

## **Strategic Entrepreneurship in Clusters – The Case of German Companies in China**

Sasa Saric, Gang Yang

Chair of Global Supply Chain Management, Chinese-German Institute of Postgraduate Studies,  
Tongji University, Shanghai, China

[s.saric@global-scm.net](mailto:s.saric@global-scm.net)

[g.yang@global-scm.net](mailto:g.yang@global-scm.net)

### ***Abstract:***

Building on recent findings that clusters expose firms to congestion costs and loss of knowledge through spillover effects we challenge the implicit notion that locating a firm's activities in a given cluster is sufficient to profit from its opportunities. Using strategic entrepreneurship theory and data based on in-depth interviews with 14 German companies in China we will show that firms have to actively seek and defend economic opportunities if they want to profit from their cluster position.

***Keywords:*** Cluster, strategic entrepreneurship, Germany, China, case studies

## 1 Introduction

In striking contrast to earlier findings that clusters promote productivity, innovation, new business formation, and firm performance (Porter, 2003), recent studies have emphasized the costs that are associated with locating in clusters. These diseconomies can take the form of congestion costs due to the size of a cluster. As clusters grow, competition for human resources, land, and utility services increases leading to shortages and higher costs (Prevezer, 1997). But whereas these costs affect almost all companies within a cluster to the same degree, other costs may shape the competitiveness of individual firms in a very different way. It is commonly assumed that a major strength of clusters lies in the fact that organizational boundaries of firms are somewhat permeable, with knowledge flowing freely in and out (Gilbert, McDougall & Audretsch, 2008). Besides the associated benefits these knowledge spillovers certainly have on the cluster as a whole, they also heavily threaten knowledge intensive firms, which may find themselves in fierce competition with nearby firms (Baum & Haveman, 1997; Shaver & Flyer, 2000). This threat is further increased by the fact that employees within clusters can move more easily from one job to another and spread the knowledge they gained during their employment throughout the community (Hakanson, 2005). In response to this threat, some owners of high-technology firms have even been found to locate their businesses in non-agglomerated locations in order to defend their advantages from competition (Saxenian, 1985).

Therefore, it seems evident that clusters affect firms in both negative and positive ways, but as pointed out by Gilbert and colleagues “a full understanding of what factors lead to higher performance for cluster firms remains elusive to the field” (2008, p. 420). We believe that part of the problem has been a failure to take the individual firm and its strategic posture into consideration. Previous research focuses almost solely on the passive effects of cluster size, agglomeration,

and knowledge spillovers on firm performance and by doing so implies that locating a firm's activities within a cluster is sufficient to profit from the proposed opportunities. (e.g. Folta, Cooper & Baik, 2006; Stuart & Sorenson, 2003). Yet, opportunities have to be actively seized and defended in the long-run, only then can clusters benefit their member firms. This view is further supported by Schiele who found that while the cluster approach has been extensively applied in regional development until now it has not seriously been considered in corporate management. Answers "how management can actively seize the opportunities arising from this trend" are largely missing (2008, p. 29). Similarly, Porter argues that the influence of "clusters is all but absent in the literature on management" (2000, p. 272).

In order to fill the identified research gap we will develop a model based on the emerging literature on strategic entrepreneurship (e.g. Hitt et al., 2001). We propose that firms need to adopt a strong proactive behavior towards clusters and develop cluster capabilities to identify, exploit, and defend the arising opportunities within clusters. Furthermore, research has long emphasized the effect of the environment on firm performance. Thus, we will turn to Romanelli and Khessina's (2005) concept of regional industrial identity to capture this influence.

Employing a discovery oriented approach this study is conducted in two stages. The first stage is presented in this article and organized as follows. First, we will review the relevant literature on clusters and strategic entrepreneurship to develop hypotheses on how firms can strategically benefit from clusters. Using an explorative study based on in-depth interviews with senior managers from 14 German manufacturing companies in China we will then develop measures for our constructs and put our model to a first test. In the second stage to come we will collect data from senior executives of manufacturing companies through mail survey across China's industrial clusters. Our model will then be tested using partial least-squares (PLS) method.

## 2 Theoretical Background – Strategic Entrepreneurship in clusters

The previous discussion shows that favorable competitive positions in clusters are short-lived if firms fail to adapt their strategic behavior to the opportunities and challenges in clusters. To identify these opportunities and to turn them into competitive advantages research on strategic entrepreneurship emphasizes the need of an entrepreneurial orientation characterized by proactive behavior and the access to strategic resources through a firm's capabilities.

### 2.1 *Cluster proactiveness*

According to resource-based view (RBV) scholars a firm's competitive advantages stem ultimately from its controlled resources and capabilities. But as stated by Barney (1986) as well as Foss and Ishikawa (2007) the future contribution of resources to competitive advantage is not objective data, but an entrepreneurial appraisal. In fact, the same resource can contribute differently to value creation depending on how it is put to use. The ability to discover alternative ways of using a resource and thereby generate a superior value creates economic opportunities which then can be exploited. It is based on perception, different expectations, and ultimately on information and knowledge asymmetries which depend on a firm's proactiveness. That is, on how it seeks opportunities to address future needs and how it creates new resources and learns new capabilities to actively shape its environment and influence or even create trends and demands (Lumpkin & Dess, 2001). In this context, the strategic imperative for proactive firms is to constantly diversify their information and knowledge base.

