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Finnish SMEs and the development of the innovative collaboration platform

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Abstract: Global patterns of innovative platforms for the collaboration of SMEs have resulted in the formation of SME ecosystems to connect with new markets. Finland is an innovative country, trying its best to form a national SME collaboration platform to later connect to global SME networks. The study investigates factors involved in the development of such collaborative platforms. First, the conceptual framework of collaborative platforms was synthesized from SME networking literature. Then 30 SMEs from Finland were surveyed and analysed by statistical tools. The results provided support for a conceptual framework in terms of a relationship between six factors and their impact on the development of the platform. An implication for managers is that if they are welcoming enough toward a collaborative platform, there will be better evaluation of the financial situation of the company.

Keywords: SMEs - Open innovation - Platform - Finland

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1 Introduction

Collaboration platforms today form an integral part of any organization in both its external and internal work environment. These collaborations can be varied due to macro-environmental factors such as those of a geographic or cultural nature (Bernroider 2002). However, the main goal of such platforms is to improve innovation and company performance in the given market (Golovko & Valentini 2011). Shared economy and open innovation concepts have forced companies to adapt cooperation within their base countries and in international markets. During this collaboration expansion, companies have faced many challenges and the most important one has been finding safe collaboration platforms (Iturrioz, Aragón & Narvaiza 2015). Giant companies with ample resources have been able to cope with all these challenges and to develop strong collaborative platforms in the last two decades (Jasimuddin et al. 2015). These collaborations have resulted in a wide range of innovative products, fewer expenses and huge growth for participating companies (Berry 2014). This is due mainly to the fact that some of them have enough resources but fewer innovations and others have fewer resources and more innovations (Artz et al. 2010). So, it benefited both partnering firms to collaborate and expand the businesses, something that giant companies such as P&G did a long time ago (Huston & Sakkab 2006).

Even though these platforms were becoming the backbone of multinational companies (MNCs), small and medium-sized enterprises (SMEs) were left out because of a lack of resources and workforce (Huang et al. 2013). However, it is important to note that a strong SME ecosystem in any country is vital for its long-term stable growth (Golovko & Valentini 2011). Countries such as Japan and New Zealand have a strongly SME-based economy which is evidence of that fact (Schaper et al. 2014). Yet when we compare the collaboration of MNCs and SMEs within their own circles it is clear that there are huge difficulties in the case of SMEs in collaboration, particularly with international SME markets (Hessels & Parker 2013). This results in the limitation of accessing huge banks of knowledge and innovation compared to MNCs (Rosenbusch et al. 2011).

Moreover, ever-increasing competition and high consumer demand at cheap prices have made competitive markets for SME-produced products (Tang & Tang 2012). SMEs are trying hard to survive in the given competitive business environment which seems tougher with each passing day. It is becoming almost impossible for such

enterprises to be innovative and grow at the same pace as MNCs (Berchicci 2013). As the problem has developed, Governments and research bodies have started to help SMEs to resolve the issue as they are aware of the fact that without their growth, it is almost impossible to have a stable and dynamic economy (Olawale & Garwe 2010).

To address this problem, many countries are first doing their own research at a national level to establish SME platforms which can be later connected to internationally available partnering bodies or similar platforms (Vrgovic et al. 2012). This research is specifically oriented towards Finnish SMEs, their work environment, needs and present collaboration tools. The article is part of a bigger project named PISKU (www.iskussa.fi) which is derived from Finnish words meaning 'even small can do'. This paper provides the initial investigation results of the project contributing to detailed description of SME collaboration in Finland, outlining the importance of SME cooperation for business and gauging their satisfaction levels with present cooperation. It also contributes to the general and financial management of SMEs, the economic and financial information movement and internal management of it, financial evaluation tools and attitudes towards adopting new platforms and tools. This aforementioned information from Finnish SMEs helps to provide strong basic research for the development of a collaborative platform. This platform can come in the form of standard operating procedures (SOPs), a well-designed app or website or any other medium that can serve the purpose of collaboration. Offering a thorough understanding of the relationship in the above-described information relating to Finnish SMEs, using statistical tools, is the scope of this paper.

