

# Networking to Accelerate the Rate of SME Innovations

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## Abstract

In fast changing business environments innovations and innovative behaviour is argued to be a key to success for SMEs. The ability to develop products and processes at a high speed are assumed to facilitate the growth of the firm. Research on the temporal aspect of innovation processes to this point, has mainly focused on the innovation of individual products or processes. In this study, we advance the concept of rate of innovation, which captures innovative behaviour over time. By drawing on resource accumulation theory, we hypothesize that the rate of innovation of the firm decreases if the time elapsed between foundation of the firm and its first innovation is long. By drawing on network theory we hypothesize that an active networking by the firm moderates the negative relationship between the time to innovation and the rate of innovation. Our theoretical model is confronted with a sample of 203 Swedish SMEs. Our results show that a late innovation start leads to a continued low rate of innovations. Late starters however, can compensate their late start by active networking for resources. Thus, innovation rates can be accelerated by an active networking behaviour of the firm.

**Keywords:** innovation, patent, rate, learning-advantage-of-newness, networking

## Introduction

Innovations and innovative behaviour have become increasingly important for survival, growth and profitability in fast changing business environments. Shortened product life cycles, technological advancements and increased competition from globalization constitute major challenges for growth aspiring firms. The ability to innovate products, markets, organizations, processes or business models is therefore of utmost importance. As a consequence, scholars, policy makers and practitioners underline the importance for firms to be innovative. In this debate, speed and frequency of innovations is often described as a critical competence. Chen, Reilly and Lynn (2012) argued that speed has become a magical word, fast decision making, fast internationalization and fast new product development are embraced as key aspects to create competitive advantages of firms. Thus, the innovativeness and the speed, frequency or rate of innovations is an important success factor for SMEs.

To this point, research on the temporal aspects of firm innovations and innovativeness has focused on the speed of the product innovation processes and the speed at which newly innovated products reach the market. That is, the time it takes to innovate certain products and as a consequence, we have a fairly well developed understanding of the role of the speed of individual innovation processes. Less however, is known about the rate of innovations by the firm. We acknowledge that individual product innovations are of utmost important for competitiveness of the firm, yet however, we argue that, the innovative behaviour of the firm over time and the rate at which new innovations of the firm reaches the market very well may be an important antecedent to growth and sustainability over time. We argue that, it is important for SME managers to find a sustainable rate of innovations in order to ensure sustainable growth. On the one hand side, to few innovation may weaken the market position of the firm. On the other hand, a too high rate of innovations risk leading to time compression diseconomies (Dierickx and Cool, 1989) reducing firm performance.

From extant research we know that innovations are driven by the innovative capability of the firm. Whereas the related theories of firm growth (Penrose, 1956), resource accumulation (Dierickx and Cool, 1989) and the resource based view (Barney, 1991) studies firms in isolation, alternative perspectives assumes that firms can exploit resources residing outside the boundaries of the firm (Dyer, 1996, Gulati, 1999, Zaheer and Bell, 2005). Thus, relevant and important resources may reside in the inter-firm routines and processes of the firms network (Dyer and Singh, 1998). This is a central

idea of the industrial marketing and purchasing research known as the IMP perspective. This perspective builds on the idea, that in business markets, both buyers and sellers play an active role (Håkansson, 1982) as the resource constellation between firms is heterogeneous (Håkansson and Johanson 1993). In business networks constituted by a web of interconnected business relationships, the behaviour of individual firms is unlikely to be understood without taking its network into account. The network relationships of the firm is expected to facilitate or impede strategic moves by the individual firm (Axelsson and Easton, 1992). Research following this perspective (e.g. Axelsson, 1995; Ritvala and Salmi, 2010) has shown that actively networking firms may be able to mobilize resources from its external network compensating for internal shortcomings. As a consequence, it is likely to assume that resource accumulation is not necessarily an internal process undertaken by the individual firm. Instead, there are reasons to believe that the temporal aspects of innovation processes are influenced by the networking behaviour of the firm. With this departure, we seek to advance knowledge regarding the temporal dimension of innovation processes by integrating theories on (internal) resource accumulation with theories on (external) resource mobilization.

In this paper, we seek to advance knowledge about SME growth processes by examining the role of firm networking for the innovative capabilities of the firm overtime. We do this by seeking an answer to the relationship between the first innovation of the firm, the networking behaviour of the firm and its continued innovative rate.

