742							
PP	-0,021	0,157	-0,085	0,073	0,276	0,171	0,942						
PRO	-0,138	0,411	-0,087	0,098	0,710	0,466	0,264	0,838					
RT	-0,087	0,402	-0,149	0,128	0,497	0,369	0,198	0,616	0,923				
SIZE	0,183	0,100	-0,042	0,171	0,067	0,136	-0,047	0,018	0,063	Single Item			
SLC	-0,146	0,422	-0,104	0,141	0,279	0,475	0,296	0,542	0,432	0,012	0,723		
SP	-0,016	0,131	-0,165	0,062	0,379	0,178	0,749	0,328	0,275	0,035	0,293	0,964	
ST	-0,029	0,409	-0,136	0,161	0,130	0,301	0,342	0,337	0,391	0,206	0,417	0,291	0,725

4.13.3 Operationalization and validation of second-order constructs

After the assessment of the measurement models, the next step consists of the operationalization and validation of the respective second order-constructs.

Cluster as a second-order construct

In order to assess the convergent validity of the second order cluster construct, an external global item was correlated with factor scores of its two dimensions. An overall item that comprehensively summarizes the content of the formative construct is “overall our region provides us with all the resources (e.g. capital, suppliers, human resources, etc.) and access to markets we need for operating our business”. The respective Spearman correlation coefficients are 0.382 and 0.212 and both are significant on the 1% level indicating convergent validity.

Table 41. Convergent Validity Values for Cluster

		CL_Global
Geographical Concentration	Correlation Coefficient	.382**
	Sig. (2-tailed)	.000
Inter-Firm Linkages	Correlation Coefficient	.212**
	Sig. (2-tailed)	.007

**. Correlation is significant at the 0.01 level (2-tailed).

Entrepreneurial orientation as a second-order construct

The entrepreneurial orientation construct is defined by three dimensions, i.e. proactiveness, innovativeness, and risk-taking. In order to assess content validity, all first-order factor scores were correlated with the global item “in this firm entrepreneurial behavior is a central principle”. The spearman correlation coefficients range from 0.557 to 0.717 and are significant at the 1% level. Thus, the

entrepreneurial orientation construct is sufficiently defined by its underlying dimensions indicating convergent validity.

Table 42. Convergent Validity Values for Entrepreneurial Orientation

		EO_Global
Proactiveness	Correlation Coefficient	.717**
	Sig. (2-tailed)	.000
Innovativeness	Correlation Coefficient	.557**
	Sig. (2-tailed)	.000
Risk-Taking	Correlation Coefficient	.678**
	Sig. (2-tailed)	.000

** Correlation is significant at the 0.01 level (2-tailed).

In the next step, the formative constructs are checked for collinearity, there are no values above the threshold value of 5 (see Table 43). Thus, there is no multicollinearity problem. As for the significance of the outer weights, they are presented in Table 44.

Table 43. VIF Values for Reflective Formative Second Order Constructs

	Variance Inflation Values (VIF)
Innovativeness	2,043
Proactiveness	2,475
Risk-Taking	1,629
Geographical Concentration	1,055
Inter-Firm Linkages	1,055

Table 44. Outer Weights Significance Testing Results

Construct	Factor Loadings	<i>t</i> Value	<i>p</i> value	Significance Level
GC → CL	0.541	4.202	.000	***
LC → CL	0.726	6.793	.000	***
PRO → EO	0.530	19.668	.000	***
IN → EO	0.352	16.193	.000	***
RT → EO	0.261	12.467	.000	***

* $p < .10$, ** $p < .05$, *** $p < .01$.

Both dimensions of the cluster construct, namely, geographical concentration and inter-firm linkages, load positive and significant ($p < .01$) on the cluster construct. As for the entrepreneurial orientation construct, proactiveness, innovativeness and risk-taking load positive and significant ($p < .01$) on the entrepreneurial orientation construct.

Multicollinearity is checked before the evaluation of the path coefficients; all VIF values are below the threshold value $VIF < 5$ (see Table 45).

Table 45. VIF Values of the Constructs

	VIF Values
Age	1.084
Business Ties	1.415
Cluster	1.653
Environmental Dynamism	1.077
Entrepreneurial Orientation	1.431
Size	1.128
Strategic Learning Capability	1.733
Support Ties	1.427

4.14 Analysis of the structural model and the hypothesis testing

After the assessment of the measurement models established confidence in their reliability and validity, the next step involves the analysis of the structural model with focus on hypothesis testing. The analysis consists of three parts.

The first part is related to the assessment of the model with the control variables excluding the moderator variable cluster; hypotheses 1, 2, 5, and 7 are checked in this part. The second part involves the main effects including the moderator variable cluster. Finally, the third part comprises all variables and interactions; hypotheses 3, 4, 6, and 8 are assessed in this part.

To examine the validity of these hypotheses, the results for the estimates and quality criteria with respect to profitability are shown in tables 46 and 48, and those for sales performance in tables 47 and 49. The tables report the path coefficients with their respective t-values, the coefficient of determination R^2 , and the Stone-Geisser criterion Q^2 for predictive relevance and the effect size f^2 to explore whether the changes in the coefficients of determination have substantive impact.

Model 1 yields a positive and significant effect of support ties on profitability ($\beta = 0.287$; $p < .01$) and sales performance ($\beta = 0.210$; $p < .01$). Also, entrepreneurial orientation has a positive and significant effect on profitability ($\beta = 0.197$; $p < .05$) and sales performance ($\beta = 0.320$; $p < .01$). The control variables age, size and environmental dynamism do not have a significant effect on profitability and sales performance. The R^2 values of 0.182 and 0.225 indicate that both models have moderate explanatory power, while the Q^2 values suggest acceptable predictive relevance. The f^2 effect sizes of support ties and entrepreneurial orientation are both considered small for profitability and sales performance.

Model 2 yields a positive and significant effect of support ties on profitability ($\beta = 0.287$; $p < .01$) and sales performance ($\beta = 0.211$; $p < .01$). Again, entrepreneurial orientation has a positive and significant effect on profitability ($\beta = 0.200$; $p < .05$) and sales performance ($\beta = 0.325$; $p < .01$). The control variables age, size and environmental dynamism do not have a significant effect on profitability and sales performance. The R^2 values of 0.192 and 0.225 indicate that both models have moderate explanatory power, while the Q^2 values suggest acceptable predictive relevance. The f^2 effect sizes of support ties and entrepreneurial orientation are both considered small for profitability and sales performance.

Model 3 yields a positive and significant effect of support ties on profitability ($\beta = 0.274$; $p < .01$) and sales performance ($\beta = 0.205$; $p < .05$). As for entrepreneurial orientation, it has a positive and significant effect on profitability ($\beta = 0.186$; $p < .10$) and sales performance ($\beta = 0.312$; $p < .01$). The control variables age, size and environmental dynamism do not have a significant effect on profitability and sales performance. The R^2 values of 0.229 and 0.257 indicate that both models have moderate explanatory power, while the Q^2 values suggest acceptable predictive relevance. The f^2 effect sizes of support ties and entrepreneurial orientation are both considered small for profitability and sales performance. With regards to the significance of the two-way interaction effects, none of them are found significant for both profitability and sales performance thus, giving no support for hypotheses 3, 4, 6, and 8. The results indicate that only entrepreneurial orientation and support ties have a significant and positive effect on both profitability and sales performance, the variable cluster does not moderate any of the relationships presented in the theoretical model (see Figure 3).

Table 46. PLS Path Analysis Results for Profitability

	Profitability	Model 1	Model 2	Model3
<i>No moderator model</i>				
	Business Ties (BT)	-0.071		
	Support Ties (ST)	0.287***		
	Entrepreneurial Orientation (EO)	0.197**		
	Strategic Learning Capability (SLC)	0.117		
	Environmental Dynamism (ED)	-0.063		
	Age	0.037		
	Size	-0.123		
<i>Main effects model</i>				
	Business Ties (BT)		-0.069	-0.053
	Support Ties (ST)		0.287***	0.274***
	Entrepreneurial Orientation (EO)		0.200**	0.186*
	Strategic Learning Capability (SLC)		0.122	0.083
	Environmental Dynamism (ED)		-0.065	-0.065
	Age		0.038	0.052
	Size		-0.121	-0.129
	Cluster (CL)		-0.016	0.059
<i>Interactions</i>				
	BT x Cluster			-0.129
	ST x Cluster			0.062
	EO x Cluster			-0.089
	SLC x Cluster			-0.067
	R ²	0.182	0.192	0.229
	Q ²	0.074	0.062	0.036

*p < .10, **p < .05, ***p < .01

Table 47. PLS Path Analysis Results for Sales Performance

	Sales Performance	Model 1	Model 2	Model 3
<i>No moderator model</i>				
	Business Ties (BT)	-0.117		
	Support Ties (ST)	0.210***		
	Entrepreneurial Orientation (EO)	0.320***		
	Strategic Learning Capability (SLC)	0.119		
	Environmental Dynamism (ED)	-0.109		
	Age	0.021		
	Size	-0.025		
<i>Main effects model</i>				
	Business Ties (BT)		-0.112	-0.098
	Support Ties (ST)		0.211***	0.205**
	Entrepreneurial Orientation (EO)		0.325***	0.312***
	Strategic Learning Capability (SLC)		0.129	0.083
	Environmental Dynamism (ED)		-0.112	-0.121
	Age		0.021	0.038
	Size		-0.022	-0.020
	Cluster (CL)		-0.031	0.011
<i>Interactions</i>				
	BT*CL			-0.015
	ST*CL			0.032
	EO*CL			-0.063
	SLC*CL			-0.155
	R ²	0.225	0.225	0.257
	Q ²	0.108	0.101	0.077

*p < .10, **p < .05, ***p < .01

Table 48. f^2 Effect Sizes for Profitability

f^2 values for Profitability			
	Model 1	Model 2	Model 3
Age	0,002	0.002	0.003
BT	0,004	0.004	0.003
CL	-	0.000	0.003
ED	0,005	0.005	0.005
EO	0,024	0.037	0.032
SIZE	0.016	0.016	0.019
SLC	0.012	0.011	0.005
ST	0.069	0.074	0.068
BT*CL			0.014
ST*CL			0.004
EO*CL			0.006
SLC*CL			0.004

Table 49. f^2 Effect Sizes for Sales Performance

f^2 values for Sales Performance			
	Model 1	Model 2	Model 3
Age	0.001	0.001	0.002
BT	0.013	0.011	0.009
CL	-	0.001	0.000
ED	0.015	0.015	0.018
EO	0.107	0.108	0.100
SIZE	0.001	0.001	0.000
SLC	0.012	0.013	0.005
ST	0.041	0.041	0.039
BT*CL			0.000
ST*CL			0.001
EO*CL			0.003
SLC*CL			0.023

To summarize these findings, Table 50 provides a comprehensive overview of the research hypotheses and the results of the two performance measures.

