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Reconciling Corporate Entrepreneurship and Product Innovation: An Evolutionary Economic Overview

Kurumsal Girişimcilikle Ürün İnovasyonunu Bağdaştırmak: Evrimsel Ekonomi Açısından Bir İnceleme

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ABSTRACT

Corporate entrepreneurship is an important tool for creating and keeping competitive advantage. In the past decades, the interest of researchers in corporate entrepreneurship increased. Nevertheless, little has been written on the corporate entrepreneurship – product innovation nexus. It is a known fact that product innovations may create new markets and corresponding competitive advantages for firms. This review aims to reconcile corporate entrepreneurship with product innovation. The purpose of this review is therefore to provide an integrated framework of product innovation and corporate entrepreneurship based on recent findings. The results have both theoretical and practical implications.

ÖZ

Kurumsal girişimcilik, rekabet avantajı oluşturmak ve bunu korumak açısından önemli bir araçtır. Kurumsal girişimcilik son senelerde araştırmacıların dikkatini çekmiştir. Buna rağmen kurumsal girişimcilik – ürün inovasyonu bağlantısıyla ilgili az sayıda çalışma bulunmaktadır. Ürün inovasyonunun yeni piyasaların oluşumu ve buna bağlı olarak inovasyonu sunan şirkete rekabet avantajı kazandırması özellikleri bilinmektedir. Bu derlemenin amacı, kurumsal girişimciliği ürün inovasyonu ile bağdaştırmaktır. Bu bağlamda amaçlanan, literatürde yer alan çalışmalardan yola çıkarak bu iki unsuru bağdaştıran bir çerçevenin ortaya çıkmasıdır. Bu derlemenin sonuçlarının hem kurumsal hem de uygulamalı çıkarımları vardır.

1. Introduction

At the beginning of 1970s, a group of IBM Germany employees (four present and a former) noticed that there was a pattern in the needs of the customers they consulted on what kind of business software they ordered, and aimed to offer a standardized, integrated software program that would enable data processing in real time in order to meet the demand – something that was not available back then. When they talked to IBM Germany's managers about their idea, the managers gave them a cold shoulder, saying that the idea was

not only worthless, but also not realizable. After resigning from IBM Germany, they established their own firm to commercialize this product innovation. 50 years later, the firm is known as SAP (Systems, Applications and Products in Data Processing) and it is worldwide the leading firm in business software industry (Erkut, 2018a, 2018b). This may be one the most famous stories of successful product innovation and the corresponding stage of pioneer market shaping. Especially with regard to IBM Germany's decision of rejecting the development of such a software program in

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IBM Germany facilities in the first place is subject to discussion, emphasizing the lack of corporate entrepreneurship (Audretsch & Link, 2012; Erkut, 2018b). Audretsch & Link (2012) come to the conclusion that it is the knowledge filter, defined as a filter that “prevents or impedes knowledge accruing from investments made by incumbent firms and other organizations from actually being implemented and commercialized by that incumbent firm” (Audretsch & Link, 2012: 12), which prevented IBM Germany managers to accept and encourage the development of the idea (and the corresponding new product) within IBM facilities. According to the authors, this uncertainty is in the nature of new ideas forming the background of innovative activities; no one can predict their outcome or potential and judge them accordingly (Audretsch & Link, 2012).

The question that is still unanswered is whether corporate entrepreneurship can exploit such opportunities which are based on new ideas and – by their very nature – involve a high degree of uncertainty and risk. Corporate entrepreneurship can provide a means to an incumbent firm for exploiting new profit opportunities. Apart from new profit opportunities, it can also revitalize organizations and enhance productivity (Zahra, 2015).

In the recent years, the interest of scholar community on corporate entrepreneurship has grown. Nevertheless, research gaps still exist that need to be closed. To be more specific, (Popowska, 2020) mentions that corporate entrepreneurship literature is a predominantly quantitative literature, indicating critical problems such as sample size or the quality of respondents. The author concludes that there is a research gap in qualitative, conceptual-theoretical studies in corporate entrepreneurship and another research gap in the multitude of the measurement tools for corporate entrepreneurship. Hence, the author concludes that more emphasis should be given on understanding the basic concepts of corporate entrepreneurship and linking them to concepts of relevance in order to clarify the measurement problem. In addition, the research by (Tseng & Tseng, 2019) highlights that there may be a heterogeneity across different industries or firms regarding their corporate entrepreneurship activities. Therefore, basic concepts underlying this heterogeneity need to be explored in detail in order to show their relation and their common features across firms and sectors. By discussing these unexplored areas of corporate entrepreneurship, it should also be said that it is not only the entrepreneurial part, but also the innovative part which constitutes a challenge for research. A recent literature review by (Erkut, 2020) indicates that product innovation remains as the black box in the economics and business literature; and a more challenging issue is whether and how established firms can break the chain of the knowledge filter (Acs, Audretsch, Braunerhjelm, & Carlsson, 2004). These are the points of departure of this research. The author aims to provide a theoretical overview of reconciling corporate entrepreneurship with product innovation.