By answering this research question our intention is to make two contributions to the literature. First, we seek to examine if the concept of learning advantage of newness can help us understand the innovativeness of the firm over time. Second, by addressing external networking as a means to alleviate time compression diseconomies, we aim at integrating network theory and resource accumulation theory. Our ambition with this is to provide managerial insights on how to manage innovation processes in fast changing environments.

The subsequent sections of the paper are structured as follows. First we provide a theoretical background to our study, which is followed by the development of our hypotheses. Second we account for the methodology of the paper. Third, we present and discuss the results of our analysis. Fourth, our paper ends with the implications, limitations and suggestions for further research condensed from our study.

## **Theoretical background**

### **Resources and resource accumulation theory**

From research in strategic management we know that firm growth and competitiveness depends on firm resources. Firm resources are defined as *“all assets, capabilities, organizational processes, firm attributes, information, knowledge etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness.”* (Barney 1991 p: 101). Resources that are valuable, rare, in-imitatable and non-substitutable constitute the foundation of a sustainable competitive advantage. Efficient combinations of such resources constitute the core capabilities of competitive firms. A firm is said to possess a sustained competitive advantage *‘when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy’* (Barney 1991 p: 102). Examples of such competitive advantages occur when firms are able to produce its products at a lower cost than the competition or when the firm is producing a product that generates a superior willingness-to-pay among its customers. The sustainability relates to if the competitive advantage persists over time.

From more recent developments in the strategic management literature we also know that, sustained competitive advantage of the firm requires that the firm is able to adjust its resource-base to changes in the external environment. The original RBV framework was static in its nature. It serves as a strong framework for predicting competitiveness in stable market environments. In changing environments

however, it has been criticised for falling short. To sustain competitive advantages in changing market environments, the firm needs to develop a dynamic capability. Dynamic capabilities has been defined by Teece et al. (1997, 516) as *'the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.'* A similar definition was provided by Eisenhardt and Martin (2000) defining dynamic capabilities as *'the firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die.'*

Consequently, contributions from research on the resource-based view on strategy have lead to two major conclusions. First, competitive advantages of firms depends on the resources possessed by the firm and in order to evaluate the resources contribution to a sustained competitive advantage we need to understand whether the resources are valuable, rare, in-imitatable and non-substitutable. Second, the RBV framework assumes market stability, if the firm is operating in a changing market environment, then sustainability of the competitive advantage of the firm also depends on the dynamic capabilities of the firm. Thus, the ability of the firm to integrate, reconfigure, gain and release resources are important to meet or even create market change. Conjointly, these findings assert that, the competitiveness and success of the firm depends on its resource base and how these resources form a capability of the firm.

Whereas the capability based view on competitiveness has informed us about the role of resources and capabilities as a source for firm competitiveness, less is known about the capability development process. The literature on the characteristics and efficiency of the capability development process is scarce. Particularly, we have limited knowledge on the consequences of the time aspect in the capability development process. In research on resource accumulation, two streams of research has advanced our knowledge. First, research on resource accumulation, suggests that the faster the resources or capabilities needed are developed, the higher the cost of this process. Dierickx and Cool (1989) argue that inefficiencies arise when things are done faster, so when the capability development process is accelerated, its costs increase disproportionately. Research on time compression diseconomies, hold that individuals and organizations will be subject to diminishing rates of return when subjected to time compression. When all input to a process are held constant except the time, the output will be weaker. Two easily digested examples from the discussion on time compression diseconomies serves as good illustrations. First, in their seminal paper, Dierickx and Cool (1989) made the example with MBA students who cannot accumulate the same amount of knowledge in a one-year program as compared to a two-year program. Second, research on resource accumulation of internationalizing firms has established the idea of a learning-advantage-of-newness. Research on LAN (e.g., Autio et al. 2000; Prashantham and Young 2011; Sapienza et al. 2006) has argued that young firms are less constrained by their past and are therefore in a position to more effectively develop new capabilities. They will not be as restrained by their routines and therefore better equipped to promote the transformation of their experience to experiential knowledge which is at the core of capability development.