Clusters are a way to access information and knowledge through spillovers and thereby help firms to identify and create economic opportunities. Furthermore, clusters can be valuable because they provide the opportunity to diversify a firm's resource base. The main function for proactive firms in clusters is then to decide between the various resource combinations that are

suitable to obtain a favorable competitive position based on current factor prices and future expected outcomes. Proactiveness, therefore is an important part of a firm's strategic behavior and defines how it pursues the opportunities clusters have to offer.

Yet, although proactive behavior in clusters is essential for success, it is still necessary to manage its potential risks and specify limits to constrain actions that are off-limits. A firm's proactivity can not be allowed to be undirected just for the sake of creating change and new demand. To be effective, it has to be aligned to a firm's overall cluster strategy and objectives (Gupta, MacMillan & Surie, 2004). Otherwise, the firm runs the risk to initiate counterproductive activities within its cluster that waste or tie its precious resources. Such a behavior could be the entry of a small venture into an extensive research partnership with an established company within its cluster, which demands time and resources that by far exceed what the small company is capable to provide. It can also include the initiation of sales and marketing techniques that strongly violate a firm's code of conduct and would harm its reputation. Furthermore, it can also mean that cooperating with certain companies, institutions, or other cluster players is prohibited, either legally due to e.g. anti-trust laws or internally due to company policies (Bateman & Crant, 1999). To avoid disadvantages, the firm has to assess its proactivity against its overall cluster strategy and only engage in those behaviors which effectively support its purpose. Consequently, firms that engage in well-directed proactive behavior to perceive opportunities within clusters and initiate preemptive actions to exploit them are likely to enjoy higher performance than those that are more passive.

**Hypothesis 1.** Well-directed cluster proactiveness has a positive effect on firm performance.

## 2.2 *Cluster capability*

In order to explain firm performance the RBV rests on two fundamental assumptions: resources are heterogeneously distributed among firms and imperfectly mobile (Barney, 1991). Resources are assets that are controlled or owned by a firm, whereas capabilities refer to its distinctive and superior abilities to exploit and combine resources to accomplish its targets (Schreyögg & Kliesch-Eberl, 2007). Implicit to resource heterogeneity is the fact that firms constantly suffer from resource scarcity since none can always have all the resources it needs. A firm's strategic imperative is then to constantly seek opportunities to either enhance or recombine its existing resource base in order to achieve new forms of competitive advantage (Teece, Pisano & Shuen, 1997).

Clusters represent such an opportunity, because they allow firms to access previously unavailable resources. Access relationships (Sarkar, Echambadi & Harrison, 2001) with other cluster members allow firms to increase their resource endowment, learn new capabilities, and consequently enhance their strategic choices. Knowledge and information spillovers, if adequately appropriated, can help a firm to understand emerging market trends and effectively respond to upcoming customer needs. Thus, the resource-based logic suggests that clusters are a bundle of resources which can be accessed by a firm's capabilities. Such a resource bundle might include the combination of an advanced technology held by one firm with another firm's access to and knowledge of specific markets while both parties make use of the same infrastructure and pool of talents (Stuart, 2000).

Yet, resources and capabilities have to be put in use by an entrepreneurial proactive manner in order to contribute to firm performance. Additionally, research on strategic entrepreneurship emerged from the insight that due to a lack of resources and capabilities firms often fail to trans-

late their proactive behavior into competitive advantages (Hitt et al., 2001). This is supported by recent studies which found that resources and capabilities mediate the relationship between a firm's entrepreneurial orientation and its performance (e.g. Walter, Auer & Ritter, 2006; Stam & Elfring, 2008). Thus, we assume that a firm's cluster capability increases the effect of cluster proactiveness on firm performance.

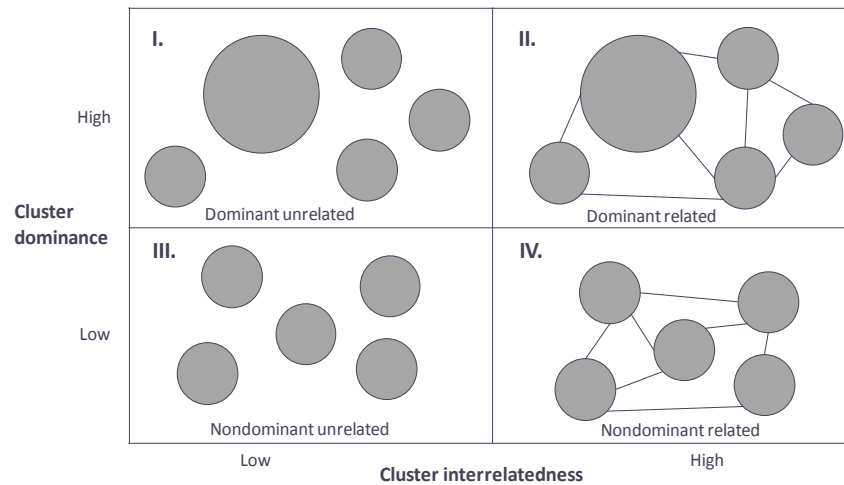
**Hypothesis 2.** Increased levels of cluster capability will strengthen the relationship between cluster proactiveness and firm performance.

### *2.3 Regional industrial identity*

The preceding discussion proposes that cluster proactiveness and cluster capability direct and limit a firm's access to key strategic resources. Yet, strategic management literature suggests that an organization's internal factors have to be aligned to environmental conditions (Teece, Pisano & Shuen, 1997). Building on the observation that competitive positions are increasingly subject to rapid erosions research on entrepreneurship emphasizes the moderating role of the environment on proactiveness (e.g. Lumpkin & Dess, 2001). It appears evident that the environment influences perception and that it sets boundary conditions on the outcomes of strategic choices.