As early as 1994, it has been identified that “the necessary activities of product innovation do not fit into the institutionalized practices in large old firms. These activities either violate the existing system of thought and action, or fall into a vacuum where no shared understandings exist to make them meaningful.” (Dougherty & Heller, 1994: 201).

According to Ben Arfi & Hikkerova (2019) as well as Kuratko, Hornsby, & Hayton (2015) and (McFadzean, O’Loughlin, & Shaw, 2005), there is a need to develop a better understanding of the links between corporate entrepreneurship and innovations, especially from the theoretical perspective. Since the literature on innovation primarily deals with process innovations, there is also a gap in understanding product innovations from an economic point of view (Erkut, 2016b, 2020). (Ireland, Kuratko, & Morris, 2006) indicate that 21st century is a century of knowledge and ideas being strategically more relevant than physical assets a firm possesses. As knowledge and ideas can be turned into commercially valuable assets by means of innovations, ways of utilizing new and commercially relevant ideas in established enterprises require more attention. How corporate entrepreneurship can be utilized as a tool to provide fertile grounds for the emergence of product innovations remains as a black box in the entrepreneurship literature. This article aims to provide a contribution to the attempts of closing these research gaps, since reconciling corporate entrepreneurship and product innovation can provide interesting insights to both research and practice (Jennings & Young, 1990). The rest of the paper is organized as follows. In part 2, the study design will be explained. In part 3, entrepreneurship and in particular corporate entrepreneurship will be explored. In part 4, innovations and in particular product innovations will be explored. The concepts of product innovation and corporate entrepreneurship will be unified in the theoretical framework of evolutionary economics in part 5. The concepts will be further discussed in part 6, in which both conclusions and recommendations will be provided.

2. Study Design

This paper utilizes exploratory-qualitative research in terms of a literature review in order to identify an approach for reconciling corporate entrepreneurship and product innovation. Keywords (entrepreneurship, corporate entrepreneurship, innovation, product innovation, new product development) were identified to use in the search for the relevant literature. Afterwards, databases were identified for the search phase. These include several electronic databases available via the BAU Global Network, including journals, proceedings, books; online sources such as Google Scholar and content aggregators such as Web of Science and online libraries accessible via the BAU Global Network. Within these sources, all years available were included in the analysis.

The search procedure continued by identifying relevant papers in which the terms “entrepreneurship” and “corporate entrepreneurship” were crossed with “innovation”, “product innovation” and “new product development”. Articles were screened by focusing on their relevance; those which did not primarily deal with the focus of this research were eliminated accordingly. In addition, those papers or books which only briefly mentioned the aforementioned concepts, but did not analyze them in depth, were also eliminated. These steps are important, since the literature on corporate entrepreneurship includes a multitude of aspects that are not restricted to innovation only.

In order to achieve the desired outcome of reconciling corporate entrepreneurship and product innovation, firms

need to overcome the knowledge filter, but this may not be an easy obstacle to overcome. In order to help firms reconcile these two concepts, a study framework is developed following the advice by (Chebbi, Yahiaoui, Sellami, Papisolomou, & Melanthiou, 2020). The study framework is conceptualized in Figure 1 and indicates that the firm, together with its internal stakeholders is the point of departure of this reconciliation. Through efforts of the change management, entrepreneurial conditions should be provided for the emergence of new ideas, which, through corporate entrepreneurship, can turn into new products that can shape the market.

The study design is based on the final block of the framework, i.e. what literature can deliver as inputs to reach to the point of the reconciliation of product innovation and corporate entrepreneurship. Whereas (Chebbi et al., 2020) mainly focused on implementing an organization-wide strategy to explain internal stakeholders why change is necessary in the firm, the current study specifies the adaptation of corporate entrepreneurship in a specific setup, that is, to overcome the knowledge filter.



Figure 1: Study Framework.

The choice of the theoretical framework for this study is evolutionary economics. Evolutionary economics as opposed to neoclassical economics focuses on the emergence of non-foreseeable novelties such as product innovations and analyzes their emergence as well as dissemination by means of action-generated processes that are non-predictable (Erkut, 2020). Evolutionary economic models are suitable for the analysis of entrepreneurial and innovative activities, since the mechanism behind these activities goes back to a new-to-the-world idea, which is groundbreaking and unpredictable. In the particular context of the study, the hitherto disconnected notions of corporate entrepreneurship and product innovation can be unified in this particular framework, since the connecting element goes through the generation of new knowledge – and neoclassical models of economics of innovation can only deliver an optimal outcome based on the set of all possible outcomes (Erkut, 2020). Such a scenario, in turn, implies that all possible outcomes are known, which is a contradiction to the uncertain and unpredictable nature of innovations – in particular, product innovations, which shape new markets or new market segments.

