

ENTREPRENEURIAL ORIENTATION VERSUS THE SUSTAINABILITY AND GROWTH OF BUSINESS CLUSTERS

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Abstract

The aim of this paper is to show how the entrepreneurial orientation of companies which belong to a business cluster affects the sustainability and growth of the cluster. Out of all the different dimensions of entrepreneurial orientation, innovativeness and competitive aggressiveness seem to have the greatest influence on the functioning of a company within the cluster. The clusters which have the greatest chances of sustained growth are those which operate in industries dominated by “acquiescent innovators”, companies characterised by low competitive aggressiveness and a high level of innovation.

Keywords: clusters, cooperation, coopetition, entrepreneurial orientation, entrepreneurship

Introduction

Interest in the issues relating to entrepreneurship and business clusters is a result of the continuing quest for solutions leading to augmenting values and increasing economic prosperity. Highly enthusiastic opinions about the benefits generated by clustering are more and more often accompanied by questions regarding the determinants for a sustained growth of business clusters.

One of such factors is entrepreneurship. Entrepreneurship on the one hand determines the pace and form of a cluster’s growth, and on the other hand it is a measure of the quality of the cluster’s environment. The intensity of entrepreneurship is determined by, among others, entrepreneurial orientations. In

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this context it can be stated that entrepreneurial orientations significantly affect the sustainability of clusters.

In this paper the authors try to investigate the interdependencies between entrepreneurial orientation and the sustainability of clusters. The key research questions are: which features of entrepreneurial orientation promote cluster sustainability? Is it possible to identify the type of company with a particular entrepreneurial orientation which fosters cluster development?

1. The idea of business clusters and their dynamics

The definition of a business cluster which is most frequently quoted in the literature and employed in economic practice has been formulated by Porter (1998). According to this expert, a cluster is “a geographic concentration of interconnected companies and institutions in a particular field, characterised by linkages and complementarities”. Clusters usually encompass a range of entities such as the companies which offer end products; the suppliers of machinery, equipment and components; financial, R&D and economic self-government institutions; as well as companies from related industries. Ketels (2003) defined the following attributes of clusters:

- proximity: entities need to be sufficiently close spatially to allow any positive spillovers and sharing of common resources to occur,
- linkages: their activities need to have a common goal to be able to benefit from proximity and interaction,
- interactions: being close and working on related issues does not seem enough; some level of cooperative and competitive interaction is essential,
- critical mass: a sufficient number of participants involved is required for the interaction to have a meaningful impact on companies.

Business clusters are by no means the invention of the 21st or even the 20th century. The prototype of a cluster is the industrial district, characterised by Alfred Marshall as early as 1890 in his work “Principles of Economics” (Marshall, 1920). Numerous definitions of a cluster can be found in the contemporary literature on the subject.

Different researchers give prominence to different aspects of the functioning of a cluster although they commonly accept the positive influence that business clusters exert in respect of international competitiveness; including companies’ innovativeness as well as the processes of new enterprise creation, either from scratch or through new businesses developing from those already operating in the cluster. The issue of entrepreneurship is inextricably linked with the phenomenon of business clusters as it is entrepreneurship that can foster or hinder cluster development. The sustainability and growth of a cluster are strongly determined by the actions of the entrepreneurs in the cluster. Their role is stressed in cluster dynamics models, which distinguish the different stages of a business cluster cycle. One of such models is that created by Stoerring and Dalum (2006). The model,

known as the eclectic model, assumes that the so called regional competence agglomerations are the roots of a cluster, from which gradually, through the activity of local entrepreneurs, a cluster can develop.