Within the cluster literature, this view is picked up and further developed by Romanelli and Khessina who argue that "perceptions, rather than resources or expectations, (...) form the basis for observers' understandings about the attractive regional characteristics and thus their investment decisions" (2005, p. 345). These understandings, or regional industrial identities (RI), are for instance that Silicon Valley is a center for high technology companies and that the greater Shanghai area is a manufacturing hub for south-east Asia.

Within this concept clusters are the highly visible features of RI in which their spatial configuration affects a firm's investment behavior; including decisions about where to locate its talents and business activities and about where to target its financial resources (see Figure 1).

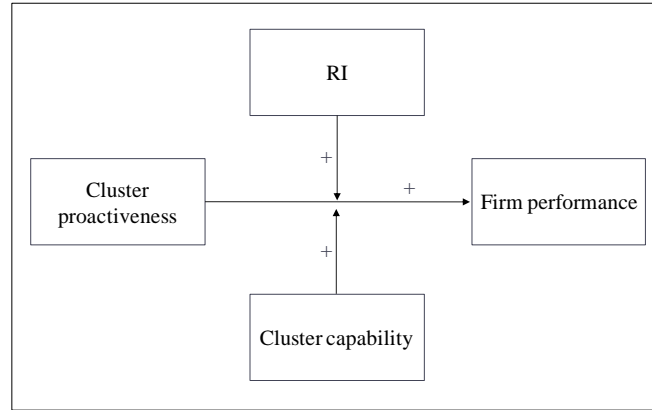


**Figure 1 - Regional cluster configurations**

(See: Romanelli & Khessina, 2005)

Generally speaking, the more dominant and related to other clusters an industry cluster is, the stronger is its RI and the greater is the amount and heterogeneity of resources that cluster will attract. Consequently, firms located within such a region enjoy richer environmental opportunities with a positive effect on their performance. On the other hand, firms located within an industry cluster that is not related to other clusters may find it easier to access highly specialized resources, however, in the long-run resource heterogeneity will decrease and potentially result in resource rigidity. Thus, a strong RI nurtures a firm's proactive behavior in that it provides rich environmental opportunities.

**Hypothesis 3.** A strong RI will strengthen the relationship between cluster proactiveness and firm performance.



**Figure 2 - Research model**

Our sets of hypothesis and their relationships to each other are visualized in our research model, depicted in Figure 2.

### 3 Methodology

In an effort to better understand the content and measures of our constructs and to put our hypotheses to a first test we employed explorative case studies. Although case studies lack the ability to represent larger populations, they are most appropriate in the early stages of research where rich insights are needed (Yin, 2003). Initially, we conducted 23 interviews, of which we found four to be useless. Based on theoretical sampling we further excluded five cases. We selected the final 14 cases along a series of polar types that were particularly appropriate to illustrate our findings (Eisenhardt, 1989). Due to the large amount of data we follow Eisenhardt and Graebner (2007) and present our findings in sections in such a way that each is supported by our data. To further proof depth and detail of empirical grounding we use extensive summary and construct tables that complement the selective storytelling and show how the constructs are measured.

### 3.1 Research setting

Our research is set in China and based on multiple in-depth interviews with senior managers from German manufacturing companies. Table 1 describes the companies studied. To ensure anonymity the names of the companies are disguised.

**Table 1**  
Description of the German companies studied

Company	Year of market entry	China headquarters before	China headquarters today	Industry	Informant
Cart	1998	-	Shanghai	Commercial equipment	General Manager
Flavor	1996	Shenyang	Shanghai	Beverages	General Manager
Frontgate	1999	-	Beijing	Construction	General Manager
Image	2004	Beijing	Shanghai	Medical devices	General Manager
Importer	2005	-	Beijing	Automotive	Vice President (China)
Interior	2005	-	Shanghai	Customized furniture	Managing Director
Material	1997	-	Shanghai	Raw material processing	CEO (China)
Pigment	1994	-	Shanghai	Chemicals	Administrative Director
Pioneer	1995	-	Shanghai	Energy	CEO (China)
Semiconductor	2003	-	Xi'an	Semiconductor R&D	Director
Sensor	1996	-	Shanghai	Construction	CEO Asia Pacific
Sharp-Ring	1994	Taicang	Shanghai	Machine tools	General Manager
Tire	2001	-	Shanghai	Automotive	CEO (China)
Topgear	1991	Wuhan	Shanghai	Automotive	President Topgear Asia

Each but one has its headquarters either in Shanghai or Beijing with Semiconductor being the only exception, which is located in Xi'an. Four companies moved their headquarters within the last 7 years to Shanghai with Sharp-Ring being the most recent in 2008. The industries covered are typical for German companies and mainly comprise machinery, automotive, chemicals, and construction. The companies entered China between 1991 and most recently 2005.