### **Networks and resource accumulation**

Whereas resource accumulation theory studies firms in isolation, alternative research streams have shown that firms do not necessarily need to develop or accumulate resources internally. Instead it has been argued that firms can exploit resources beyond the boundaries of the firm (Dyer, 1996, Gulati, 1999, Zaheer and Bell, 2005). Thus, the network of the firm is an important resource pool of the firm (Dyer and Singh, 1998). Extant research has shown that, networks may be a key for resource constrained SMEs suffering from a liability of smallness. Small firms have difficulties in developing scale and scope advantages and may therefore face hampered innovative capacities. A mean of circumventing these disadvantages is to develop relationships in networks. Firms that manages to develop an insidership position (Johanson and Vahlne, 2009) can tap its network on resources and access the capabilities of other firms. As a consequence, in the resource development process, a strong

network position can enable the firm to compensate for internal shortcomings. Instead of developing all resources and capabilities internally, the firm can seek to access resources or capabilities of other actors in its network. This kind of strategic behaviour requires commitment by the firm and can be seen as a networking process.

## Conceptualisation and hypotheses

### Key constructs

In our study we focus on three constructs; time to innovation, rate of innovation and networking. Time to innovation concern the elapsed time from inception of the firm to its first innovations. To capture the first innovation of the firm we use the first patent registered by the firm. Rate of innovation in turn, concern how innovative the firm has been over time since inception. To capture the rate of innovations of the firm, we study how many patents the firm on average has registered per year since inception. Networking in turn, relates to the market behaviour by the firm and concern how actively the firm seeks to access or tap resources from its external network.

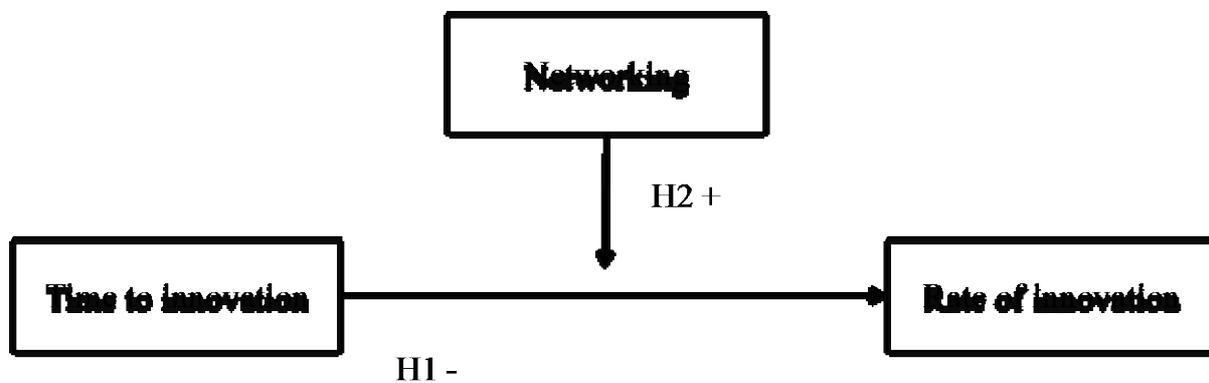


Figure 1: Proposed hypotheses

### Time to innovation and rate of innovation

Firm innovations and innovativeness depends on the innovative capabilities possessed by the firm. Innovative capabilities that contribute to the competitiveness of the firm build on resources that are valuable, rare, in imitable and non-substitutable (Grant, 1991). These capabilities are assumed to develop through learning from experience and the investments in R&D by the firm. We know from existing research on organizational learning that the asset accumulation of the firm is the result of the dynamic capabilities (Teece et. al. 1997) and the absorptive capacity (Cohen and Levinthal, 1990) of the firm.

Learning advantage of newness argues that firms that are young, are less constrained by institutionalized routines and passed experiences (Autio et. al 2000) Therefore we can expect that firms that start investing in research and developmental activities at a young age, will develop and institutionalize routines that support innovations from an early age. Firms that do not on the other hand, are likely to develop routines and processes that do not support exploration of the new, instead we can expect them to develop routines for exploiting their existing products and processes. As a consequence, we argue that learning-advantages-of-newness plays an important role in the innovation process of SMEs. We argue that the learning advantage of newness will foster an innovative and open-minded mind-set within the firm, which will support future innovations. As a consequence we hypothesise that:

*H1: The longer the elapsed time between firm inception and first innovation, the lower the rate of innovation*