The paper has four parts. The first covers the existing literature relevant to SME collaboration in Finland and in other countries. Following that, there is a research framework and description of all hypotheses. The article then describes the data collection methods, the survey, data analysis techniques and research methodology. Next are the findings of the research. The paper concludes with a discussion of the findings and limitations of the study.

2 Research background

Most research regarding SMEs revolves around the barriers faced by them in growing their businesses (Gill & Biger 2012). The research to resolve these issues is mainly linked to local and national obstacles they face (Vrgovic et al. 2012). It is difficult, however, to deny the importance of networking and cooperation between firms at a local and national

level, which is one of today's dilemmas (Lee et al. 2010). Studies on business partnerships and inter-firm collaboration have shifted the focus to the creation of flexible platforms to help grow businesses (Huang 2013) rather than relying on inter-firm logistic networks (Soinio & Tanskanen 2012). Indeed, a growth-based collaboration platform is a useful concept in all types of firm but SMEs apparently fail to capture the best of them compared to MNCs (Hessels & Parker 2013). Similarly, networking between firms is not suitable to describe the context wherein SMEs are so rigid about their own, small networks (Gaur et al. 2011).

The collaborative platform is a useful idea for connecting and developing ideas together by equal contribution (Huston & Sakkab 2006). It is important first to define the collaborative platform in order to understand what level of cooperation is required and what the business targets from it are. The concept of developing a collaborative platform for SMEs involves more than just the smooth management and flow of information (Lin et al. 2012). According to Zhan et al. (2003), the firm collaboration platform can be considered a fully functional environment that will cover all aspects of collaboration between firms from general daily coordination to developing an innovative solution to a problem. It should be a flexible working tool which can be modified whenever needed (Raymond & Uwizeyemungu 2007).

However, when companies share crucial information to enhance businesses, it is a similar work environment to that which Chesbrough (2003) describes as open innovation. The main belief behind open innovation is that the knowledge and expertise that lie outside the parent organization are highly beneficial to its growth. Working on collaborative platforms means that companies will innovate better compared to working alone (Gill & Biger 2012). The best collaborative network or platform is one which allows the safe exchange of information- helping with the development of ideas from concept to market. It should also facilitate workers in partnering companies and assist in the processing of consumer feedback. These aspects should improve future performance and assist in the sharing of strategies to enable more effective participation in the given market (Huang 2013).

Finland is considered a highly innovative country yet a lack of uniform cooperation platforms is a huge barrier for SMEs and startups (Kuuluvainen 2012). Although there are many angles to look into before the development of an effective platform, this paper focuses on six important factors which can provide the basics for the development of a

cooperative SME platform. These factors mainly provide a view of the current situation of SMEs regarding financial and economic information management, evaluation and cooperation tools. These include the importance of SME cooperation for business growth, satisfaction levels with present cooperation and satisfaction with general and financial information management. Additionally, they include satisfaction with the financial information movement within the company, satisfaction with financial evaluation tools and welcoming attitudes for cooperation platforms by SMEs.

Along with presenting an understanding of the six major factors, the study helps to develop a relationship between them, explores how they affect each other and later the overall platform. In practice, this means that SMEs are participating in various projects locally and internationally. This project participation has always involved interactions with professionals and other SMEs resulting in sometimes short-term collaboration or a long-term working partnership (Hoivik & Shankar 2011). However, the determination of such relationships always depends on some factors and SME attitudes (Akdogan & Cingsz 2012). In MNCs, there is always an intact system developed to handle the data and all possible factors involved, which SMEs often lack (Berry 2014).