We chose to examine the activities of German companies in China's industrial clusters mainly for two reasons. First, with Eastern Europe in their backyard, the majority of German companies

enter China because of its huge market potential as opposed to establish a low-cost sourcing or manufacturing base (GCC, 2008). While cost-sensitive manufacturers regularly relocate their plants as soon as costs rise, sales oriented companies choose their locations more carefully and long-term oriented making them most appropriate for our study. Second, we chose China because due to its planned economy model the country is mainly organized in strong industrial clusters. In the beginning of the 1990's investments were first concentrated in the southern Pearl river delta, the Yangtze-river delta in the east, and the Bohai-rim delta in the north. The development was then spread to further cities along the coast. The final stage was reached in the late 1990's when the country launched its immense "GoWest" program, which led to new industrial clusters in Wuhan, Chongqing, and Chengdu. This makes China most appropriate to study the effects of clusters.

### *3.2 Research process*

When conducting case studies, it is most important to ensure the quality of the chosen research design. Yin (2003) among others specifically emphasizes the importance of ensuring construct validity, external and internal validity, and reliability throughout the design stage of a case study research.

To guarantee construct validity and reliability we utilized multiple sources of evidence. We gathered information through self-report at the companies' internet homepage and publicly accessible business reports. Where possible, some statements of the interviewees have been further verified through additional research in the companies' historical material and recent public statements in newspapers and practitioner journals. For the interviews we have chosen a semi-structured questionnaire approach. We used open questions to guarantee a maximized outcome by allowing the interviewees to come up with unexpected insights (Strauss & Corbin, 1998). All

interviews have been recorded and then analyzed by two researchers resulting in more objective findings. To ensure that we have taken the correct measures drafts of the interview protocols have been sent back to the key informants for review.

To ensure internal and external validity our sample companies belong to a variety of industries that allowed us to treat our cases as a series of experiments (see Table 1). In this approach each case serves to confirm or disconfirm the previously developed hypotheses (Yin, 2003). We analyzed our data as follows. After each case was built, using within-case analysis, both researchers independently coded the data according to our research constructs and then cross-checked each other's coding. In only a few instances conflicts arose but have easily been resolved. We then assigned our cases to each of the developed measures to identify polar cases with most/least assignments per construct. Based on these matched pairs we initially tested our hypotheses. If the polar cases didn't lead to refuse the hypotheses we then revisited each case to see if the data supported the proposed relationships. As with every empirical research, our data fit a recurring pattern, but did not always confirm perfectly (Gilbert, 2005).

## **4 Analysis of data**

### *4.1 Cluster proactiveness*

We found that activities which are associated with proactive behavior can be summarized into two distinct dimensions: information and preemptive action. This is in line with the widely accepted definition of Lumpkin and Dess (2001) who define proactive behavior as (1) scanning the environment to seek and identify economic opportunities and (2) initiation of preemptive actions, to shape the environment and influence and/or create market demands. Table 2 presents illustrative quota. For brevity, we only report extreme examples of highly proactive companies. Further evidence is presented below.

**Table 2**  
Evidence from data illustrating cluster proactiveness

Dimensions	Proactive activities	Proactive Company	Illustrative quota
Information	Be close to customers, suppliers, government officials	Topgear	“Whenever customers come and say you have to be here or there, I tell them: we <i>are</i> already there.”
	Understand market through market intelligence	Importer	“Reliable market information does not exist. We have two employees who conduct market intelligence.”
	Exchange information with other cluster players	Pigment	“We update our information through meetings with chemical and industry park managers and marketing research consultants”
	Identify new suppliers, human resources, infrastructure	Cart	“We moved to this location [Shanghai] because of the galvanizer...Meanwhile our competitors followed.”
Preemptive action	Cooperate with universities	Sensor	“We offer scholarship programs with local universities...and now recruit many of their graduates.”
	Develop regional strategies	Pioneer	“Our strategy is focused on penetration of all major industrial centers in China.”
	Organize in-house trainings and marketing events	Importer	We regularly organize marketing events for our customers, traders, and agents...These events [...] have a high effect not comparable to fairs.
	Influence standards through lobbying	Tire	“We recently started an industry wide initiative with other automotive suppliers to change pallet standards.”
	Introduce new products and services	Flavor	“We have our own trend scouts. They tell us what product our customers want even before the customers know themselves.”

Our data analysis supports hypothesis 1 which suggests that well-directed cluster proactiveness has a positive effect on firm performance. Well-directed proactive firms are highly visible within their cluster, faster to the market than their competitors, are able to influence regulations, and anticipate market developments, such as Sensor. The company puts a lot of effort into being close to its customers and conduct market intelligence through its network of regional sales offices, “The information situation in China is not reliable. Our information comes mainly from our sales employees, which are to 98 % Chinese. They regularly scan the market...That’s their job.” Although these regional offices barely have more than 2-3 employees they nevertheless

allow for gathering real-time information on market developments. One recent outcome of these efforts was that the company relocated its sales office for north-east China from Dalian to Shenyang, because due to early information from customers, construction developers, and local government officials the company was able to anticipate a major shift in the construction market to Shenyang. The resulting first-mover advantage put the company ahead of competition resulting in a comparatively big market-share.

Another good example for a highly proactive company is Importer. The company sells special trucks for fire fighting, TV stations, the oil industry, and the chemical industry and relies heavily on its government relations. To build up and maintain good relationships the company located its activities in Beijing. By doing so, it conducts regular lobbying activities with European and German industry associations on restrictions, laws, and regulations. Consequently, Importer is endowed with valuable early information on the dynamic regulative landscape in China which represents a major competitive advantage. As the Vice President (China) of Importer explains, “All big automotive employers, customers, suppliers, logistics service providers, industry associations, and important government officials are in Beijing. This makes it easy for us to exchange information, build up relationships, influence public biddings, and ultimately make the sale.”

