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Who can find Schumpeter's entrepreneur within today's large corporation?

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Abstract

A growing literature is analyzing the phenomenon of innovation in the context of corporate entrepreneurship and already highlighted many different roles of the entrepreneurial person: Schon introduced the "product champion" as a person with considerable power and prestige in the organization and with knowledge about how to use the company's informal system of relationships (Schon, 1963). Allen presented the technological "gate keeper" as a corporate function in the context of boundary-spanning individuals, who are connected to internal as well as external domains (Allen and Cohen, 1969, Augsdorfer, 1996). Furthermore, Oberg brought up the "change agent" as a function of the transformational leader who brings about radical change by espousing beliefs and values that are different from the established order (Oberg, 1972, Howell and Higgins, 1990). Witte coined the notion of the "promotor" as a person who actively and intensively changes the innovation process with special commitment, and promotes the reduction of aim and competence barriers of the employees within an organization (Witte, 1973). Moreover, Pinchot advanced the term "intrapreneur" as an in-house form of entrepreneurship (Pinchot, 1985). And Augsdorfer introduced the "bootlegger entrepreneur" who can be identified based on the level of creativity (Augsdorfer, 2005, Augsdorfer, 2012). It is this glimpse of potential revolution that appears to inspire the entrepreneur to continue to look for possible opportunities and carry out innovative activities (Dyer et al., 2009). However, it was Schumpeter who first introduced the entrepreneur in the light of new opportunities and economic change (Schumpeter, 1934, McMullen and Shepher, 2006).

This research project specifically builds upon Schumpeter's idea of the entrepreneurial function which can be carried out individually (Schumpeter Mark I) or cooperatively (Schumpeter Mark II) (Schumpeter, 1934, Nelson and Winter, 1982, Kamien and Schwartz, 1982). As the existing literature mostly focuses on entrepreneurial activities that are carried out by individuals and the way environmental factors influence these activities, it is important to raise the question whether and how the entrepreneurial function can be carried out cooperatively and how the individual entrepreneur (Schumpeter Mark I) dilutes within today's large corporation. The purpose of this research project therefore is to investigate the dynamics of entrepreneurial action along different functions and hierarchical levels.

The more qualitative approach is designed as comparative case study and focuses on 24 cases representing 6 small, 7 mid-sized and 9 large producing and service oriented companies of different branches and industries (Yin, 2007). Over a period of seven months 78 in-depth interviews were conducted with people from different departments and hierarchical levels. The interview guide was constructed to follow two main steps. Firstly, it is tried to reveal the existing setting of entrepreneurial action within the company. Secondly, it is tried to find out how to foster the way of cooperatively engaging in entrepreneurial activity.

The results indicate that the size of the investigated company plays an important role in the way of how the entrepreneurial function can be interpreted. The study shows that in smaller companies the entrepreneurial function is very much centred to the main responsible persons like the managing director of the corporation who can be seen as the main driver of entrepreneurial action. I also observe that, within the sample, the mid-sized and larger companies more and more engage cooperatively into entrepreneurial action. The mid-sized companies show the tendency that specially gifted technicians play an important role with their specialised technical knowledge and curiosity of how to come up with innovative products and solutions. It seems that if these nosy technicians interact with a management responsible who truly perceives the value of this gifted technician and uses his power to promote different ideas and projects, the entrepreneurial function is carried out cooperatively. I also note that, this management responsible is often engaged in direct customer contact. Further on, within the larger companies the results suggest that entrepreneurs need to have customer contact in order to notice their actual needs at the market. These customer oriented entrepreneurs seems to be able to develop a true sense of what is actually needed which enables them to foster innovative ideas within their companies.

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1. Introduction

Across all industries and countries, companies face one common challenge: competing in an uncertain and unpredictable economic environment. Many firms try to counteract the phenomenon of uncertainty with organizational learning strategies. Learning seems to be an essential strength for firms, especially when it comes to the capability of quickly adapting to changes on the market. Furthermore, in order to remain competitive within a dynamic economic environment, it is strongly necessary for companies to innovate. Companies that are more adaptable, flexible, fast, aggressive, and innovative are better positioned not only to adjust to a dynamic, threatening, and complex external environment, but to create change in that environment (Schumpeter, 1934, Heavey et al., 2009). That is why innovative activities of entrepreneurs are so important. Kanter stated that in today's increasingly uncertain, competitive and fast moving world, companies must rely more and more on individuals to come up with new ideas, to develop creative responses, and to push for changes before opportunities either disappear, or get exploited by others (Kanter, 1983).

Over the years, much research has been undertaken in the field of entrepreneurship, so the amount of academic contributions in this area is tremendous. In order to understand what the current literature states about "the entrepreneur" the context of organizational learning and corporate entrepreneurship is important to be taken into consideration. Moreover, many studies refer to the entrepreneur as someone who creates a new venture, but fewer studies face the problem of how entrepreneurs act within large corporations. The need for more research in this area was explained by Kirzner in 2009: "Successful entrepreneurship plays an important role in driving economic development, growth, and in the achievement of the prosperous economy. It is therefore important to identify the human qualities that make for successful entrepreneurs and the social and economic conditions needed to promote the emergence of successful entrepreneurship."

