



**PhD Program in  
Business  
Administration**

## **PhD THESIS WORK SUMMARY**

**Entrepreneurial Management in Hungarian SMEs**

**by**

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**Department of Strategic Management**

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## **1. The choice of topic and justification of the central research question**

I started my PhD studies in September 2002 on the PhD Program of Corvinus University of Budapest (formally known as Budapest University of Economic Science and Public Administration), specializing in the field of strategic management under the supervision of Professor Károly Balaton, DSc. From the very beginning, I was interested in studying the strategic renewal capabilities of organizations exhibiting innovative market behaviors from the point of view of management. My initial focus was refined first during the course of my PhD studies in Hungary and abroad, and second as I have progressed in elaborating the pertinent literature. My thesis thus focuses on the strategic behavior of managers in small- and medium-sized organizations with the aim of studying the phenomenon of entrepreneurial management in organizational settings.

The underlying assumption of my dissertation is that strategy is a pattern in a streams of actions, whether intended or not. In spite of the great variance in these behaviors, a few consistent patterns can be identified. With the appropriate use of taxonomy formation, however, these patterns in behavior can be classified into a few easily separable types of business-level strategies (for more details see Antal-Mokos and Kovács, 1998; Hortoványi and Szabó, 2006; Miles and Snow, 1978). Taxonomies supported by empirical studies not only expose the generic strategies but, at the same time, explain differences in management and organizational processes (Ucbasaran et al., 2001). Entrepreneurial management is assumed to be one of such behavioral patterns (a latent strategy). The main goal of my research is to identify and analyze thoroughly the phenomenon of the entrepreneurial management process. In order to reach this goal,

- I have embedded my research in a broader context for systematically mapping the roots of entrepreneurship. After summarizing the literature review, I position my research in the cross-section of “individual” and “process” studies, namely, what empirical evidence is provided by managers of Hungarian SMEs that could help us to understand the phenomenon of entrepreneurial management and what can we learn from the behavior of entrepreneurial managers that may be utilized in professional management?

- Focusing closely on the practice of entrepreneurial management, I have revised Timmons's model (1994) and derived my hypotheses upon the suggested new model. I have also incorporated the critiques of previous studies and identified a novel research methodology – multidimensional scaling – for revealing the latent strategies and identifying taxonomies. Entrepreneurial managers are identified on the level of their entrepreneurial orientation. My hypotheses are tested by cross-tabulation and Pearson correlation.
- My results have revealed that there are two new, formerly hidden dimensions opposed to entrepreneurial orientation: “speculation orientation” and “product push orientation”. By distinguishing entrepreneurial orientation from these dimensions I believe the verification of my hypotheses is improved. Finally, the interpretation of my results provides useful insights for managers and policy-makers as well as researchers. In addition, I also identify new research questions for future, follow-up research.

## **2. Review of the literature and relevance of the research**

The nineteenth century is characterized by the emergence of industrial society. In a period of conjecture, entrepreneurs were able to accumulate wealth and displace aristocrats by recognizing more and more market discrepancies and kinds of opportunities. Joseph Schumpeter's (1885-1950) thoughts were born in such an economic and social milieu. With respect to the development of corporate entrepreneurship theory, Schumpeter's contribution had three important merits.

First, Schumpeter describes entrepreneurs as visionary change management agents (Sandberg, 1992) who introduce new economic activity that leads to a change in the market. From Schumpeter's point of view, an entrepreneur is not necessarily the one who puts up the initial capital or invents new products, but a person with a business idea. Consequently, the creative activity of the entrepreneur is independent of the organizational or legal setting in which he/she may work. The entrepreneur can also be a manager employed by the established organization. The inclusion of long-lasting market impact is what distinguishes entrepreneurs from business founders or small business owners.

Second, entrepreneurship is not a profession and, in general, it is not a long-lasting state. Whatever the entrepreneur is doing – as a salesman or a software manufacturer etc. – he or

she remains an entrepreneur as long he/she actually links a market problem with innovation. An entrepreneur loses his/her entrepreneurial character when, after having exploited his/her business idea, he/she shifts to a “business as usual” activity (Schumpeter, 1980). In line with the growth of the organization, processes and organizational structures evolve. The organizational functions gradually take over a part of the founder’s tasks as well as decision-making responsibilities being delegated to the employees. In this way, the enterprise “starts a life of its own”, and becomes separated from its founder relatively early (Dobák, 1999).

Third, Schumpeter portrayed entrepreneurship as making a difference. The entrepreneur breaks up with established practice and destroys the status quo while moving the market forward (Mintzberg et al., 1998:125). Instead of learning how to swim with the tide, he wants to change its course. In order to do that he must swim against the tide; what was previously a supporting factor is now turned now into an obstacle, so it must be destroyed. However, this is a creative destruction; after all, the entrepreneur induces qualitative advancement by creating new combinations of resources and introducing new products and new business models. Even if the entrepreneur is not successful in all cases, some of his successors eventually succeed in finding a viable business model; in such cases, the process results in long-lasting development of the market (Christensen, 2003). In the end, entrepreneurship results in changes; if there are no changes, the activity does not qualify as entrepreneurship (Davidsson, 2003:318).