A common characteristic of proactive firms is the introduction of innovative services and products ahead of competition. For high-technology firms this sometimes represents a major difficulty as potential customers - especially in emerging markets - might not always understand the value-add of their products. The same applies for our case companies. But whereas more passive firms simply surrender on this fact, proactive firms employ various activities to effectively introduce new products to the market. Sensor and Importer for example, regularly provide trainings, seminars, and in-house marketing events to promote their latest innovations. As our Importer

interviewee states, “We regularly organize marketing events for our customers, traders, and agents. We also invite the press. They are always eager on this. These events are very popular among our customers with a high effect not comparable to fairs, where you are just one out of many.” In comparison, Sensor takes this activity to a next level by promoting its innovations among members of national standardization associations, such as architects, design institutes, and university professors. In this way, the company shapes the competitive environment to its own favor by influencing future standardization.

By contrast, more passive firms tend to exploit current business opportunities rather than to anticipate future developments that may take place within their cluster. Due to a lack of engagement passive firms rarely initiate or participate in cluster activities. Furthermore, firms that do not engage in well-directed proactive behavior get entrapped in valueless activities, which eventually results in a lack of success.

This is particularly evident in the case of Material, which pioneered the Chinese market as early as 1994 through a joint venture and in 2004 turned into a wholly foreign owned enterprise after it took control over the entire business. The multinational company (MNC) purchases large amounts of raw material, processes it, and then distributes the goods in smaller quantities. To achieve the economies of scale necessary for this business model the desired customers are companies that demand large quantities of goods. After the early market entry in 1994, the company for almost a decade left its business development completely to its Chinese joint venture partner which resulted in a mainly Chinese customer base. Although this is favorable in most cases, the CEO (China) of Material explains, “The majority of our customers are Chinese. For the future this is the safe and expanding market. But for now, to achieve scale effects, international companies are more important.” He goes on by saying, “Building up relationships to Chinese is also

more difficult than with international companies. Many international companies know us, so it's easy to get access to potential customers." It is obvious that until now, although showing strong proactive behavior when it entered the Chinese market in the early 90's, Material relies heavily on its multinational image and has difficulties to successfully introduce its products and services to Chinese companies. Due to a lack of success, Material recently appointed four German sales managers to actively expand its multinational customer base.

Our case evidence also suggests that passive firms follow the moves of their customers and competitors rather than to initiate preemptive actions. As a consequence, wrong location choices have a long lasting effect on firm performance making it harder to efficiently access resources and find capable suppliers, such as in the case of Interior. The China subsidiary was founded in 2005 and is located in Shanghai. It manufactures customized furniture for retail shops of western luxury brands. Due to the fact that it is home to China's dominant wood processing and furniture cluster the company initially viewed Guangzhou as superior location over Shanghai. However, Interior chose Shanghai because its main customer wanted to relocate its headquarters to Shanghai. This turned out to be a strategic mistake with major impacts on Interior's business activities, "The Shanghai decision was based on the wish to intensify customer relationships. We thought we could easily find capable suppliers and workforce around Shanghai...unfortunately, we were wrong." Today, Interior is faced with the challenge to find suitable suppliers, "If we would make a business case out of it, Guangzhou would be our first choice. Today, after putting a lot of effort into it, we have a supplier base...But qualitative suppliers are still rare. This would be different in Guangzhou." While it is easy to find management personnel, the company has difficulties to recruit workers that are skilled in wood processing. This has a particular negative business impact as 80 % of the company's staff consists of shop-floor workers.

#### 4.2 *Cluster capability.*

Clusters are characterized by rich availability of human resources, suppliers, customers, and related industries and institutions as well as intense rivalry among competitors. In order to fully exploit the opportunities arising from these factors our analysis revealed that a firm's cluster capability is not determined by one single capability. Instead, as shown in Table 3, it is composed of a complex set of four capabilities, which mutually support each other: communication, relation, cooperation, and human resources capability.

After analyzing our data we find strong support for our revised hypothesis 2, which predicts that *cluster capabilities* instead of *one single cluster capability* strengthen the relationship between cluster proactiveness and firm performance. Below, using further examples, we illustrate how cluster capabilities positively moderate proactive behavior.

The majority of our case companies possess strong communication skills making them highly responsive to information and knowledge spillovers. As stated before, Importer regularly conducts market intelligence; however, it is only through internal communication that the company is able to translate real-time information into a competitive edge. "We have two employees who conduct market intelligence on potential customers, the location of relevant industry clusters, and our major competitors. We also have four regional managers who regularly network with traders and customers. They forward this information to the market intelligence team who then gets the big picture...I think this is what puts us ahead." Or as emphasized by the General Manager of Flavor, "Spillovers don't come from related industries but from our people and colleagues who share their information among each other." Our data also shows that without relevant communication skills firms within clusters find it hard to introduce their products to their targeted customers. As already brought forth this is particularly evident in the case of Material, "It's difficult to

explain our business model to Chinese companies.” Due to its missing communication skills the company failed to explain its value-add.