Up to now this successful entrepreneurship as Kirzner described it was investigated without asking the question of how this entrepreneurial function changes when different sizes of companies are involved. Schumpeter already stated that the entrepreneurial function need not necessarily be embodied in a physical person but may be filled cooperatively (Schumpeter, 1949). This becomes interesting especially when looking at larger corporations. It seems to be common sense that in a small company the entrepreneurial function is very much centered within the person of the managing director as this is the responsible person for all business activities and decisions. It is further anticipated that within

larger corporations a number of people and organizational functions help the innovation process along. Therefore, this research project addresses the emerging question if the entrepreneurial function splits up across different functions and hierarchical levels when the point of view from a small company shifts to mid-sized and larger corporations. Furthermore, the dynamics which link innovative activities amongst all key players along the value chain are investigated in order to find out if and how the division of labor is important to explain where the entrepreneurial function is manifested within larger companies.

2. Literature

Schumpeter's ideas of the entrepreneur and the entrepreneurial function need to be considered in the broader context of an evolutionary economic perspective with emphasis on the environmental settings of economic change and uncertainty.

Economic change and uncertainty

Economic change, its reasons and consequences, are discussed by many scholars. It seems obvious that technological change and innovation play an important role in an economy's development. In 1934 Schumpeter proposed an evolutionary perspective in which he described innovation as deviation from routine behavior, arguing that innovation continually upsets equilibrium (Nelson and Winter, 1982). In his book "The Theory of Economic Development" from 1934, Schumpeter described "development" as "only such changes in economic life as are not forced upon it from without but arise by its own initiative, from within" (Schumpeter, 1934). For him, the important factor of economic change was to "carry out new combinations", and seen in the context of competition "new combinations mean the competitive elimination of the old" The entrepreneurial function need not be embodied in a physical person and in particular in a single physical person. Every social environment has its own ways of filling the entrepreneurial function. [...] Again the entrepreneurial function may be and often is filled cooperatively. With the development of the largest-scale corporations this has evidently become of major importance: aptitudes that no single individual combines can thus be built into a corporate personality; on the other hand, the constituent physical personalities must inevitably to some extent, and very often to a serious extent, interfere with each other. In many cases, therefore, it is difficult or even impossible to name an individual that acts as "the entrepreneur" in a concern." (Schumpeter, 1949). That is why old technology becomes obsolete and simply gets outperformed. The new combinations refer to the introduction of e.g. a new product, a new method of production or a new market. This is what Schumpeter described as change from routine economic growth to "dynamic" economic development The entrepreneurial function need not be embodied in a physical person and in particular in a single physical person. Every social environment has its own ways of filling the entrepreneurial function. [...] Again the entrepreneurial function may be and often is filled cooperatively. With the development of the largest-scale corporations this has evidently become of major importance: aptitudes that no single individual combines can thus be built into a corporate personality; on the other hand, the constituent physical personalities must inevitably to some extent,

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Moreover, environmental settings have an important impact on companies. Since companies are not isolated, each must interact within a complex environmental system that of influencing factors such as markets, the economic situation, competition, customers and suppliers, regulatory institutions employees, ecology, science, technology, etc. The larger the number of factors and the more heterogeneous they are, the more complex the environment becomes (Augsdorfer, 1996). Additionally, this complex environment is not a static and predictable one, rather one of high dynamic nature. Companies that dominate one generation of technology often fail to maintain leadership in the next (Utterback, 1996, Christensen, 1997). The reason is that the environment is characterized by a high degree of uncertainty and complexity (Knight, 1940). Knight emphasized the key characteristic of such changes, as it is impossible to calculate the right thing to do due to uncertainty (Nelson and Winter, 1982). The aspect of uncertainty therefore seems to play an important role within the corporate environment of a company.

Pfeffer and Salancik asserted that uncertainty refers to the extent to which future states of the environment can be anticipated or accurately predicted (Salancik and Pfeffer, 1978). However, prediction and calculation of future scenarios have been difficult tasks for all companies, due to the influence of many uncertain factors. Knight was the first to differentiate the term of uncertainty, and argued that uncertainty and risk need to be distinguished from one another. According to his definition, risk is where decision making happens with unknown outcomes but known ex-ante probability distributions (Knight, 1940). This Knightian distinction between risk and uncertainty highlights the fact that there is true uncertainty, which despite statistical probabilities truly remains unpredictable. In Knight's view, true uncertainty is the only source of profit, since they would disappear as soon as change would become predictable (Brouwer, 2000). For companies in a given economic environment, with truly uncertain factors, it therefore seems to be important to find solutions how to deal with uncertainty.

Organizational learning

In order to compensate for uncertainty companies need to learn (Senge, 1990). Many scholars have discussed the phenomenon of how organizations become learning organizations. Nonaka argued that learning concerns all parts of the company (Nonaka, 1991), and therefore does not only refer to the department of research and development or strategy. According to Senge, it particularly concerns individuals. He stated that organizations learn only through individuals who learn and that individual learning does not guarantee organizational learning but without it no organizational learning occurs (Senge, 1990). Senge was one of the first to define a learning organization with a focus on individuals. He argued that organizations have to be able to learn how to cope with environmental changes. This learning becomes even harder because organizations face certain learning disabilities such as the excessive commitment of individuals to their own positions, or being unaware of slow, gradual processes that present greater threats than immediate events (Senge, 1990).

As previously discussed, the factor of uncertainty due to a constantly changing environment requires both flexibility, as well as the capability to quickly adapt to changes. This can be implemented if the company focuses on learning and the building of competencies, which starts at the level of each individual and needs to be transferred into organisational learning. Argyris and Schon stated that organisational learning occurs when individuals within an organisation experience a problematic situation and inquire it on the organisational behalf (Argyris and Schon, 1996).