Table 50. Results of the Hypothesis Testing

No	Hypotheses	PP	SP
1	The strength of a firm's business ties will have a positive effect on firm performance.	×	×
2	The strength of a firm's support ties will have a positive effect on firm performance.	✓	✓
3	Cluster environment positively moderates the relationship between business ties and firm performance in such a way that the positive relationship will be more salient in the presence of a cluster environment.	×	×
4	Cluster environment positively moderates the relationship between support ties and firm performance in such a way that the positive relationship will be more salient in the presence of dense support relationships in the cluster environment.	×	×
5	A firm's entrepreneurial orientation will have a positive effect on firm performance.	✓	✓
6	Cluster environment positively moderates the relationship between EO and firm performance in such a way that the positive relationship between EO and firm performance will be more salient in the presence of a cluster environment.	×	×
7	A firm's strategic learning capability will have a positive effect on firm performance.	×	×
8	Cluster environment positively moderates the relationship between strategic learning capability and firm performance in such a way that the positive relationship between strategic learning and firm performance will be more salient in the presence of a cluster environment.	×	×

CHAPTER 5

DISCUSSION OF THE RESULTS

The findings indicate that support ties have a significant positive effect on both sales performance and profitability. Remember that support ties are those non-business ties that managers develop with other supportive institutions, such as government, state banks, municipalities, tax bureaus, chambers of commerce and industry, and educational institutions. This finding is in line with the literature on social ties. Social networking and ties are prevalent in the emerging economies of Africa, the Middle East, and Asia because of the presence of strong collectivistic cultures. Peng and Luo's (2000) research in China shows that ties with officials are more important than ties with managers at other firms.

As mentioned earlier in this thesis, the state played a central role in the industrialization of the Turkish business environment. Therefore, it has developed certain state-dependent characteristics where the state-created big business groups have dominated the economy for a long time. Despite the implementation of liberalization policies in the early 1980s, the dominating economic actors are still family-controlled business groups that benefited from state-supporting policies. The presence of retired/resigned bureaucrats from key public organizations on boards of directors can be seen as a means of establishing good relationships with governmental institutions by using their connections for risk-reduction and opportunity-seizing (Berkman & Özen, 2008).

Additionally, the Turkish state used to change major economic policies at any moment, creating an uncertain economic environment for businessmen.

Consequently, Turkish businessmen strove to develop an institutionalized form of

relationships with bureaucrats and politicians by seeking, individually or through their networks, the support of influential bureaucrats (Oba & Semerciöz, 2005). After the financial crisis in 2001, Turkey rapidly implemented comprehensive privatization and market regulations, although there is a state-coordinated business system.

The results confirm this description of the Turkish economy. Though the relationships with people from the government and state banks play a less important role in the support ties and firm performance relationship in the model, managerial ties with people from municipalities and tax bureaus seem to be more effective. Hence, the impact of governmental institutions on firm performance, and especially on profitability, should not be neglected. The role of the personal relationships with officials from chambers of commerce and industry is also important. Apart from the services offered by these chambers, firms may also see them as a medium through which to communicate their problems and demands to the government. The relationships with people from educational institutions and with political people from the government seem to be less effective on performance compared to the institutions mentioned above. The ties developed with universities and other educational institutions may help firms improve their products and services and gain competitive advantage.

As for entrepreneurial orientation, the results seem to be congruent with the literature. Rauch et al. (2009) reviewed 51 published studies in a meta-analysis of 14,259 companies and found a positive and moderately large correlation of EO with firm performance. "EO provides businesses the ability to find and/or discover new opportunities that can differentiate them from other firms and create a competitive advantage" (Wiklund and Shepherd, 2005, p. 86). The three dimensions of EO are closely related; proactiveness allows firms to pursue opportunities, while

innovativeness in combining new and existing resources entails the risk of failure, yet moving away from the present line of operations and venturing into new markets give firms the chance to have the first-mover advantage and earn supranormal profits. It has a more salient impact on sales performance than profitability, as its impact can be seen more quickly on sales than profit figures. Firms with an entrepreneurial orientation engage often in risk-taking behavior, “such as incurring heavy debt or making large resource commitments, in the interest of obtaining high returns by seizing opportunities in the marketplace” (Lumpkin & Dess, 1996, p. 144). Therefore, the return on investments and profit figures may be insufficient in the short term but they may ameliorate in the long term.

The positively hypothesized relationship between strategic learning and performance was not supported. However, strategic learning capacity can be useful for firms with entrepreneurial orientation in the long run; the sole pursuit of an entrepreneurial orientation represents an unnecessary risk. These firms can be trapped into an excessive resource consuming frenzy of experimentation, search, and innovation without having the ability to appropriate the rents they create. Strategic learning capability might help them in the exploitation of the opportunities explored and consequently, it might yield positive incomes.

The positively hypothesized impact of business ties on firm performance was also not significant. This finding contradicts Zhang and Li’s findings (2008) indicating that business ties have greater positive effects on sales growth than support ties, but it is in accordance with Peng and Luo’s (2000) findings. The business ties that the managers have with suppliers, buyers and competitors do not seem to produce sales or improve profitability. They might need to improve the quality of their ties and maybe turn them into networks of information and

collaborate to ameliorate the performance and the competitiveness of their cluster in total. Networking relationships between managers and their key customers and suppliers might facilitate the creation, acquisition, and exploitation of knowledge. In addition, networking relationships with customers may result in both customer and brand loyalties, and increase sales, while those with suppliers will offer access to quality raw materials, superior service, and fast and reliable deliveries. Moreover, ties with competitors may lead to the sharing of information about how to reduce operations cost, or collaborate to share resources, and implicitly collude to deal with competitive uncertainties in their environment (Acquaah, 2007).

As for the cluster variable, the results indicate that this does not significantly moderate the relationships presented in the model. It also does not have a significant main effect on firm performance. This finding is line with the finding of the research carried out by Liao (2010); clusters alone have no impact on performance. However, Liao (2010) found that manufacturing resources facilitate a positive relationship between clusters and manufacturing performance.

In this thesis, there was no significant moderator effect of the variable cluster with the variables entered in the model. The findings might seem at odds with the arguments of the cluster literature, but the sample consists of firms from nine different clusters in six different industries in Turkey, including two clusters from the service sector, namely, the Muğla and Antalya tourism clusters. Therefore, they have different characteristics with regards to geographical concentration, development of informal and formal links. Moreover, they can be in different stages of their lifecycle, such as Ankara furniture cluster, which is in the late stages of its lifecycle. Thus, the results may yield significant results for certain clusters and not for others. The results can be considered as a snapshot of Turkish clusters. Unfortunately, a

multigroup analysis could not be made in this thesis because of the sample requirements for such an analysis.

Also, this thesis uses subjective measures of firm performance based on the judgment of the respondents, as Turkish managers are reluctant to provide financial performance data. This method of performance measurement is often used in the Turkish context (Tatoglu and Glaister, 1998; Kula, 2005). In fact, Covin, Slevin and Schulz (1994) and Venkatraman and Ramanujam (1986) report consistency between the performance perceptions of managers and objective performance measures. However, if the objective performance measures and the subjective ones are not congruent, the results might indicate different significant relationships, or the importance of some relationships might decrease or increase. But if the performance measures are in harmony, the findings of this study show that clusters do not have a significant impact on the performance of Turkish firms as they are. Thus, there is room for development; cluster members, including educational and financial institutions, and also government and chambers of commerce and industry should brainstorm and propose suggestions to improve the conditions of the clusters in order to reap benefits from them. For example, in 2011, Ankara Development Agency devised a plan, namely, Ankara Region Plan, in order to increase the competitiveness of the Siteler furniture cluster. After having done several interviews with people from chambers and academia, the agency identified several problems such as insufficiency of capital, R&D problems, ecological and energy problems, scarcity of skilled workers, and lack of organization due to the scale of the incumbent firms.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND IMPLICATIONS

Clusters have been studied for almost a century by academia but it was Michael Porter who elevated the cluster to stardom with his Diamond framework; clusters form one of the four elements of the Diamond, namely, related and supporting industries. Nowadays, scholars from many different fields such as economics and strategy as well as business practitioners and policy makers study clusters.

Consequently, the role of clusters on the regional economic development and national prosperity has recently been explored. However, a review of the cluster literature showed that scholars from several schools of thought assumed that all cluster firms were homogeneous; therefore, little attention was paid to firm-level characteristics that may help firms create and defend competitive advantages through clusters. The present thesis tried to find answers to the following research question: How do firms create and defend competitive advantages through clusters?

This study tried to build and test a model to explore the firm characteristics that lead to performance differences among firms. The theoretical model examined the relationships between several constructs and firm performance, specifically, business ties, support ties, entrepreneurial orientation and strategic learning capability, while being moderated by the cluster construct. Nine clusters from six industries were chosen for the test of the theoretical model after the calculation of their location quotients. The clusters chosen for this thesis are as follows: the wearing apparel cluster in Istanbul, the textile clusters in Denizli and Bursa, the carpet cluster in Gaziantep, the automotive cluster in Bursa, furniture clusters in Kayseri and Ankara, and tourism clusters in Antalya and Muğla. Using a PLS path

model, the findings confirmed only that entrepreneurial orientation and support ties contributed significantly and positively to firm performance. The moderating effect of cluster on the relationships presumed by the theoretical model was not found significant.

The results of this study may prompt researchers to question earlier assumptions about the positive impact of clusters on firm performance and its moderating role. Theoretically-sound hypotheses might not be confirmed in every setting, as is the case in this thesis. Insignificant results should also be taken into account, not only the positives ones, in order to improve theories and scientific thinking. Another contribution this study makes to the literature is the incorporation of the strategic learning concept in the cluster studies. To the knowledge of the this researcher, the effects of strategic learning capability on firm performance are underexplored in the cluster context. Although its effect on firm performance was not found significant, it should be investigated in cluster studies, as it can have a combined effect with entrepreneurial orientation by facilitating the exploitation of the opportunities explored. Finally, this study incorporated two clusters from the service sector, the Antalya and Muğla tourism clusters. Generally, studies in the literature focus on manufacturing industries and neglect the service sector.

The managerial implications of this thesis are worth mentioning as well. They should focus on their entrepreneurial orientation and support ties in order to improve their sales performance and profitability in the Turkish context. The findings of this thesis also indicate that the current state of the clusters they are operating in does not offer the benefits found by researchers in other countries. Thus, they need to collaborate with all other cluster members, including suppliers, buyers, rivals and financial institutions, diagnose the problems and find ways to make improvements;

they can seek help from the government, public institutions and educational institutions in this process.

The limitations of this study must be mentioned at this stage. The survey was designed as a cross-industry study. Though this enhances the external validity and generalizability of the results, more fine-grained industry-specific studies could reveal additional insights. There is a need to assess to what extent the results of this study hold true, if it is performed exclusively in knowledge-based industries or other service industries such as finance, media and so on. Also, the clusters chosen in this thesis should also be the subject of further studies, as it was not possible to conduct a multigroup analysis to see the differences among the clusters, owing to sample requirements. Qualitative studies can be carried out in conjunction with quantitative studies to figure out the reasons for the insignificant results.

Another limitation has to do with the data that was collected during the empirical survey. As mentioned earlier, information on both the dependent and independent variables were gathered from the same key informants. Whereas all necessary precautions were taken to avoid common method bias, it would be interesting to repeat the survey with actual financial performance figures.

This research study is among the few studies that try to bring the cluster discourse back to the firm; it has identified several characteristics that allow firms to create and defend competitive advantage through clusters. The fact that the model explains 23% and 25% of variance of profitability and sales performance, respectively, suggests that there are more firm-level characteristics that govern the relationship between clusters and firm performance.