From the SMEs' perspective, it is also important to consider that they have limited resources compared to MNCs (Zafar 2019). This does not mean, however, that SMEs have little knowledge to offer (Davenport 2005). In many countries, they provide valuable innovations while keeping the costs lower, encourage cooperation and protect intellectual property (Valkokari & Helander 2007). In place of the expensive collaborating networks of MNCs, SMEs often manage to achieve great innovations effectively and cheaply (Brouwers 2010). However, small organizational structures mean their collaborations are not always systematic- often relying instead on the SME owner's personal contacts and social relationships in the given environment (Zeng et al. 2010).

However, no single study is currently available which studies such factors and connects them with future platforms (Risikko 2017). The main research gap in previous studies is that none have directly measured the relationship between the factors indicated above. Chapter 3, following, will explain the development of hypotheses based on the collected data and connect them with previous studies.

3 Research framework and hypotheses

The development of any collaboration is always dependent on the types of needs and results expected at the end of the day (Zhu et al. 2012). The effectiveness of any platform is also dependent on the quality of the background research that has been done prior to its development (Singh et al. 2011). Previously, many factors have been discussed which can impact on a collaborative platform (Chan et al. 2012) but the main research gap is that none of them have been able to measure their relationship with one another empirically. Although there can be hundreds of factors involved in building a platform, this study highlights six and their relationship with each other. Following are the six hypotheses described in detail.

H₁. Business growth in any firm is always highly dependent on the cooperation system within the firm itself (Zeng et al. 2010). So, before the planning of networking between SMEs, it is important to systemize cooperation within each. If the SME managers are satisfied with the present cooperation within the firm, that means it is ready for inter-firm cooperation. Meanwhile, there is no direct study available which establishes the connection between the present satisfaction level with cooperation in the SME and its importance for overall business.

Hypothesis 1. There is a positive relationship between SME cooperation's importance for business ($SMEs_{COOP. Biz}$) and satisfaction with present cooperation (SAT_{COOP}).

H₂. General and financial information management both have an impact on the overall business of a firm (Chen et al. 2011). Safe management of them always enhances the growth of the business in the given market (Saripalli & Walters 2010). Similarly, so does the flow of this information within the firm and while cooperating with others (Wu et al. 2014). So safe management and flow of financial and economic information always affect the end business of the SME (Valkokari & Helander 2007).

Hypothesis 2. There is a positive relationship between satisfaction with general and financial information management during SME cooperation ($SAT_{Mgmt. Fin.}$) and satisfaction with economic management and financial information movement within the company ($SAT_{Eco. Fin.}$).

H3. The evaluation of financial information in any SME at planned intervals is helpful for evaluating its growth in the given market (Saripalli & Walters 2010). Effective evaluation tools are crucial in forming better economic management and financial information flow (Bogers 2011). Studies have discussed the importance of evaluation tools and financial information movement but no statistical relationship has been found (Chan et al. 2012).

Hypothesis 3. There is a positive relationship between satisfaction with economic management and financial information movement within the company ($SAT_{Eco. Fin.}$) and satisfaction with financial evaluation tools ($SAT_{Fin. Eval.}$).

H4. An organization's ability to grow its network in a given market is always dependent on how welcoming it is to cooperation tools (Iturrioz et al. 2015). It is often the case though that cooperation tools are available but not used properly (Vrgovic et al. 2012). Sometimes the tools themselves are not effective enough or in other cases, people are not open to using them (Turban et al. 2011). Studies have also claimed that if employees are satisfied with their present tools then they are less open to trying new platforms and tools (Gill & Biger 2012).

Hypothesis 4. There is a negative relationship between satisfaction with financial evaluation tools ($SAT_{Fin. Eval.}$) and the attitude towards welcoming the cooperation for tools and platforms ($ATT_{COOP.}$).

H5. Interest in SME cooperation has grown in the past few years due to visibly successful MNC's cooperation in all segments of the industry (Hoivik & Shankar 2011). During any firm cooperation, financial information and general management are always important to investigate (Chen et al. 2011). It has also been suggested that a strong evaluation of the business model in terms of financial flow is always a key factor in the growth of the firm (Wu et al. 2014).