## **Time to innovation, networking and rate of innovation**

Whereas resource accumulation theory holds that resources and capabilities are controlled and developed internally by the firm, the network perspective holds that resources and capabilities resides in networks. As a consequence, it has been argued that we can not understand strategic behaviour of the firm, without taking its network relationships into account. Firms are embedded in networks where activities, actors and resources form a power dependency between firms. Firms that are insiders in business networks (Johanson and Vahlne, 2009) can tap its relationships on resources and capabilities possessed by other firms. Thus, we can expect that firms which are unable to develop resources and capabilities internally, very well may be able to benefit from tapping its network on resources and capabilities. For small firms, the importance of networks for innovative firm behaviour is well documented in the literature (Ahuja 2000; Lee et al. 2010; Rogers 2004; Zeng, Xie, and Tam 2010). Both intra-firm (Tsai and Ghoshal 1998) and inter-firm (Molina-Morales and Martinez-Fernandez 2010) networks has been found to contribute to process- as well as product innovations. By tapping the network on resources, SMEs can compensate for their liabilities of smallness and lack of economies of scale (Mohannak, 2007). As a consequence, we expect that firms who actively seek resources in its network are able to compensate for a longer time to innovation. By tapping its network on resources, the late starting firm can balance a late start and catch up in its innovation rate. Thus, we hypothesise that:

*H2: Active networking by the firm, moderate the negative relationship between elapsed time between firm inception and rate of innovation.*

## **Method and data**

### **Sample and data collection**

We test our theoretical model on a sample of 203 SMEs. The original sample builds on a larger study where a response rate of 70 percent was reached. For the project, we performed a relatively labour intensive on-site data collection. The study was conducted in southern Sweden, which is an geographical area known for its entrepreneurial SMEs. . Concerning firm size, we followed the EU definition based on a headcount of fewer than 250 employees. To identify the sample, *data* were ordered from Statistics Sweden covering all firms in southern Sweden matching our sampling criteria. Thereafter, two steps were followed. First, the secondary data were evaluated in relation to the criteria. Second, all firms were contacted over phone. At this stage the researcher controlled that the firm met the sampling criteria. After these two steps, our sample consisted of 277 firms. 203 firms invited us to their facilities resulting in a response-rate of 73 percent. The 74 which did not participate in our study were either unreachable after four attempts, declined to participate, described that they did not have time or that they were not interested. Post hoc, several non-response tests have been executed without revealing any significant differences or patterns when comparing responding and non-responding firms. The on-site data collection strategy was rather labour- and cost-intensive, but it provided us with the advantages of ensuring commitment from the respondents, it standardized of the data collection procedure, and it gave the researcher an opportunity to assist the respondent in understanding our questions.. Each site visit contained a semi-structured interview and a standardized questionnaire, it took on average 1,5 hours per firm. We developed a template for the visits to standardize the interview situation (Kvale 1997). To identify our respondents an intra-firm snowball sampling process was followed. Even though several meetings were conducted with two or three persons, our data are compiled and treated so that one person represents the firm. This creates a risk with potential biases related to single respondents. Consequently, we carefully followed the suggestions by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to avoid common method biases in behavioural research. As a consequence, we combine data which has been collected on site at the firms facilities during interviews with the managers with register data. Thus, after the on site data collection, we accessed register data on the 203 firms visited. First, we collected innovation data by searching in Swedish patent registers. Thus, we collected register data on all patents registered by the firms. Second, we collected data on all 203 firms from 'affärsdata'. This is a database where

information regarding firm age, ownership, growth turnover, profitability etcetera for each registered swedish firm can be accessed. Thus, our dataset integrates surveydata with data from secondary sources for each firm. Below we account for how we measured the individual constructs and how the data for each variable was accessed.

## **Measures**

The independent variable of our model, time to innovation aims at capturing the elapsed time from inception of the firm to its first patent. As a consequence, we collected data from swedish patent registers on the data of the first patent registered by the firm. We then subtracted the year of the foundation of the firm from the year of the first patent of the firm. Thus, a firm founded in 1993 with its first patent in 1998 has a time to innovation of 5 years.

The dependent variable of our model, rate of innovations, aims at capturing the innovativeness by the firm over time. Also for this purpose, we collected data from Swedish patent registers. We collected data on the number of patents registered by the firm which was divided by the age of the firm. This measure provided us with a value of the average number of patents per year since inception of the firm. Thus, a firm with 8 patents and an age of 10 years will have a value of 0,8.

Our interacting variable of the model, networking, aims at capturing if the firm actively seeks to tap its external network on capabilities in the innovation process. In order to capture this aspect we collected membership data from the Swedish chamber of commerce. We created a dummy variable were members had a value of 1 and non-members a value of 0. The Swedish chambers of commerce have regional offices in all counties of Sweden and actively work to improve business conditions for its members, to create networking opportunities among its members and to be a hub for business in the region were the chamber is located.