APPENDIX A

EMPIRICAL STUDIES ABOUT AGGLOMERATIONS AND FIRM PERFORMANCE

<i>Author(s)</i>	<i>Method of Measurement</i>	<i>Sample</i>			<i>Dependent Variable</i>	<i>Results</i>
		<i>Industry</i>	<i>Time</i>	<i>Country</i>		
Baptista & Swann (1998)	Regional employment in two-digit industries	Ten two-digit manufacturing industries	1975-1982	UK	Innovation Performance	Firms in regional agglomerations of own industry employment are more likely to innovate.
Shaver & Flyer (2000)	Proportion of firm's own industry activity in states	Foreign entrants from four-digit manufacturing industries	1987-1995	USA	Firm Survival	Foreign direct invested firms are more likely to fail in states with a higher degree of own industry agglomeration.
Sternberg & Arndt (2001)	Eleven predefined European regions of varying sizes	Manufacturing	1995-1999	Europe	Innovation Performance	Firms are more likely to innovate in regions where: 1) manufacturing employment is agglomerated. 2) R&D expenditure to GDP ratio is high. 3) regional and cross regional firm networks are strong.
Beaudry (2001)	County-level employment in five-digit industries	Aerospace	1988-1994	UK	Firm Performance (growth and patenting)	1) Firms in own industry agglomerations are growing faster than the average. 2) Firms in other industry agglomerations are growing slower than the average. 3) Firms in agglomerations of innovative firms are more likely to innovate themselves.

Author(s)	Method of Measurement	Sample			Dependent Variable	Results
		Industry	Time	Country		
Stuart & Sorenson (2003)	Distance based measure and links among firm-university patents	Biotechnology	1978-1995	USA	Firm performance (time-to-IPO)	Proximity to agglomerations of: 1) specialized labor positively influences firm performance. 2) competitors reduce firm performance.
Canina, Enz, & Harrison (2005)	Zip code counts of hotels	Hotel services	2000	USA	Firm performance (room revenue and rooms sold)	Locating in agglomerations of 1) high-end competitors increases a hotel's performance. 2) low-end competitors decreases a hotel's performance. 3) high strategic differentiation amplifies the effects.
Folta, Cooper, & Baik (2006)	MSA counts of firms	Biotechnology	1973-1998	USA	Firm performance (patenting, firm alliances private equity offerings)	Inverse U-shaped relationship between agglomeration size and firm performance: When agglomerations get too large firm performance starts to decrease.
McCann & Folta (2011)	MSA counts of firms	Biotechnology	1973-1998	USA	Patenting performance	Firms in agglomerations that: 1) have higher stocks of patents generate more patents. 2) are younger generate more patents.

Adapted from Saric, 2012: 52-53

APPENDIX B

EMPIRICAL STUDIES ABOUT CLUSTERS AND FIRM PERFORMANCE

<i>Author(s)</i>	<i>Cluster Concept</i>	<i>Method of Measurement</i>	<i>Sample</i>			<i>Dependent Variable</i>	<i>Results</i>
			<i>Industry</i>	<i>Time</i>	<i>Country</i>		
Visser (1999)	Industrial District	Expert opinion on a preselected district in Lima	Clothing	1994	Peru	Firm Performance (including employment size and growth, sales and wage per worker) Firm Survival	Firms in districts have stronger performance than firms outside districts.
Staber (2001)	Industrial District	Distance based on 10km around focal firm	Knitwear	1960-1998	Germany		Locating in: 1) high-density districts raises firm failure. 2) diversified districts increases firm survival.
Molina-Morales (2001)	Industrial District	Distance based on 20 km around the city of Castellon	Ceramic tile	1995	Spain	Firm Performance (ROA: earnings before interest and taxes divided by total assets; ROE: earnings after taxes divided by shareholder equity; ROS: earnings before interest and taxes divided by total sales; Growth: sales increase over whole period divided by initial total sales)	1) Firms in industrial districts perform higher than external firms. 2) No significant differences in performance between diverse groups of firms within the industrial district.
Bell (2005)	Industrial District	Counts of mutual fund companies in the Investment Funds Institute of Canada	Mutual Fund Companies	1998	Canada	Firm Performance (firm innovativeness: new products, new services, and new technologies)	1) Firms located in industrial districts are more innovative than remotes. 2) Centrality in the managerial tie network enhances firm innovativeness. 3) Centrality in the institutional tie network does not enhance firm innovativeness.

Boschma/Ter Wal (2007)	Industrial District	Case study of Barletta Footwear district	Footwear	2007	Italy	Firm Performance (firm innovativeness)	1) A strong local network position of firms influences positively their innovative performance. 2) Firms having non-local knowledge relationships are more innovative than firms lacking such relationships. 3) Absorptive capacity impacts only indirectly, through non-local relationships, on the innovative performance of firms.
Zhang/Li (2008)	Cluster	Two pre-selected clusters	Textile and ICT	2005	China	Firm Performance (sales growth)	Business ties within clusters positively influence firm performance.
Gilbert/McDougall/Audretsch (2008)	Cluster	MSA: LQ of employment, input-output data	ICT services	1990-2000	USA	Firm Performance (sales growth and product innovation)	1) Firms in clusters perform better than isolated firms. 2) Technological knowledge transfer through patents does not explain why firms cluster.
Wernberg/Lindqvist (2010)	Cluster	Regions and counties; LQ and counts of employees and plants, input-output data	23 service and manufacturing industries from five different clusters	1993-2002	Sweden	Firm Performance (firm survival, tax payments, wages per employee)	Firms in clusters: 1) have higher survival rates 2) create more jobs. 3) pay more taxes. 4) pay higher wages.
Kukalis (2010)	Cluster	Region; LQ of employees, input-output data, expert opinion	Pharmaceutical and semiconductor	1976-2006	USA	Firm Performance (ROA, ROS)	Early in the industry lifecycle clustered and isolated firms performed equally. Late in the industry lifecycle: 1) isolated firms performed better than clustered firms. 2) and in recessionary times isolated firms performed better than clustered firms.

Liao (2010)	Cluster	Survey	Taiwanese manufacturing	2006	China	Production Performance	1) Clusters alone have no impact on performance. 2) Manufacturing resources facilitate positive impact of clusters on performance.
Li & Geng (2012)	Cluster	Survey	Chinese manufacturing	2012	China	Firm Performance in two stages (ROA, ROS and sales growth of a firm relative to its major competitors' performance; firm's innovativeness relative to its major competitors' performance; (1 = much worse, 7 = much better).	1) The business performance of the cluster firms is higher than that of the non-cluster firms; 2) There is a positive influence of shared resources on competitive advantage of cluster firms.
Saric (2012)	Cluster	Survey	Chinese manufacturing	2009-2010	China	Firm Performance measured by two subjective measures: profitability and sales performance.	1) Strong clusters have a positive influence on firm performance. 2) No significant interaction between clusters and age. 3) Positive interaction between clusters and size. 4) In weak cluster environments, firms wanting to succeed in sales performance rely on their entrepreneurial orientation whereas non-entrepreneurial firms with a strong cluster-capability are more profitable. 5) In strong cluster environments, firms with cluster-capability have high levels of sales and profitability performance.

Adapted and developed from Saric, 2012: 56-57

APPENDIX C

ORIGINAL SCALES USED IN THE THESIS

Geographical Concentration

Please compare your industry to other industries in your region (1=Very Low;
5=Very High)

- | | |
|--|-----------|
| 1) The number of companies operating in our industry
compared to the number of companies operating
in other industries. | 1 2 3 4 5 |
| 2) The number of people employed in our industry
compared to the number of people employed by other
industries. | 1 2 3 4 5 |
| 3) The percentage our industry contributes to the
regional gross value added compared to
the total regional gross value added. | 1 2 3 4 5 |

Inter-Firm Linkages

To what extent do you agree or disagree with the following statements?

(1= Strongly Disagree; 5= Strongly Agree)

- | | |
|--|-----------|
| 1) Our region is home to a large number of suppliers
and potential customers. | 1 2 3 4 5 |
| 2) We have built networks and alliances with our local
business partners. | 1 2 3 4 5 |
| 3) Our employees regularly participate in relevant
local industry events. | 1 2 3 4 5 |

- 4) In our local business environment, it is common
that employees who switch jobs move from one
local company to another. 1 2 3 4 5

Proactiveness

To what extent do you agree or disagree with the following statements?

(1= Strongly Disagree; 5= Strongly Agree)

- 1) Overall, my firm regularly scans the environment and gathers
information from our local business partners to seek and
identify new opportunities. 1 2 3 4 5
- 2) In general, the top managers of my firm initiate preemptive
actions in response to perceived opportunities which competitors
then respond to. 1 2 3 4 5
- 3) We are very often the first to introduce new products or
services to our customers. 1 2 3 4 5
- 4) In general, my firm is eager to be a leader rather than a follower. 1 2 3 4 5

Innovativeness

To what extent do you agree or disagree with the following statements?

(1= Strongly Disagree; 5= Strongly Agree)

- 1) During the past three years my firm has marketed
very many new lines of products and services. 1 2 3 4 5
- 2) Changes in product and service lines have been
quite dramatic. 1 2 3 4 5

Risk-Taking

To what extent do you agree or disagree with the following statements?

(1= Strongly Disagree; 5= Strongly Agree)

In my firm...

- | | |
|--|-----------|
| 1)...managers have a strong proclivity for high-risk projects
(with chances of very high returns). | 1 2 3 4 5 |
| 2)...managers believe that owing to the nature of the environment,
bold wide-ranging acts are necessary to achieve the firm's objectives. | 1 2 3 4 5 |

Business Ties

To what extent have you utilized personal ties, networks, and connections with the top executives ... (1= Very Little; 5= Very Extensive)

- | | |
|---|-----------|
| 1)... at supplier firms during the past three years? | 1 2 3 4 5 |
| 2)...at buyer firms during the past three years? | 1 2 3 4 5 |
| 3)...at competitor firms during the past three years? | 1 2 3 4 5 |

Support Ties

To what extent have you utilized personal ties, networks, and connections with... (1= Very Little; 5= Very Extensive)

- | | |
|---|-----------|
| 1) Political persons from the government. | 1 2 3 4 5 |
| 2) People from educational institutions. | 1 2 3 4 5 |
| 3) Officials in municipalities. | 1 2 3 4 5 |
| 4) Officials in state banks. | 1 2 3 4 5 |
| 5) Officials in tax bureaus. | 1 2 3 4 5 |
| 6) Officials in chambers of commerce. | 1 2 3 4 5 |

- | | |
|---------------------------------------|-----------|
| 7) Officials in chambers of industry. | 1 2 3 4 5 |
| 8) Officials in cooperatives. | 1 2 3 4 5 |

Strategic Learning Capability

To what extent do you agree or disagree with the following statements?