An analysis of cluster dynamics is conducted using the path dependency approach. This approach makes it possible to analyse the development of a cluster over time. This development manifests itself in new companies joining the cluster as well as in the creation of new enterprises, institutions and relationships within it. Enright (Peters and Hood, 2000) proposed a typology of clusters according to their stage of development and distinguished three types: potential clusters, which may emerge because some necessary conditions for their creation are fulfilled; latent clusters, where there are a number of companies but there is no trust and little interaction between them, which means high transaction costs and low cooperation; and active clusters, which the author identifies with well-developed industrial districts. One of the key concepts in the path dependence theory is the term *lock-in*. According to this concept, the phenomenon of a cluster's decline may be interpreted as an inability to adjust to rapid changes occurring in the environment (e.g. the appearance of a strong new competitor in the shape of another cluster in another location). This inability is attributed to the principal players in the cluster – entrepreneurs. It would be an oversimplification to assume in advance that every cluster will, with time, head towards lock-in. This may happen in the case of clusters centred around industries which depend on natural resources such as coal mining or the steel industry. This may also be true when a cluster consists of closely linked companies which employ the same technology, and when the technology changes each of the companies must change as well. But *path dependence* does not necessarily have to lead to the *lock-in* phenomenon, when the cluster does not pursue new development paths. A good example of this is the Portuguese shoe-producing cluster Felgueiras. It was formed before the Second World War and originated from shoe-making craftsmen. The cluster registered steady growth in the years 1940–1970. Then the growth accelerated and between the years 1985 and 1997 the number of companies belonging to the cluster increased from 150 to over 450, and the number of employees increased from 6,000 to 14,000 people. In the period between 1985 and 1997 the number of newly created companies was significantly higher than the number of companies leaving the cluster. During this period the cluster had to face global competition in the form of cheaper production from Russia, the Far East and South America. But it did not lead to the cluster's decline. Some of the companies attempted to maintain current customers through low prices. Others started to look for new mass markets for their products. Another group implemented product innovation strategies: new designs, limited lines of products for selected niche markets, new business models and new technologies. Therefore, according to Martin (2010), more attention ought to be paid in *path dependence* to the issue of creating new development paths and the renewal of current ones. This is connected with the particular entrepreneurial orientation of the cluster participants, and in particular with one of its dimensions – innovativeness.

Another example of a cluster's life cycle can be that of the well-known high-tech Cambridge cluster. It originated in the 1960 with the foundation of the Cambridge Consultants company, set up by chemical engineers, graduates of Cambridge University (Library House, 2004). The cluster then expanded to around 900 companies with 20,000 employees. Today it is a cluster operating in various high-tech fields including biotechnology, computer hardware and software, and telecommunications. The key driving force behind the cluster's evolution were local entrepreneurs and business angels, who re-oriented the companies towards new segments of industry. This case again exemplifies the significance of the actions of the entrepreneurs in a cluster, which are reflected in the entrepreneurial orientations which they, intentionally or unintentionally, adopt.

2. Entrepreneurial orientation of clusters participants

The idea of entrepreneurial orientation originates from the work of Miller (1983), who makes the typology of firms dependant on the determinants of entrepreneurship. In *simply firms* entrepreneurship is determined by the characteristics of the leader; in *planning firms* by explicit and product-market strategies; while in *organic firms* by a function of their environment and structure. An entrepreneurial firm is characterized by three dimensions: pioneering (proactiveness), innovation and risk taking. Based on this classification of companies the idea of entrepreneurial orientation (EO) was further developed by many authors. Lumpkin and Dess (1996) added two other dimensions of EO: autonomy and competitive aggressiveness.

Entrepreneurial orientation indicates the organization's predisposition to accept entrepreneurial processes, practices and decision making (Merlo and Auh, 2009). Entrepreneurial orientation can also be understood as the degree to which the identification and exploitation of market opportunities influence the companies' growth (Baker and Sinkula, 2009).

Lumpkin and Dess (1996, 2005) distinguish five dimensions of EO (autonomy, innovativeness, proactiveness, competitive aggressiveness, risk-taking), but in other research only three of them are commonly used: innovativeness, proactiveness and risk-taking (i.e. Covin et al., 2006; Baker and Sinkula, 2009; Frishammar and Horte, 2007).

Autonomy is understood as the independent action of people aimed at realising business visions (Lumpkin and Dess, 2005) or as the ability to be self-directed in searching for market opportunities (Lumpkin and Dess, 1996). *Innovativeness* means the companies' openness to new ideas, novelty and experimentation, as well as creative processes aimed at developing new products, services or technological processes. (Frishammar and Horte, 2007; Lumpkin and Dess, 2005). *Risk taking* is connected with making decisions and taking actions without any knowledge of the possible outcomes (Lumpkin and Dess, 2005) and shows the degree of making risky resource commitments (Frishammar and Horte, 2007). *Proactiveness* is treated as a forward-looking perspective as a result of

which first-mover or market-leader advantages can be achieved (Frishammar and Horte, 2007; Lumpkin, and Dess, 2005). *Competitive aggressiveness* means the level of effort needed to outperform industry rivals and is characterized by an aggressive response aimed at improving market position (Lumpkin and Dess, 2005).

A vast body of research in the field of EO investigates the positive relationship between the EO and firms' performance (e.g. Lumpkin and Dess, 1996). This EO-performance relationship also appears in a time perspective (Madsen, 2007), and within a relative perspective in relation to the company's profile and the "ideal" benchmark EO profile (Hughes et al., 2007). This positive relationship can be a result of the fact that EO moderates and enhances the positive relationship between knowledge-based resources, needed to discover and exploit market opportunities, and company performance (Wiklund and Shepherd, 2003). Moreover, this relationship is stronger for firms with high network centrality than for those with lower network centrality (Stam and Elfring, 2008).