Hypothesis 5. There is a positive relationship between satisfaction with general and financial information management during SME cooperation ($SAT_{Mgmt. Fin.}$) and satisfaction with financial evaluation tools ($SAT_{Fin. Eval.}$).

H6. Studies have shown that those firms which are considering establishing a cooperative ecosystem with firms of similar interest should first focus on their own

available resources (Terziovski 2010). The attitudes of the employees working for any organization collectively form its attitude (Zafar 2019). It is important to evaluate first what teams in the SMEs think of the cooperation tools and then move to the next step of networking (Brunetto & Farr-Wharton 2007).

Hypothesis 6. There is a positive relationship between satisfaction with general and financial information management during SME cooperation ($SAT_{Mgmt. Fin.}$) and the attitude towards welcoming cooperation by tools and platforms ($ATT_{COOP.}$).

All hypotheses are presented in Figure 1.

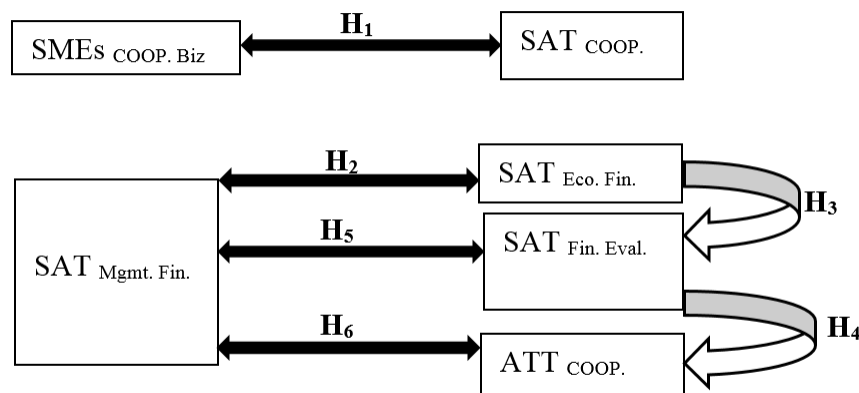


Figure 1 Relationship between the six variables and hypotheses

4 Methodology

The population sample for this study comprised, among others, CEOs of the SMEs and managers assigned by these CEOs. All these respondents had positive experiences of working in SMEs and coordinating within and outside of the firms for everyday business tasks. As this paper is part of a bigger project and based only in Finland, all respondents came from different regions of Finland such as the Greater Helsinki region, Turku, Vaasa and Lapland. The survey was conducted between 2017-2018 within a one-year time span. The unit of analysis was respondent (CEOs and managers) and a sampling unit was employed with each company. The final realized sample consisted of 30 usable questionnaires during interviews, representing a 39% response rate. The criteria of the selection of firms was based on the segments already guided by the project.

The data were collected from various business segments such as ICT, energy, healthcare, food production and fitness. The main reasons for selecting these segments were first that they were required by the project, second that most SMEs in Finland revolve around these areas and third that they were ready to cooperate. Appointments for surveys and interviews were made via email and phone calls. Most questionnaires were filled in online, during or after interviews. Data collection was performed by different teams in their respective regions.

The final realized sample of 30 responses was analysed. The initial survey form was pretested with a convenience sample of four respondents involved in a research-related field, using the collaborative participant pretesting method explained by Cooper and Schindler (2006). As stated earlier, data were collected over a year due to many initial practicalities of the project and designing the collaboration contracts for participation. On the other hand, companies also needed time to decide whether they wanted to be part of the 30 month-long project or not. The incentive was offered to companies according to project policy. Due to the privacy policy of the companies, all data were handled confidentially. A Likert scale was used to formulate seven-point statements and all the scale points of stated questions ranged from 1 (strongly disagree) to 7 (strongly agree).

The questions and their possible answers were based on previous research and case studies related to SME cooperation in Finland as well as in other countries. Although this paper is part of a bigger research project yet to be completed, this article highlights one side of it and offers initial highlights of the results. The scope of the paper is limited to financial information flow and management, general management and attitudes of the SMEs towards collaboration.