(1= Strongly Disagree; 5= Strongly Agree)

Strategic knowledge distribution

- | | |
|---|-----------|
| 1) Within our firm, sharing strategic information
is the norm. | 1 2 3 4 5 |
| 2) Within our firm, strategically important
information is easily accessible to those who
need it most. | 1 2 3 4 5 |
| 3) Representatives from different departments
meet regularly to discuss new strategically
important issues. | 1 2 3 4 5 |
| 4) Within our firm, strategically important
information is actively shared between
different departments. | 1 2 3 4 5 |
| 5) When one department obtains strategically
important information, it is circulated to
other departments. | 1 2 3 4 5 |

Strategic knowledge interpretation

- | | |
|--|-----------|
| 1) When faced with new strategically important information, our managers usually agree on how the information will impact our firm. | 1 2 3 4 5 |
| 2) In meetings, we seek to understand everyone's point of view concerning new strategic information. | 1 2 3 4 5 |
| 3) Groups are prepared to rethink decisions when presented with new strategic information. | 1 2 3 4 5 |
| 4) When confronting new strategic information, we are not afraid to critically reflect on the shared assumptions we have about our organization. | 1 2 3 4 5 |
| 5) We often collectively question our own biases about the way we interpret new strategic knowledge. | 1 2 3 4 5 |

Strategic knowledge implementation

- | | |
|--|-----------|
| 1) Strategic knowledge gained by working groups is used to improve products, services, and processes. | 1 2 3 4 5 |
| 2) The decisions we make according to any new strategic knowledge are reflected in changes to our organizational systems and procedures. | 1 2 3 4 5 |
| 3) Strategic knowledge gained by individuals has an effect on the organization's strategy. | 1 2 3 4 5 |
| 4) Recommendations by groups concerning the use of strategic knowledge are adopted by the organization. | 1 2 3 4 5 |

Profitability

Please assess your firm's performance relative to your competitors over the three years 2011/2012/2013 in terms of... (1=Very Unsatisfactory; 5= Very Satisfactory)

- | | |
|----------------------------|-----------|
| 1)...return on investment. | 1 2 3 4 5 |
| 2)...profit margin. | 1 2 3 4 5 |
| 3)...net profits. | 1 2 3 4 5 |

Sales Performance

Please assess your firm's performance relative to your competitors over the three years 2011/2012/2013 in terms of... (1=Very Unsatisfactory; 5= Very Satisfactory)

- | | |
|------------------------------|-----------|
| 1)...sales volume. | 1 2 3 4 5 |
| 2)...growth in sales volume. | 1 2 3 4 5 |

Environmental Dynamism

How would you assess your firm's business environment with the following statements? (1=Strongly Disagree; 5= Strongly Agree)

- | | |
|---|-----------|
| 1) Product demand is hard to forecast. | 1 2 3 4 5 |
| 2) Customer requirements and preferences are hard to forecast. | 1 2 3 4 5 |
| 3) My industry is very unstable with huge change resulting from major economic, technological, social, or political forces. | 1 2 3 4 5 |

APPENDIX D

QUESTIONNAIRE IN TURKISH



T.C. BOĞAZIÇI ÜNİVERSİTESİ
İKTİSADİ ve İDARİ BİLİMLER FAKÜLTESİ
İşletme Bölümü

İlgili Kurum'a,

Bölümümüz Yönetim ve Organizasyon Anabilim Dalı doktora öğrencilerinden Nigar Çağla Mutlucan, firmaların performansını etkileyen faktörler ve kümelenme üzerine bir çalışma sürdürmekte olup, tezinin anket çalışması için veri toplamaktadır.

Anket kapsamında toplanan bilgiler tamamen akademik amaçlarla kullanılacak olup, tüm bilgilerin gizliliği tarafımızca garanti altındadır. Çalışma sonunda arzu ederseniz, çalışmanın sonuçlarıyla ilgili yönetici özeti tarafınıza gönderilecektir.

Toplamda 10 dakikanızı alacak bu ankete katılımınızı rica eder, iyi çalışmalar dileriz.

Desteyiniz için şimdiden teşekkür ederiz.

Prof. Dr. Stefan Koch
İşletme Bölüm Başkanı

Prof. Dr. Özlem Öz
Doktora Tez Danışmanı

1. Lütfen sektörünüzü bölgedeki diğer sektörlerle karşılaştırarak ilgili yere (x) işareti koyunuz.
(1=Çok düşük; 5=Çok yüksek)

	1	2	3	4	5
Diğer sektörlerdeki firma sayısına kıyasla sektörümüzdeki firma sayısı					
Diğer sektörlerdeki çalışan sayısına kıyasla sektörümüzdeki çalışan sayısı					
Diğer sektörlerin payına kıyasla sektörümüzün Bölgesel Gayri Safi Katma Değer içindeki payı					

2. Aşağıdaki ifadelere ne ölçüde katılırsınız veya katılmazsınız?
(1= Kesinlikle katılmıyorum; 5= Kesinlikle katılıyorum)

	1	2	3	4	5
Bölgemiz birçok tedarikçi ve potansiyel müşteriye ev sahipliği yapar.					
Yerel iş ortaklarımızla iş ağları ve birlikler kurduk.					
Çalışanlarımız düzenli olarak ilgili yerel sektör etkinliklerine katılır.					
Yerel iş çevremizde, çalışanların bir yerel firmadan diğerine geçerek iş değiştirmesi sık görülür.					
Genel olarak bölgemiz, işlerimizi yürütmek için ihtiyaç duyduğumuz bütün kaynaklara (sermaye, tedarikçiler, insan kaynakları vb.) ve pazarlara ulaşmamıza olanak sağlar.					
Genel olarak firmam, düzenli şekilde çevreyi tarar ve yeni fırsatları tespit etmek amacıyla yerel iş ortaklarımızdan bilgi toplar.					
Genellikle, firmamın üst yöneticileri algıladıkları fırsatlara karşı erken harekete geçer ve daha sonra rakipleri bunlara karşılık verir.					
Sık sık müşterilerimize yeni ürün veya hizmetleri ilk sunan oluruz.					
Genellikle, firmamız takipçi olmaktansa lider olmak ister.					
Firmamız son 3 yılda birçok yeni ürün ve hizmet serileri pazarladı.					
Ürün ve hizmet serilerinde oldukça önemli değişiklikler oldu.					
Firmamızda müdürler yüksek-riskli (yüksek getiri şanslı) projelere karşı meyillidir.					
Firmamızda müdürler, iş çevresinin yapısı nedeniyle, cesur ve geniş çaplı hamlelerin firmanın hedeflerine ulaşmak için şart olduğuna inanır.					
Bu firmada girişimci davranış temel ilkedir.					

3. Son 3 yıl içinde aşağıdaki firmaların üst yöneticileriyle oluşturduğunuz kişisel bağlarınızı, iş ağlarınızı, ve irtibatlarınızı ne ölçüde kullandınız?
(1= Hiç kullanmadım; 5= Çok yoğun şekilde kullandım)

	1	2	3	4	5
Tedarikçi firmalar					
Satış yapılan firmalar					
Rakip firmalar					

4. Son 3 yıl içinde aşağıda belirtilenlerle oluşturduğunuz kişisel bağlarınızı, iş ağlarını ve irtibatlarınızı ne ölçüde kullandınız?

(1= Hiç kullanmadım; 5= Çok yoğun şekilde kullandım)

	1	2	3	4	5
Hükümetteki siyasi kişiler					
Eğitim kurumları görevlileri					
Belediye görevlileri					
Devlet bankası görevlileri					
Vergi Dairesi görevlileri					
Ticaret Odası görevlileri					
Sanayi Odası görevlileri					
Kooperatif görevlileri					

5. Aşağıdaki ifadelere ne ölçüde katılırsınız veya katılmazsınız?

(1= Kesinlikle katılmıyorum; 5= Kesinlikle katılıyorum)

	1	2	3	4	5
Firmamızda, stratejik bilgiyi paylaşmak ilkemizdir.					
Firmamızda, stratejik önemli bilgi ona ihtiyacı olanlar için kolayca erişilebilirdir.					
Farklı departmanlardan temsilciler, stratejik açıdan önemli yeni konuları tartışmak için düzenli olarak buluşurlar.					
Firmamızda, stratejik açıdan önemli bilgi farklı departmanlar arasında aktif olarak paylaşılır.					
Eğer bir departman stratejik açıdan önemli bilgi edinmişse, bu bilgi farklı departmanlar arasında yayılır.					
Stratejik açıdan önemli bilgi ile karşılaştıklarında, müdürlerimiz bilginin firmayı nasıl etkileyeceği konusunda genellikle hemfikirdir.					
Toplantılarda herkesin yeni stratejik bilgiye olan bakışını anlamaya çalışırız.					
Gruplar, yeni stratejik bilgi sunulduğunda, kararlarını tekrar düşünmeye hazırlıklıdır.					
Yeni stratejik önemli bilgi ile karşılaştığımızda, kurumumuz hakkındaki ortak varsayımlarımıza eleştirel gözle bakmaktan çekinmeyiz.					
Yeni stratejik bilgi sunulduğunda, onu yorumlayışımızdaki hataları toplu olarak sorgularız.					
Çalışma gruplarından edinilen stratejik bilgi, ürün, hizmet ve süreçleri iyileştirmek için kullanılır.					
Yeni stratejik bilgiye göre aldığımız kararlar, kurumsal sistem ve prosedürlerde değişiklik olarak yerini alır.					
Kişilerce edinilen stratejik bilgi kurum stratejimizi etkiler.					
Yeni stratejik bilginin kullanımı konusunda grupların tavsiyeleri örgütçe benimsenir.					

6. Lütfen firma performansınızı rakiplere göre üç yıllık olarak 2012/2013/2014 kıyaslayınız.

(1=Hiç tatmin edici değil; 5= Çok tatmin edici)

	1	2	3	4	5
Yatırım getirisi					
Kar marjı					
Net kar					
Satış hacmi					
Satış hacminde büyüme					

7. Firmanızın iş çevresini nasıl değerlendirirsiniz?

(1= Kesinlikle katılmıyorum; 5= Kesinlikle katılıyorum)

	1	2	3	4	5
Ürün talebini tahmin etmek zordur.					
Müşteri istek ve tercihlerini tahmin etmek zordur.					
Önemli ekonomik, teknolojik, sosyal veya siyasi güçlerden kaynaklanan büyük değişimler nedeniyle sektörüm hiç durgun değildir.					

8. Diğer

Firmanızda çalışan insan sayısı	
Firmanızın faaliyet gösterdiği sektör	
Firmanızın yaşı	
Firmanızın adı	
Firmanızın bulunduğu il	
Anketi dolduran kişinin ünvanı	

Yönetici özeti almak istiyorsanız elektronik posta adresiniz?

.....

KATILIMINIZ İÇİN TEŞEKKÜR EDERİZ...

