

Cooperation of high-tech firms with public institutions in Poland: Managerial perspective

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Abstract: This study examines the cooperation between high-technology firms and institutions aimed at supporting the development of enterprises, such as national agencies and public education institutions, in emerging markets. The research uses qualitative research methods—namely, multiple case studies. An empirical analysis was conducted in 26 high-tech enterprises from emerging market: Poland, including hyper-growth organizations. This study explores the support of the institutions as well as cooperation between firms and public institutions from a managerial perspective. The major problems and obstacles that these firms faced are identified, as are ways of coping with them. The research results extend existing studies by providing empirical insights from high-tech firms in one of the emerging markets in Central Europe.

Keywords: Emerging market, Public institutions, Universities, Cooperation, High-tech firms
JEL: H75, I23, L26

1. Introduction

In the global business world, firms from emerging markets face particularly significant barriers in their development, particularly when considering innovativeness and international expansion. However, both innovativeness and international expansion are especially crucial for high-tech firms. The firms provide their customers with increasingly innovative and complex solutions, including both services and products. Considering the growing meaning of global competitors, firms need to compete and cooperate on an international scale; thus, the

internationalization of activities becomes increasingly common in high-tech enterprises, thereby making internationalization more important for their growth.

Taking into account the importance of contextual influences on the development of enterprises, researchers consider context to be relevant in analyzing business practices. Given the importance of institutions in the development of economies, one of the most important challenges for governments is the development of appropriate public programs and agencies aimed at supporting firms' development and growth. Indeed, several public institutions have been created in Poland, as well as public R&D and educational institutions, to support enterprises' growth. However, the level of cooperation between the public and private sectors—and even between firms—is very low in Poland. Furthermore, the majority of enterprises focus exclusively on the national market, even operating in sectors considered to be global (e.g., IT or telecommunication).

The majority of previous studies in this area have examined the cooperation between enterprises and public institutions from the macro perspective, using quantitative research methods. Thus, there is a very limited understanding of this phenomenon from the micro perspective. Yet the question remains: How do enterprises cooperate with public institutions? If they do not cooperate, why do they avoid such cooperation? The main aim of this study is to explore the cooperation of high-tech enterprises (from the perspective of top managers) with public institutions to support the development (both international expansion and the development of innovations) in one of Europe's emerging markets.

This paper is divided into five parts. The next section presents the theoretical framework and overview of previous studies in this field. The third section describes the methods used in this research, while the fourth section presents the findings. Conclusions are developed in section five.

2. Theoretical framework

2.1 Public institutions' and enterprises' development

The idea of incorporating the context of firms' development into management is rooted in institutional theory (DiMaggio 1988, Barley, Tolbert 1997). Political, social, and legal rules are considered as the institutional framework to establish the basis for organizations (North 1990). However, in this paper, institutions have different meanings; government institutions, as well as other public institutions (e.g., educational institutions), have been considered. The aim of these institutions is to support the development of entrepreneurship as well as existing enterprises. The institutions use policy instruments aimed at, for example, providing appropriate infrastructure, research and development, education, information and advice, and access to finances and dedicated programs (e.g., internationalization support by matching organizational meetings and conference attendance).

According to Acedo and Casillas (2007), a paradox exists between national institutions' supporting role and the international development of enterprises. On the one hand, a positive correlation exists between managers' perceptions of risk and the need for support from government institutions; on the other hand, *no significant relationship exists between the speed of firms' development and the internationalization processes as well as support from these institutions*. Regardless of the existing ambiguity on this matter, in several emerging markets, government programs and support have led to the development of a number of multinationals (MNE) from Asian countries, for example, China or Malaysia or developed countries such as Singapore and Taiwan (Tan 1995, Pang 1995, Sim, Pandian 2011). Moreover, government R&D funding programs might have an effect on SMEs' performance, based on the examination of enterprises in another Asian country - South Korea (Park, Kim 2010). However, it looks like these are rather exceptions, than the rule.

2.2 Institutions supporting development of enterprises in Poland

Major public institutions in Poland seeking to support enterprises' development—in terms of both international expansion and innovativeness—include the Ministry of Economy of the

Republic of Poland, especially Trade and Investments Promotion Sections, the Polish Chamber of Commerce for Importers, Exporters and Cooperation, the Polish Chamber of Commerce, the Polish Information and Foreign Investments Agency, and the Polish Agency of Enterprises Development. Most educational institutions, especially technical universities, are public universities in Poland.