Empirical analysis has been performed between six defined factors in the form of six hypotheses. All six factors act as variables which were formed after grouping the data received from questionnaires. Similar research was conducted by Gunday et al. (2011) though they measured different types of firms' innovation against performance. Consequently, the scope of this paper is to establish the relationship between different identified factors by the 30 respondents which can later provide basics for a collaboration platform.

5 Analysis and findings

The data were collected from four major SME segments in Finland, as explained in the methodology chapter, with the help of research instruments developed by team researchers. The six hypotheses were tested by running a correlation analysis on SPSS 24. All six of them were validated by performed empirical analysis. Table 1 shows the hypotheses (H1 to H6).

In the first hypothesis (H1), we proposed that SME cooperation's importance for business has a positive relationship with satisfaction with present cooperation, as validated by statistical analysis ($p < 0.05$). H2 indicated that satisfaction with general and financial information management during SME cooperation has a positive relationship with satisfaction with economic management and financial information movement within the company, as confirmed by a significant relationship ($p < 0.05$). Satisfaction with economic management, financial information movement within the SME and satisfaction with financial evaluation tools (H3) also have a significant relationship ($p < 0.01$). The relationships between satisfaction with general management and financial information management during SME cooperation with satisfaction with financial evaluation tools and the attitude towards welcoming cooperation using tools and platforms (H5, H6) is also significant ($p < 0.01$). However, the significant relationship ($p < 0.05$) between satisfaction with financial evaluation tools and attitudes towards welcoming cooperation using tools and platforms (H4) rejects the proposed hypothesis.

Table 1 shows that hypotheses H1, H2, H3, H5 and H6 are supported once statistical analysis is performed. On the other hand, H4 is not supported because no inverse relationship is found. Findings show that satisfaction with general and financial information management during cooperation positively affects economic and financial information movement within the SMEs, the use of financial evaluation tools and a welcoming attitude towards using cooperation tools and platforms.

Table 1 Analysis of the hypotheses by SPSS

<i>Hypotheses</i>	<i>Characteristics</i>	<i>Relationship sign.</i>	<i>p-value</i>	<i>Results</i>
H ₁	SMEs _{COOP.} Biz α SAT _{COOP.}	0.027*	$p < 0.05$	Supported

H ₂	SAT _{Mgmt. Fin.} SAT _{Eco. Fin.}	∝	0.036*	$p < 0.05$	Supported
H ₃	SAT _{Eco. Fin.} SAT _{Fin. Eval.}	∝	0.000**	$p < 0.01$	Supported
H ₄	SAT _{Fin. Eval.} ATT _{COOP.}	∝	0.032*	$p < 0.05$	Not Supported
H ₅	SAT _{Mgmt. Fin.} SAT _{Fin. Eval.}	∝	0.001**	$p < 0.01$	Supported
H ₆	SAT _{Mgmt. Fin.} ATT _{COOP.}	∝	0.001**	$p < 0.01$	Supported

**Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

6 Discussion and Conclusion

SME collaboration can be seen as a challenging task of carrying out free collaboration and turning this into business growth (Costa et al. 2016). Traditionally, the implementation of such widespread cooperation has been seen as more challenging than the creation of collaborative platforms (Tiwana et al. 2010). Typically, SMEs have limited resources and workforce, multiple duties are performed by the same managers and financial issues are a barrier to cooperation and growth. In such tough scenarios, an effective collaborative platform can be very useful (Lin et al. 2012).