Following an evolutionary perspective, the focus on individuals and their contribution to dynamic processes seems to be of even more importance. Händeler considers the individual human being to be the most important production factor of the future due to the shift from an industrial to information-driven economy and society (Händeler, 2009). The way individuals can manage this important information role, therefore, relates back to their own learning capability. In order to counteract a dynamic environment, companies need to find a way to build competencies for the future, and also learn how to adjust their knowledge quickly enough. According to Hannan and Freeman, only companies which are able to adapt themselves to a changing environment will be able to survive (Hannan and Freeman, 1977). This is where Schumpeter's "creative destruction" reminds us of the special abilities to overcome the paradox situation of an ambidextrous organization, which serves both the requirements of incremental development, and parallel advances radical innovation projects, which, over time push the old technology to become obsolete (Tushman and O'Reilly, 1996). The consequence of learning, therefore, seems to be an enhanced ability to deal with uncertainty and change within the company's environment.

The result of a learning organization can be explained as a company with knowledge and capabilities, in order to get to new technological trajectories. Cohen and Levinthal defined this learning capability as the ability of firms to identify, assimilate, transform and exploit knowledge – the firm's absorptive capacity (Cohen and Levinthal, 1990). The ability to exploit external knowledge is therefore a critical component of a company's innovative capabilities. It becomes clear that managing knowledge, especially new knowledge, plays a central role within the context of organizational learning. Effective innovation cannot occur without higher learning abilities (Tran, 2008).

As this research refers to innovative activities, it is interesting to consider organisational learning in this context. For Smilor, learning is not an optional extra, but is central to the entrepreneurial process (Smilor and Feeser, 1991). Effective entrepreneurs are exceptional learners, who seize all opportunities and areas to learn from: customers, suppliers, competitors, employee, associates, as well as other entrepreneurs. Not only do they learn from experience, but also by doing. That is why they learn from what works, and more importantly, from what does not work (Harrison and Leitch, 2005). Furthermore, Cope emphasizes that entrepreneurial learning takes place within the context of the complex, interactive learning relationship, existing between entrepreneur, business, and the larger environment (Cope, 2005). It seems to be clear that organisational learning and innovation are related to each other in both ways.

Innovation

Schumpeter was one of the first economists to stress innovation as the engine and inexhaustible source of economic growth (Brouwer, 2000). As Nelson equally stated companies need to innovate, otherwise they will fail to survive (Nelson, 1961). Companies seem to face the constant risk of missing out on new technological opportunities. The only way to rise to this challenge is to actively engage in innovation.

It seems to be equally clear that the costs of innovation are growing rapidly because of the decreasing useful life span for any new idea. Therefore, organizations must not only innovate, they also have to transform their ideas into saleable products and services quickly, or they will lack the funds to support continued innovation (Argyris, 1965). The urgent need for companies to invest into innovations seems to be obvious.

At this point it seems to be important to define what exactly is meant by innovative activities. Dyer, Gregersen and Christensen identified five discovery skills and refer to them as the “innovators DNA” in order to create new ideas (Dyer et al., 2009). They introduced four patterns of action: questioning, observing, experimenting and networking. *Questioning* allows the innovator to break out of the status quo and consider new possibilities. *Observing* helps the innovator to detect small behavioural details that suggest new ways of doing things. *Experimenting* means to relentlessly try on new experiences and to explore the world. *Networking* helps to gain radically different perspectives from individuals from diverse backgrounds. These four patterns of action help the innovator *associate* to cultivate new insights (Dyer et al., 2009). Within this research the innovative activities are defined as at least one of these five discovery skills.

Where the innovative power of an organization actually originates, and whether it can be facilitated within the organization, are important questions that point in the direction of entrepreneurial behaviour, creativity and entrepreneurship. It can be stated for this research project that taking an evolutionary perspective means to consider the idea of entrepreneurial activities as dynamic processes that transform the company from within. These dynamic processes emerge due to actions of diverse agents with bounded rationality who are capable of experimenting and discovering new rules and thus learn from experience and interaction (Dosi and Nelson, 1994). Since this research project is interested in the entrepreneurial function within the large corporation the field of corporate entrepreneurship needs to be discussed.

Corporate entrepreneurship

In order to conceive the various definitions, as well as research directions related to the notion “entrepreneurship”, it is important to consider a few more scholarly developments over time. Some of the research has emphasized several activities, such as the creation of new organizations (Gartner, 1989), the new combination of existing factors (Schumpeter, 1934), the exploration and exploitation of opportunities (Kirzner, 1973), the bearing of uncertainty (Knight, 1940), and so forth (Ulhoi, 2005). The increase of recent research in this field has also led to segmentation into different disciplines e.g.

intrapreneurship (Pinchot, 1985), corporate entrepreneurship (Covin and Slevin, 1991, Chang, 2000, Garvin and Levesque, 2006), sustainable entrepreneurship (Cohen and Winn, 2007), with diverse approaches and theories. Other scholars, i.e. (Shane and Venkataraman, 2000), suggest that entrepreneurship involves the study of the sources of opportunities, the processes of discovery, evaluation and taking advantage of the opportunities, as well as the group of individuals who discover, evaluate and exploit these opportunities (Ulhoi, 2005).