The results of previous studies have demonstrated that institutions that are supposed to support enterprises' development often do not meet the firms' expectations (Woodward 2000-2002). Most enterprises in Poland rely on managers' personal contacts and conferences or industry events rather than on institutions (Koladkiewicz, Cieslik 2011). According to Gorzynski et al. (2006), based on an empirical study, only 13.6% of SMEs experienced cooperation with national agencies or took part in training programs offered by such agencies. Only 3% cooperated with regional development institutions and start-up incubators. Furthermore, the results of previous research on cooperation between Polish firms and R&D institutes as well as universities show the very limited knowledge exchange between them (Koladkiewicz, Rzacca 2010, Sosnowska et al. 2003). Most firms do not cooperate with universities and R&D institutes (Woodward et al. 2010, Woodward 2011).

It is worth mentioning that several interesting initiatives in Poland aim to support SMEs in their international expansion (e.g., Do IT with Poland, a program supporting the activity of Polish high-tech firms in international events, such as the annual ICT trade show CEBIT in Hanover, Germany).

For the purpose of this research, all the agencies were contacted in order to obtain data concerning the effects of the provided politics. Unfortunately, except for the Polish Agency of Enterprises Development, none of the agencies answered positively; most explained the negative answer by asking questions about the data in terms of cooperation with enterprises that lack the time to participate in extra projects.

3. Method

Taking into account the explorative nature of this research, qualitative methods have been considered to be the most appropriate (Yin 1994). As the social context is crucial for

understanding the analyzed phenomenon, a case study approach is recommended (Neuman 2000). Using a case study makes it possible to explore and interpret the phenomenon of cooperation between firms and institutional environments (government agencies, universities from managerial perspective; Yin 1994). In this study, multiple case studies were conducted in 26 high-tech firms. Nine of the sample firms were listed by Deloitte in a report entitled Central Europe Fast 50 Technology (2012). The listed firms are hyper-growth organizations (Cassia et al. 2009), growing more than 230% during a 5-year period (2008–2012). A short summary of the firms' characteristics is provided in section 4.1.

A major source of the data gather was unstructured interviews with top managers in selected firms. The top manager role in SMEs' development and their internationalization has been recognized as being more important than in large firms for at least two reasons. First, the quality of managers has been found to be a crucial factor in a firm's strategy, performance, organizational learning, and internationalization in a large body of literature on entrepreneurship, concerning existing SMEs (e.g., Aaby, Slater 1989, Eshghi 1992, Reuber, Fischer 1997, Harveston et al. 2000, Tihanyi et al. 2000, Westphal, Fredickson 2001). Second, as Sarakar et al. (2001), among others, explained, in small firms and uncertain market environments, managers' actions play an even more important role. In particular, in the high-tech industries, processes in SMEs tend to be much less structured and formalized. In such firms, managers' individual features as well as their personality and emotions play a larger role in decision-making processes than in large, structured organizations. Thus, studying the phenomenon from the managerial perspective is of crucial importance.

The interviews lasted an average 2 hours. Most interviews were recorded and transcribed. In total, more than 50 hours of interviews were conducted with 33 persons. The interviewees' characteristics and firms' year of establishment are described in Table 1. The major part of the interviews focused on the cooperation with institutions supporting the development of Polish enterprises. Furthermore, cooperation with universities and R&D projects was an important part of the interviews. Secondary data were also collected and analyzed from reports, websites, materials from industry conferences and events, and institutions. Because of the sensitivity of the collected data from competing enterprises, all the firms were coded (F1–F26). The firms coded F18 to F26 were considered hyper-growth enterprises.

Table 1. Description of the interviewees in analyzed firms

Firms	Year of establishing	Informants/ role in a company	Time of interviews/ and mode	Materials
F1	1991	1 –Director of Business Development	1 hour 20 min (Skype)	Transcripts
F2	2001	1 –CEO	2 hour (Site)	Transcripts observations (notes)
F3	1992	2: 1- Sales Director 1- Strategy Office Manager	4 hour (Site, Off-site)	Transcripts notes
F4	2008	1 –CEO	2,5 hour x 2 (Site)	Transcripts observations (notes)
F5	2003	1- CEO	1,5 hour (Site)	Transcripts notes
F6	2003	1 – CEO	2,5 hour (Off-site)	Notes
F7	2003	1 – CEO	2 hour (Site)	Transcripts
F8	2002	1 – CEO	1,5 hour (Off-site)	Transcripts
F9	2002	1- CEO	1 hour (Site)	Transcripts notes
F10	1993	1- CEO	45 min. (Site)	Transcripts
F11	2003	3: 1 - CEO 1- Sales Director, 1 – Technical Director	2 hour 50 min. (Site)	Transcripts observations (notes)
F12	2004	1 – CEO	2 hour (Site and Off-site)	Transcripts observations (notes)
F13	2008	1 – CEO	1 hour 50 min. (Off-site)	Transcripts observations (notes)
F14	1999	1- Dales director 2- specialists	1 hour x 3 (Off-site)	Transcripts observations (notes)
F15	2001	1-CEO	1 hour 20 min (Site)	Transcripts observations (notes)
F16	2006	1-CEO	1 hour 15 min (Site)	Transcripts
F17	2009	1- CEO	1 hour (Site)	Interview notes, observations (notes)