Change is a necessary but not sufficient precondition of change, argues Davidsson (2003:321). According to Davidsson it is the market-related activity that may eventually result in entrepreneurship. Therefore, organizational change itself does not constitute entrepreneurship. In practice, improvement opportunities are hidden in the system immanently – in the form of unused resources, cheaper raw materials, or even as unutilized production capacities etc. As a result, entrepreneurial activities reveal to the market what the market did not realize was available; after all, this is how the market advances. Changing conditions – such as the more efficient or effective use of resources – are giving rise to new customer segments, new products and services, or new ways of manufacturing or delivering existing products (Markides, 1997). Consequently, the entrepreneur is important (socially) not per se but for his contribution to development and productivity improvement.

In 1988, Low and MacMillan in their article “Entrepreneurship: Past research and future challenges” criticized theoretical research for the lack of an unambiguous agreement on observation units. In spite of the criticism, Gartner and Brush (2007) as well as Garnter et al. (2006) found no significant changes: the theory still comprises too many and too complex research topics that hinder experts in a parallel, in-depth study of all key issues.

Recognizing the complex and dynamic nature of entrepreneurship, first I try to classify research areas in this domain of science by levels of analysis and observation units, and to differentiate partially overlapping, continuous variables (Table 1). Typically, research topics are given as a section point of horizontal and vertical variables.

**Table 1.** Main research directions and common characteristics

Level of analysis	Result	Process	Context	COMMON question
Individual	Who is the entrepreneur?	What does the entrepreneur do?	Why does somebody become an entrepreneur?	<i>Why exactly that person?</i>
Start-ups and small firms	How can newly established enterprises survive?	Role, composition and change of interpersonal networks?	What is the driving force behind headquarters selection?	<i>Conditions of starting a successful enterprise?</i>
Corporate	What are their results? Do they perform better?	How can entrepreneurial culture be created and sustained?	What is the force obliging the firm to become entrepreneur? (e.g. industry life cycle)	<i>Solution to the efficiency paradox?</i>
Macro	What positive macroeconomic impacts can be identified?	To what extent is the process embedded?	What are the forces stimulating or hindering entrepreneurial activity?	<i>What are the regulatory challenges?</i>
COMMON aspect	<i>Economic phenomenon</i>	<i>Social phenomenon</i>	<i>Evolutionary phenomenon</i>	

As the table reveals, there are two possible branches investigating the very same phenomenon. In the study of international entrepreneurship, for example (Oviatt and McDougall, 2005:540), one branch focuses on the study of cross-national-border behavior and the performance of entrepreneurial actors (see “accelerated internationalization” over the horizontal axis); while the other focuses on the comparison of domestic entrepreneurial systems, cultures, and circumstances in which they are embedded across national borders (cf. “social milieu” over the vertical axis).



In their review of 416 articles published in the mainstream entrepreneurship journals during the previous decade, Chandler and Lyon (2001:107) found that 35% of the published studies analyzed entrepreneurship on the level of individuals, 53% on a corporate level, and 14% either on an industrial or on a macro level. Research studies can be further classified depending on the way they interpret entrepreneurship as a phenomenon (economical, social or evolutionary phenomenon).

Despite the number of published papers that might be considered related to the theory of entrepreneurship, there exists no powerful unifying paradigm (Brown et al., 2001; Busenitz et al, 2003; Gartner, 2001). After comparing research papers published before 1995, Aldrich and Baker (1997) concluded that the body of entrepreneurship research is stratified and eclectic. In spite of the potential for richness such a diverse mix of disciplines may bring, in many cases, the problems and issues addressed by researchers are fundamentally different from each other. More importantly, the progress toward coherence in paradigm development tends to be rather slow and limited (Murphy et al, 2006; Shane and Venkataraman, 2000) and solid and testable theoretical bases are still missing (Sexton and Landström, 2000).

Entrepreneurship is simply a too broad area for scholars to address meaningfully; hence, the field would be greatly strengthened if scholars chose sites that identify with one of the core research streams and engage in discussion with scholars carrying out similar research with that particular focus (Gartner and Brush, 2007). Accepting their recommendation, my PhD *investigates the intersection of individual and process dimensions of Table 1* by focusing on the entrepreneurial management practices.

Since entrepreneurs move the market forward and drive economic growth, the understanding of what distinguishes their value-creation activities from the conventional management practices is a globally appealing challenge, especially because of the recently experienced economic downturns in many countries. Consequently, with the dissertation my aim was to resolve the contemporary challenge of theory development and contribute to the field by investigating the behavioral aspects of entrepreneurial activity. The central research question addressed in my dissertation is: *What can we learn from the entrepreneurial management practices of Hungarian SMEs that has implications for both practitioners and policy makers?*

### **3. Review of entrepreneurial management research**

Contemporary definitions of entrepreneurial management tend to center around the pursuit of an opportunity (e.g. Brazeal, 1999; Shane and Venkataraman, 2000; Venkataraman, 1997); their common characteristics are that they define entrepreneurial management as a “mode of management” that is proactive, opportunity-driven, and action-oriented. In this regard, entrepreneurial management style is evidenced by the firm’s strategic decisions and operating management philosophies. The entrepreneurial management tries to establish and balance the innovation abilities of the organization with the efficient and effective use of resources. It can both initiate changes and react to changes quickly and flexibly.