The literature provides many thoughts on the exploitation of entrepreneurial opportunities and the creative processes within organizations, which all refer to the field of entrepreneurship. In the context of the most formative approaches in history, the Austrian, as well as more specifically the Schumpeterian approach, must be mentioned. In his entrepreneurship approach, Schumpeter suggests the entrepreneur to be the driving force of changing an existing situation, and therefore, he promotes disequilibrium. The entrepreneurial activities result in major innovations, or even in systematic changes, which generate new development processes and, for example, create or widen the technological gap between leaders and followers on the market (Cheah, 1990). It is clear that the importance of innovations by entrepreneurs is becoming even more important as global competition offers more entrepreneurial opportunities from a greater pool of people (Harvey et al., 2010). As previously discussed, such innovative efforts of revolutionizing character are proposed by Schumpeter as the process of “creative destruction”.

However, Schumpeter did not only concentrate on technical skills and expertise of the entrepreneur alone. The exercise of intuition and strategy was of particular importance (Schumpeter, 1934), as well as seeing the entrepreneurial process embedded into the whole organizational context. This is where the focus of this research is grounded and tries to investigate the emerging question of the entrepreneurial function within the organizational context.

The Schumpeterian entrepreneur and the entrepreneurial function

A growing literature is analyzing the phenomenon of innovation in the context of corporate entrepreneurship and already highlighted many different roles of the entrepreneurial person: Schon introduced the “product champion” as a person with considerable power and prestige in the organization and with knowledge about how to use the company’s informal system of relationships (Schon, 1963). Allen presented the technological “gate keeper” as a corporate function in the context of boundary-spanning individuals, who are connected to internal as well as external domains (Allen and Cohen, 1969, Augsdorfer, 1996). Furthermore, Oberg brought up the “change agent” as a function of the transformational leader who brings about radical change by espousing beliefs and values that are different from the established order (Oberg, 1972, Howell and Higgins, 1990). Witte coined the notion of the “promotor” as a person who actively and intensively changes the innovation process with special commitment, and promotes the reduction of aim and competence barriers of the employees within an organization (Witte, 1973). Moreover, Pinchot advanced the term “intrapreneur” as an in-house form of entrepreneurship (Pinchot, 1985). And Augsdorfer introduced the “bootlegger entrepreneur” who can be identified based on the level of creativity (Augsdorfer, 2005, Augsdorfer, 2012). It is this glimpse of potential revolution that appears to inspire the entrepreneur to continue to

look for possible opportunities and carry out innovative activities (Dyer et al., 2009). The common feature of all these studies is that they identified not just one single champion in an innovation process, but several outstanding individuals (Hauschildt and Gemünden, 1999), who are all related to the intrinsic motivated goal of creating something new to the world.

However, it was Schumpeter who first introduced the entrepreneur in the light of new opportunities and economic change (Schumpeter, 1934, McMullen and Shepher, 2006) which is why he is often called “the father of entrepreneurship”. In his books, “The Theory of Economic Development” (Schumpeter, 1934) and “Capitalism, Socialism and Democracy” (Schumpeter, 1942), he proposed two major patterns of innovative activities, which were later labelled as Schumpeter Mark I and Schumpeter Mark II by Nelson and Winter and Kamien and Schwartz (Nelson and Winter, 1982, Kamien and Schwartz, 1982).

In his first work Schumpeter characterized the pattern of innovative activity by new firms as playing a major role, due to new entrepreneurs with novel ideas, products or processes, in turn launching new enterprises (Schumpeter, 1934). These entrepreneurs therefore “challenge established firms and continuously disrupt the current ways of production, organization and distribution” (Malerba and Orsenigo, 1995). That is where Schumpeter introduced the entrepreneur into the context of the evolution of economic change – termed Schumpeter Mark I. This creative destruction pattern is also referred to as “widening”, where innovations are introduced by firms that did not innovate before (Breschi et al., 2000).

In his second work Schumpeter discussed the relevance of industrial R&D for technological innovation with specific consideration of large firms (Schumpeter, 1942). Within these large firms, there is an accumulated stock of knowledge in specific technological areas. This is due to an institutionalized innovation process with the creation of R&D laboratories with enormous capacities of researchers, technicians and engineers. The large firms are the ones who “create barriers to entry to new entrepreneurs and small firms” (Malerba and Orsenigo, 1995). This pattern of innovative activity (Schumpeter Mark II) is also referred to as creative accumulation or “deepening”, seeing as the innovations are being introduced by firms that innovated before (Breschi et al., 2000). When it comes to the definition of the entrepreneur for the large corporation today Schumpeter introduced an important thought by proposing the idea of the entrepreneurial function:

“The entrepreneurial function need not be embodied in a physical person and in particular in a single physical person. Every social environment has its own ways of filling the entrepreneurial function. [...] Again the entrepreneurial function may be and often is filled cooperatively. With the development of the largest-scale corporations this has evidently become of major importance: aptitudes that no single individual combines can thus be built into a corporate personality; on the other hand, the constituent physical personalities must inevitably to some extent, and very often to a serious extent, interfere with each other. In many cases, therefore, it is difficult or even impossible to name an individual that acts as “the entrepreneur” in a concern.” (Schumpeter, 1949)

This thought brings up the possibility to reject the concept of a single human being acting as “the entrepreneur” within the corporation. It is therefore important for this investigation to widen the understanding of the entrepreneur to the entrepreneurial function which opens up the possibility of being carried out cooperatively. As the existing literature mostly focuses on entrepreneurial activities that are carried out by individuals and the way environmental factors influence these activities, it is important to raise the question whether and how the entrepreneurial function can be carried out cooperatively and how the individual entrepreneur (Schumpeter Mark I) dilutes within today’s large corporation.