3. Entrepreneurship and Corporate Entrepreneurship

In the context of this article, entrepreneurship is defined as the process of recognizing the commercial potential of an invention and organizing the necessary capital, talent and other resources in order to turn an invention into an innovation (Audretsch et al., 2002). Even though this definition may seem straightforward to the reader, entrepreneurial studies are far from being complete. Entrepreneurship and entrepreneurial behavior has been on the agenda of researchers latest since the famous contributions of Joseph Alois Schumpeter (1934, 1976). Both in terms of research, teaching and societal valuation, entrepreneurship has given great importance in the last decades. Schumpeter's theory on creative destruction implies that a dynamic economy is characterized by entry and exit of firms as a result of entrepreneurial activities turning new ideas into new products or services (Block, Fisch, & van Praag, 2017). However, even within the Schumpeterian contributions, there is the distinction between the perspective of the young Schumpeter and the old Schumpeter. Young Schumpeter observed the entrepreneur who makes new combinations as the source of innovation (Schumpeter, 1934), whereas old Schumpeter viewed large and established firms as the source of innovation (Schumpeter, 1976). These two hypotheses of Schumpeter are known as Mark I and Mark II in the literature, and in a way, Mark I identifies an innovative entrepreneur without a firm, whereas Mark II identifies an innovative firm without an entrepreneur (Block et al., 2017). This does not mean that these were two incompatible perspectives; rather, he proposed that "there is an evolutionary progression over time of different regimes of innovation and entrepreneurship" (Granstrand & Alänge, 1995: 134). However, due to this historical lock-in effect, theories of entrepreneurship either ignored the role of the firm in this setup, or the role of the entrepreneur (Witt, 1999). Some exceptions in this case are Casson (1982), Erkut (2016), Foss (1994, 1998) and Witt (1998, 1999). Nevertheless, the connection between the entrepreneur as a person and his or her firm as an organization did not attract the interest of researchers to a large extent.

In the context of this article, corporate entrepreneurship is defined as "the carrying out of innovations by existing privately owned firms (small or large)" (Granstrand & Alänge, 1995: 136). Covin & Miles (1999) give the most common examples of corporate entrepreneurship as the cases of (1) an established firm entering a new business, (2) individual(s) focusing on new product development in a corporate context and (3) the change in the organizational perspective and operations as a result of an entrepreneurial philosophy. Within this background, corporate entrepreneurship is one of the stages of the evolutionary progression in the theory of Schumpeter, starting from the one-man show of the entrepreneur, after which the entrepreneur conceptualizes his business idea and organizes his activities within a corporation in case of success (Witt, 1999). Nevertheless, as recently pointed out by (Popowska, 2020), this evolutionary progression is not separable from a constant evolution of the domain and the definition of corporate entrepreneurship. The concept overlaps with concepts like intra-corporate entrepreneurship (Pinchot III &

Pinchot, 1978), intrapreneurship (Antoncic & Hisrich, 2001), entrepreneurial orientation (Hornsby, Kuratko, & Zahra, 2002; Knight, 1997; Miller, 1983), and corporate venturing (Vesper, 1990). According to (Danışman & Erkocaoğlan, 2007), these and similar terms are used interchangeably but all refer to organizational activities towards innovativeness and entrepreneurship. In addition to this heterogeneity in definitions, the nature of corporate entrepreneurship changed in the highly digitalized, globalized 21st century (Morris, Kuratko, & Govin, 2010).

One of the early works regarding corporate entrepreneurship is the work by Miller (1983) who used a typology of firms to explore the antecedents of corporate entrepreneurship. This typology involved three types of firms (simple, planning, organic) and the empirical analysis resulted in showing that in case of simple firms, corporate entrepreneurial activities were largely determined by the characteristics of the leaders; in case of planning firms, these activities were largely determined by well planned and executed product-market strategies; and in case of organic firms, these were largely influenced by the environment and the firm structure. Kanter (1985) also focused on corporate entrepreneurship in terms of identifying that managing an established firm involves a conflict of administrative management and entrepreneurial management. To be more specific, established firms very often fail to recognize different needs of these two types of management, but they need both in order to ensure that the firm is both efficient and innovative. identifies that innovations and new ventures are associated with four types of properties: uncertainty, knowledge-intensity, competition with alternative courses of action, and boundary-crossing.