As in all fields, survival of the fittest prevails, so SMEs also feel the need to follow in the collaborative footsteps of MNCs. As this paper is part of a bigger project, we have only focused on six aspects which are needed to start the basics of platforms. Based on the analysis of the collected data, we found that SMEs which consider

cooperation important as an integral mediator for business growth are highly satisfied with present levels of cooperation. This internal confidence in present cooperation is enhanced by their observed business growth (Kuivalainen et al. 2012). For most SMEs, if they are satisfied with economic management and financial information movement internally, then they are satisfied with general and financial information management when they cooperate with other SMEs. It is important, however, to note that dissatisfaction with any of the four parameters described can have an overall negative effect on the business of the company's financial and economic management and movement of information. As such, trust in SME cooperation for business growth and movement and the management of crucial information always eases the situation for SMEs to develop new networks and platforms (Brunetto & Farr-Wharton 2007).

The movement of information within all types of firms always defines internal cooperation between all units (Saripalli & Walters 2010). Similarly, inter-organizational general and financial information management always facilitates any initiative towards the networking of SMEs (Turban et al. 2011). So, in the formation of the new, effective platform, both of these types of management and the movement of financial and economic information should be handled smoothly and safely. In this paper, we established the direct relationship between both of these factors (H2) which suggests that both of the identified factors should complement each other.

It was described earlier that the level of satisfaction with economic management and financial information movement internally in firms is a central element in determining their interest in collaboration with other firms (Chan et al. 2012). In this paper, we have connected this idea significantly with levels of satisfaction of the SME regarding its financial tools (H3). Thus, the financial evaluation tools decide the satisfaction of SME staff with economic and financial information movement and management. If SMEs are able to manage these two factors with high satisfaction levels during cooperation, the platform will perform well. It is also important to note that satisfaction with financial evaluation tools is always challenging because it has various aspects to consider. Sometimes tools are not user-friendly or employees are not interested in using them properly (Brunetto & Farr-Wharton 2007). Our data analysis shows that satisfaction with financial tools always improves satisfaction with general and financial information management (H5). So, this valuable thought should be considered a 'must feature' in future cooperation platforms.

Additionally, Jasimuddin (2015) suggested that a positive approach towards cooperation tools provided by any organization is always helpful for SME networking. In this paper, we have proved that a welcoming attitude toward collaboration platforms always enhances satisfaction with general and financial information management when SMEs partake in inter-firm cooperation. Future devised platforms should certainly consider this significantly approved thought.

However, it was believed in studies that when employees are satisfied and use financial evaluation tools fluently, they try to stick to them for a long time (Michaelides et al. 2013), even in many cases refresher training on the update of features in evaluation tools does not help much (Lee et al. 2010). This means, then, that in such a satisfaction scenario, employees are not welcoming towards new cooperation tools (H4). However, our analysis rejected this notion and proved a significant relationship between satisfaction with financial evaluation tools and a welcoming attitude towards new cooperation tools.

Consequently, the paper has revealed that there could be many factors playing a vital role in the development of a flexible cooperation platform for SMEs. However, this study confirms six possible key factors, which could have a direct, positive impact. This information can play a key role as managers and technical support people involved in building such platforms, can analyse these factors by fitting them into different SME cooperation scenarios. This means that the end platform will be more valuable than previously designed ones. Additionally, the rejected hypothesis also contributes to the fact that the relationship between a welcoming attitude toward cooperation tools and financial information movement should not be ignored for the best collaboration results from future platforms.

7 Limitations and future research directions

There are also a few limitations to this study, which affected data collection and the interpretation of results. It is important to note that due to a combination of the quantitative and qualitative approach of our study, any generalization of results is limited mainly to Finland. This being the case, uniformity posed the challenge of viewing the SMEs with the same eye in international ecosystems. This creates challenges due to differences in the work environments from Finland. Another limitation of the study relates to sample size. It does fulfil the project requirements because there are long

interviews involved but a larger sample would have provided a deeper understanding to evaluate factors for platform building.

This study does, however, provide a useful starting point for SME platform discussions at an international level. The bigger pool of SMEs for further research can provide new angles for networking. The utilization of CEO and managers' knowledge in SME platform building previously may be another important future aspect to discuss. It would also be interesting to carry out a comparative study between Finnish and other Nordic countries' SMEs regarding the development of a cooperation platform.

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