The intension of this research is to gain insights into where and how this entrepreneurial function is manifested within the large corporation. The approach of profiling different personalities and characteristics of entrepreneurs in a psychological way seems to be too narrow because human beings differ in great variety. The purpose of this research project therefore is to investigate the dynamics of this entrepreneurial function along different functions and hierarchical levels.

3. Methodology

Paradigm

In order to explain the research design of the current study the concept of the ‘research onion’ presented by Saunders et al. in 2009 is applied. This concept explains the main parts of a research methodology according to different levels and starts with the research paradigm as a way of examining social phenomena. The current research project is constructed under the philosophy of pragmatism as it is the research question itself that needs to be focused on rather than detailed discussions about ontological positions of nature and reality. The intention is to focus on practical applied research and therefore integrating different epistemological perspectives that help to interpret the data. When it comes to the axiological point of view the values of the researcher play an important role in interpreting the results (Saunders et al., 2012).

Approach

Furthermore, the researcher chose a more inductive approach in order to focus on collecting data and developing theory as a result of the data analysis rather than testing predefined hypothesis. This approach requires a close understanding of the research context which is why the entrepreneurial function as research objective was explained within the broad context of economic change and uncertainty as well as organizational learning and innovation. It also reflects the more flexible structure that permits changes of the research emphasis during the research progress. As an exploratory study it is of great interest to find out what exactly is happening, to seek new insights and to assess phenomena in a new light (Saunders et al., 2012).

Strategy

The research strategy consists of a twofold approach and therefore brings together grounded theory and case study research. Firstly, the basic strategy of grounded theory is applied since it is tried to build theory from generated data rather than testing it. This strategy makes it possible to start data

collection as an interpretive process without the formation of an initial theoretical framework that gives a detailed overview of already existing possible outcomes of the research. However, grounded theory is not meant to be applied without a clear understanding of the research question and its context. In the current research project the research question about the entrepreneurial function is clearly framed as a phenomenon within a corporate setting. This assures that the research question in fact is open ended but still integrated in the broader research context. Secondly, the basic strategy of case study research is applied. The decision of engaging in case study research simultaneously refers more to the part of data collection and analysis. The research is designed as a holistic multiple-case study within which one company is understood as the unit of analysis (Yin, 2007).

Choice, time horizon and techniques

The current study follows a more qualitative approach and focuses on 24 cases representing six small, seven mid-sized and nine large producing and service oriented companies of different branches and industries in Germany (Yin, 2007). Over a period of seven months 81 in-depth interviews were conducted with people from different departments and hierarchical levels. Therefore, it is more of a cross-sectional study. The in-depth interviews, company's website information as well as the organizational structure charts build a rich set of data. Hence, the research choice can be seen as a multi-method qualitative study (Saunders et al., 2012). This approach offers the advantage that the rich data can be analyzed in multiple ways. The case study research offers analytic possibilities across companies of different sizes like cross-case pattern matching. The in-depth interviews create the possibility to go beneath the surface of the described experiences during the interview and therefore create more in-depth results.

Data collection

The 24 companies were selected by purposely choosing corporations in different industries and branches. Accessibility as well as proximity influenced the choices in order to ensure the time-wise feasibility of the study. The mixture of companies from producing and service oriented industries should enlarge the expertise about the entrepreneurial function as it is anticipated that the entrepreneurial function should be able to be located independent of the industries or branches.

The interviews were carried out with the help of a semi-structured questionnaire in order to create a more structured way of analysis the data later on. During the interviews the researcher took handwritten notes but did not record the interviews because the interviewee might have felt uncomfortable talking about the main key drivers of entrepreneurial action within their corporation which creates the impression of evaluating colleagues, disciplinarians and employees. Right after the interview the researcher immediately reviewed the interview notes and complemented them so that the interview could easily be transcribed afterwards. Almost all of the interviews were conducted in German.

Data analysis

The analysis of rich interview data is a challenging and messy process. Therefore it is important to stick to a data analysis strategy. The first step in the analysis of the current research project was to

code the 438 pages of interview transcriptions case by case with the help of the computer assisted qualitative data analysis (CAQDAS) tool of NVivo. The coding process included a first cycle coding, also referred to as open coding, to see what is important or useful and to order the interview into themes. In the second cycle coding, the so called focused or theoretical coding it was tried to identify pattern, similarities, differences, frequencies and causations. Based on the second cycle coding results the analytic propositions could be derived. During that whole process of coding and analyzing from the interview transcripts analytic memo writing helped the researcher to reflect and write about choices, definitions, emergent patterns and categories – just like an analytic diary. It was further tried to sum up the analytic results and draw conclusions for the companies.

Ethical issues

The responsibility of conducting a research project that is ethical correct was taken into account during the whole research process. The interview partners knew that the interviews take place on a volunteering basis and that they could resign from the study at any time. However, the researcher had to deal with the balancing act of digging deeper into the subject and at the same time preventing the interviewees from any harm that could arise from probing into someone's opinion or insights.