In our regression model, four control variables are included. First we control for firm size by including the number of employees in the equation. Second, we control for the international spread of the firm by including a control for the number of markets that the firm export to. Third, we control for the turnover of the firm. Fourth, we control for the share of the firms sales which is addressed to foreign customers in relation to domestic customers.

## **Descriptive data**

Table 1 presents the descriptive data and the correlations between the variables of our model.

## **Data analysis**

Table 2 reveals the result of our regression model. In model 1 the results of the control variables are presented. Model 2 in turn adds the time to innovation in the equation. The results reveal that we find support for our first hypothesis positing that the longer the elapsed time between firm inception and first innovation, the lower the rate of innovation. In model 2 it is revealed that the longer before first innovation, the lower the innovation rate. This result is highly significant and the adjusted R2 value reaches an predictive power of 27.8 percent. In model 3 we add the networking behaviour of the firm. Thus we test our second hypothesis expressed as active networking by the firm, moderate the negative relationship between elapsed time between firm inception and rate of innovation. As revealed in model 3, also this hypothesis returned with significant values. The significant Beta value is changing from negative to positive indicating that the networking effect can compensate for a late innovation start. The predictive power in model 3 is shown in the adjusted R2 value which reaches a level of 31.8 percent. In the subsequent section we discuss these results.

**Table 1: Descriptive statistics and correlations**

	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>1. Employees</b>	3	350	285	2487,81	-						
<b>2. Intl. Spread</b>	3	160	32	27,61	-0,047	-					
<b>3. Turnover (SEK)</b>	76 000'	1710 000'	262 000'	276541040,26	,348**	,159*	-				
<b>4. Intl. Share</b>	0.1	100	0.97	2,75	-0,005	-0,012	-0,036	-			
<b>5. Time to innovation</b>	0	202	31.6	34,96	0,037	-0,011	-0,011	0,032	-		
<b>6. Networking</b>	0	1	0.51	977,98	0,072	0,114	0,105	0,105	-0,016	-	
<b>7. Rate of innovation</b>	0	1.46	0.11	0,23	0,034	,403**	,251**	-0,033	-,365**	,148*	-

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 2: Regression results**

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>	
	$\beta$	s.e.	$\beta$	s.e.	$\beta$	s.e.
<b>Control variables</b>						
Employees	0,022	0	0.032	0	0,014	0
Intl. Spread	0,369**	0,001	0,368**	0,001	0,333**	0
Turnover	0,179**	0	0,174**	0	0,158**	0
Intl. Share	-0,022	0,005	-0,016	0,005	-0,032	0,005
<b>Independent variable</b>						
Time to innovation			-0,321**	0,001	-0,318**	0,001
<b>Interaction</b>						
Time to innovation*networking					0,212**	0
<b>Diagnostics</b>						
R2	.193		.296		.338	
Adj. R2	.177		.278		.318	
F-statistics	11.827		16.544		16.713	

Standardized estimate parameters reported. \*, \*\* show significance at five and one percent respectively

Dependent variabel: Rate of innovation

## **Discussion and tentative conclusions**

### **Time to innovation and the rate of continued innovation rate**

In our analysis we found support for hypothesis 1. Thus, our study has shown that the longer the elapsed time between firm inception and first innovation by the firm, the lower the rate of innovation in the later development of the firm. This finding validates the existence of learning advantages of newness (Autio et. al. 2000) in the growth process of SMEs. It seems as if firms that are innovative at a younger age, foster a culture and strategy, which is open to exploring new ideas and to continuously develop new products in their growth efforts. Firms with a longer elapsed time between inception and first innovation, on the other hand, show a lower rate of innovations in their continued development process. It seems as if they are hampered by their routines and structures developed during the period that elapse prior to their first innovation. In our conceptualization, we used resource accumulation theory to examine the relationship between the time to innovation and the rate of innovation. Based on extant research, we argued that the innovation rate of the firm, depend on the capabilities developed. As our study has shown that the negative effects of a late innovation start, it seems that their development of innovative capabilities is hampered. The late start leads to a situation where these firms are falling behind the more innovative early starters. In a fast changing business environment, we argue that this situation is challenging for the late starting firm. These firms risk losing market shares and competitiveness as the needs and wants from customers are likely to change. By starting the innovation process at young age in contrast, SMEs can foster an innovative and open-minded organizational culture where new ideas and products constantly are developed. A high rate of innovations is likely to enable the firm to meet challenges in fast changing environments. A high rate of innovations also means that there is likeliness that the firm is part of changing the market environment. Thus, the firm become less reactive and can instead proactively be an actor that changes the market environment. Thus, by developing innovative capabilities at an early age, the firm is likely to drive market changes instead of being challenged by them.

