

## Does Innovation Capability Really Matter for the Profitability of SMEs?

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## **DOES INNOVATION CAPABILITY REALLY MATTER FOR THE PROFITABILITY OF SMES?**

### **Abstract**

The study examines the relationship between innovation capability and firm profitability. The study has been executed by conducting a web-based survey in Finnish SMEs. Previous research has studied the effect of innovativeness on performance. This study went thus a one step further by providing a comprehensive description of the effects of the determinants of innovation capability on profitability of SMEs. According to the results, there is only a minor effect of the determinants of innovation capability on firm profitability.

**Keywords:** innovation capability, profitability, performance, SME, performance management

### **1 Introduction**

This paper deals with the issue of innovation capability as an asset of profitability for small and medium sized enterprises (SMEs). Nowadays more and more attention is paid to the ability of organizations to develop their innovations. Not only targeting the development towards major technological innovations brings financial value to a firm, for example, according to the study of Forsman and Annala (2011), the majority of SMEs are biased towards incremental innovation development resulting in a variety of innovation types: products, services, processes, production methods and single functions. In this paper, innovation is seen as an iterative process that aims at creating new products, processes, knowledge or services by the use of new or even existing knowledge (Kusiak, 2009). Thus, innovation can be regarded as an organizational capability because it is the act that deploys resources with a new ability to create value (Yang et al., 2006).

The importance of innovation capability for superior firm performance has been widely acknowledged in the current literature (e.g. Calantone et al., 2002; Cainelli et al., 2004; Keskin, 2006; Bowen et al., 2010; Jiménez-Jiménez and Sanz-Valle, 2011). However, there is no consensus on whether the effects of innovation capability on firm profitability are positive or negative. Innovations may be a source of cash flow for firms. On the other hand, innovation often equals with heavy investments by a firm, returns to which often require quite a long time to realize (Varis and Littunen, 2010). Therefore, the effects of innovations on firm profitability may be seen only after a long period of time. Another reason for the inconclusive and inconsistent findings of previous research could be the different definitions of innovation across disciplines (Cho and Pucik, 2005). Also, a variety of profitability measures have been utilized, thus making it difficult to draw any generalizable conclusions (Subramanian and Nilakanta, 1996). In addition, a majority of the research studying the relationship between

innovation and profitability use the number of innovations as the measure of innovation capability. In the context of SMEs, innovation capability is a broader concept, meaning that the effects of different determinants of innovation capability should be taken into account when studying the relationship between innovation capability and firm profitability.

The objective of this study is to investigate the relationship between the determinants of innovation capability and firm profitability. Previous research has often concentrated either on innovation capability as one dimension without studying the relationship aspect by aspect or on studying only the effects of one determinant of innovation capability. Therefore, the present study takes one step further by investigating the relationship of multiple determinants of innovation capability and firm profitability. The study contributes to the current understanding by presenting the important determinants of innovation capability that affect firm profitability.

The paper is organized as follows. Previous literature is presented in section 2. The relationship between innovativeness and profitability is discussed and the concept of innovation capability is defined. The research methods and data collection are presented in section 3. The fourth section presents the results. Finally, discussion and conclusions, including limitations of the study and suggestions for future research, are presented.

## **2 Literature review**

### **2.1 Innovativeness and profitability**

The importance of innovativeness for firm performance has been widely acknowledged. Tidd (2001) divides measures that are used to prove the relationship between innovativeness and business performance, into two categories. The first group concerns accounting and financial performance. These measures include profitability, return on investment and share price. The second group concerns market performance, for example the share or growth (Tidd, 2001). Earlier studies have suggested that innovation is an important determinant of profitability as well (e.g. Leiponen, 2000). It has been demonstrated that innovative propensity influences the extent to which abnormal profit outcomes persist over time (Roberts, 1999). It has also been found that there exists a clear difference in profitability between innovators and non-innovators (Cefis and Ciccarelli, 2005).

The relationship between innovativeness and profitability has traditionally been studied via the number of innovations or patents generated by a firm. Several studies have concluded that the effects of innovation on firm profitability are positive and relevant. The findings of Pett and Wolff (2011) indicate that innovation is important for the profitability of return on assets (ROA). Also in the study of Subramanian and Nilakanta (1996), ROA was used to measure organizational performance. It was found that the adoption of a large number of technical and administrative innovations leads to greater profitability. Also innovation speed has been found

to be a significant predictor of objective financial performance measured by ROA (Gopalakrishnan, 2000). Ken and Tsai (2010) found a relationship between patent success and some measures of profitability, such as return on equity (ROE). On the other hand, Geroski et al. (1993) suggest that the number of innovations produced by a firm has a positive effect on its profitability, but the effect is, on average, only rather modest in size.