Limitations of the study

Every research method has its limitations. Besides the inevitable bias of the investigator, and the general semantic uncertainties of interviews, a compromise had to be reached between the number of companies, the number of aspects, and the depth of the studies. Time constraints inevitably affect the depth of the study. Another potential obstacle of this qualitative approach is the relatively limited quantity of the samples. The case studies will represent at least an exemplary collection of experiences. However, the aim of this research was to collect data from as many companies as possible, in order to provide convincing interpretation opportunities. Furthermore, the replicability of the selective coding process might not be obvious for external readers during the whole process. In one interview, for example, the interviewee clearly stated that the new CEO and sales manager of their company can be seen as main driver of the entrepreneurial function. Later on, the interview partner kind of retracted his earlier statement by saying that there are entrepreneurs across all functions and hierarchical levels. The researcher already knew about the background of the company and used the analytical tool of selective coding to use the earlier clear statement of the interview partner for further interpretations. There are a few examples like this that happened during the coding process. However, it is tried to explain as many decisions about coding and interpretation moves as possible.

Quality of the research design

It is important to pay attention to certain quality criteria like rigour, validity and reliability. In order to ensure construct validity it is tried to use multiple sources of evidence by using the interview transcripts, the company information throughout the website as well as information about the organizational structure. It is further tried to establish a clear chain of evidence as thorough as possible. Within the phase of data analysis the analytic methods of pattern matching and explanation building are used which refers to the quality criteria of internal validity. The replication logic in the

multiple-case study helps to define the domain to which the study's findings can be generalized (Yin, 2007). But the relatively small sample of 24 case studies limits the basic possibilities of generalization. Anyhow, the compromise that had to be made according to generalizability also has the advantage that the in-depth study of the phenomenon indicates a higher precision in control and measurement of the behaviours interest and that the according context can be analyzed in greater depth as well.

4. Findings

The most important question of the study is concerned with the manifestation of the entrepreneurial function according to different functions and hierarchical levels within the organization. Due to the study design with 24 case studies it is also possible to develop propositions about the different sizes of companies. Therefore, five propositions can be suggested that are mainly related to different hierarchical levels, personal individuals and different functions. Furthermore, three propositions could be developed that refer to the special role of certain functions of labour division.

Hierarchical levels, personal individuals and different functions

The first main proposition concerns the hierarchical level of the organizations. Across all sizes of companies entrepreneurial spirit seems to be mostly found within the managing directors and the first management level. This is what seven interviewees of six small companies, 18 interviewees of seven midsized companies and 28 interviewees of nine large companies stated continuously.

The second proposition emerged within the midsized and large companies and states that people with responsibility for the company in any form tend to have more entrepreneurial spirit and engage in entrepreneurial action.

The third proposition refers to the question whether the entrepreneurial function is related to personal individuals of the organization. Midsized and large corporations clearly stated that personal individuals within the organizations play a key role for the entrepreneurial function which means that the entrepreneurial function itself is evaluated as being more related to people than to environmental settings or other preconditions.

The fourth proposition concerns the entrepreneurial function being carried out in a team. Three interviewees of two midsized corporations and 15 interviewees of 6 large organizations estimated the networking in interdisciplinary teams to be of great importance for the entrepreneurial function.

The fifth proposition only emerged within large companies. 16 interviewees of seven large companies evaluated that entrepreneurial spirit can be found on different hierarchical levels and is not only centred at the management level. Therefore, the entrepreneurial spirit seems to be less spread across different hierarchical levels and functions within small or midsized companies.

Special functions

The sixth proposition emerged throughout all sizes of companies and states that innovative ideas and entrepreneurial spirit mainly come from people in the organization who have direct customer contact. Therefore, the sales function within an organization is said to be critical for the entrepreneurial function to be carried out. Furthermore, this proposition seems to be strengthened as in three mid-sized and six large companies the director of the sales department was evaluated as being one of the key drivers of innovation within the organization.

The seventh proposition highlights that across all sizes of companies specially gifted technicians play an important role within the entrepreneurial function. This emerged mainly in producing companies but also in a few service-oriented engineering organizations. The specialised technical knowledge of these specially gifted technicians as well as their curiosity of how to come up with innovative products and solutions seems to be crucial for the entrepreneurial function. Furthermore, a management responsible is said to be important who truly perceives the value of this gifted technician and uses his power to promote different ideas.

The eighth proposition refers to the department of research and development. Within mid-sized and larger companies only a few people from the R&D department are evaluated to support the entrepreneurial function. Only six interviewees across all investigated corporations considered the entrepreneurial function to be present in the department of technological development.

5. Discussion

The main objective of this investigation was to find out where and how the entrepreneurial function can be found within the large corporation of today. The findings indicate that the size of the investigated company plays an important role in the way of how the entrepreneurial function can be interpreted. The study shows that in smaller companies the entrepreneurial function is very much centred to the main responsible persons like the managing director of the corporation who can be seen as the main driver of entrepreneurial action. It could be observed that within the mid-sized and larger companies of the sample more and more people and functions engage cooperatively into entrepreneurial action. Therefore, it can be stated that it seems that the entrepreneurial function as Schumpeter described is carried out cooperatively within larger companies. The propositions one to five support the finding that the larger the corporation gets the more the entrepreneurial function splits up on different hierarchical levels. That also means that in larger organizations not only members of the management team help the entrepreneurial function along but also certain employees on different levels. Further on, it is interesting to note that the personal individuals are emphasized to be important for the entrepreneurial function instead of certain environmental settings or preconditions like the organizational structure, the culture and climate or the information system of the corporation.