Influenced by Miller's findings, Shaker A. Zahra investigated corporate entrepreneurship activities and their antecedents. The author found out that environmental factors, strategical factors as well as organizational structures and values are all associated with corporate entrepreneurship, and gave empirical evidence of positive contributions of corporate entrepreneurship to the financial performance of the observed firms (Zahra, 1991). Zahra (1993) delivered empirical evidence that in growth environments, corporate entrepreneurial activities would emerge, whereas static environments were negatively influencing corporate entrepreneurial and renewal activities. Zahra (1996) identified that perceived technological opportunities may positively influence corporate entrepreneurship. Even though financial outcomes of corporate entrepreneurial activities are known (Zahra, 1993), what is more important is that corporate entrepreneurship can contribute to the emergence of new knowledge. Over the course of corporate entrepreneurial activities, participants of these activities not only accumulate knowledge, but also transfer it (Zahra, Nielsen, & Bogner, 1999). Through the accumulation and transfer of knowledge, new knowledge is created which serves as the initial step of introducing novelties (Zahra, 2015). From Zahra's contributions, one can identify that corporate entrepreneurship involves the creation of new knowledge serving as the basis of new products or services – in other words, corporate entrepreneurship is a knowledge generation process within a firm. From the previous literature, one can identify the following antecedents of corporate entrepreneurship (Antoncic, 2007; Antoncic & Hisrich, 2001; Covin & Slevin, 1991; Hornsby

et al., 2002; Khandwalla, 1977; MacMillan, 1986; Merrifield, 1993; Zahra, 1986, 1991, 1993): corporate culture, firm structures, top management support, organizational values, communication, perceiving the environment, reward structures, autonomy, mission strategy, control mechanisms, risk taking, availability of resources, working environment, loose hierarchies, competitive tactics. These can boil down to three factors of environmental aspects (perceiving the environment, availability of resources), organizational factors (corporate culture, firm structures, top management support, working environment, loose hierarchies, risk taking) and strategic factors (communication, reward structures, autonomy, control mechanisms, mission, strategy, competitive tactics). In the analysis of Guth & Ginsberg (1990), the organizational factors can be sub-divided into organizational conduct and organizational performance, but since the primer of Zahra (1991), these three factors usually dominate the literature.

According to Kuratko et al. (2015), the six core topics that dominate the literature about corporate entrepreneurship since the last few decades are defining the concept of corporate entrepreneurship, management focus, implementation of corporate entrepreneurship, developing metrics and assessment methods, and aligning corporate venturing and strategic entrepreneurship. The authors mention that these six core topics cannot remain alone to be studies, and highlight some of the more recent topics that are emerging. More recently, the interest in corporate entrepreneurship came mainly from the direction of strategic management (Acs, Stam, Audretsch, & O'Connor, 2017; Boone, Lokshin, Guenter, & Belderbos, 2019; Burgers & Covin, 2016; Kearney & Morris, 2015; Kuratko et al., 2015; Turner & Pennington, 2015). This dominance of the strategic management scholars in the literature of corporate entrepreneurship necessarily shifted the discourse more towards topics such as diversity of top management and its influence to corporate entrepreneurship (Boone et al., 2019), high-impact "Unicorn" ventures (Acs et al., 2017), motivation-opportunity-ability frameworks to enhance the knowledge sharing culture within firms (Turner & Pennington, 2015), structural differentiation and integration (Burgers & Covin, 2016), strategic renewal in public sector organizations (Kearney & Morris, 2015) and strategic renewal and innovative business models (Kuratko et al., 2015). While both the conventional and the more recent topics are worth studying, the fact that innovation literature is more leaning towards process innovations leaves the attempt of reconciling corporate entrepreneurship and product innovation as a deserted research area. An early work by (Jennings & Young, 1990) focuses mainly on the measurement issues, in particular, the authors focus on comparing subjective and objective measures of corporate entrepreneurship and product innovation and highlight that objective and subjective measures of product innovation in the context of corporate entrepreneurship can be used interchangeably. A recent exception in this case is, as mentioned earlier, the research done by Ben Arfi & Hikkerova (2019). While still remaining in the motivation-opportunity-ability framework, the authors employed a longitudinal multi-case study approach and found out that corporate entrepreneurship has a positive impact on product innovation, and this impact is enhanced by the presence of

digital platforms, which can serve as a means of knowledge sharing.