### **Networking to catch up in the rate of innovations**

In our conceptualization, we have underlined that resource accumulation theory builds on the assumption that development of resources and capabilities takes place internal to the firm. As a consequence, control of rather than access to resources is central to the growth and competitiveness of the firm. This assumption stand in contrast to the underlying idea of the network perspective on business markets which builds on the assumption that resources and capabilities reside in business networks. As a consequence, we assumed that firms who are unable to, or late, develop innovation capabilities can compensate for their shortcomings in the capability development process by turning to their external network. Therefore, we integrated the network perspective with resource accumulation theory to advance knowledge regarding the temporal aspect of innovation processes. More precisely we argued that a firm which lag behind in the innovation process, can compensate for this actively networking for resources and capabilities. Consequently, we hypothesised that active networking by the firm, moderate the negative relationship between elapsed time between firm inception and rate of innovation. Our interaction test returned with significant results supporting our hypothesis. As a consequence, we argue that resource accumulation theory falls short in explaining capability development processes in general and the innovation process in particular. The findings of our study reveals that resources and capabilities reside in business networks and that firms who lack certain resources and capabilities very well may compensate for this shortcoming by actively networking. As a consequence, we argue that networking is a means to accelerate the rate of firm innovation. Based on these findings we argue that SMEs that operate in fast changing environments where competitiveness is intense, should seek to establish insidership positions (Johanson and Vahlne, 2009) in relevant business networks in order to accelerate their rate of innovation.

Thus, our study has made an tentative contribution to Chen, Reilly and Lynn (2012) who argued that the temporal aspect of innovations is an understudied phenomena which deserves an more explicit attention. First, our results contribute to the innovation literature by developing the concept of rate of

innovations. Prior to our research, most literature on temporal aspects of the innovation process has focused on the innovation and development of certain products and its performance outcome. As a consequence, speed of innovation and time to market is concepts that underlines the time it take to develop a certain product or service. Less was known about temporal innovation aspects from a SME management perspective. We argue that our findings make a tentative contribution to SME management literature by explicitly studying the innovativeness and means to accelerate it over time. The measure we have developed therefore shows the average number of innovations per year from inception of the firm instead of the time needed for certain innovations. Second, our study have made an tentative contribution to the resource accumulation theory and the innovation process theory in particular by showing that resource accumulation not necessarily is an internal process. We have shown that firms who suffer from a late start of capability development or control underdevelopment capabilities can alleviate such shortcomings by seeking resources and capabilities in their external network. These findings validate extant research on the role of business networks for competitiveness of the firm (Dyer, 1996, Gulati, 1999, Zaheer and Bell, 2005). As a consequence, we argue that innovation research would benefit from further integrating the IMP perspective into its conceptualizations. This perspective builds on the idea, that in business markets, both buyers and sellers plays an active role (Håkansson, 1982) as the resource constellation between firms is heterogeneous (Håkansson and Johanson 1993). As a consequence, firms can mobilize resources (Ritvala and Salmi, 2010) by actively networking with other business actors.

### **Implications and further research**

For managers our study comes with some tentative implications. First, managers should be aware of the negative relationship between the time to innovation and the continued rate of innovations. From a practical point of view this mean that firms who start innovating at a older age might face difficulties as their institutionalized (non-innovative) routines and processes risk hamper the innovativeness of the firm. As a consequence we suggest managers to foster an innovative and entrepreneurial culture already at a young age. Second, for managers of firms who are interested in increasing or reactivating their innovativeness, our study has shown that networking is a great means of catching-up in innovation processes. Thus, managers should, based on our findings, focus on accessing resources and capabilities in their network rather than to control them internally if a high rate of innovations is sought for.

The findings of our research open up for future avenues of the temporal aspect of innovations in SMEs. First, future research would benefit from taking a more nuanced view on innovations. In this paper we have focused on product innovations and used patent data to access information on such innovations. Future research would probably benefit from studying organizational, process and business model innovations for a more holistic understanding of the phenomena. Second, we would like to see more qualitative research on how firms are networking and mobilizing resources, over time, in order to stimulate the innovativeness and rate of innovations over time. Third, it would be interesting to see future research addressing the relationships between time to innovation, rate of innovation and networking in alternative contexts. For example by studying other industries such as the service sector or by examining the relationships validity in other cultural contexts.

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