In other papers the existing evidence of the positive EO-performance relationship is under critical consideration and the authors argue that this relationship is more complicated than previous studies have implied (e.g. Andersen, 2010). For example, according to Frishammar and Horte (2007) only innovativeness favourably influences performance in new product development, while proactiveness and risk taking do not seem to play a role.

Other research results indicate the existence of a favourable relationship between EO and the sales growth rate (Covin et al., 2006). Also, positive relations between such dimensions of EO as autonomy, innovativeness, risk-taking or proactiveness and new product flexibility are under consideration (Chang et al., 2007).

All the above mentioned research directions confirm a relationship between entrepreneurial orientation and the situation of a company in many areas of its activity. However, another interesting issue is how entrepreneurial orientation influences a company's ability to cooperate with other market participants and, in consequence, what are the possibilities of creating and developing such forms of cooperation as business clusters. According to the results of previous research, a company's entrepreneurial orientation (innovativeness, proactiveness, risk-taking) has a positive impact on networking strategy (George et. al., 2001). Is this EO-networking relationship enough to create and develop business clusters though?

3. Influence of the entrepreneurial orientation of cluster participants on the sustainability and growth of business clusters

Considering the intensity of each dimension of entrepreneurial orientation, it can be accepted that this intensity can differ among companies, starting with a low level and ending at a high level. Based on this idea, the intensity of EO dimensions can be presented in Figure 1.

In the literature the dimensions of entrepreneurial orientation are usually treated as a set of features which a particular company does or does not display. However, each of the dimensions can have varying degrees of intensity, which in consequence produces not only different combinations of the features but also different degrees in the intensity of each dimension. For example, innovativeness can be imitative, which means transferring existing innovations into the company's field of activity (low intensity), or it can focus on creating innovative solutions for the whole market (high intensity). By marking the degree of intensity of each characteristic of entrepreneurial orientation on figure 1 it is possible to obtain a five-dimensional view of the entrepreneurial orientation of a company. Each of the features has two possible levels: high and low. Additionally, because there are five individual features, it is possible to indicate 2^5 i.e. 32 different variations of entrepreneurial orientation, assuming that there are only two levels in its intensity. If more levels of intensity were distinguished, the number of EO variations would increase as well.

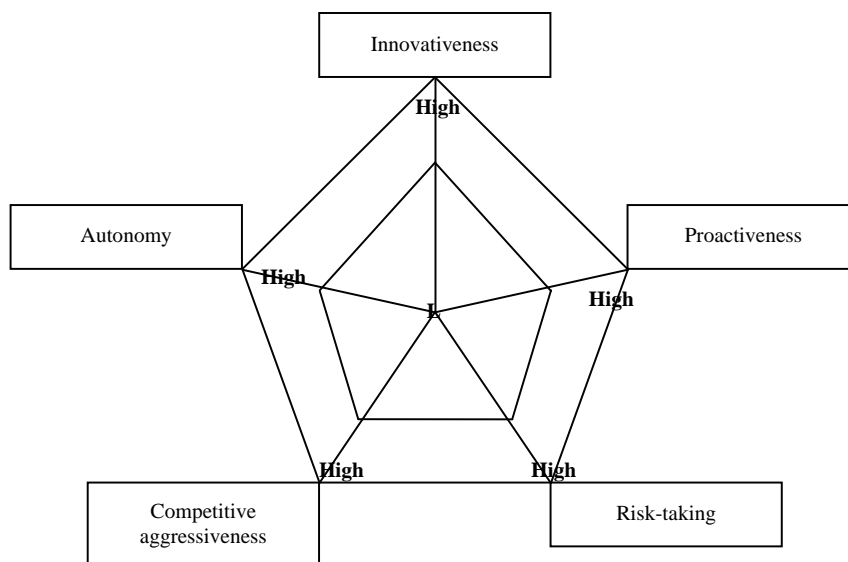


Figure 1. The intensity of EO dimensions. *Source:* authors' own work

Bearing in mind the attributes of clusters mentioned by Ketels (2003), the mechanism of “lock-in” and the idea of entrepreneurial orientation, one can conclude that the key dimensions of EO for the sustainability of clusters are innovativeness and competitive aggressiveness. On the one hand, innovativeness is crucial for the cluster to avoid a state of lock-in. The higher the intensity of innovative behaviour, the lower the probability of lock-in. On the other hand, clusters are based on the combination of cooperation and competition among

enterprises. This feature of clusters is connected with competitive aggressiveness. Enterprises can favour more cooperative or more competitive behaviour within a cluster, but a mix of both is crucial to the very nature of a cluster. This mix is called cooptation. It is difficult to conclude that the higher the competitive aggressiveness the better it is for the performance of the enterprises in the cluster and for the cluster as a whole. Behaviour that is too aggressive undermines the essence of clusters. But behaviour that is too cooperative, with very low aggression, neglects the necessary and very important competitive pressure to foster innovativeness. One can conclude that for a cluster to survive it is important to find the right combination of cooperation and competition, as only together can they stimulate the positive results of clustering in the field of the innovativeness of enterprises.