4. Innovation and Product Innovation

In the context of this article, innovation is defined as “the first introduction of a new product, process or system into the ordinary commercial or social activity” (Freeman, Clark, & Soete, 1982: 201). In the context of this article, product innovation is defined as “a product, made available to potential users, that is new or significantly changed with respect to its characteristics or intended uses” (Gault, 2018: 619). In the contemporary perspective, the distinction between process innovation and product innovation indicates that product innovation is the introduction of a new product with a commercial value to the market (Erkut, 2016b). According to a Boston Consulting Group Senior Executive Innovation Survey, 70% of senior executives participated considered that new products play an important role in their firm’s future; furthermore, 72% of the participants considered innovations as one of the top three priorities for their firm (Andrew, Manget, Michael, Taylor, & Zablit, 2010).

Product innovations start with the perception of the environment and continues with recognizing patterns from the environment. The latter leads to the emergence of new knowledge, such as new goods or new services. New knowledge alone is not enough for the penetration into the new market or new market segment. Instead, business conceptions are required to conceptualize a business idea out of this new knowledge. This is done by the capabilities, with which an artefact emerges and shapes the market. So far, this paragraph offers the brief summary of the conceptual model of product innovation and market shaping in the contribution of Erkut (2016). This conceptual model goes back to the contributions of F. A. von Hayek, Ulrich Witt and Joaquin Fuster on the related topics, and offers an evolutionary/cyclical perspective to the emergence of new ideas and their transformation into new products, with which markets can be shaped in an open-loop evolving environment.

The importance of product innovations lies in their value for creating and keeping a competitive advantage by matching needs of the customers with technology, expanding the product portfolio and shaping new market segments (Kuncoro & Suriani, 2018). Whereas creating a competitive advantage may occur many times, keeping it by further product innovations seem to be problematic for many firms (Erkut, 2018a). However, this does not mean that achieving further product innovations to remain competitive is a Herculean task. On the contrary, a firm requires the necessary conditions for the product innovation to be emerged, since we can only provide the necessary conditions for the emergence of new knowledge – but we cannot plan it precisely (Lampel, Mintzberg, Quinn, & Ghoshal, 2014). An important contribution in the literature on corporate entrepreneurship regarding the role of innovations is done by Baden-Fuller (Baden-Fuller, 1995). In his contribution, Baden-Fuller argues that creating and keeping a sustainable competitive advantage goes through the capacity to manage the change internally, and managing the change internally is associated with corporate entrepreneurship (Baden-Fuller, 1995). To be more precise, in Baden-Fuller’s point of view,

innovation is associated with changing the patterns of behavior within the firm (a notion that is related to the resource-based view of the firm), with which new knowledge, new routines and new capabilities can emerge. For the emergence of new patterns of behavior within the firm, corporate entrepreneurship is required. Corporate entrepreneurship can build up and increase the capacity of the firm to focus on innovations in a strategically faster way than its competitors (Baden-Fuller, 1995). Whereas this may sound pretty much straightforward and no news to the researchers and practitioners, one should not forget that there is no ready-made recipe to apply for such complex phenomena, as firms differ from each other in many aspects, and the entities which constitute firms have different relations among each other in each case.

Regarding its ability to increase the capacity of the firm to focus on innovations, corporate entrepreneurship can be described based on four dimensions (Antoncic & Hisrich, 2001): new business venturing, innovativeness, self-renewal, and proactiveness. These are also the building blocks of the Schumpeterian entrepreneurship concept discussed earlier. In this four dimensional perspective, innovativeness is associated with new technologies, and in particular, product and service innovations as well as process innovations. A factor that has an impact on product innovation is technological leadership. Whereas some authors argue that the impact is of positive nature (Covin & Slevin, 1991), others conclude that technology leadership actually impedes new product development, and hence, product innovations (Kusunoki, 1992). Others, for example Erkut (2016a) and Schirmer and Ziesche (2010) propose that managing diversity and diversity of ideas should be bottom-up, and include the strengthening of self management and self control as firm policy requirements that are necessary for the emergence of innovations. As a more fuzzy approach is also the case with new product development (Erkut, 2016b), Hampel, Perkmann, & Phillips (2020) propose that corporate entrepreneurial innovators should distance themselves from a strict step-by-step planning approach to use more experimentation in their activities. Experimentation, defined as “a systematic way for entrepreneurial innovators to learn about market opportunities and how they may exploit them” (Hampel et al., 2020: 2), has a set of unique properties that can create a distinction of this method in comparison to other methods of innovation management. According to Hampel et al. (2020), experimenting with innovations can match the supply of ideas and capabilities with the customer demand by focusing on the problems of the target customer groups. In addition, instead of strict market research results, the innovation process can be an emergent one by focusing on hypotheses regarding the needs and problems of customers, and sequentially moving towards a refinement of these hypotheses to reach a satisfactory product-market fit.