**Table 3**  
Evidence from data illustrating cluster capability

Dimensions	Characteristics	Capable Company	Illustrative quota
Communication capability	Internal communication	Sharp-Ring	“Whenever our customers express a need it is gathered by our sales staff and forwarded to our internal departments.”
	External communication	Interior	“We often meet with other companies from our industry to see what we can do together.”
Relational capability	Relations to customers	Frontgate	“We have recently been awarded our biggest project in Shanghai...it took us nearly 5 years of networking.”
	Relations to cluster members	Material	“Associations, such as the German Chamber, are a great thing. They help you networking and it makes it easy to be proactive.”
	Relations to the government	Sensor	“We maintain good relations to professors, government institutes and architects. Some of them are in standardization associations. So, it’s easy for us to influence standards.”
Cooperation capability	Supplier development	Interior	“Today, after putting a lot of effort into it, we have a supplier base.”
	Sourcing	Interior	“We only demand small amounts but China is a mass-market. Most suppliers don’t really care for us. So, sometimes we source together with western companies from our industry.”
	Product development	Flavor	“We develop some of our products in cooperation with nearby customers...they are involved in this process from the beginning.”
	R&D	Semiconductor	“The university of Xi’an does a lot of research for us. There is more choice in terms of expertise than in Europe, so we do our R&D in China...Easy.”
	Lobbying	Importer	All big [...] industry associations and government officials are in Beijing. This makes it easy for us to [...] influence public biddings, and ultimately make the sale.
Human re-sources capability	Keep and develop human resources	Sharp-Ring	“Every company needs legends. Good and loyal people have to be supported and made known throughout the company.”

A capability to communicate is further supported by relational skills, which we found to be necessary to manage the diverse relationships to customers, government officials, and other cluster

members (Walter, Auer & Ritter, 2006). Frontgate for example, a Beijing-based manufacturer of doors and gates, heavily depends on good relationships to governmental developers, architects, and design institutes. To develop and maintain a good network with its stakeholders the company employs several relationship managers. As one outcome of these efforts the company was recently awarded its biggest real-estate construction project ever in Shanghai. Yet, this happened only after five years of relationship building in the local market. Sharp-Ring, on the other hand, recently relocated its operations from Taicang at the outskirts of the greater Shanghai area to Anting, a suburb of Shanghai, due to fierce competition for scarce employees. Although Taicang is known to be home to a large number of German companies our interviewee states that agreements, not to headhunt each others employees, didn't work out, "In Taicang, as you might know, there is a 'German club'. But the competition for employees was so strong. We had, you would call them gentleman agreements between German companies in place...but frankly, they never worked!" A lack of relational skills among the members of the Taicang cluster caused mistrust and finally forced the company to relocate its business.

One of the major advantages of clusters is the potential for cooperation with customers, suppliers, competitors, and companies from related industries to access each other's resources and to optimize capacity utilization, achieve economies of scale, and influence market trends. In order to do so, firms need strong cooperation capabilities (Ireland, Hitt & Vaidyanath, 2002). One such company is Interior. As stated in the previous section the company is located in Shanghai, outside its industry's dominant wood-processing cluster and therefore experiences significant sourcing difficulties. To overcome this hurdle Interior pools its supply demand with other western companies to accumulate buying power (see Table 3) and develop suppliers, which otherwise would not be possible, "We constantly keep close contact to our important suppliers... some-

times we even help them out through, you know, little friendship things...there is this one supplier. They recently went into financial troubles. We helped them out through a small loan...and yes, they paid it back.” In addition, the majority of our case companies engage in cooperation, such as lobbying, joint sourcing, product development as well as R&D efforts.

In order to remain competitive in the long-run companies have to be able to recruit and develop skilled employees. Within clusters this is particularly important as human resources are seen as the real source of information and knowledge spillovers. Rivalry and competition in clusters is fierce and employees move easily between companies and by doing so spread the knowledge they gained (Hakanson, 2005). We find that an effective human resources capability is decisive to accumulate knowledge and build competitive advantage within clusters. Evidence can once more be found in the case of Sharp-Ring, which was forced to relocate its business. As reported by its General Manager the machine tool producer heavily invested in its employees, “In our industry the competitive advantage lies in our workforce. To understand how a machine tool works you need several years of practice. To identify improvement potential of an existing tool it takes you ten years of experience. But only after 15 years or so, you are able to actually develop a brand new tool.” In order to protect its valuable knowledge the company transferred advanced human resources practices from Germany to its Chinese subsidiary, “You have to build and support a knowledge culture. Employees want to feel valuable and this has to be done by examples and legends...Every company needs legends. Good and loyal people have to be supported and made known throughout the company.” Another example for the importance of good human resources practices within clusters is Xi’an based Semiconductor. The company conducts R&D in China and depends on highly skilled academics. Due to its advanced human resources capability the company was recently able to reduce its fluctuation rate in two consecutive years to a record-

low of 5 %, “We achieved this because our employees have attractive jobs and real projects, not these fake jobs. They do the same work as in the USA, or Europe...We value people with business impact.”

#### 4.3 Regional industrial Identity

In the introduction to this article we presented recent studies which emphasize the costs that are associated with locating in clusters. As can be seen in Table 4 our case companies confirmed these findings.