APPENDIX E

DESCRIPTIVE STATISTICS

	N	Minimum	Maximum	Mean	Std. Deviation
Geographical Concentration1	160	2	5	4,39	,825
Geographical Concentration2	160	1	5	4,06	,956
Geographical Concentration3	160	1	5	3,84	1,027
Inter-Firm Linkages1	160	2	5	4,46	,760
Inter-Firm Linkages2	160	1	5	3,03	1,362
Inter-Firm Linkages3	160	1	5	2,44	1,287
Proactiveness1	160	1	5	3,55	1,051
Proactiveness2	160	1	5	3,51	1,099
Proactiveness3	160	1	5	3,54	1,197
Proactiveness4	160	1	5	3,81	1,139
Innovativeness1	160	1	5	3,61	1,229
Innovativeness2	160	1	5	3,46	1,355
Risk-Taking1	160	1	5	3,21	1,166
Risk-Taking2	160	1	5	3,55	1,080
Business Ties1	160	1	5	4,04	1,018
Business Ties2	160	1	5	4,06	,979
Business Ties3	160	1	5	2,83	1,231
Support Ties1	160	1	5	1,46	,896
Support Ties2	160	1	5	2,31	1,244
Support Ties3	160	1	5	2,19	1,353
Support Ties4	160	1	5	2,31	1,383
Support Ties5	160	1	5	2,39	1,392
Support Ties6	160	1	5	2,76	1,443
Support Ties7	160	1	5	2,62	1,453
Strategic Knowledge Distribution1	160	1	5	3,07	1,432
Strategic Knowledge Distribution2	160	1	5	3,07	1,344
Strategic Knowledge Distribution3	160	1	5	3,31	1,213
Strategic Knowledge Distribution4	160	1	5	3,34	1,144
Strategic Knowledge Distribution5	160	1	5	3,42	1,231
Strategic Knowledge Interpretation1	160	1	5	3,63	,988
Strategic Knowledge Interpretation2	160	1	5	3,79	,974
Strategic Knowledge Interpretation3	160	1	5	3,57	1,013
Strategic Knowledge Interpretation4	160	1	5	3,76	1,043
Strategic Knowledge Interpretation5	160	1	5	3,64	1,031
Strategic Knowledge Implementation1	160	1	5	3,90	,985
Strategic Knowledge Implementation2	160	1	5	3,69	1,052
Strategic Knowledge Implementation3	160	1	5	3,52	1,046
Strategic Knowledge Implementation4	160	1	5	3,44	,956

	N	Minimum	Maximum	Mean	Std. Deviation
Profit Performance1	160	1	5	3,11	1,144
Profit Performance2	160	1	5	3,01	1,138
Profit Performance3	160	1	5	2,97	1,107
Sales Performance1	160	1	5	3,36	1,135
Sales Performance2	160	1	5	3,36	1,189
Environmental Dynamism1	160	1	5	2,92	1,216
Environmental Dynamism2	160	1	5	2,86	1,281
Firm Size	160	3	3500	186,96	419,362
Firm Age	160	3	64	19,59	11,820
Valid N (listwise)	160				

APPENDIX F

ASSESSMENT OF THE STRATEGIC LEARNING CAPABILITY CONSTRUCT

Strategic Learning Capability: Indicator Assessment		
<i>Indicators</i>		<i>Indicator loadings</i>
To what extent do you agree or disagree with the following statements?		
SKD1	Within our firm, sharing strategic information is the norm.	0.607
SKD2	Within our firm, strategically important information is easily accessible to those who need it most.	0.593
SKD3	Representatives from different departments meet regularly to discuss new strategically important issues.	0.711
SKD4	Within our firm, strategically important information is actively shared between different departments.	0.709
SKD5	When one department obtains strategically important information, it is circulated to other departments.	0.593
SKINT1	When faced with new strategically important information, our managers usually agree on how the information will impact our firm.	0.744
SKINT2	In meetings, we seek to understand everyone's point of view concerning new strategic information.	0.845
SKINT3	Groups are prepared to rethink decisions when presented with new strategic information.	0.791
SKINT4	When confronting new strategic information, we are not afraid to critically reflect on the shared assumptions we have about our organization.	0.757
SKINT5	We often collectively question our own biases about the way we interpret new strategic knowledge.	0.776
SKIMP1	Strategic knowledge gained by working groups is used to improve products, services, and processes.	0.783

SKIMP2	The decisions we make according to any new strategic knowledge are reflected in changes to our organizational systems and procedures.	0.772
SKIMP3	Strategic knowledge gained by individuals has an effect on the organization's strategy.	0.624
SKIMP4	Recommendations by groups concerning the use of strategic knowledge are adopted by the organization.	0.755
Strategic Learning Capability: Factor Assessment		
Composite reliability: 0.938		AVE: 0.523

REFERENCES

- Aage, T. (2010). Boundary-spanning strategies of industrial districts -The impact of absorptive capacity. In F. Belussi, & A. Sammarra. (Eds.), *Business networks in clusters and industrial districts- The governance of the global value chain* (pp. 52-65). Oxon: Routledge.
- Acquaah, M. (2007). Managerial social capital, strategic orientation, and organizational performance in an emerging economy. *Strategic Management Journal*, 28, 1235-1255.
- Alpay, H. A. (2007). Globalleşen dünyada Bursa tekstil sektörü. Retrieved from <http://www.docstoc.com/docs/122767933/Bursa-Tekstil-Sektoru>.
- Amin, A., & Robbins, K. (1990). Industrial districts and regional development: Limits and possibilities. In F. Pyke, G. Becattini & W. Sengenberger (Eds.), *Industrial districts and inter-firm cooperation in Italy* (pp. 185 – 219). Geneva: International Institute for Labour Studies.
- Asheim, B. (1994). Industrial districts, interfirm co-operation and endogenous technological development: The experience of developed countries. In United Nations, *Technological dynamism in industrial districts: An alternative approach to industrialization in developing countries?* (pp. 91-142). New York and Geneva: United Nations.
- Asheim, B. (1995). Industrial districts as learning regions: a condition for prosperity? STEP Report No. 3. Oslo: STEP Group.
- Asheim, B. (1996). Industrial districts as ‘Learning Regions’: A condition for prosperity? *European Planning Studies*, 4(4), 379-400.
- Asheim, B. (2000). Industrial districts: The contributions of Marshall and beyond. In G. L. Clark, M. Feldman, & M. Gertler (Eds.), *The Oxford Handbook of Economic Geography* (pp. 413-431). Oxford: Oxford University Press.
- Asheim, B. (2001). Learning regions as development coalitions: Partnership as governance in European workfare states? *Concepts and Transformation. International Journal of Action Research and Organization Renewal*, 6, 73-101.

- Asheim, B., & Gertler, M. (2005). The geography of innovation: Regional innovation systems. In J. Fagerberg, D. Mowery, & R. Nelson (Eds.), *The Oxford handbook of innovation* (pp. 291-317). Oxford: Oxford University Press.
- Asheim, B., Cooke, P., & Martin, R. (2006). *Clusters and regional development: Critical reflections and explorations*. Oxon: Routledge.
- Audretsch, D. B., & Feldman, M. (1996). R&D Spillovers and the Geography of Innovation and Production, *American Economic Review*, 86: 630-640.
- Autio, E. (1998). Evaluation of RTD in Regional System of Innovation. *European Planning Studies*, 6, 131-140.
- Aydalot, P. H. (1986). *Milieux innovateurs en Europe*. Paris: GREMI.
- Aydalot, P. H., & Keeble, D. (1988). *High technology industry and innovative environments in Europe*. London: Routledge.
- Baker, W. (1990). Market networks and corporate behavior. *American Journal of Sociology*, 96(3), 589-625.
- Baptista, R., & Swann, P. (1998). Do firms in clusters innovate more? *Research Policy*, 27, 525-540.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Bartlett, C. A., & Goshal, S. (1991). *Managing across borders*. Boston, MA: Harvard Business School Press.
- Baten, J., Spadavecchiay, A., Strebz, J., & Yin, S. (2007). What made southwest German firms innovative around 1900? Assessing the importance of intra- and inter-industry externalities. *Oxford Economic Papers*, 59, i105-i126.

- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28, 31–56.
- Batjargal, B. (2003). Social capital and entrepreneurial performance in Russia: A longitudinal study. *Organization Studies*, 24(4), 535-556.
- Baum, J. A. C., & Haveman, H. A. (1997). Love thy neighbor? Differentiation and agglomeration in the Manhattan hotel industry, 1898-1990. *Administrative Science Quarterly*, 42(2), 304-38.
- Beal, B. D., & Gimeno, J. (2001). Geographic agglomeration, knowledge spillovers and competitive evolution. *Academy of Management Proceedings CD*. New York.
- Beaudry, C. (2001). Entry, growth and patenting in industrial clusters: A study of the aerospace industry in the UK. *International Journal of the Economics of Business*, 8(3), 405-436.
- Beaudry, C., & Breschi, S. (2003). Are firms in clusters really more innovative? *Economics of Innovation and New Technology*, 12(4), 325–342.
- Becattini, G. (1989). Sectors and/or districts: some remarks on the conceptual foundations of industrial economics. In E. Goodman, & J. Bamford (Eds.), *Small firms and industrial districts in Italy* (pp. 123-135). London: Routledge.
- Becattini, G. (1990). The Marshallian industrial district as a socio-economic notion. In F. Pyke, G. Becattini, & W. Sengenberger (Eds.), *Industrial districts and inter-firm co-operation in Italy, Geneva* (pp. 37-51). International Institute for Labor Studies.
- Becattini, G., Bellandi, M., & De Propris, L. (2009). *A handbook of industrial districts*. Cheltenham, UK: Edward Elgar Publishing.
- Bell, G.G. (2005). Clusters, networks, and firm innovativeness. *Strategic Management Journal*, 26, 287-295.
- Bellak, C.J., & Weiss, A. (1993). A note on the Austrian diamond. *Management International Review, Special Issue (2)*, 109-118.

- Belussi, F. (2006). In search of a useful theory of spatial clustering. In B. Asheim, P. Cooke, & R. Martin (Eds.), *Clusters and regional development: Critical reflections and explorations* (pp. 69-89). Oxon: Routledge.
- Belussi, F., & Sedita, S. R. (2010). Localized and distance learning in industrial districts. In F. Belussi, & A. Sammarra (Eds.), *Business networks in clusters and industrial districts - The governance of the global value chain* (pp. 24-51). Oxon: Routledge.
- Benneworth, P., & Hospers, G. J. (2007). The new economic geography of old industrial regions: Universities as global–local pipelines. *Environment and Planning C: Government and Policy*, 25, 779-802.
- Bergeron, S., Lallich, S., & Le Bas, C. (1998). Location of innovating activities, industrial structure and techno–industrial clusters in the French economy, 1985–1990. Evidence from US patenting. *Research Policy*, 26, 733–751.
- Berkman, Ü. & Özen, Ş. (2008). Culture and management in Turkey: State-dependency and paternalism in transition. In E. Davel, J. P. Dupuis & J. F. Chanlat (Eds.), *Gestion en contexte interculturel: Approches, problématiques, pratiques et plongées*. Quebec: Presse de L'Université Laval et Téléuniversité (UQAM).
- Biggiero, L. (1999). Markets, hierarchies, networks, districts: A cybernetic approach, *Human Systems Management*, 18, 71-86.
- Birkinshaw, J., & Hood, N. (2000). Characteristics of foreign subsidiaries in industry clusters. *Journal of International Business Studies*, 31, 141-154.
- Bontis, N., Crossan, M. M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies*, 39(4), 437–469.
- Boschma, R. A., & Ter Wal, A. L. J. (2007). Knowledge networks and innovative performance in an industrial district: The case of a footwear district in the south of Italy, *Industry and Innovation*, 14(2), 177-199.
- Brouthers, K. D., & Brouthers L. E. (1997). Explaining national competitive advantage for a small European country: A test of three competing models. *International Business Review*, 6(1), 53–70.