Regarding innovation and corporate entrepreneurship, recent approaches (Erkut, 2016a; Lee, Lee, & Garrett, 2019; Morris et al., 2010; Ramadani et al., 2019; Tseng & Tseng, 2019) focus on the impact on firm performance. Erkut (2016a) explores how innovators in SAP Labs India perceive the innovation process within their organization, and indicate that being close to customers and self-empowerment provide fertile grounds for innovative activities in SAP Labs India. Lee et al. (2019: 2) indicate that firm exploration, defined as

“the experimentation with new alternatives that have returns that are uncertain, distant, and often negative”, has positive impacts on radical product innovation activities. According to the authors, radical product innovation activities, in turn, have a positive effect on firm performance. In particular, quick changes in customer preferences and short life cycle of new products, employing product innovation activities gives high-tech firms a chance to survive (Lee et al., 2019). The book by (Morris et al., 2010) indicates that corporate entrepreneurship and innovativeness is an interplay of a number of factors such as culture, strategy, structure as well as human resources. The authors conclude that corporate entrepreneurship should be tied up with a sense of freedom in the organization, combined with a necessary capital in order for new ideas to emerge, and successfully turn into innovations. Ramadani et al. (2019) focus on transition economies, and deliver empirical evidence for the positive impact of product innovation on firm performance. In addition, a positive relation between time being spent on innovation and the decision to innovate is identified. Regarding ways of increasing corporate entrepreneurial activities in terms of increasing the innovation performance of firm employees, Tseng & Tseng (2019) identify six strategies, which are (1) motivating employees to focus on innovative behavior, (2) concentrating entrepreneurial ventures through an organization-within-corporation approach, (3) supporting innovative-minded employees to discover and utilize their full potential, (4) giving incentives to corporate entrepreneurs, (5) encouraging employees to employ a broad perspective with respect to the organization, and (6) educating employees on issues related to corporate entrepreneurship. In an empirical analysis, (Kassa & Satya Raju, 2014) indicate the following factors of corporate entrepreneurship which can contribute to innovations: (1) Management support, (2) rewards, (3) autonomy and (4) time availability. According to the authors, the organizational structure of a firm needs to be redesigned to utilize these factors for an entrepreneurial orientation. Similarly, (Bulut, Fiş, Aktan, & Yılmaz, 2008) indicate that supporting innovative ideas in a firm can lead to an overall innovative tendency in that firm, which can retain in the firm culture as a characteristic, and can lead to long term competitive advantages.

5. Corporate Entrepreneurship and Product Innovation

The previous two sections explained the concepts of corporate entrepreneurship and product innovation separately. The aim of this section is to unify both concepts in a theoretical framework. This theoretical framework should serve as a reconciling tool for corporate entrepreneurship and product innovation both for research and for practical purposes.

The starting point is the contribution by (Erkut, 2016b). The contribution of (Erkut, 2016b) focuses on a four dimensional, cyclical explanation of the product innovation and the corresponding pioneer market shaping phase. The uniqueness of this model is that it overcomes the weaknesses of Mark I and Mark II by focusing on innovation and capabilities in a unifying framework. The author's focus on product innovation and market shaping starts with the nano dimension (perceptions). In the nano dimension, the

individual actor (or actors) perceive the world around them, and out of their perceptions, new and subjective knowledge is generated, corresponding to the micro dimension. So far, these two dimensions describe how an idea emerges and can lead to the generation of new knowledge, for example, in the form of a product innovation.

However, just like the case of the emergence of SAP's product innovation, shaping a new market is not restricted to the introduction of a product innovation only (Erkut, 2016b). The basic difference between an invention and an innovation is the commercial value of the latter (Erkut, 2020), however, the process does not stop at the point of having a new product.

Instead, the product innovation, which is the invention of a new product with a commercial value, further needs to be situated in a business model. A product innovation's commercial value is undisputable, but the business model is required so that the technological knowledge embodied in the product innovation can reach out to the market in terms of a commercial, market shaping entity. In other words, market shaping is not only about “what” the new product is, but “how” the new product is going to be made into an artefact, with which capabilities of employees, with which technological conditions, market conditions, incentives, support mechanisms, enabling factors, impediments and so on... The successful transformation of a product innovation into an artefact goes through the meso dimension, which corresponds to capabilities. However, the process does not stop at the macro dimension of the introduction of an artefact to the market, but rather goes back to the nano dimension, and through that way, the cycle continues. This is so far a fair summary of the model developed in (Erkut, 2016b).

In the following, the four dimensional theoretical model will be utilized to assign the findings from the literature for reconciling product innovation and corporate entrepreneurship.