In the course of the entrepreneurial process, the entrepreneurial manager creates new value through identifying new opportunities, attracting the resources needed to pursue those opportunities, and building an organization to manage those resources (Bhave, 1994; Wickham, 2006). An entrepreneurial manager seizes any promising business opportunity irrespective of the level and nature of resources currently controlled (Brazeal & Krueger, 1994; Stevenson, 2006). Consequently, an entrepreneurial manager is someone who acts with ambition beyond that supportable by the resources currently under his or her control, in relentless pursuit of an opportunity (Stevenson 1983, 2006; Timmons, 1994).

In spite of the fact that the concept of entrepreneurial management has been explored since long ago, and its scope and depth were have been enhanced by prolific authors like Burgelman (1984), Stevenson and Gumpert (1985), and Timmons (1994), the empirical study of the phenomenon is still in its infancy (Sexton and Landström, 2000). Our knowledge about entrepreneurial practices cannot be extended without a valid and reliable measurement, analysis, and interpretation of the key variables. Unfortunately, only a few explicatory variables have been validated until now (Brown et al., 2001:953), although some remarkable studies have already been published.

Historically, Miller (1983) developed a scale to measure empirically firms’ degree of entrepreneurship on the basis of their entrepreneurial orientation (EO) score. A high EO score refers to management that is characterized by a propensity to take risks, innovate, and act proactively. This measurement instrument was subsequently further developed by Covin and Slevin (1986, 1989) and enriched with two new dimensions: growth orientation and competitive aggressiveness. The measurement scale of Covin and Slevin has been in

use ever since as a baseline by several other researchers (just to mention a few, cf. Barringer and Bluedorn, 1999; Stopford and Baden-Fuller, 1994), even though Zahra (1993) criticized it several times.

Zahra (1993) then Brown et al. (2001) expressed their doubts regarding the validity of the variables. In their opinion, the questionnaire focuses on measuring partly overlapping factors, while the most significant features of entrepreneurship, i.e. the metrics of opportunity-driven, ambitious behavior, are left out of consideration and not measured at all. In particular, In particular, Zahra pointed out that while these measurement instruments do not measure at all explicitly and directly the extent to which managers are committed to the exploitation of an opportunity. The definition of the entrepreneur as a creative or innovative individual is not sufficient. There are innovative thinkers whose business ideas are never implemented.

Since the early works of Mintzberg (1975), several entrepreneurial roles have been identified in the literature. These include the technology innovator (cf. Block and MacMillan, 1993; Maidique, 1980), the innovation champion (cf. Shane, 1994), the top executive sponsor (cf. Rothwell et al., 1974), and the knowledge broker (cf. Hargadon, 1998, 2002; Hargadon and Sutton, 2000). Although all these roles describe essential aspects, they do not fully characterize the expected behavior of entrepreneurial managers. These roles do not capture the essence of creative, “true-blood” entrepreneurs who not only recognize the opportunity but try to implement it in all cases – even if there are burdens and difficulties along the way, when resources do not fit and are incomplete.

Similarly, Brown et al. (2001) consider this insufficiency as the greatest obstacle to be eliminated by the scientific community. A theory development is calling for a return to opportunity-based definition when designing surveys.

Because of this, Brown et al (2001) argue that the lack of empirical testing of opportunity-based entrepreneurship is a major impediment to the further development of entrepreneurship theory given its importance to firm- and societal-level value creation.

**Table 2.** Summary of previous studies on entrepreneurial orientation

Author(s)	Year	Country	Firm size	Industry	Sample size	Factor analysis
Covin and Slevin	1986	USA	Large	Manufacturing	200+	<input checked="" type="checkbox"/>
Covin and Slevin	1989	USA	Small	Manufacturing	344	<input checked="" type="checkbox"/>
Lumpkin and Dess	1996	USA	Medium to large	Heterogeneous	131	<input checked="" type="checkbox"/>
Antoncic and Hisrich	2001	Slovenia / USA	Medium to large	Manufacturing	141/50	<input checked="" type="checkbox"/>
Brown et al.	2001	Sweden	n.a.	n.a.*	1233	<input checked="" type="checkbox"/>
Kemelgor	2002	Netherlands / USA	Large	Manufacturing	4/4	<input checked="" type="checkbox"/>
Wiklund and Shepherd	2005	Sweden	Small	Heterogeneous	413	<input checked="" type="checkbox"/>

\* No data is available

As it can be seen from Table 2, which summarizes the main aspects of the most influential studies on entrepreneurial orientation, several constructive remarks can be made for improving future research:

1. There is a trend in entrepreneurship research to collect data primarily from manufacturing companies. Service companies, which represent one of the fastest-growing sectors in the global economy, have received only modest attention (Zahra et al., 1999). The negative effect of focusing on one single industry is that the studies are missing the chance to capitalize on inter-industrial differences in structures and competitive dynamics.
2. Second, all of them relied on the methodology of factor analysis when testing the hypotheses. There are controversies regarding the applicability of factor analysis, for the condition of normality is not met in the case of the variables. In connection with the methodology, Chandler and Lyon (2001:108) also pointed out that the application of up-to-date mathematical/statistical methods does not typically imply improvements in the reliability and quality of research work. When evaluating the comparison of 45 publications assessing the preconditions and consequences of entrepreneurial management on a firm level, Zahra et al. (1999) criticized their methodologically unilateral character and called attention to the fact that methodological creativity is indispensable when testing research models.