**Table 4**  
Disadvantages when locating in clusters

Company	Location	RI	Disadvantages
Cart	Shanghai	Strong	Congestion of capable suppliers High labor costs due to competition for qualified employees Threat of knowledge loss through spillover effects
Frontgate	Beijing	Strong	High land and renting costs
Image	Shanghai	Strong	High labor costs due to competition for qualified employees Intense market competition
Importer	Beijing	Weak	Congested logistics infrastructure Difficult recruitment of skilled employees High labor costs due to competition for qualified employees
Interior	Shanghai	Weak	Scarcity of capable suppliers Difficult recruitment of skilled employees Availability of relevant industry information
Material	Shanghai	Strong	High labor costs due to competition for qualified employees
Pioneer	Shanghai	Strong	Due to Expo 2010 forced to relocate to an outer district of Shanghai and lost majority of its customers
Sharp-Ring	Shanghai	Strong	High labor costs due to competition for qualified employees Difficulty to build government relationships
Topgear	Shanghai	Strong	High labor costs due to competition for qualified employees High land and renting costs

They reach from high fluctuation of employees, rising salary levels and land costs, to scarcity of suppliers, congested logistics infrastructure, and threat of knowledge loss due to intense competi-

tion. However, our data, as shown in Table 5, also supports our third hypothesis that a strong RI strengthens a firm's proactive behavior.

**Table 5**

Evidence from data illustrating the effect of regional industrial identity on cluster proactiveness

Company	Location	RI	Examples	Case evidence
Frontgate	Beijing	Strong	"Our products are most needed in cold climate."	95 % of produced goods are sold in north China
Image	Shanghai	Strong	"I tried to avoid Beijing and moved to Shanghai, because I rely on highly qualified employees with a medical background to explain my products to our customers."	80% of product portfolio younger than two years
Importer	Beijing	Weak	"Recruiting automotive engineers in Beijing is very difficult. They are all in Shanghai and Guangzhou. Some of our employees shuttle between Shanghai and Beijing, which is very expensive."	Employee fluctuation of nearly 20 %.
Interior	Shanghai	Weak	"We have a hard time to find and keep capable suppliers and workers."	Cost level above industry average
Pigment	Shanghai	Strong	"For lobbying...yes, you have to be in Beijing. But for business you have to be in Shanghai."	Successful change of regulation through lobbying
Semiconductor	Xi'an	Strong	"We tried to recruit people from Chengdu and other regions but found that locals have more skills."	Employee fluctuation rate 5 %
Sensor	Shanghai	Strong	"In Shanghai we have everything...suppliers, infrastructure and customers... our customers' headquarters are mainly located along the coast."	8 strategic alliances with major local developers serving all provinces along the coast
Sharp-Ring	Shanghai	Strong	"In Shanghai many universities are located...so, we can find skilled employees that work in similar structures and have experience with western companies."	Average growth rate 50 %

As representatively put forward by the head of sales of Material, "How can I be proactive outside the cluster? There would be no events, no suppliers, and no customers, no associations and no chambers. Business development is easier in clusters because the relevant people are easily accessible." Although Material is passive when it comes to approach Chinese companies, it nevertheless recently appointed four relationship managers to proactively approach senior employees of MNCs. In this sense, the regular social events and the large number of MNCs in and around

Shanghai increase the outcome of its efforts, “Sure we profit from the cluster. Location choices are based on business potential, measured in number of potential customers.” Similarly, the CEO Asia Pacific of Sensor explains, “China’s buying power is concentrated along the coast. No company can afford to be underrepresented in these regions.” This is in line with the information found on its homepage stating that it operates eight sales offices at the coastal regions besides only three in central China.

Among others, a strong RI also supports efforts to recruit skilled employees. Semiconductor for example, due to the abundant availability of well educated university graduates and academics in the field of electrical engineering and physics, deliberately chose Xi’an as location for its R&D unit, “We tried to recruit people from Chengdu and other regions but found that locals have more skills.” As a result, the company introduced a variety of scholarship programs and conducts scientific research at the University of Xi’an to attract its best graduates.

On the contrary, we find evidence that a weak RI significantly constricts a firm’s proactiveness. Take the example of Importer. Although the company is highly proactive when it comes to market intelligence, lobbying, and building relationships with the central government, the scarcity of well educated engineers in Beijing poses a serious constrain to its growth objectives. Due to the fact that many employees commute between their home and workplace, the company suffers from a high fluctuation rate counting for almost 20 % in 2008. Another negative example is Shanghai based Interior. Despite doubling its turnover from 2007 to 2008 it suffers from not being located in Guangzhou by a high cost level above the industry average, “Shanghai might have been the right decision regarding management personnel. But they only account for 20 %. In Guangzhou the total costs of sourcing, land, and labor would have been much lower...although we doubled our turnover we could have done better. Many projects simply didn’t pay off.”

## **5 Major findings and outlook**

The first stage of our study provides strong support for our research model. Using data based on in-depth interviews with 14 German manufacturing companies in China we have been able to more deeply clarify the constructs of cluster proactiveness and cluster capability.

Our results indicate that firms have to actively seek and exploit opportunities in order to profit from their cluster position. By gathering information relevant for competition proactive firms are able to anticipate market developments and identify potential customers, suppliers, and human resources ahead of competition. Furthermore, by initiating well-directed preemptive actions, such as introducing new products and conducting joint lobbying efforts with other cluster members, proactive firms shape their cluster environment to their own competitive advantage. Such a behavior is amplified as proactive companies increase their capabilities to communicate internally and externally, build trustful relationships, cooperate with other cluster members, and develop and defend their human resources against rivals. Being located in a dominant industry cluster further nurtures a firm's proactiveness in that it provides rich economic opportunities to draw on. Building on our observations, in the next stage we will collect data from manufacturing companies across China's industrial clusters through mail survey. Using PLS method we will test the general validity of the proposed model. PLS is widely adopted along with structural equation modeling (SEM) techniques. Similar to SEM, PLS is a causal modeling technique that analyzes a measurement model simultaneously and does not require a large sample size. Although SEM is useful for confirmatory studies with strong theoretical support, PLS is preferred as a tool for theory development making it the most appropriate choice for our research study (Gefen & Straub, 2005).