The Nano Dimension: Perceptions

The starting point of any innovative idea is considered as the perception of the environment in the broad sense (combining ecological, social and business-related issues). In the theoretical model of Erkut (2016b), this is the nano dimension, and for influencing the perceptions of employees in order to reconcile product innovation and corporate entrepreneurship, the first step should be to focus on the perceptions of the employees as potential corporate entrepreneurs. How the perceptions of the employees can be influenced, according to the analyzed research, can be done by a number of activities and policies. An active role is assigned to the organizational structure and policies of a firm, as proposed by (Antoncic & Hisrich, 2001; Baden-Fuller, 1995; Bulut, Fiş, Aktan, & Yılmaz, 2008; Covin & Miles, 1999; Erkut, 2016a; Hampel, Perkmann, & Phillips, 2020; Kassa & Satya Raju, 2014; Schirmer & Ziesche, 2010; Tseng & Tseng, 2019; Zahra, 1996). These organizational policies include employing an entrepreneurial philosophy to change the organizational routines (Baden-Fuller, 1995; Covin & Miles, 1999), giving the employees freedom to go into new directions by means of employing self management, self control, proactiveness and renewal policies (Antoncic & Hisrich, 2001; Erkut, 2016a; Schirmer & Ziesche, 2010), allowing them to experiment with new

ideas (Hampel, Perkmann, & Phillips, 2020) and creating the conditions for the employees to perceive technological opportunities (Zahra, 1996). An important issue pointed out in the literature is the support environment to influence perceptions by means of incentives and education (Bulut, Fiş, Aktan, & Yılmaz, 2008; Kassa & Satya Raju, 2014; Tseng & Tseng, 2019).

The Micro Dimension: Knowledge

Once the perceptions are being formed, the issue that comes up next is how new knowledge can be generated based on the perceptions of the employees. In other words, out of the individual knowledge on the cognitive level, market quasi-knowledge is generated by means of a technological novelty (Erkut, 2016b). Here, the focus of attention should be what happens to individual and tacit (non-codified) knowledge in the minds of the employees, and results of the literature review indicate that knowledge sharing is a central issue for the generation of new knowledge (Ben Arfi & Hikkerova, 2019; Zahra, 2015). Since corporate entrepreneurship and product innovation cannot be isolated from the social context, an important implication regarding knowledge sharing is given in the work by (Ben Arfi & Hikkerova, 2019). The authors provide empirical evidence that digital platforms can enhance knowledge sharing. Since the implications of COVID-19 and the “new normal” mode of working in home office seem to be long-lasting, and influencing the nature of how corporate entrepreneurial activities will be realized, digital platforms can emerge as a tool to enhance the generation of new knowledge in the form of product innovations. Zahra (2015) makes a similar comment on knowledge sharing. The perspective by Zahra (2015) implies that knowledge and technology transfer are relevant activities for the emergence of product innovations. Finally, the book by Morris et al. (2010) highlight that in addition to the freedom to develop new products, the necessary capital for their development is also a must for corporate entrepreneurial activities targeting product innovations.

The Meso Dimension: Capabilities

In the following, a particular issue of the model should be highlighted: The meso dimension of capabilities, or, how new and subjective knowledge can be transformed into an artefact. This is a relevant issue from the perspective of corporate entrepreneurship, because, as the initial example of SAP also suggests, not being able to develop a new idea into an artefact is an impediment in front of a product innovation. In the case of SAP, this has occurred right after the interaction between the founder team of what later became SAP, and the management team of IBM. Here, the results of the literature review put an emphasis on the organizational framework (Kanter, 1985; Lampel, Mintzberg, Quinn, & Ghoshal, 2014; Tseng & Tseng, 2019; Witt, 1999). To be more specific, an emphasis is put on the conflict at the managerial level, precisely between entrepreneurial and administrative management (Kanter, 1985). This is a potential area of conflict which needs to be resolved in order for the product innovation to turn into an artefact, and shape the market successfully. Related to this issue, organizational conditions need to be planned which can either lead to the further development of the product innovation, or lead to its abandonment (Lampel, Mintzberg,

Quinn, & Ghoshal, 2014), the latter being the case of IBM's decision to prevent the further development of what later became SAP. Of course, the only burden is not on the shoulders of the managerial decision making. Creating a business conception requires all the stakeholders having a common cognitive framework (Witt, 1999), and this precisely the transformation from a product innovation to a ready made artefact with a business model (Erkut, 2018a). In this setup, incentives can be given to further develop new products, or launching a separate organizational unit within the firm to develop the idea further (Tseng & Tseng, 2019).