The number of innovations or patents may not be the only appropriate measure for innovation success. Also subjective data has been used to study the relationship between innovativeness and profitability (Calantone et al., 2002; Cho and Pucik, 2005). According to Cho and Pucik (2005) the impact of innovativeness on profitability is mediated by quality. They also suggest that innovativeness has a positive effect on profitability, partly because innovativeness affects quality, which in turn affects profitability. Calantone et al. (2002) have used a subjective scale for firm innovativeness and discovered that firm innovativeness is positively related to firm performance, or more precisely, profitability.

As a summary, the profitability of a firm is not necessarily dependent on the number of new innovations. The firms that are more profitable, have capabilities or competences which others lack. These capabilities may be linked to the process of innovation (Love et al., 2009). It has also been suggested that the indirect effects are greater and more long lasting: that is, it is the process of innovation that really matters for profitability (i.e. the transformation of internal capabilities), rather than the returns from individual innovations (Geroski et al., 1993). According to Rosenbusch et al. (2011), SMEs may benefit even more if they develop, communicate, and embrace an innovation orientation. Thus, also the capability to produce innovations can be a critical factor when aiming at better profitability.

## 2.2 Innovation capability

Sáenz et al. (2009) consider innovation as a dynamic capability (i.e. a capability that allows the organization to integrate, build, and reconfigure internal and external competences in order to address rapidly changing environments (Teece et al., 1997)). Innovation capability has also been considered as a theoretical framework aiming to describe the actions that can be taken to improve the success of innovation activities (Lawson and Samson 2001). Hogan et al. (2011) define innovation capability as a firm's ability, relative to its competitors, to apply the collective knowledge, skills, and resources to innovation activities related to new products, processes, services, or management, marketing or work organization systems, in order to create added value for the firm or its stakeholders. Thus, in present study innovation capability is a predictor of innovativeness. According to previous definitions, innovation capability has at least the following features:

- Innovation capability refers to a potential or ability to produce innovations (e.g. Neely et al, 2001; Lawson and Samson 2001; Laforet 2011)

- Innovation capability is internal capability (e.g. Martínez-Román et al., 2011; Ngo and O'Casey 2009; Akman and Yilmaz, 2008)
- Innovation capability requires continuous improvement (e.g. Olsson et al. 2010; Lawson and Samson 2001; Szeto 2000)
- Innovation capability aims to add value (e.g. Hogan et al., 2011; Szeto 2000)

A body of literature has identified the factors that impact the ability to manage innovation (e.g. Smith et al. 2008). Similarly, in this study, innovation capability is defined as a potential of an organization to create innovations continuously and it consists of the determinants influencing an organization's capability to manage innovation. According to earlier literature, these determinants include for example:

- leadership practices (e.g. Tang 1998, 1999; Bessant, 2003; Tidd et al., 2005; Perdomo-Ortiz et al. 2006; Martensen et al., 2007; Colarelli O'Connor, 2008; Skarzynski and Gibson, 2008; Smith et al., 2008; Paalanen et al., 2009; Saunila and Ukko, 2011),
- employees' skills and innovativeness (e.g. Perdomo-Ortiz et al. 2006; Martensen et al., 2007; Colarelli O'Connor, 2008; Skarzynski and Gibson, 2008; Tura et al., 2008; Smith et al., 2008; Paalanen et al., 2009; Liu, 2009),
- processes and tools for idea management (e.g. Lawson and Samson, 2001; Tidd et al., 2005; Skarzynski and Gibson, 2008; Smith et al., 2008; Saunila and Ukko, 2011),
- supporting culture (e.g. Tang 1998, 1999; Lawson and Samson, 2001; Tidd et al., 2005; Martensen et al., 2007; Colarelli O'Connor, 2008; Skarzynski and Gibson, 2008; Smith et al., 2008; Paalanen et al., 2009; Liu, 2009; Saunila and Ukko, 2011),
- external sources for information (e.g. Romijn and Albaladejo, 2002; Tidd et al., 2005; Perdomo-Ortiz et al. 2006; Colarelli O'Connor, 2008; Paalanen et al., 2009; Laforet, 2011; Saunila and Ukko, 2011; Kallio, 2012),
- development of individual knowledge (e.g. Tang 1998, 1999; Bessant, 2003; Tidd et al., 2005),
- employees' welfare (e.g. Laforet, 2011), and
- linkage to strategic goals (e.g. Bessant, 2003; Martensen et al., 2007; Smith et al., 2008).