According to the standpoint of Aldrich and Martinez (2001:53), the underdeveloped character of the scientific area is also shown by the fact that research on entrepreneurship is dominated by inductive studies that rely on qualitative methodologies. Arriving at a similar conclusion, Oviatt and McDougall (2005:40) call for models of greater explicatory force and analytical techniques suitable for testing deductive hypotheses, as opposed to exploratory research.

3. Third, the validation of constructs is overwhelmingly performed upon American databases. Even though Europe is characterized by large differences between regions and countries, and there are various institutional settings that influence entrepreneurship (Huse and Landström, 1997), only a few attempts have been made to highlight differences in firm-level entrepreneurial activity in emerging markets.
4. Fourth, the measurement of entrepreneurial orientation level is carried out by factor analysis in each case. The use of factor analysis is doubtful because it does not meet the normality criteria. In their review, Chandler and Lyon (2001:108) pointed out that, despite the use of more sophisticated statistical methods, the overall quality of the derived results did not necessarily improve.

After reviewing 45 publications on the assessment of preconditions and consequences of entrepreneurial management, Zahra et al. (1999) concluded that existing research tend to be unilateral in character and hence they called for greater creativity in testing the relationships depicted in research models. Arriving at a similar conclusion, Oviatt and McDougall (2005:540) call for a more sophisticated research design and for the use of more appropriate analytical techniques. The next step in entrepreneurial research is to move away from exploratory studies towards causality, in order to generate theoretically derived hypotheses, develop measures, and apply state-of-the-art statistical techniques (Aldrich and Martinez, 2001:53).

5. Finally, the critical question posed by Gartner (1988) – and what distinguishes the characteristics of entrepreneurial management work from that of conventional management – has not yet been answered. Hence, the understanding of why some entrepreneurs succeed in exploiting opportunities despite severe obstacles has remained a major challenge for the entrepreneurship research community today (Aldrich and Martinez, 2001:41)

Based on the above, my purpose is to fill the “gaps” identified in the literature through empirically gauging the practices of entrepreneurial managers and testing them on a large sample of firms working in different industries, including the service sector as well. The theoretical contribution of my thesis is to be the first to test the managers’ entrepreneurial activity in a new context, on an emerging market, i.e. in Hungary. Finally, the relationships among variables proposed by my research model are tested by a statistically more reliable technique, the multidimensional scaling (MDS). I believe the introduction of MDS to the field of entrepreneurship can contribute to the further development of the theory.

#### 4. Hypotheses development on entrepreneurial management practices

The nature of managerial work had been studied quite thoroughly. Mintzberg (1975) for example concluded that managerial work is made up of a series of activities, and managers perform these activities in ways that are predictable and different depending on their respective social identities, and roles. Consequently, the difference between entrepreneurial and administrative managers can be traced back to the difference in their role expectations. One way to address the question of entrepreneurial management practices is to look closely at the entrepreneurial roles. In order to understand the phenomenon in depth, the hypotheses will be formulated on the basis of entrepreneurial roles derived from the literature.

The starting point is the model suggested by Timmons (1994), which proposed that the entrepreneurial process is opportunity-driven, led by a team, and characterized by parsimonious resources.

**Table 3.** Hypotheses development

<b>Timmons’s model</b>	<b>Proposed model</b>
Opportunity-driven	Commitment
Parsimonious resources <sup>1</sup>	Resource gaps
Entrepreneurial team	Social capital

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<sup>1</sup> Parsimony is taken as the concept of “less is better”

Taking Timmons's original model one step further, I propose that entrepreneurial managers are firmly committed to the exploitation of a given opportunity, that they need to overcome severe resource gaps (as opposed to "fewer"), and finally, to do so, that they need to move beyond their close, initial core team if they are to overcome the encountered resource gaps.

First, the existing literature has already highlighted that entrepreneurial managers pursue their vision firmly and resolutely even despite initial odds. According to the evolutionary theories of entrepreneurial action (cf. Weick, 1979), market opportunities in general are not readily available out there; rather, opportunities are enacted in an iterative process of actions, evaluations, and reactions (Berger and Luckmann, 1967; Mosakowski, 2002). When entrepreneurs act, they interact with the environment and they test the viability of the opportunity. Consequently, entrepreneurs are rarely able to see "the end from the very beginning". This is so, because there is no "end" until the opportunity unfolds. Failure, hence, is part of the trial-and-error learning process.

Entrepreneurial managers show a remarkable degree of confidence along the way the opportunity unfolds. They are confident in assuming that the missing elements of the pattern will take shape, and in expecting that the return envisioned from pursuing an opportunity is certainly worth the sacrifices, the investments, and even the short-term losses. To summarize, entrepreneurial commitment is characterized by firmness of purpose and relentless pursuit of an opportunity.