4. Main findings and conclusions

The discussion presented in this paper encouraged the authors to sum up the main findings in graphical form. Distinguishing between the different intensities of innovativeness and competitive aggressiveness, four combinations of these features can be indicated; which are presented in Figure 2.

		Innovativeness	
		Low level	High level
Competitive aggressiveness	Low level	Acquiescent imitators	Acquiescent innovators
	High level	Aggressive imitators	Aggressive innovators

Figure 2. Combinations of innovativeness and competitive aggressiveness. *Source:* authors' own work

“Acquiescent imitators” are characterised by a low level of innovativeness. They are more likely to introduce imitative innovations which were previously introduced and tested by their competitors. Also, the level of their competitive aggressiveness is low, which manifests itself in a low drive for improving their position in the market. Such companies, due to their low competitive

aggressiveness, are willing to cooperate with market rivals and are not afraid of such cooperation. However, they are passive in respect of innovation as they prefer adopting new products or services rather than creating new market solutions. Consequently, their contribution to the development of the cluster and to preventing lock-in is fairly small.

“Acquiescent innovators” are companies characterised by a high degree of innovativeness, which are ready to develop and introduce new products and services in the market. Simultaneously, this group of companies displays a low level of competitive aggressiveness, which is reflected in their low drive for improving their position in the market in relation to their competitors. This means that, due to their low level of competitiveness, such companies are willing to cooperate with market rivals and at the same time their high level of innovativeness generates the drive for introducing market innovations. Therefore the actions of such companies protect the cluster against lock-in and contribute to the evolutionary development of the cluster.

“Aggressive imitators” are companies characterised by strong competitive aggressiveness, which means that they are prepared to fight their competitors in order to improve their market position. At the same time these companies opt for imitative innovation, which means that they adopt the innovations introduced and tested by their rivals. The possible activities of such companies in business clusters may focus on obtaining information about their competitors’ market activities rather than on permanent cooperation. Therefore, slightly simplifying the issue, it can be stated that companies belonging to this group do not provide significant protection against lock-in, and their clear anti-cooperative attitude undermines one of the key attributes of a business cluster.

The final group, “aggressive innovators” comprises companies which on the one hand are prepared to aggressively compete against their rivals for market position and on the other, they concentrate on introducing innovative products on the market. Their clearly pro-innovative behaviour could safeguard the cluster against lock-in, but their anti-cooperative attitudes bring the very existence of the cluster into question.

In view of the above discussion it can be assumed that “acquiescent innovators” are the most desirable type of companies when it comes to a cluster’s sustainability, as they are characterised by high innovativeness and low competitive aggressiveness; whereas a dominance of “aggressive imitators”, who imitate their competitors’ innovations while at the same time aggressively competing for market position, unfavourably influences both cluster formation and sustainability.

The findings presented in this paper are conceptual and could constitute a basis for preparing and conducting empirical research among enterprises involved in business clusters. There are some questions which are important and interesting from the point of view of both a researcher and an entrepreneur: What are the prospects for a cluster’s sustainability and growth? Do the actions of its participants increase or decrease the likelihood of a cluster’s sustainability, which

in the long run should enhance the competitiveness of companies? An insight into entrepreneurial orientations makes it easier to answer these questions. However, this does not mean that entrepreneurial orientation is the only factor affecting cluster sustainability. Many more determinants are at work.

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ORIENTACJA PRZEDSIĘBIORCZA A TRWAŁOŚĆ I WZROST KLASTRÓW PRZEDSIĘBIORSTW

Celem artykułu jest wykazanie związku między orientacją przedsiębiorczą firm uczestniczących w klastrze a trwałością i wzrostem klastra. Spomiędzy różnych wymiarów orientacji przedsiębiorczej, innowacyjność i agresja konkurencyjna wydają się mieć największy wpływ na funkcjonowanie przedsiębiorstw w klastrze. Największe szanse na trwały wzrost mają klastry zdominowane przez „spolegliwych innowatorów”, czyli przedsiębiorstwa charakteryzujące się niskim poziomem agresji konkurencyjnej i wysokim poziomem innowacyjności.