### 2.3 Research model and hypotheses

Previous findings suggest that innovations may have an effect on firm profitability. Traditionally, the number of innovations or patents has been used as a measure of innovativeness (e.g. Audretsch, 1995; Subramanian and Nilakanta, 1996; Cefis and Ciccarelli, 2005; Love et al., 2009). The effect of innovation capability and its determinants on profitability has remained unknown. In accordance with the earlier literature and the previous study of Saunila and Ukko (2011), innovation capability has been divided into seven determinants (Table 1.) in this study: external knowledge, work climate and wellbeing, ideation

and organizing structures, regeneration, participatory leadership culture, individual activity, and know-how development. This categorization was chosen because it summarized the determinants of innovation capability presented in earlier literature.

Table 1. Summary of the determinants of innovation capability

Determinant		References	Description
<b>Participatory leadership culture</b>	Leadership/Management style	Smith et al. 2008 Tang 1998, 1999, Martensen et al. 2008	The overall atmosphere of the organization that supports and motivates innovation, and also leadership that facilitates innovation
	Supervision and control	Martínez-Román et al. 2011	
	Resource management	Lawson and Samson 2001, Smith et al. 2008, Wan et al. 2005	
	Management personalities	Smith et al. 2008	
<b>Work climate and wellbeing</b>	Innovation culture	Martensen et al. 2008, Neely et al. 2001, Laforet 2011	Represent the wellbeing of the employees and further the work climate for innovation development, including collaboration and values
	Communication	Lawson and Samson 2001, Wan et al. 2005, Smith et al. 2008	
	Attitude to innovation	Wan et al. 2005, Smith et al. 2008	
	Collaboration	Smith et al. 2008	
	Shared values	Tang 1998, 1999	
<b>Ideation and organizing structures</b>	Organizational structure and operation processes	Lawson and Samson 2001, Paalanen et al. 2009, Tang 1998, 1999, Neely et al. 2001	Related to the structures and systems that successful innovation requires. This includes the generation, development and implementation of innovations, and the ways how the work tasks of the organization are organized
	Idea generation and management	Lawson and Samson 2001, Smith et al. 2008	
	Rewards	Lawson and Samson 2001, Martínez-Román et al. 2011	
	Level of decentralization	Wan et al. 2005, Martínez-Román et al. 2011, Smith et al. 2008	
	Cross-functional communication	Martínez-Román et al. 2011, Tang 1998, 1999	
<b>Know-how development</b>	Professional knowledge and skills	Romijn and Albaladejo 2002, Tang 1998, 1999, Smith et al. 2008	Skills and knowledge of the employees play an important role in innovation capability. This includes the utilization of knowledge as well as the improvement of employee skills
	Further learning	Romijn and Albaladejo 2002, Tang 1998, 1999	
	Training, education	Smith et al. 2008	
<b>Exploiting external knowledge</b>	Knowledge of external environment	Smith et al. 2008, Neely et al. 2001	The importance of the proper behavior of exploiting external networks and knowledge to the overall organizational innovation capability
	Intensity of networking	Romijn and Albaladejo 2002, Paalanen et al. 2009	
	Learning about customers and competitors	Lawson and Samson 2001, Martensen et al. 2008	
<b>Regeneration</b>	Organizational learning	Smith et al. 2008	An organization's ability to learn from earlier experience and to use that experience to create innovations and develop their operations
	Attitude to risk	Smith et al. 2008, Wan et al. 2005, Laforet 2011	
	Learning and capacitation	Martínez-Román et al. 2011	
<b>Individual activity</b>	Attitude/willingness to innovate	Wan et al. 2005, Martínez-Román et al. 2011	Employees' individual innovation capability and activity is needed to form the organization's overall innovation capability.
	Creative thinking behavior	Tang 1998, 1999, Paalanen et al. 2009	
	Employee motivation	Smith et al. 2008, Tang 1998, 1999, Paalanen et al. 2009	
	Empowered employees	Lawson and Samson 2001, Paalanen et al. 2009	