The Macro Dimension: Artefacts

Finally, artefacts as the macro dimension of the four dimensional model need to be considered. In the approach by Erkut (2016b), the competition on the market level is in terms of artefacts. Hence, a question can arise on whether this should be a relevant issue for product innovations. The relevance is twofold: First, on the theoretical level, the process does not stop at the dimension of artefacts but goes back to perceptions, i.e. even when an artefact emerges and reaches out to the relevant market, the process may continue and the perceptions of the employees can be influenced by *both* existing and imagined artefacts. Second, a product innovation does not necessarily mean that the product is new-to-the-world in every context and occasion. A process innovation in one market segment may correspond to a product innovation in another market segment (Erkut, 2016b) and this requires perceptual skills to match customer demands with technologies. Hence, also at this point, the dimension of artefacts is required to be integrated into the corporate entrepreneurial approach towards product innovations. This is the precise result by (Koncero & Suriani, 2018) implying that corporate entrepreneurial activities should target matching demand with technology, and by doing so, if there is a mismatch, the cycle should re-start with perceptions generating new knowledge that can eventually lead to a product innovation hitting that particular segment of customers with unmatched demand.

6. Discussion and Conclusion

Corporate entrepreneurship, by its very nature, involves an entrepreneurial activity within an established organization. The results of this activity, when successfully done, can increase the profits of the firm, initiate a corporate renewal process and can create and keep a competitive advantage in a highly competitive, quickly changing business environment. One of the important sources of keeping and creating a competitive advantage for a firm is introducing a new-to-the-world product based on a product innovation. Usually one observes product innovations coming out of start-ups or even individual entrepreneurs, corresponding to the Schumpeter Hypothesis I (Mark I), but established firms introducing new products seem to be a seldom phenomenon. Reconciling corporate entrepreneurship with product innovation not only can help established firms introduce new products to the market and shape new market segments, but it can also help established firms for an overall corporate renewal. In the literature, product innovations continue to be a black box for many (Erkut, 2020); this lies in the difficulty of modeling the emergence of a new idea, its transformation into new knowledge and how it shapes a new market

segment. However, recent approaches from the field of evolutionary economics provide interesting and relevant explanations in this sense. Important elements in this theoretical framework turn out to be perceptions of individuals and how they recognize patterns from their surroundings, as well as their capabilities to conceptualize new knowledge in terms of business. These two notions can be expanded both in theoretical and in practical perspectives, as it is known that we cannot plan innovations but we can provide the conditions, out of which innovations can emerge. With respect to these conditions, environmental, strategic and organizational aspects need to be adopted to support corporate entrepreneurial activities. Not only is this possible through supporting the emergence of new ideas by empowering employees and allowing them to take a look at their surroundings from different perspectives, but it is also important that firms give enough time budget for innovative ideas.

Understanding the processes of corporate entrepreneurship and the emergence of product innovations may prove fertile grounds both for theory and for practice. From the theoretical perspective, exploring corporate entrepreneurship as an accelerator of product innovations is a new topic in research that deserves more attention, since product innovations not only provide competitive advantages for firms, but they also offer an explanation of the pioneer market shaping phase, that is often ignored by innovation, marketing and entrepreneurship research. From the practical perspective, corporate entrepreneurship can be designed and utilized as a tool for the emergence of product innovations. Of course, in this setup, industry-specific, firm-specific and resource-specific properties highlight the importance of the fact that no one-size-fits-all approach of corporate entrepreneurship exists. Instead, firms need to focus on understanding themselves – also by listening to their employees – in order to develop and adopt their own strategy of corporate entrepreneurship. In this sense, the four dimensional evolutionary economic framework can help the firms and the researchers alike to understand the conditions of the emergence and implementation of product innovations in the context of corporate entrepreneurship. It should be reminded that the nature of this study is explorative; further research should utilize the findings of this explorative literature review in order to provide empirical cases of product innovation within a corporate entrepreneurship setup. Furthermore, another venue in further research agenda should be to explore the common antecedents of corporate entrepreneurship and product innovation from a theoretical-conceptual perspective. Last, but not least, further research should go beyond the determined link between product innovation and corporate entrepreneurship to explore and validate measures of organizational structure, change management and future oriented competitiveness development to see not the “whether” of it, but “how” product innovation and corporate entrepreneurship can reconcile. In case of the corporate entrepreneurship-product innovation nexus, a specific topic for further research can be with regard to the role of leadership fostering this process, especially in case of next generation entrepreneurship. With these ideas for further research, the author concludes that corporate entrepreneurship can be used as a tool for developing new products, which, in turn, may create and shape new market segments and provide fertile grounds for

the firm to increase its competitiveness in a rapidly evolving business environment. Through this way, firms can develop a strategy to overcome the knowledge filter, which is, in its very nature, associated with uncertainty.

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