- Brown, P., & McNaughton, R. B. (2002). Global competitiveness and local networks: A review of the literature. In R. B. McNaughton, & M. B. Green, M. B. (Eds.), *Global competition and local networks* (pp. 3-37). Aldershot: Ashgate.
- Brusco, S. (1989). A policy for industrial districts. In E. Goodman, & J. Bamford (Eds.), *Small firms and industrial districts in Italy* (pp. 259-269). London: Routledge.
- Brusco, S. (1990). The idea of the industrial district. In F. Pyke, G. Becattini, & W. Sengenberger (Eds.), *Industrial districts and inter-firm co-operation in Italy* (pp. 10-19). Geneva: International Institute for Labor Studies.
- BUTEKOM. Retrieved from <http://www.butekom.com/sayfalar/about-us/>
- Camagni, R. (1991). *Innovation networks: Spatial perspective*. London: Belhaven-Pinter.
- Canina, L., Enz, C. A., & Harrison, J. (2005). Agglomeration effects and strategic orientations: Evidence from the US lodging industry. *Academy of Management Journal*, 48(4), 565-581.
- Cantwell, J. (2009). Location and the multinational enterprise. *Journal of International Business Studies*, 40, 35-41.
- Cartwright, W. R. (1993). Multiple linked "diamonds" and the international competitiveness of export-dependent industries: The New Zealand experience, *Management International Review, Special Issue (2)*, 55-70.
- Chakravorty, S., & Koo, J. (2005). Do localization economies matter in cluster formation? Questioning the conventional wisdom with data from Indian metropolises, *Environment and Planning A*, 37, 331-353.
- Ciccone, A., & Hall, R. E. (1996). Productivity and the density of economic activity, *American Economic Review*, 86, 54-70.
- Clancy, P., O'Malley, E., O'Connell, L., & Van Egeraat, C. (2001). Industry clusters in Ireland: An application of Porter's model of national competitive advantage to three sectors. *European Planning Studies*, 9(1), 7-28.

- Clark, T. (1991). Review of the competitive advantage of nations, by M. E. Porter. *Journal of Marketing*, 55(4), 118-120.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity – A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128-152.
- Cooke, P. (1998). Introduction: Origins of the concept. In H. Braczyk, P. Cooke, & M. Heidenreich (Eds.), *Regional innovation systems* (pp. 2-25). London: UCL Press.
- Cooke, P. (2001). Regional innovation systems, clusters and the knowledge economy. *Industrial and Corporate Change*, 10(4), 945-974.
- Cooke, P. (2002). Regional innovation systems: General findings and some new evidence from biotechnology clusters. *Journal of Technology Transfer*, 27, 133–145.
- Cooke, P., & Morgan, K. (1993.) The network paradigm: New departures in corporate and regional development. *Environment & Planning D: Society and Space*, 11, 543–564.
- Cooke, P., & Huggins, R. (2002). High technology clustering in Cambridge. In A. Amin, S. Goglio, & F. Sforzi (Eds.), *The institutions of local development*. London: IGU.
- Covin, J. G., Slevin, D. P., & Schulz, R. L. (1994) implementing strategic mission: Effective strategic, structural and tactical choices. *Journal of Management Studies*, 31, 481–505.
- Covin, J. G., Slevin, D. P., & Heeley, M. B. (2000). Pioneers and followers: Competitive tactics, environment, and firm growth. *Journal of Business Venturing*, 15(2), 175-210.
- Covin, J. G., K. M. Green & D.P. Slevin. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice*, 30(1), 57-82.
- Crocombe, G. T., Enright, M. J., & Porter, M. E. (1991). *Upgrading New Zealand's competitive advantage*. Auckland: Oxford University Press.

- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3), 522–537.
- Crouch, C., Le Gales, P., Toglia, C., & Voelzkow, C. (2001). *Local production systems in Europe: Rise or demise?* Oxford: Oxford University Press.
- Cruz, S. S. C., & Teixeira, A. A. C. (2007). A new look into the evolution of clusters literature. A bibliometric exercise. *FEP Working Papers*, December 2007.
- Dachs, B., & Ebesberger, B. (2006). Knowledge flows between multinational enterprises and national innovation systems: The case of Austria. In A. T. Tavares, & A. Teixeira (Eds.) *Multinationals, clusters and innovation-Does public policy matter?* (pp. 13-26). New York: Palgrave Macmillan.
- Danis, W., Chiaburu, D., & Lyles, M. (2010). The impact of managerial networking intensity and market-based strategies on firm growth during institutional upheaval: A study of small and medium-sized enterprises in a transition economy. *Journal of International Business Studies*, 41, 287-307.
- Danneels, E. (2012). Second-order competences and Schumpeterian rents. *Strategic Entrepreneurship Journal*, 6, 42-58.
- Davies, H., & Ellis, P. (2000). Porter's competitive advantage of nations: Time for the final judgment? *Journal of Management Studies*, 37(8), 1189-1213.
- Dawkins, C. J. (2003). Regional development theory: Conceptual foundations, classic works, and recent developments. *Journal of Planning Literature*, 18(2), 131-172.
- Dei Ottati, G. (1994). Co-operation and competition in the industrial districts as an organization model. *European Planning Studies*, 2, 463-483.
- De Jong, J. P. J., & Marsili, O. (2010). Schumpeter versus Kirzner: An empirical investigation of opportunity types. *EIM Research Reports, Working Paper*, January 2010.
- Delgado, M., Porter, M. E., & Stern, S. (2010). Clusters and entrepreneurship. *Journal of Economic Geography*, 10(4), 1-24.

- De Propriis, L. (2001). Systemic flexibility, production fragmentation and cluster governance. *European Planning Studies*, 9(6), 739–53.
- De Propriis, L., & Driffield, N. (2006). The importance of clusters for spillovers from foreign direct investment and technology sourcing. *Cambridge Journal of Economics*, 30, 277–291.
- Dess, G. G., Lumpkin, G. T., & Covin, J. G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal*, 18(9), 677–695.
- Dimitratos, P., Lioukas, S., & Carter, S. (2004). The Relationship between entrepreneurship and international performance: The importance of domestic environment. *International Business Review*, 13(1), 19–41.
- Dixit, A. K., & J. E. Stiglitz. (1977). Monopolistic competition and optimum product diversity. *American Economic Review*, 67(3), 297–308.
- Doloreux, D. (2002). What we should know about regional systems of innovation. *Technology and Society*, 24, 243–263.
- Doloreux, D., & Parto, S. (2005). Regional innovation systems: current discourse and unresolved issues. *Technology in Society*, 27, 133–153.
- Dumais, G., Ellison, G., & Glaeser, E. (1997). Geographic concentration as a dynamic process. *NBER Working Paper* 6270.
- Dunning, J. H. (1993). Internationalizing Porter's diamond. *Management International Review, Special Issue* (2), 7–15.
- Dunning, J. H., & Narula, R. (1995). The R&D activities of foreign firms in the United States. *International Studies of Management & Organization*, 25(1-2), 39–72.
- Dünya. Retrieved from <http://www.dunya.com/ekonomik-gelistimenin-onemli-modeli-kumelenme-150384yy.htm>.
- Edquist, C. (2001). The systems of innovation approach and innovation policy: An account of the state of art. *The DRUID Conference*, Aalborg.

- Enright, M. (1990). *Geographical concentration and industrial organization*. (Unpublished PhD dissertation). Harvard University, Boston.
- Feldman, M., & Francis, J. L. (2006). Entrepreneurs as agents in the formation of industrial clusters. In B. Asheim, P. Cooke, & R. Martin (Eds.) *Clusters and regional development: Critical reflections and explorations* (pp. 115-131). Oxon: Routledge.
- Florida, R. (1995). Toward the learning region. *Futures*, 27, 527-536.
- Folta, T. B., Cooper, A. C., & Baik, Y. (2006). Geographic cluster size and firm performance. *Journal of Business Venturing*, 21(2), 217-242.
- Friedmann, J. (1972). A generalized theory of polarized development. In N. Hansen (Ed.), *Growth centers in regional economic development* (pp. 82-107). New York: Free Press.
- Fujita, K., & Hill, R. C. (1999). Global Toyotaism and local development. In J. Bryson, N. Henry, D. Keeble, & R. Martin (Eds.), *The economic geography reader: Producing and consuming global capitalism* (pp. 217-222). Chichester: Wiley.
- Furre, H. (2008). Cluster policy in Europe - A brief summary of cluster policies in 31 European countries. Unpublished Paper. Norway: Oxford Research AS.
- Garrett, R. P., Covin, J. G., & Slevin, D. P. (2009). Market responsiveness, top management risk taking, and the role of strategic learning as determinants of market pioneering. *Journal of Business Research*, 62(8), 782-788.
- Gertler, M. S., & Wolfe, D. E. (2006). Spaces of knowledge flows: Clusters in a global context. In B. Asheim, P. Cooke, & R. Martin (Eds.) *Clusters and regional development: Critical reflections and explorations* (pp. 218-235). Oxon: Routledge.
- Gilbert, B. A., McDougall, P. P., & Audretsch, D. B. (2008). Clusters, knowledge spillovers, and new venture performance: An empirical examination. *Journal of Business Venturing*, 23(4), 405-422.
- Goedhart, A., & Hardonk, E. (1991). The competitive advantage of The Netherlands. Doctoral Scriptie. Amsterdam: Vrije Universiteit, August.

- Granovetter, M. S. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory*, 1, 201-233.
- Grant, R. M. (1991). Porter's competitive advantage of nations: An assessment. *Strategic Management Journal*, 12(7), 535-548.
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(Winter Special Issue), 109-122.
- Gray, H. P. (1991). International competitiveness: A review article. *The International Trade Journal*, 5(4), 503-517.
- Greenaway, D. (1993). The competitive advantage of nations. *Kyklos*, 46(1), 145-146.
- Green, K. M, Covin, J. F., Slevin, D. P. (2008). Exploring the relationship between strategic reactiveness and entrepreneurial orientation: The role of structure-style fit. *Journal of Business Venturing*, 23(3), 356-389.
- Gulati, R., Nohria, N., & Zaheer, N. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203-215.
- Hair, J. F. Jr., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (pls-sem)*. Washington DC: Sage.
- Hannan, M. T., & Freeman, J. H. (1977). The population ecology of organizations. *American Journal of Sociology*, 82, 929-964.
- Hannan, M. T., Carrol, G. R., Dundon, E. A., & Torres, J. C. (1995). Organizational evolution in a multinational context: Entries of automobile manufacturers in Belgium, Britain, France, Germany and Italy. *American Sociological Review*, 60, 509-528.
- Harrison, B. (1994). The Italian industrial districts and the crisis of the co-operative form: Part II. *European Planning Studies*, 2, 159-174.

- Head, K., Ries, J., & Swenson, D. (1995). Agglomeration benefits and location choice: Evidence from Japanese manufacturing investments in the United States. *Journal of International Economics*, 38, 223-247.
- Henderson, J. V. (1986) efficiency of resource usage and city size. *Journal of Urban Economics*, 19, 47-70.
- Henisz, W. J., Holburn, G. L. F., & Zelner, B. A. (2005). Deinstitutionalization and institutional replacement: State-centered, neoliberal and hybrid models in the global electricity supply industry. *World Bank Policy Research Working Paper* no. 3690.
- Hill, E. W., & Brennan, J. F. (2000). A methodology for identifying the drivers of industrial clusters: The foundation of regional competitive advantage. *Economic Development Quarterly*, 14, 65-96.
- Hirschman, A. (1958). *The strategy of economic development*. New Haven, CT: Yale University Press.
- Hodgetts, R. M. (1993). Porter's diamond framework in a Mexican context. *Management International Review, Special Issue* (2), 41-54.
- House, R., Hanges, P., Javidan, M., Dorfman, P., & Gupta, V. (Eds.) (2004). *Culture, leadership, and organisations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.
- Ingram, G. K. (1991). The competitive advantage of nations by Porter, Michael, E. *Finance and Development*, 28(3), 50.
- Isard, W. (1956) *Location and space economy*. Cambridge, MA: MIT Press.
- Ismail, K. M., Ford, Jr., D. L., Wu, Q., & Peng, M. W. (2013). Managerial ties, strategic initiatives, and firm performance in Central Asia and the Caucasus. *Asia Pacific Journal of Management*, 30(2), 433-446.
- Jacobs, D., & de Jong M. W. (1992). Industrial clusters and the competitiveness of the Netherlands. *De Economist*, 140(2), 233-252.