Source: Elaboration based on Saunila and Ukko (2011)

As presented in earlier literature, it is not necessarily the number of innovations that make firms more profitable, as innovating firms may have competencies that make them more profitable than non-innovating firms. It is the innovation capability that matters. Therefore the following hypotheses can be formulated:

*H1: There is a significant relationship between external knowledge and profitability*

*H2: There is a significant relationship between work climate and wellbeing and profitability*

*H3: There is a significant relationship between ideation and organizing structures and profitability*

*H4: There is a significant relationship between regeneration and profitability*

*H5: There is a significant relationship between participatory leadership culture and profitability*

*H6: There is a significant relationship between individual activity and profitability*

*H7: There is a significant relationship between know-how development and profitability*

The purpose of this study is to explore the relationship between the determinants of innovation capability and firm profitability within the context of SMEs. The theoretical review discussed above has led to the research framework presented in Figure 1.

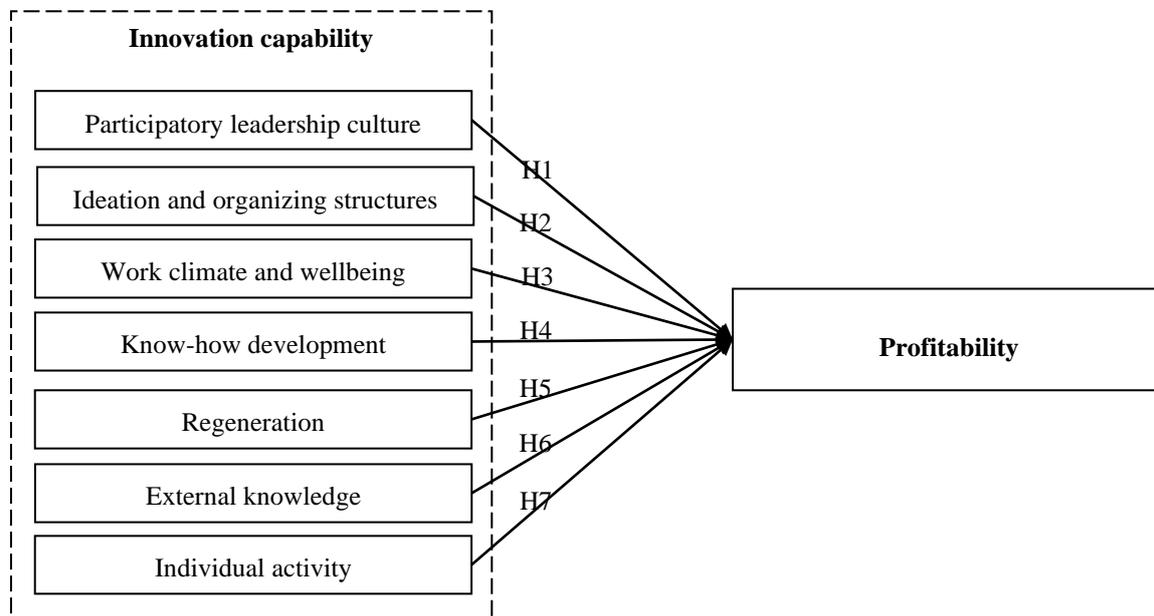


Figure 1. Research model and hypotheses

### 3 Methodology

#### 3.1 Measures

The approach of this study is quantitative. The questionnaire developed for the study consisted of two parts. The first part comprised 30 items measuring different issues related to innovation capability, divided into seven subcategories. The second part comprised two items measuring profitability.

### 3.1.1 Innovation capability

The independent variables of the study were the determinants of innovation capability, namely participatory leadership culture, ideation and organizing structures, work climate and wellbeing, know-how development, regeneration, external knowledge, and individual activity. Each of the determinants was measured using 3-6 items. When possible, validated measures reported in previous research were used. When the items had to be modified, the items were derived from the literature. Items modified of the studies of Hurt et al. (1977), Samson and Terziowski (1999), Tang (1999), Calantone et al. (2002), Guan and Ma (2003), Ojala (2003), Wang and Ahmed (2004), Martensen et al. (2007), Dobni (2008), and Kallio et al. were used. The variables were measured by a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A neutral response "neither disagree nor agree" was adopted to reduce uninformed responses.