*Hypothesis 1: The level of opportunity commitment will be significantly greater in the case of high-level entrepreneurial management than in case of low-level entrepreneurial management.*

Irrespective of their age and size, the supply of the required quality and quantity of resources could be a problem in nearly all organizations – mainly because it is difficult to estimate in advance the actual resource needs of the organization. Opposed to parsimonious resources, most entrepreneurial processes are characterized by severe resource constraints and scarcity. That is so because entrepreneurial managers act with ambition beyond the resources currently under control, in relentless pursuit of opportunity (cf. Stevenson 1983; Timmons, 1994). Consequently, resources definitely constitute a

bottleneck in the course of implementation. A resource gap may take various forms: a lack of information, knowledge, inputs and physical assets, or even working capital.

Prior research has implicitly assumed that more resources are usually better than fewer resources in promoting firm expansion. This assumption overlooked the possibility that keeping slack resources may be inefficient. On the contrary, Penrose (1959) argued that redundant productive resources are wasted, if they are not used. Wiseman and Bromiley (1996), for example, found that slacks negatively influenced performance, and both March and Simon (1958) and Simon (1957) suggested that slack may encourage suboptimal firm behavior, and often lead to sub-optimal organizational behavior. In addition, the resource-rich firm is not always at a competitive advantage vis-à-vis the resource-poor firm (Mishina et al., 2004).

Resource constraints can be enabling in certain conditions (Jarillo, 1989; Rao and Drazin, 2002). Furthermore, Katila and Shane (2005) revealed that innovation capacity in general is greater in markets that are crowded, resource-poor, and small. Katila and Shane hence cracked the conventional wisdom that low-competition, resource-rich, and high-demand environments support innovation. On the contrary, such environments typically support incremental innovations.

As the literature pointed out, entrepreneurial managers in their effort to overcome these constraints often turn the initial drawbacks into competitive advantage (Christensen, 2003) by not playing “the game better than competition” but developing an altogether different game.

*Hypothesis 2: The problem of temporary resource gaps will be significantly more frequent in the case of high-level entrepreneurial management than in the case of low-level entrepreneurial management.*

Entrepreneurial firms, however, follow a resource-intensive strategic posture (Wiklund and Sheperd, 2005). From the point of view of entrepreneurial practices the important question is to ask how the resources gaps will be overcome. In their studies, Mangham and Pye (1991) observed that entrepreneurial managers heighten their awareness and sharpen their focus through the mobilization of their social capital.



The interpersonal relationships of entrepreneurs – as agents of the firm – with other individuals and organizations can provide “the conduits, bridges, and pathways through which the firm can find, access, and mobilize external opportunities and resources” (Hite 2005:113). Woo et al. (1992) observed that entrepreneurs utilized personal and professional sources of information to a greater extent than public sources of information. Uzzi (1997) also observed that personal networks are especially favorable for long-term economic success.

Entrepreneurial managers are found to be skilled at using their time to develop relationships with people who are crucial to the successful exploitation of their perceived opportunity (Cook, 1992; Larson and Starr, 1993). Moreover, they are described as calculative. They make strategic choices regarding their network; they add new ties, upgrade weak ties to strong ties, or drop ties according to the changing needs (cf. Elfring and Hulsink, 2007; Hite, 2005; Larson and Starr, 1993; Szabó, 2007).

In summary, people with the “right” mix of embedded ties can more effectively mobilize their network’s resources to achieve their goals than people or groups with less influential social connections can.

*Hypothesis 3: The strategic development of social capital in order to access missing resources and information will be significantly greater in the case of high-level entrepreneurial management than in the case of low-level entrepreneurial management.*

## **5. Research design**

My’ goal in gathering empirical data was twofold. The first goal was to enrich our understanding by testing constructs on an emerging, Central European database. I have designed and conducted an online survey research to test my hypotheses on a large sample of small- and medium-sized organizations. The survey process was rigorously designed and I applied the selection criteria of SME defined on the basis of their size between 10 and 250 employees. From a random sample of 1000 firms, only 587 non-agricultural firms, with at least of 3 years of existence were selected.

In order to accomplish the second goal, a new methodology – multidimensional scaling – was introduced. In their review, Chandler and Lyon (2001) pointed out that scholars increasingly tend to employ sophisticated methodology in entrepreneurship research; however, only 20% of the 416 articles reviewed used no statistical analysis beyond simple

descriptive statistics. Arriving at a similar conclusion, Oviatt and McDougall (2005:540) called for a more sophisticated research design and for the use of more appropriate analytical techniques.

### **5.1. Data collection**

In order to produce generalizable results I have utilized a simple random sample obtained from the Central Statistics Office (Budapest, Hungary) in October, 2008. The random sample of 1000 non-agricultural firms registered in Hungary, however, needed to be further reduced by eliminating those firms which failed to match the following two criteria: firms must have been in business at least since 2005 and the minimum number of their employees respectively must be at least 10. The imposed sampling frame yielded a sample of 587 firms. The survey took place in between March 2009 and April 2009. Out of the 587 firms we managed to collect 203 responses yielding a response rate of 34.58%. I believe that the considerable high response rate is sufficient enough to eliminate non-response bias.