- Jacobson, R. (1992). The Austrian school of strategy. *Academy of Management Review*, 17(4), 782-807.
- Kabasakal, H., & Bodur, M. (2007). Leadership and culture in Turkey: A multi-faceted phenomenon. In J. Chhokar, F. Brodbeck, & R. House (Eds.), *Managerial cultures of the world: A GLOBE report of in-depth studies of the cultures of 25 countries* (pp.835-874). New York, NY: Lawrence Erlbaum Associates.
- Kaufman, A., Gittel, R., Merenda, M., Naumes, W., & Wood, C. (1994). Porter's model for geographic competitive advantage: The case of New Hampshire. *Economic Development Quarterly*, 8(1), 43-66.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. 2005. Governance matters IV: Governance indicators for 1996–2004. Retrieved from www.worldbank.org/wbi/governance/pdf/govmatters_IV_main.pdf.
- KAYMOBODASI, Chamber of furniture producers of Kayseri. Retrieved from <http://www.webtasarimi.info.tr/KAYMOBODASI/kayseri.asp>.
- Keeble, D. (2000). Collective learning processes in European high-technology milieux. In D. Keeble, & F. Wilkinson (Eds.) *High Technology Clusters, Networking and Collective Learning in Europe* (pp. 199-229). Aldershot: Ashgate.
- Keeble, D., & Wilkinson, F. (2000). *High-tech clusters: Networking and collective learning*. Aldershot: Ashgate.
- Kepenek, E. B. (2009). Socio-technical issues in youth employment: Case of the furniture sector in Ankara. Ph. D. Thesis submitted to METU.
- Kirzner, I. M. (1973). *Competition and entrepreneurship*. Chicago: University of Chicago Press.
- Komninos, N. (2002). *Intelligent cities: Innovation, knowledge systems and digital spaces*. London: Spon Press.
- Krugman, P. R. (1991). Increasing returns and economic geography, *Journal of Political Economy*, 99, 137-150.

- Krugman, P. R. (1998). What's new in the economic geography? *Oxford Review of Economic Policy*, 14(2), 7-17.
- Krugman, P. R., & Obstfeld, M. (2003). *International economics: Theory and policy* (6th ed). New York: HarperCollins.
- Kukalis, S. (2010). Agglomeration economies and firm performance. *Journal of Management*, 36(2), 453-481.
- Kula, V. (2005). The impact of the roles, structure and process of boards on firm performance: Evidence from Turkey. *Corporate Governance: An International Review*, 13(2), 265-276.
- Kuwada K. (1998). Strategic learning: the continuous side of discontinuous strategic change. *Organization Science*, 9(6), 719-736.
- Kwon, Y. (2011). Relationship-specific investments, social capital, and performance: The case of Korean exporter/foreign buyer relations. *Asia Pacific Journal of Management*, 28(4), 761-773.
- Laestadius, S. (1998). Technology level, knowledge formation and industrial competence in paper manufacturing. In G. Eliasson et al. (Eds.), *Microfoundations of economic growth: A Schumpeterian perspective* (pp. 212-226). Ann Arbor: University of Michigan Press.
- Lazzeretti, L. (2003). City of art as high culture local system and cultural districtualisation process: The cluster of art restoration in Florence. *International Journal of Urban and Regional Research*, 27, 635-648.
- Li, J., & Geng, S. (2012). Industrial clusters, shared resources and firm performance. *Entrepreneurship & Regional Development: An International Journal*, 24(5-6), 357-381.
- Li, J. J., Poppo, L., & Zhou, K. Z. (2008). Do managerial ties in China always produce value? Competition, uncertainty, and domestic vs. foreign firms. *Strategic Management Journal*, 29(4), 383-400.
- Liao, T. (2010). Cluster and performance in foreign firms: The role of resources knowledge, and trust. *Industrial Marketing Management*, 39, 161-169.

- Lichtenthaler U. (2009). Absorptive Capacity, Environmental Turbulence, and the Complementarity of Organizational Learning Processes, *Academy of Management Journal*, 52(4): 822–846.
- Lin, X., & Song, H. (1997). China and multinationals– A winning combination. *Long Range Planning*, 30, 74-83.
- Lösch, A. (1954). *The economics of location*. New Haven, CT: Yale University Press.
- Lumpkin, G.T. & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to firm performance. *Academy of Management Review*, 21(1), 135-172.
- Lundvall, B. A., & Borras, S. (1997). The globalising learning economy: Implications for innovation policy. Report based on contributions from seven projects under the TSER programme DG XII, *Commission of the European Union, December 1997*.
- Lundvall, B. A., & Johnson, B. (1994). The learning economy. *The Journal of Industry Studies*, 2, 23-42.
- Luo, Y., Huang, Y., & Wang, S. L. (2011). *Guanxi* and organizational performance: A meta-analysis. *Management and Organization Review*, 8, 139-172.
- Maillat, D. (1995). Territorial dynamic, innovative milieux and regional policy. *Entrepreneurship & Regional Development*, 7, 157–165.
- Marino, L., Strandholm, K., Steensma, K. H., & Weaver, M. K. (2002). The moderating effect of national culture on the relationship between entrepreneurial orientation and strategic alliance portfolio extensiveness. *Entrepreneurship Theory and Practice*, 26(4), 145-160.
- Markusen, A. (1996). Sticky places in slippery space: A typology of industrial districts. *Economic Geography*, 72(3), 293–313.
- Marshall, A. (1927). *Industry and trade: A study of industrial technique and business organization; and of their influences on the conditions of various classes and nations*. London: MacMillan.

- Martin, R. (1999). The new geographical turn in economics: some critical reflections. *Cambridge Journal of Economics*, 23, 65-91.
- Martin, R., & Sunley, P. (1996). Paul Krugman's geographical economics and its implications for regional development theory: A critical assessment. *Economic Geography*, 72(3), 259-292.
- Martin, R., & Sunley, P. (1998). Slow convergence? The new endogenous growth theory and regional development. *Economic Geography*, 74, 201-227.
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: Chaotic concept or policy panacea? *Journal of Economic Geography*, 3, 5-35.
- Maskell, P. (2001). Towards a knowledge-theory of the geographical cluster. *Industrial and Corporate Change*, 10(4), 921-943.
- McCann, B. T., & Folta, T. B. (2011). Performance differentials within geographic clusters. *Journal of Business Venturing*, 26, 104-123.
- Mizruchi, M. S., & Galaskiewicz, J. (1993). Networks of interorganizational relations, *Sociological Methods and Research*, 22, 46-70.
- Molina-Morales, F.X. (2001). European industrial districts: Influence of geographic concentration on performance of the firm. *Journal of International Management*, 7, 277-294.
- Moon, C. H., Rugman, A. M., & Verbeke, A. (1998). A generalised double diamond approach to the global competitiveness of Singapore and Korea. *International Business Review*, 7(2), 135-150.
- Morgan, K. (1997). The learning region: Institutions, innovation and regional renewal. *Regional Studies*, 31, 491-504.
- Moses, L. N. (1958). Location and the theory of production. *Quarterly Journal of Economics*, 73(2), 259-272.
- Myrdal, G. (1957). *Economic theory and underdeveloped regions*. London: Duckworth.

- Nelson, R. R., & Winter, S. (1982). The Schumpeterian tradeoff revisited. *The American Economic Review*, 72, 114-132.
- Nooteboom, B. (2006) innovation, learning and cluster dynamics. In B. Asheim, P. Cooke, & R. Martin (Eds.), *Clusters and regional development: Critical reflections and explorations* (pp. 137-163). Oxon: Routledge.
- Oba, B. & Semerciöz, F. (2005). Antecedents of trust in industrial district: An empirical analysis of inter-firm relations in a Turkish industrial district. *Entrepreneurship & Regional Development: An International Journal*, 17(3), 163-182.
- O'Donnellan, N. (1994). The presence of Porter's sectoral clustering in Irish manufacturing. *The Economic and Social Review*, 25(3), 221– 232.
- O'Malley, E., & Van Egeraat, C. (2000). Industry clusters and Irish indigenous manufacturing: Limits of the Porter view. *The Economic and Social Review*, 31(1), 55-79.
- Ohlin, B. (1967). *Interregional and international trade*. Cambridge, MA: Harvard University Press.
- Oz, O. (1999). *The competitive advantage of nations: The case of Turkey*. Aldershot,: Ashgate.
- Oz, O. (2004). *Clusters and competitive advantage: The Turkish experience*. Hampshire, UK and New York: Palgrave Macmillan.
- Paniccia, I. (2002). *Industrial districts: Evolution and competitiveness in Italian firms*. Cheltenham: Edward Elgar.
- Paniccia, I. (2006). Cutting through the chaos: Towards a new typology of industrial districts and clusters. In B. Asheim, P. Cooke, & R. Martin (Eds.), *Clusters and regional development: Critical reflections and explorations* (pp. 90-114). Oxon: Routledge.
- Peng, M. W., & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy of Management Journal*, 43(3), 486-501.

- Perroux, F. (1950). Economic space: Theory and applications. *Quarterly Journal of Economics*, 64, 89-104.
- Piore, M., & Sabel, C. (1984). *The second industrial divide*. New York: Basic Books.
- Podsakoff, P. M. & Organ, D. W. (1986). Self reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 879-903.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of applied Psychology*, 88(5), 541-562.
- Porter, M. E. (1990a). *The competitive advantage of nations*. New York: The Free Press.
- Porter, M. E. (1990b). Competitiveness: Challenging the conventional wisdom. Letters to the editor. *Harvard Business Review*, 90(3), 190-192.
- Porter, M. E. & The Monitor Company (1991). *Canada at the crossroads*. Ottawa: Business Council on National Issues and Minister of Supply and Services.
- Porter, M. E. (1992). A note on culture and competitive advantage: response to Van den Bosch and van Prooijen. *European Management Journal*, 10(2), 178.
- Porter, M. E. (1998a) *On competition*. Boston, MA: Harvard Business School.
- Porter, M. E. (1998b) Clusters and the new economics of competition. *Harvard Business Review*, 76(6), 77-90.
- Porter, M. E. (2002) Regional foundations of competitiveness and implications for government policy. Paper presented at the Department of Trade and Industry Workshop on Regional Competitiveness, DTI, London.
- Porter, M. E. (2008). *On competition, updated and expanded edition*. Boston: Harvard Business School Press.
- Pouder, R., & St John, C. H. (1996.) Hot spots and blind spots: Geographical clusters of firms and innovation. *Academy of Management Review*, 21(4), 1192–1125.