### 3.1.2 Profitability

The dependent variable, meaning profitability, was measured by two items. Previous literature has used a variety of measures for profitability. These include for example return on investment (ROI) (Cho and Pucik, 2005; Calantone et al., 2002; Yamin et al., 1997), ROA (Gunday et al., 2011; Pett and Wolff, 2011; Ken and Tsai, 2010; Cho and Pucik, 2005; Calantone et al., 2002; Gopalakrishnan, 2000; Zajac et al., 2000; Roberts, 1999; Subramanian and Nilakanta, 1996; Zahra and Covin, 1995), return on sales (ROS) (Gunday et al., 2011; Pett and Wolff, 2011; Calantone et al., 2002; Audretsch, 1995; Zahra and Covin, 1995), ROE (Ken and Tsai, 2010; Cho and Pucik, 2005), net profits (Audretsch, 1995), and liquidity (Yamin et al., 1997). In the present study, two of these previously used measures for profitability were adopted as dependent variables: return on investment (ROI) and business profit.

## 3.2 Sample and data collection

The data used to test the hypotheses was gathered from Finnish SMEs. 2400 companies, based on revenue (2-50 Meuro) and number of employees (11-249 Meuro), were randomly chosen as targeted respondents. Web-based questionnaires were targeted to both top managers and employees of the selected companies. The questionnaire was sent to both response groups because both views were seen to be important when evaluating the determinants of innovation capability. Thus, a total of 4800 questionnaires were sent. After discounting the return-to-sender messages, 4050 questionnaires reached the respondents as 750 addresses were invalid.

To gain a better response rate, three reminders were sent, each one week after the previous reminder. 302 full returns (out of a total of 4050) were obtained. Thus, the final response rate was 7.46 %.

The proportion of the respondents was nearly equal between the manufacturing and service sectors (46.6 % and 51.1%, respectively). About 70 % of the respondents were managers, and the rest were employees. In terms of organizational size based on the number of employees, 72 % of the responses came from firms with 49 employees or less, and around 28 % were from firms with 50-249 employees. Based on revenue, around 45 % of the responses were from firms with 2-5 Meuro revenue, around 43 % from firms with 5-20 Meuro revenue, and around 11 % from firms with 20-50 Meuro revenue.

To check the non-response bias, an analysis of variance (ANOVA) test was performed. The informants were divided into four groups: first respondents, first reminders, second reminders and third reminders. The results of the ANOVA test revealed that there was no significant difference (at the 5 % significance level) between the four groups. Therefore, it could be assumed that a non-response bias did not exist.

## 4 Results

Before testing the hypotheses, the validity of the constructs was assessed. Factor analysis (FA) was used to determine the unidimensionality of the constructs and to eliminate unreliable items. All items of one determinant were subjected into principal component analysis. Base on the FA tests, one item was eliminated because it loaded alone on another factor. The results of the FA presented in Table 1 suggest that the standardized loadings are highly significant for all these items, meaning that the underlying constructs are valid. The reliability was tested by calculating the Cronbach's alphas of the constructs. The alpha values are presented in Table 2, which shows that the alpha values of six factors are greater than 0.60. In one factor (individual activity) the alpha value is less than 0.50, which indicates that the reliability of the factor can be questioned, and therefore the results concerning the factor should be handled circumspectly.

Table 2. Descriptive statistics and the results of FA and reliability tests

Item	No of items	Mean	Std. Dev.	Factor loadings	Cronbach's alpha
Participatory leadership culture	6	3.6527	0.61378	0.546-0.777	0.802
Ideation and organizing structures	6	3.4562	0.63072	0.499-0.766	0.712
Work climate and wellbeing	5	3.9327	0.60259	0.702-0.801	0.787
Know-how development	3	3.7512	0.78355	0.777-0.843	0.736
Regeneration	3	3.7951	0.78427	0.795-0.868	0.763
External knowledge	3	3.9578	0.73826	0.730-0.793	0.626
Individual activity	3	3.5851	0.61221	0.566-0.770	0.483

Table 3 presents the intercorrelations of all the variables used in this study. In order to assess the extent of multicollinearity, the variance inflation factor (VIF) was computed. The VIF

factors were significantly below the cut-off value of 10, and therefore it is suggested that multicollinearity did not cause problems.