Data collection was done through a structured online survey, where the respondents – founders or senior managers (mainly CEOs) – were asked a series of questions to compare and judge their own management style’s similarity as well as dissimilarity relative to pairs of statements representing the opposite ends of the entrepreneur–administrator continuum. One potential advantage of this perceptual approach is the relatively high level of validity because it allowed me to pose questions that directly addressed the underlying nature of the constructs. Entrepreneurship researchers frequently use the self-reported perceptions of business owners and executives because those individuals are typically quite knowledgeable about company strategies and business circumstances (Hambrick, 1981). For example Lumpkin and Dess (1996) refer to a study by Chandler and Hanks (1994) that found a correlation between the owner and the CEO’s assessment of business volume (earnings, sales etc.) and archival sales figures.

In order to reduce the occurrence of response contamination, I mixed the pairs of questions from time to time, so that each type – entrepreneurial as well as administrative – of statement could appear on both sides. Mixing the questions was derived from Davidsson (2004) who suggested that the “higher” the level of measurement is for the operationalizations of a variable, the better.

Finally, I also decided to take advantage of modern technology by designing a 100-point equal-length scale from both ends of the continuum instead of the generally applied 7-point Likert scale. The respondents, however, were not expected to work with numbers; rather, they were asked to use a visual scale by placing the pointer between minus 100 and plus 100 including zero in accordance with their personal judgment about the opposing pairs. By working with a 201-point scale (from -100 to +100 including 0), I also believe that the MDS algorithm could better explain the underlying dimensions.

## **5.2. Testing the data**

Based on the five measures of entrepreneurship (namely autonomy, innovation, proactiveness, risk-taking, and growth orientation), I generated eleven pairs of statements (variables).

Analyzing previous studies that aimed to operationalize and validate entrepreneurial orientation (without claiming a complete list: Antoncic and Hisrich, 2001; Barringer and Bluedorn, 1999; Brown et al. 2001 etc.) I found that researchers run factor analysis using principal components analysis and varimax rotation. The items in those research papers were usually measured on a five- to ten-point scale; however, the researchers did not enclose information about testing the normality of their data. According to Kovács (2006), the data suitable for factor analysis should have a bivariate normal distribution for each pair of variables, and observations should be independent.

While factor analysis requires that the underlying data are distributed as multivariate normal, and that the relationships are linear, multidimensional scaling (MDS) imposes no such restrictions. MDS (PROXSCAL) attempts to reduce the data by finding the structure in a set of proximity measures between objects or cases. This is accomplished by assigning observations to specific locations in a conceptual space. Since MDS is relatively free of distributional assumptions, it is the most common technique used in perceptual mapping. In addition, factor analysis tends to extract more dimensions than MDS. Consequently, the dimensions obtained by MDS tend to be readily interpreted. Because of these advantages, I decided to run MDS on the database.

## 6. Findings

By running MDS, I revealed three dimensions, two of which remained hidden in previous studies. The first dimension was “entrepreneurial orientation” besides “speculation” and “product push” orientations. The three dimensions were named as:

- Entrepreneurial orientation [EO]
- Speculation orientation [SPO]
- Product push orientation [PPO]

Each of the new dimensions also represents a conceptual continuum, just like entrepreneurial orientation does. Speculation orientation ranges from high risk tolerance to high risk avoidance. In the case of product push, the range is between a single product and highly diversified product lines.

Accordingly, firms in the sample were distributed due to their orientation level in each dimension. A firm’s position on any of the three continuums is determined by the level of its orientation. For example, in the case of the second dimension, a high speculative orientation means that the manager perceives innovation to be marginally important; however, she or he is rather speculative in the form of taking significant risk in the hope of high returns in the short-term. Similarly, high risk avoidance refers to a preference for safe, low risk, and easily reachable ideas.

With regard to the third dimension, product push orientation signals an aggressive attitude toward scaling up product lines and using promotions and advertising in promoting sales growth. Innovation efforts tend to be directed toward potential marketable improvements to an existing product or service. Hence innovation is perceived as an incremental, clearly defined, and time-tested process designed to prove or disprove its value to the company. In the case of poor results, the management prefers to abandon the activity quickly.

On the other hand, however, the single-product orientation implies that the manager is committed to the development of a single but radically innovative product idea. Innovation is perceived as a sporadic process, with starts and stops, dead ends and revivals. Persistence is a key element of the processes. A low level of product push orientation is also characterized by a relatively high level of uncertainty tolerance and a simultaneous effort to reduce risks to a manageable level. Finally, it is also associated with the aim of breaking traditional ways of conducting business.