By doing so, we will fill the identified research gap and contribute to the literature on clusters in several ways. First, we will develop an even deeper understanding on how clusters influence their member firms. Second, as to our knowledge we will be the first to connect the concept of regional industrial identity with strategic entrepreneurship theory and assess its effect on firm performance. And finally, we will show how firms can actively achieve and defend competitive positions in clusters.

## References

- Barney, J. (1991). Firm resources and sustained competitive advantage, *Journal of Management*, 17/1, 99-120.
- Barney, J. B. (1986). Strategic factor markets: expectations, luck and business strategy, *Management Science*, 32/10, 1231-1241.
- Bateman, T. S. and Crant, M. J. (1999). Proactive behavior: Meaning, impact, recommendations, *Business Horizons*, 42/3, 63-70.
- Baum, J. A. C. and Haveman, H. A. (1997). Love thy neighbor? Differentiation and agglomeration in the Manhattan Hotel Industry, *Administrative Science Quarterly*, 42/2, 304-338.
- Eisenhardt, K. M. (1989). Building theories from case study research, *Academy of Management Review*, 14/4, 532-550.
- Eisenhardt, K. M. and Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges, *Academy of Management Journal*, 50/1, 25-32.
- Folta, T. B., Cooper, A. C. and Baik, Y. (2006). Geographic cluster size and firm performance, *Journal of Business Venturing*, 21/2, 217-242.
- Foss, N. J. and Ishikawa, I. (2007). Towards a dynamic resource-based view: Insights from austrian capital and entrepreneurship theory, *Organization Studies*, 28/5, 749-772.
- Gefen, D. and Straub, D. W. (2005). *A practical guide to factorial validity using PLS-Graph: Tutorial and annotated Example*. .
- German Chamber of Commerce (GCC) (2008). *German Business Expansion in China 2008 - 2010*. Shanghai.
- Gilbert, B. A., McDougall, P. P. and Audretsch, D. B. (2008). Clusters, knowledge spillovers and new venture performance: An empirical examination, *Journal of Business Venturing*, 23/4, 405-422.
- Gilbert, C. G. (2005). Unbundling the structure of inertia: Resource versus routine rigidity, *Academy of Management Journal*, 48/5, 741-763.

- Guptaa, V., MacMillanb, I. C. and Surie, G. (2004). Entrepreneurial leadership: Developing and measuring a cross-cultural construct, *Journal of Business Venturing*, 19/2, 241-260.
- Hakanson, L. (2005). Epistemic communities and cluster dynamics: On the role of knowledge in industrial districts, *Industry and Innovation*, 12/4, 433-463.
- Hitt, M. A., Ireland, D. R., Camp, M. S. and Sexton, D. L. (2001). Entrepreneurial strategies for wealth creation, *Strategic Management Journal*, 22/6-7, 479-491.
- Ireland, D. R., Hitt, M. A. and Vaidyanath, D. (2002). Alliance Management as a source of competitive advantage, *Journal of Management*, 28/3, 413-446.
- Lumpkin, G. and Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle, *Journal of Business Venturing*, 16/5, 429-451.
- Porter, M. E. (2000) Locations, clusters, and company strategy. In G. L. Clark, M. S. Gertler and M. P. Feldman (eds.), *The oxford handbook of economic geography*, Oxford: Oxford University Press, 253-274.
- Porter, M. E. (2003). The economic performance of regions, *Regional Studies*, 37/6/7, 549-578.
- Prevezer, M. (1997). The dynamics of industrial clustering in biotechnology, *Small Business Economics*, 9/3, 255-271.
- Romanelli, E. and Khessina, O. M. (2005). Regional industrial identity: Cluster configuration and economic development, *Organization Science*, 16/4, 344-358.
- Sarkar, M., Echambadi, R. and Harrison, J. S. (2001). Alliance entrepreneurship and firm market performance, *Strategic Management Journal*, 22/6-7, 701-711.
- Saxenian, A. (1985) The genesis of Silicon Valley. In P. G. Hall and A. R. Markusen (eds.), *Silicon Landscapes*, Boston: Allen & Unwin, 20-34.
- Schiele, H. (2008). Location, location: The geography of clusters, *Journal of Business Strategy*, 29/3, 29-36.
- Schreyögg, G. and Kliesch-Eberl, M. (2007). How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization, *Strategic Management Journal*, 28/9, 913-933.
- Shaver, M. J. and Flyer, F. (2000). Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States, *Strategic Management Journal*, 21/12, 1175-1193.
- Stam, W. and Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role of intra- and extraindustry social capital, *Academy of Management Journal*, 81/1, 97-111.
- Strauss, A. C. and Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks: Sage.
- Stuart, T. E. (2000). Interorganizational alliances and the performance of firms: A study of growth and in-novation rates in a high-technology industry, *Strategic Management Journal*, 21/8, 791-811.
- Stuart, T. E. and Sorenson, O. (2003). The geography of opportunity: Spatial heterogeneity in

- founding rates and the performance of biotechnology firms, *Research Policy*, 32/2, 229-253.
- Teece, D. J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management, *Strategic Management Journal*, 18/7, 509-533.
- Walter, A., Auer, M. and Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spin-off performance, *Journal of Business Venturing*, 21/4, 541-567.
- Yin, R. K. (2003). *Case study research*. Thousand Oaks: Sage.