- Powell, W. W., Koput, K.W., & Smith-Doerr, L. (1996). Interorganizational collaborations and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1), 116-145.
- Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management*, 33(3), 479-516.
- Puffer, S. M., & McCarthy, D. J. (2007). Can Russia's state-managed, network capitalism be competitive? Institutional pull versus institutional push. *Journal of World Business*, 42, 1-13.
- Pyka, A., & Küppers, G. (2002). *Innovation networks - Theory and practice*. Cheltenham, UK: Elgar Publishers.
- Pyke, F., Becattini, G., & Sengenberger, W. (1990). *Industrial districts and interfirm co-operation in Italy*. Geneva: International Institute for Labor Studies.
- Quigley, J. M. (2008). Urban Economics. In Steven N. Durlauf & Lawrence E. Blume (Eds.), *The new Palgrave dictionary of economics* (2nd edition). Palgrave Macmillan. The New Palgrave Dictionary of Economics Online. Palgrave Macmillan. Retrieved from http://www.dictionaryofeconomics.com/article?id=pde2008_U000035> doi:10.1057/9780230226203.1770.
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761-787.
- Rocha, H. O., & Sternberg, R. (2005). Entrepreneurship: The role of clusters, theoretical perspectives and empirical evidence from Germany. *Small Business Economics*, 24, 267-292.
- Rosenfeld, S. (1997). Bringing business clusters into to the mainstream of economic development. *European Planning Studies*, 5, 3-23.
- Rosenthal, S. S., & Strange, W. C. (2001). The determinants of agglomeration. *Journal of Urban Economics*, 50, 191-229.

- Roxas, B. & Chadee, D. (2012). Effects of informal institutions on the performance of microenterprises in the Philippines: The mediating role of entrepreneurial orientation. *Journal of Asia-Pacific Business*, 13(4), 320-348.
- Rouvinen, P., & Yla-Anttila, P. (1999). Finnish cluster studies and new industrial policy making. In OECD (Ed.), *Boosting innovation: The cluster approach* (pp. 361-380). Paris: OECD.
- Rugman, A. M. (1991). Diamond in the rough. *Business Quarterly*, 56(3), 61-64.
- Rugman, A. M., & D'Cruz, J. R. (1990). *New visions for Canadian business: Strategies for competitiveness in the global economy*. Toronto, Canada: Kodak.
- Rugman, A. M., & D'Cruz, J. R. (1991.) *Fast forward: Improving Canada's international competitiveness*. Toronto: Kodak.
- Rugman, A. M., & D'Cruz, J. R. (1993). The double diamond model of international competitiveness: The Canadian experience. *Management International Review, Special Issue (2)*, 17-39.
- Rugman, A. M., & Verbeke, A. (1993). Foreign subsidiaries and multinational strategic management: An extension and correction of Porter's single diamond framework. *Management International Review, Special Issue (2)*, 71-84.
- Rugman, A. M., & Verbeke, A. (2005). *Analysis of multinational strategic management: The selected scientific papers of Alan M. Rugman and Alain Verbeke*. Cheltenham, UK: Edward Elgar Publishing Limited.
- Sabel, C. F., Piore, M. J., & Storper, M. (1990). Three responses to Ash Amin and Kevin Robbins. In F. Pyke, G. Becattini, & W. Sengenberger (Eds.), *Industrial districts and inter-firm cooperation in Italy* (p. 220-237). Geneva: International Institute for Labor Studies.
- Saric, S. (2012). *Competitive advantages through clusters: An empirical study with evidence from China*. Wiesbaden: Springer Gabler.
- Sarkar, M. B., Echambadi, R., & Harrison, J. S. (2001). Alliance entrepreneurship and firm market performance. *Strategic Management Journal*, 22(6-7), 701-711.

- Saxenian, A. (1994). *Regional advantage*. Cambridge, MA: Harvard University Press.
- Schumpeter, J. A. (1939) *Business cycles: A theoretical, historical, and statistical analysis of the capitalist process*. New York: McGraw-Hill.
- Scott, A. (1988). *New industrial spaces*. London: Pion.
- Scott, A. (1996). Regional motors of the global economy. *Futures*, 28, 391-411.
- SGK (2012). Retrieved from <http://www.sgk.gov.tr/wps/portal/tr/kurumsal/istatistikler>.
- Shaver, J. M., & Flyer, F. (2000). Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States. *Strategic Management Journal*, 21(12), 1175-1193.
- Simmie, J. (2006). Do clusters or innovation systems drive competitiveness? In B. Asheim, P. Cooke, & R. Martin (Eds.), *Clusters and regional development: Critical reflections and explorations* (pp. 164-187). Oxon: Routledge.
- Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. (2009). A typology for aligning organizational ambidexterity's dimension, antecedents, and performance outcomes. *Journal of Management Studies*, 46(5), 864–894.
- Sinkula, J., Baker, W. E., Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge, and behavior. *Journal of the Academy of Marketing Science*, 25(4), 305–318.
- Siren, C. A., Kohtamaki, M., & Kuckertz, A. (2012). Exploration and exploitation strategies, profit performance, and the mediating role of strategic learning: escaping the exploitation trap. *Strategic Entrepreneurship Journal*, 6(1), 18-41.
- Sledge, S. (2005). Does Porter's diamond hold in the global automotive industry? *Advances in Competitiveness Research*, 13(1), 22-32.
- Smit, A. J. (2010). The competitive advantage of nations: Is Porter's diamond framework a new theory that explains the international competitiveness of countries? *Southern African Business Review*, 14(1), 105-130.

- Smith, D. M. (1966). A theoretical framework for geographical studies of industrial location. *Economic Geography*, 42, 95-113.
- Sölvell, Ö. (2009). *Clusters- balancing evolutionary and constructive forces*. <http://www.cluster-research.org/redbook.htm>.
- Sölvell, Ö., G. Lindqvist & C. Ketels. (2003). *The cluster initiative greenbook*. Stockholm: Ivory Tower.
- Spillan, J. E., Vyas, B. J., & Ziemnowicz, C. (2003). Determinants of Poland's competitive advantage in the logistics sector. *Journal of East-West Business*, 9(2), 47-70.
- Starr, P. (1995). Review of Annalee Saxenian, *Regional advantage: Culture and competition in Silicon Valley and Route 128* (Cambridge, MA: Harvard University Press, 1994), *Contemporary Sociology*, 24(3), 381-382.
- Steinle, C., & Schiele, H. (2002). When do industries cluster? A proposal on how to assess an industry's propensity to concentrate at a single region or nation. *Research Policy*, 31(6), 849-858.
- Sternberg, R. (2000). Innovation networks and regional development—Evidence from the European regional innovation survey (Eris): Theoretical concepts, methodological approach, empirical basis and introduction to the theme issue. *European Planning Studies*, 8(4), 389-407.
- Sternberg, R. & Arndt, O. (2001). The firm or the region: What determines the innovation behavior of European firms. *Economic Geography*, 77(4), 364-382.
- Stopford, J. M. and Strange, S. (1991). *Rival states, rival firms: Competition for world shares market*. Cambridge: Cambridge University Press.
- Storper, M. (1997). *The regional world: Territorial development in a global economy*, New York: The Guilford Press.
- Storper, M. (1999). The resurgence of regional economics, ten years later: The region as a nexus of untraded interdependencies. European Urban and Regional Studies. In J. Bryson, N. Henry, D. Keeble, & R. Martin, (Eds.), *The economic geography reader: Producing and consuming global capitalism* (pp. 209-215) Chichester, UK: Wiley.

- Stuart, T. E., & Sorenson, O. (2003). The geography of opportunity: Special heterogeneity in founding rates and the performance of biotechnology firms. *Research Policy*, 32(2), 229-253.
- Svetina, A. C. (2007). *Collective learning channels in clusters*. Paper presented at the DRUID Summer Conference, Copenhagen, Denmark.
- Tatoglu, E. & Glaister, K. W. (1998) Performance of international joint ventures in Turkey: Perspectives of Western firms and Turkish firms. *International Business Review*, 7, 635–656.
- Teece DJ. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Thompson, E. R. (2002). Clustering of foreign direct investment and enhanced technology transfer: Evidence from Hong Kong garment firms in China. *World Development*, 30(5), 873–889.
- Tichy, O. (2011). Schumpeterian business cycles: Past, present and future. *Economics and Management*, 16, 1068-1074.
- Tippins, M. J., Sohi, R. S. (2003). IT Competency and firm performance: Is organizational learning a missing link? *Strategic Management Journal*, 24(8), 745–761.
- TOFAS (n.d.). Retrieved from <http://www.tofas.com.tr/en/about/Pages/AboutUs.aspx>
- Tsai, W. & Ghosha, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464–476.
- Turkish Ministry of Science, Industry, and Technology, Mobilya Sektoru Raporu (2008), Sanayi Genel Müdürlüğü, Sektörel Raporlar ve Analizler Serisi, Ankara. Retrieved from http://www.sanayi.gov.tr/Files/Documents/mobilya_sektoru_raporu_oc-14022011110007.pdf

- Turkish Ministry of Science, Industry, and Technology, 81 İl Durum Raporu (May, 2012), Sanayi Genel Müdürlüğü, Ankara. Retrieved from <http://www.sanayi.gov.tr/Files/Documents/81-il-durum-raporu-2012-11052012113452.pdf>
- TÜİK (2002). Retrieved from http://www.turkstat.gov.tr/Kitap.do?metod=KitapDetay&KT_ID=9&KITAP_ID=58
- Varaldo, R., & Ferruci, L. (1996). The evolutionary nature of the firm within industrial districts. *European Planning Studies*, 4, 27-34.
- Van den Bosch, F., & Van Prooijen, A. (1992). The competitive advantage of nations: the impact of a national culture - a missing element in Porter's analysis? *European Management Journal*, 10(2), 173-177.
- Venkatraman, N. (1989). Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management Science*, 35(8), 942-962.
- Venkatraman, N. & Ramanujam, V. (1986). The measurement of business performance in business strategy: A comparison of approaches. *Academy of Management Review*, 11, 801-814.
- Visser, E. J. (1999). A comparison of clustered and dispersed firms in the small-scale clothing industry of Lima. *World Development*, 27(9), 1553-1570.
- Walker, G., Kogut, B., & Shan, W. (1997). Social capital, structural holes, and the formation of an industry network. *Organization Science*, 8(2), 109-125.
- Waverman, L. (1995). A critical analysis of Porter's Framework on the competitive advantage of nations. In A.M. Rugman., J. van den Broek, & A. Verbeke (Eds.), *Research in global strategic management (Vol 5): Beyond the diamond*. Greenwich, CT: JAI Press.
- Weber, A. (1929). *Theory of the location of industries*. Chicago: University of Chicago Press.
- Wennberg, K., & Lindqvist, G. (2010). The effect of clusters on the survival and performance of new firms. *Small Business Economics*, 34(3), 221-241.

- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.
- Wiklund, J. & Shepherd, D. (2005). Entrepreneurial orientation and small business performance. *Journal of Business Venturing*, 20(1), 71-91.
- Yetton, P., Craig, J., Davis, J., & Hilmer, F. (1992). Are diamonds a country's best friends? A critique of Porter's theory of national competition as applied to Canada, New Zealand and Australia. *Australian Journal of Management*, 17(1), 11-40.
- Yu, L. (2002). How location clusters affect innovation. *MIT Sloan Management Review*, 16, 16.
- Zahra, S.A. & Covin, J.G. (1995). Contextual influences on the corporate entrepreneurship performance relationship: A longitudinal analysis. *Journal of Business Venturing*, 10(1), 43-58.
- Zahra, S. A. & Garvis, D. M. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing*, 15(5-6), 469-492.
- Zhang, S., & Li, X. (2008). Managerial ties, firm resources, and performance of cluster firms. *Asia Pacific Journal of Management*, 25(4), 615-633.