Table 3. Intercorrelations of the variables

	1	2	3	4	5	6	7	8
<b>Determinants of innovation capability</b>								
1 External knowledge								
2 Work climate and wellbeing	0.295***							
3 Ideation and organizing structures	0.267***	0.568***						
4 Regeneration	0.382***	0.452***	0.437***					
5 Participatory leadership culture	0.263***	0.636***	0.568***	0.531***				
6 Individual activity	0.154**	0.384***	0.296***	0.369***	0.403***			
7 Know-how development	0.229***	0.475***	0.490***	0.394***	0.471***	0.285***		
<b>Dependent variables</b>								
8 Return on Investment (%)	-0.117*	-0.059	-0.079	-0.023	-0.090	0.008	-0.001	
9 Business profit (%)	-0.020	-0.074	-0.090	-0.020	-0.139*	-0.080	-0.018	0.657***

Sign. \*\*\*  $\leq 0.001$ , \*\*  $0.001 < p \leq 0.01$ , \*  $0.01 < p \leq 0.05$ , +  $0.05 < p \leq 0.1$

In terms of Hypotheses 1–7, the regression results show that all the hypotheses, except 1 and 5, were rejected (see Tables 4 and 5). Detailed results of the regression analyses are presented below.

Table 4. Regression analyses of innovation capability on firm profitability

Dependent variable	Return on Investment (%)							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
<b>Control variables</b>								
Revenue	0.100	0.101	0.100	0.099	0.099	0.092	0.100	0.101
No of employees	-0.026	-0.015	-0.026	-0.024	-0.024	-0.027	-0.026	-0.028
Industry	0.096+	0.094	0.094	0.095+	0.097+	0.089	0.096+	0.099+
<b>Determinants of innovation capability</b>								
External knowledge		-0.119*						
Work climate and wellbeing			-0.054					
Ideation and organizing structures				-0.077				
Regeneration					-0.020			
Participatory leadership culture						-0.073		
Individual activity							0.001	
Know-how development								-0.019
F	1.624	2.307+	1.435	1.668	1.244	1.611	1.214	1.240
R	0.127	0.174	0.138	0.148	0.128	0.146	0.127	0.128
R <sup>2</sup>	0.016	0.030	0.019	0.022	0.016	0.021	0.016	0.016

Sign. \*\*\*  $p < 0.001$ , \*\*  $0.001 < p \leq 0.01$ , \*  $0.01 < p \leq 0.05$ , +  $0.05 < p \leq 0.1$

Hypothesis 1 stated that “There is a significant relationship between external knowledge and profitability”. This hypothesis was supported. Model 2 shows that the degree of exploiting the external knowledge has a negative relationship with firm profitability measured by ROI ( $\beta = -0.119$ ), but the relationship is nevertheless significant ( $p < 0.1$ ). However, the adjusted  $R^2$  is only 0.016, which indicates that only 1.6 per cent of the variance can be explained with the model.

Hypothesis 5 stated that “There is a significant relationship between participatory leadership culture and profitability”. This hypothesis was also supported by the data. Model 14 shows that participatory leadership culture has a negative relationship with firm profitability measured by business profit. The relationship is also significant at the 0.05 level. However, only 2.2 per cent of the variance can be explained with the model.

Table 5. Regression analyses of innovation capability on firm profitability

Dependent variable	Business profit (%)							
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
<b>Control variables</b>								
Revenue	0.103	0.103	0.103	0.102	0.102	0.088	0.101	0.105
No of employees	-0.116+	-0.115+	-0.115+	-0.114+	-0.115+	-0.118+	-0.116+	-0.120+
Industry	0.098+	0.097+	0.095	0.097+	0.098+	0.086	0.107+	0.106+
<b>Determinants of innovation capability</b>								
External knowledge		-0.011						
Work climate and wellbeing			-0.069					
Ideation and organizing structures				-0.086				
Regeneration					-0.012			
Participatory leadership culture						-0.129*		
Individual activity							-0.089	
Know-how development								-0.045
F	2.210+	1.662	2.017+	2.230+	1.662	20.930*	2.269+	1.805
R	0.148	0.148	0.163	0.171	0.148	0.195	0.172	0.154
R <sup>2</sup>	0.022	0.022	0.026	0.029	0.022	0.038	0.030	0.024

Sign. \*\*\*  $p \leq 0.001$ , \*\*  $0.001 < p \leq 0.01$ , \*  $0.01 < p \leq 0.05$ , +  $0.05 < p \leq 0.1$

Models 9, 11, 12, 15 were also found to be statistically significant. However, the determinants of innovation capability were not found to be significant in these models. The control variables (no of employees and industry) were the only ones that had a significant relation to the business profit. This result is in contrast with the findings of past research, which propose that size and industry do not have an effect on the profitability of a firm.