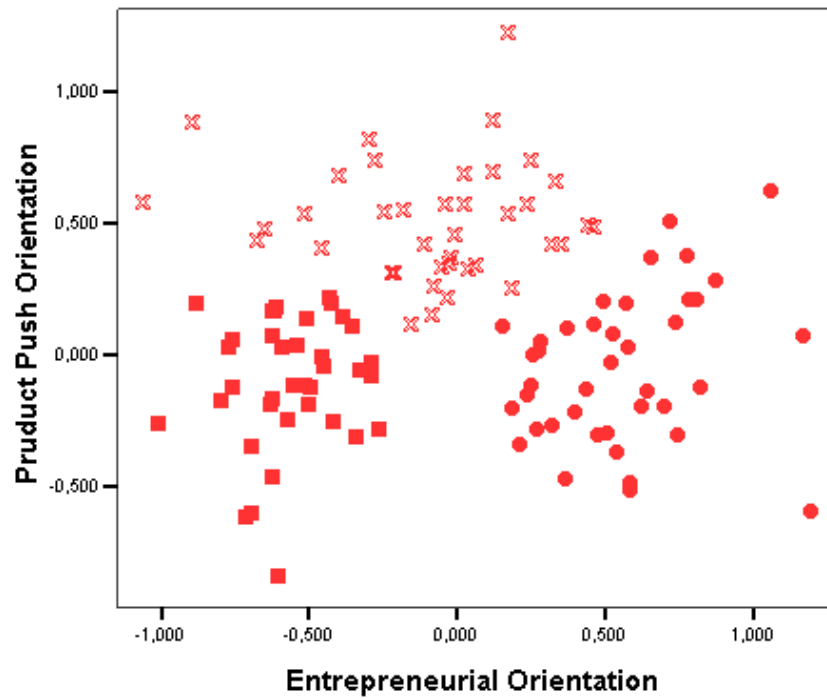
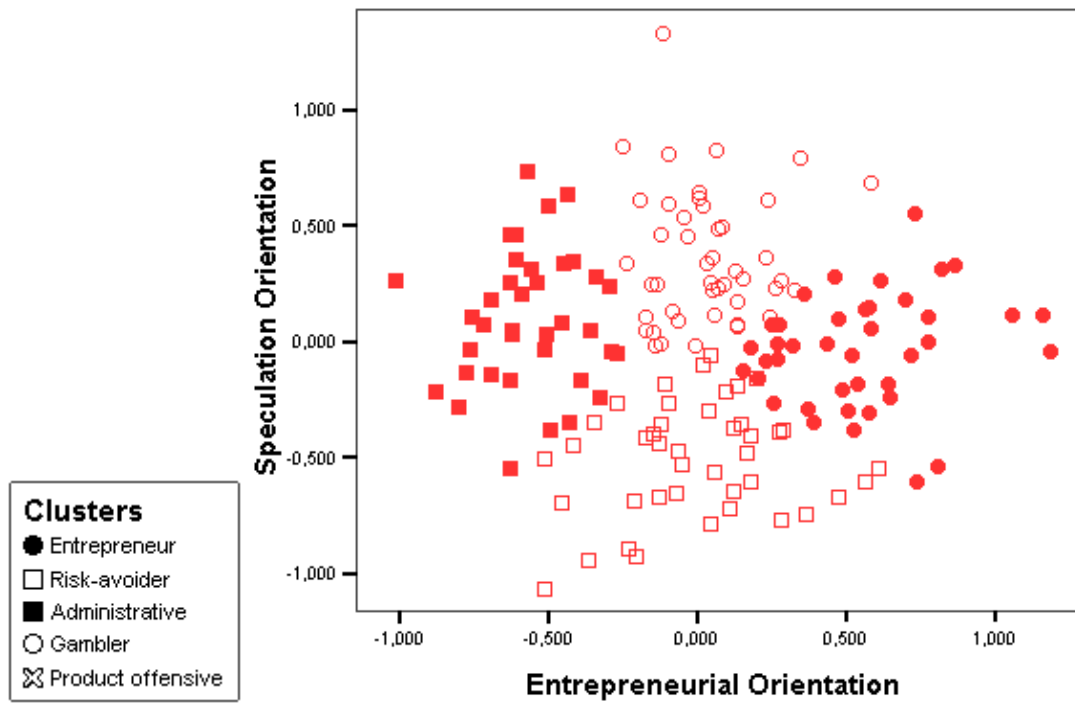
For the identification of managerial behaviors in the sample, I applied a two-step cluster analysis. The advantage of this method over both the hierarchical and the non-hierarchical k-means cluster analysis is that two-step cluster analysis is based on its selected Schwarz Bayesian information criterion (BIC); hence, it suggests the ideal number of clusters.