In addition to the hierarchical and person-related dimension it is important to discuss the role of special positions or functions as shown in proposition six, seven and eight. Entrepreneurial action seems to be

carried out by people who are engaged in direct customer contact. These people seem to notice the actual needs of the customers and therefore have a better sense of what the market is in need of. The resulting customer orientation enables the entrepreneurs to foster innovative ideas within their companies. This indicates that in addition to the organizational learning of individuals within an organization the theory of market pull and technology push is involved in the entrepreneurial function. The theory of market pull emphasizes the temporarily dissatisfaction of a customer's needs as the source of innovation (invent to order) and where the impulse comes from individuals of the customer group who are willing to articulate their actual needs (Brem and Voigt, 2009). On the other hand the theory of technology push can be characterized as creative or destructive action with new or major improvements where it isn't relevant if the actual market demand already exists (Walsh et al., 2002). That means that the source of innovative ideas come from internal and external research (Burgelman et al., 2004).

As described in proposition six and seven the two functions of the sales persons and the specially gifted technicians seem to be engaged into both tasks, market pull and technology push. The sales person undertakes questioning, observing and associating activities around customer problems and needs (Dyer et al., 2009). At the same time it seems to be important for the sales person to have a clear understanding of how far the company is able to develop the new innovation from a technological and engineering perspective. This is where the important function of the specially gifted technicians as Schumpeter described it seems to step in (Schumpeter, 1934). Therefore, these two functions can be interpreted as highly important to fulfil the entrepreneurial function cooperatively in the sense of the Schumpeterian description of initiating, creative and motivated persons who "see the new possibilities and are able to cope with the resistance and difficulties which action always meets outside of the ruts of established practice" (Schumpeter, 1989).

6. Further research

The current research project was designed as a cross-case and cross-industry investigation in order to gain as much insight into the entrepreneurial function as possible. However, it is suggested that further research concentrating on the entrepreneurial function in a single industry might be able to develop even more in-depth insights about the needs of a special industry related entrepreneurial function. Furthermore, the differences of the entrepreneurial function in producing and service oriented companies provide the basis for further research.

References

- Allen, T. J. and Cohen, S. I. (1969) 'Information Flow in Research and Development Laboratories', *Administrative Science Quarterly*, 14, (1), pp. 12-19.
- Argyris, C. (1965) *Organization and Innovation*. Irwin, Inc.
- Argyris, C. and Schon, D. A. (1996) *Organisational Learning II: Theory, Method and Practice*. Addison-Wesley: MA.
- Augsdorfer, P. (1996) *Forbidden Fruit - An Analysis of Bootlegging, Uncertainty and Learning in Corporate R&D*. Avebury, Ashgate Publishing Limited.
- Augsdorfer, P. (2005) 'Bootlegging and path dependency', *Research Policy*, 34, pp. 1-11.
- Augsdorfer, P. (2012) 'A Diagnostic Personality Test to Identify Likely Corporate Bootleg Researchers', *International Journal of Innovation Management*, 16, (1).
- Brem, A. and Voigt, K.-I. (2009) 'Integration of market pull and technology push in the corporate front end and innovation management - Insights from the German software industry', *Technovation* 29, pp. 351-367.
- Breschi, S., Malerba, F. and Orsenigo, L. (2000) 'Technological Regimes and Schumpeterian Patterns of Innovation', *The Economic Journal*, 110, (April), pp. 388-410.
- Brouwer, M. (2000) 'Entrepreneurship and Uncertainty: Innovation and Competition among the Many', *Small Business Economics*, 15, pp. 149-160.
- Burgelman, R. A., Christensen, C. M. and Wheelwright, S. C. (2004) *Strategic Management of Technology and Innovation*. McGraw-Hill Companies: New York.
- Chang, J. (2000) 'Model of Corporate Entrepreneurship: Intrapreneurship and Exopreneurship', *International Journal of Entrepreneurship*, 4, pp. 69-104.
- Cheah, H.-B. (1990) 'Schumpeterian and Austrian Entrepreneurship: Unity within Duality', *Journal of Business Venturing*, 5, pp. 341-347.
- Christensen, C. M. (1997) *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business School Press: Boston, Mass.
- Cohen, B. and Winn, M. I. (2007) 'Market imperfections, opportunity and sustainable entrepreneurship', *Journal of Business Venturing*, 22, pp. 29-49.
- Cohen, W. M. and Levinthal, D. A. (1990) 'Absorptive Capacity: A new perspective on learning and innovation', *Administrative Science Quarterly*, 35, pp. 128-152.
- Cope, J. (2005) 'Toward a Dynamic Learning Perspective of Entrepreneurship', *Entrepreneurship Theory and Practice*, July, pp. 373-397.
- Covin, J. G. and Slevin, D. P. (1991) 'A Conceptual Model of Entrepreneurship as Firm Behavior', *Entrepreneurship Theory and Practice*, 16, (1), pp. 7-25.
- Dosi, G. and Nelson, R. R. (1994) 'An introduction to evolutionary theories in economics', *Journal of Evolutionary Economics*, 4, pp. 153-172.
- Dyer, J. H., Gregersen, H. B. and Christensen, C. M. (2009) 'The Innovator's DNA', *Harvard Business Review*, December, pp. 60-67.
- Gartner, W. B. (1989) "'Who Is an Entrepreneur?' Is the Wrong Question", *Entrepreneurship Theory and Practice*, Summer, pp. 47-68.
- Garvin, D. A. and Levesque, L. C. (2006) 'Meeting the Challenge of Corporate Entrepreneurship', *Harvard Business Review*, October, pp. 102-112.
- Händeler, E. (2009) *Kondratieffs Welt - Wohlstand nach der Industriegesellschaft*. Brendow Moers.
- Hannan, M. T. and Freeman, J. (1977) 'The Population Ecology of Organizations', *American Journal of Sociology*, 82, pp. 929-964.
- Harrison, R. T. and Leitch, C. M. (2005) 'Entrepreneurial Learning: Researching the Interface Between Learning and the Entrepreneurial Context', *Entrepreneurship Theory and Practice*, July, pp. 351-371.