## 5 Discussion

The result concerning hypothesis 1 and model 2 presents a negative relationship between the exploitation of external knowledge and the return of investment of the firm. This result is somewhat surprising and indicates that the firms have not been able to utilize external knowledge in a sophisticated manner. For example, Kallio (2012) has examined how absorptive capacity has been understood in the context of practice-based non-research and development innovation, by defining in her conclusions that the knowledge that is possessed by individuals, but is not used by the organization, is external to the organization. This may have been the case also in the current study, in other words, a lot of effort and resources may have been harnessed in gathering external knowledge, but the benefits have not been realized due to the lack of appropriate methods.

As regards hypothesis 5, model 14 shows that a participatory leadership culture has a negative relationship with firm profitability measured by business profit. This is an interesting result, as many prior studies have reported that participatory leadership as one of the key elements in the success of companies. However, if the managers of SMEs, which usually have low organizational hierarchy levels, concentrate too much on the operative level actions, they may ignore their primary task: management of the company. On the other hand, tight participation of the managers in the operational activities may decrease the idea generation and creativity of the employees. These two reasons may thus explain the negative relationship between participatory leadership and business profit.

In general, some past studies demonstrate evidence of a meaningful association between innovativeness and firm profitability (Subramanian and Nilakanta, 1996; Calantone et al., 2002; Cho and Pucik, 2005; Ken and Tsai, 2010). It has also been suggested that it is the process of innovation that really matters for profitability, rather than the returns from individual innovations (Geroski et al., 1993). The purpose of this study was to go one step further and investigate the relationship between innovation capability and firm profitability. The literature on innovativeness, innovation capability and profitability led us to hypothesize that there would be a relationship between innovation capability and profitability. The analysis, however, indicated that the relationship is mainly nonexistent. The only determinants of innovation capability that were found to be influential were external knowledge and participatory leadership culture. The effect of these determinants was still small, and in both models the impact was found to be negative.

Although it is clear that individual innovations themselves have an effect on profitability (Geroski et al., 1993), the effects of the capability to produce these innovations do not show in firm profitability measures. One plausible reason for the five hypotheses to have been rejected and no significant correlation between a majority of the determinants of innovation capability and profitability found, is that the relationship between innovation capability and profitability is more complex than expected according to the initial theoretical development. It seems to be obvious that innovation capability or potential for innovativeness is not enough alone, if the

organization lacks the tools and methods to realize this potential. There can also be found plenty of other predictors that affect profitability than innovation capability (e.g. competition situation, business cycle). The capabilities may also be linked to the process of innovation, having thus an indirect and long lasting effect on profitability (Geroski et al., 1993; Love et al., 2009).

## **6 Conclusions**

In this study, we examined the effects of the determinants of innovation capability on firm profitability. We conducted statistical tests using linear regression analyses in a sample of Finnish SMEs. The main findings of this study were that (1) only two determinants of innovation capability, external knowledge and participatory leadership culture, had a statistically significant effect on firm profitability, (2) the effects were modest, and (3) the effects were negative. As a conclusion, innovation capability is not realized in SMEs, at least in profitability measures.

The study has some limitations which should be acknowledged. The issue has been studied in Finnish SMEs. Thus, the results may not be fully generalizable to other parts of the world. The response rate accounted for 7.46, which is low. However, the sample covered such a large portion of Finnish SMEs employing 11-249 people and having a revenue of 2-50 Meuro that the results are likely to reflect the population pretty well.

Although the balance of evidence on the direct effect of innovativeness on profitability is weighted toward positive findings, previous research has not examined the possible direct effect of capability on profitability. This study suggests a signal of the existence of the relationship. Therefore, the findings of our study point out the need for more extensive research on the innovation capability-profitability relationship counting for the mediating role of organizational attributes and processes. This way, a more precisely defined linkage between these two issues can be formulated in the future. In-depth research is also needed to study the tools and methods to assist the realization of innovation capability.

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