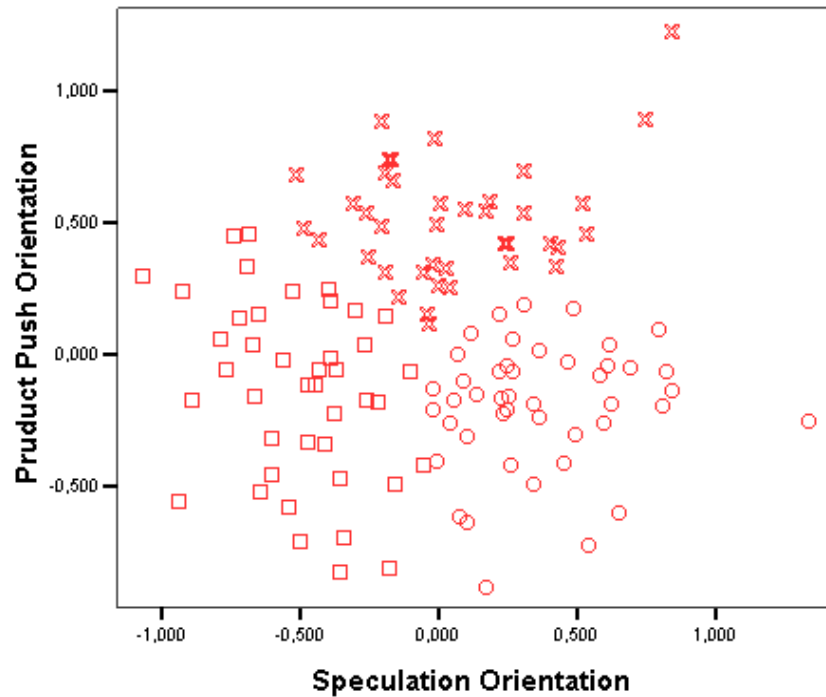
All the cases were used to in the 2-step cluster analysis. As a result, 5 clusters were obtained. Each and every cluster is easily separable from the others; the distribution of the clusters is also well balanced. Out of the 203 respondents, 40 fall into C1, the entrepreneurial manager cluster. There are 42 administrative managers in cluster C2, while 37 managers were identified as risk-avoiders representing cluster C3. The largest cluster, C4, is made up by 45 gamblers. Finally, 39 respondents are associated with the product offensive management style (C5).

**Table 4.** Interpretation of clusters

	<b>EO</b>	<b>SP</b>	<b>PO</b>	<b>Cluster names</b>	<b>Distribution</b>
<b>C1</b>	+	0	0	Entrepreneurial management style	<b>19.7%</b>
<b>C2</b>	-	0	0	Administrative management style	<b>20.7%</b>
<b>C3</b>	0	-	0	Risk-avoider management style	<b>18.2%</b>
<b>C4</b>	0	+	0	Gambler management style	<b>22.2%</b>
<b>C5</b>	0	0	+	Product offensive management style	<b>19.2%</b>

**Figure 1.** Cluster distributions along dimensions





I have controlled the management style for size (full-time employees), industry, age of the firm, and ownership, as well as for age, educational background, international experience and gender of the CEO. I have also confirmed that there is no relationship between the above-mentioned characteristics and the market behavior of the firm.

For testing the hypotheses, the most appropriate method was testing the correlation between the independent variable (management style) and the dependent variables (opportunity, network, and resource gap) by using cross-tabulation and Pearson correlation to measure the association between the variables.

**Table 5.** Test of Hypotheses

Hypothesis	EO	SPO	PPO
H1 – Persistence	+	☒	–
H2 – Social Capital	++	–	☒
H3 – Resource Gaps	++	☒	–

With regard of the entrepreneurial dimension, the results indicate that entrepreneurial managers tend to consider learning as part of the opportunity exploitation. Interestingly, however, they do not differ significantly from administrative managers. Both management styles tend to be persistent in testing the viability of business ideas and pursuing them

despite of initial odds. The second hypothesis was strongly supported implying that entrepreneurial managers are indeed more strategic in developing their social capital in accordance with their changing resource needs. By contrast, administrative managers – just like gamblers – are rather spontaneous in developing their networks. Finally, hypothesis 3 was also strongly supported because entrepreneurial managers perceived that they experience a greater frequency of resource gaps than their counterpart, administrative managers.

In case of gamblers and risk-avoiders, none of the hypotheses were supported. By definition, neither of the two management styles is considered as entrepreneurial. In the case of product offensive management style, however, there was a weak negative correlation with persistence. This is in line with my expectations, since product offensive managers have a short-term orientation: in the case of poor early results, they prefer to abandon the activity quickly. They also prefer to have slack resources.

## **7. Scholarly and managerial implications**

I believe that my research makes three main contributions for scholars and entrepreneur educators. First, the research has justified the adequacy of multidimensional scaling technique in testing constructs of entrepreneurial management. According to our findings, multidimensional scaling is proven to equip us with statistically more correct and more valid results.

Second, the empirical study has advanced the understanding of corporate entrepreneurship by revealing two hidden dimensions: speculation and product push. The former is an important step in advancing theory since, without the exclusion of gamblers, testing hypotheses may lead to misleading results. Gambling over the last two decades has demonstrated extensive growth. Societies, like those in emerging markets, tend to allow a wide array of gambling opportunities. Some of these opportunities are often associated with less reputable activities with links to the grey economy. It is for future research to test whether speculation and gambling are a contextual factor or not; and whether it is an independent dimension for both; emerging and developed economies.

Third, I managed to highlight a third dimension – product push. The research confirmed that the number of new products is not a measure per se of entrepreneurial innovation. The



number of new products is indicative only if the products are extensively built on innovation.

The findings have implications for practitioners by highlighting that the behavior of entrepreneurial managers differs from that of administrative managers by the use of social capital and resource scarcity.

I also believe that the results have implications for policy makers, too, drawing their attention to the speculation dimension. Supporting SMEs in times of crisis runs the risk of inefficient distribution of financial aids since the targeted entrepreneurs only make up roughly 20% of the sample. In addition, SMEs can be the engine of regional growth only if they have innovation and long-term orientation; however, a preference for the product offensive management style works against it.

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