- Harvey, M., Kiessling, T. and Moeller, M. (2010) 'A view of entrepreneurship and innovation from the economist "for all seasons" - Joseph Schumpeter', *Journal of Management History*, 16, (4), pp. 527-531.
- Hauschildt, J. and Gemünden, H. G. (1999) *Promotoren: Champions der Innovation*. Gabler: Wiesbaden.
- Heavey, C., Simsek, Z., Roche, F. and Kelly, A. (2009) 'Decision Comprehensiveness and Corporate Entrepreneurship: The Moderating Role of Managerial Uncertainty Preferences and Environmental Dynamism', *Journal of Management Studies*, 46, (8), pp. 1289-1314.
- Howell, J. M. and Higgins, C. A. (1990) 'Champions of Technological Innovation', *Administrative Science Quarterly*, 35, pp. 317-341.
- Kamien, M. and Schwartz, N. (1982) *Market Structure and Innovation*. Cambridge University Press: Cambridge.
- Kirzner, I. M. (1973) *Competition and entrepreneurship*. The University of Chicago Press: Chicago and London.
- Knight, K. E. (1940) *Risk, uncertainty and profit*. London School of Economics and Political Science: London.
- Malerba, F. and Orsenigo, L. (1995) 'Schumpeterian patterns of innovation', *Cambridge Journal of Economics*, 19, pp. 47-65.
- McMullen, J. S. and Shepher, D. (2006) 'Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur', *Academy of Management Review*, 31, (1), pp. 132-152.
- Nelson, R. R. (1961) 'Uncertainty, Learning, and the Economics of Parallel Research & Development Efforts', *Review of Economic Statistics*, 63, pp. 351-364.
- Nelson, R. R. and Winter, S. G. (1982) *An Evolutionary Theory of Economic Change*. Belknap Harvard.
- Nonaka, I. (1991) 'The Knowledge-Creating Company', *Harvard Business Review*, November-December, pp. 96-104.
- Oberg, W. (1972) 'Charisma, commitment and contemporary organization theory', *MSU Business Topics*, 20, pp. 18-32.
- Pinchot, G. I. (1985) *Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur*. Harper and Row: New York.
- Salancik, G. R. and Pfeffer, J. (1978) 'Uncertainty, Secrecy, and the Choice of Similar Others', *Social Psychology*, 41, (3), pp. 246-255.
- Saunders, M. N. K., Lewis, P. and Thornhill, A. (2012) *Research Methods for Business Students*. Financial Times.
- Schon, D. A. (1963) 'Champions for radical new inventions', *Harvard Business Review*, 41, pp. 77-86.
- Schumpeter, J. (1934) *The Theory of Economic Development*. Harvard University Press: Cambridge, Mass.
- Schumpeter, J. (1942) *Capitalism, Socialism and Democracy*. Harper & Brothers: New York.
- Schumpeter, J. A. (1949) *Economic Theory and Entrepreneurial History - Change and the Entrepreneur; Postulates and Patterns for Entrepreneurial History*. Harvard University Press: Cambridge, M.A.
- Schumpeter, J. A. (1989) *Essays - On Entrepreneurs, Innovations, Business Cycles and the Evolution of Capitalism*. Transaction Publishers Brunswick, U.S. .
- Senge, P. M. (1990) *The Fifth Discipline*. Doubleday Currency.
- Shane, S. and Venkataraman, S. (2000) 'The promise of entrepreneurship as a field of research', *Academy of Management Review*, 25, (1), pp. 217-226.
- Smilor, R. W. and Feeser, H. R. (1991) 'Chaos and the Entrepreneurial Process: Patterns and Policy Implications for Technology Entrepreneurship', *Journal of Business Venturing*, 6, pp. 165-172.
- Tran, T. (2008) 'A conceptual model of learning culture and innovation schema', *Competitiveness Review: An International Business Journal*, 18, (3), pp. 287-299.
- Tushman, M. L. and O'Reilly, C. A. (1996) 'Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change', *California Management Review*, 38, (4), pp. 8-30.
- Ulhoi, J. P. (2005) 'The social dimensions of entrepreneurship', *Technovation*, 25, pp. 939-946.

- Utterback, J. M. (1996) *Mastering the Dynamics of Innovation*. Harvard Business School Press: Boston, Mass.
- Walsh, S. T., Kirchhoff, B. A. and Newbert, S. (2002) 'Differentiating market strategies for disruptive technologies', *IEEE Transactions on Engineering Management*, 49, (4), pp. 341-351.
- Witte, E. (1973) *Organisation für Innovationsentscheidungen: Das Promotoren-Modell*. Schwartz: Göttingen.
- Yin, R. K. (2007) *Case Study Research*. Sage Publications: Beverly Hills.