F18	2002	2: 1- International Sales and Marketing Director, 1 – Marketing Director	1 hour 35 min (Skype)	Transcripts
F19	2003	2: 1- CEO 1-Business Solutions Director	1 hour 45 min. (Site, Off-site)	Interview notes
F20	2004	2: 1- CEO 1- Technical Director	1 hour 50 min. (Skype)	Transcripts
F21	2005	1-CEO	1 hour 35 min. (Skype)	Transcripts
F22	2004	1- CEO	1 hour 25 min. (Site)	Interview notes
F23	2003	2: 1 – CEO 1 – Vice President	2,5 hour (Site)	Transcripts observations (notes)
F24	2002	1 – CEO	1 hour 50 min. (Skype), additional materials - emails	Transcripts notes
F25	2004	1- Sales Director, Member of the Board of Directors	3 hour 20 min. (Site)	Transcripts observations (notes)
F26	1999	1- Deputy Chairman	1 hour (Skype)	Transcripts

4 Findings

4.1 Characteristics of the firms

All explored firms are high-tech enterprises operating in the ICT industry. The ICT industry is one of the most globalized industries, containing technology- and knowledge-intensive enterprises offering increasingly complex solutions to their customers (Golonka 2013). Thus, the firms offer solutions consisting of both products and services. Most create their own technology or innovative solutions. This industry is characterized by a high level of uncertainty and constant changes. All firms are Polish SMEs.

4.2 Cooperation with institutions (ministry, national agencies)

Most analyzed firms did not cooperate with institutions at the time of the study. The major reasons for avoiding cooperation with institutions, as indicated by managers, include a lack

of positive outcomes from such cooperation, excessive bureaucracy, a lack of knowledge and transparency of institutional programs, and the belief that the company should handle the development itself. Sample excerpts from the interviews are presented in Table 2.

Table 2. Sample excerpts from the interviews

Reason to avoid cooperation	Sample excerpts
Lack of positive outcomes of such cooperation	“Yes, we used to cooperate with the Ministry of Economy. We took part in conferences co-organized by them. And we tried to search for foreign partners (...). They arranged the meeting, they gave us the contacts., but it’s not effective. It’s like a ‘numbers office,’ one of many tools—many, many tools.” [F12]
Excessive bureaucracy	“The ideas created by institutions are beyond normal human understating sometimes. (...) We had a program of internships for science people in enterprises. The agreement was 300 to 400 pages long, including appendixes. And the person (intern) had to report every month, describing what he or she did, while the agency expected that every month the report would be signed by the same particular person from the firm who had signed the first agreement. It’s incredible—it’s total nonsense, but it’s required. [F21]
Lack of knowledge and transparency of institutional programs	“Ways of grants, support, and evaluations are totally unclear. We don’t have such a division that could take care of all this.” [F7]
Belief that the company should handle the development itself	“If the firm is to handle the problems, it should handle them by themselves. Firms that need the support from institutions cannot handle the problems.” [F13]

Some of the analyzed firms did have experiences in such cooperation. However, the experiences differed in the analyzed sample of firms. Likewise, in the hyper-growth firms, most managers admitted that they cooperate with institutions and participate in the programs, grants, and other activities offered by these institutions. As one manager commented on this matter:

“Firms do not search so they do not find. An institution is not able to find them instead—it can’t know which firms are interested in their programs or not, so it’ firm’s task is to monitor, even through such simple mechanisms as newsletters. Believe me, there is everything that is important in our region. The Ministry of Economy is very concerned about export promotion at present. For example, there are many programs, competitions to take part in.... I get an invitation practically

every month for the commerce mission abroad. (...) We actively cooperate with the Polish Chamber of Commerce for Importers, Exporters and Cooperation, also in Berlin, Moscow, or the UK.” [F18]

Based on the collected information, managers in hyper-growth firms treat the institutions as additional sources of information, contacts, and support. They proactively search for possibilities to acquire such support. The main activities that such firms are seeking include conferences, partner match meetings abroad, and trade show participation. Furthermore, most of the hyper-growth firms create or participate in various trade associations (e.g., industry associations, international associations), unlike the remaining analyzed firms.

However, interviewees’ opinions regarding the actual support from the institutions were more frequently negative, as the following comment from one manager demonstrates:

“The institutions actually don’t have any idea how to support the business. There are few people there who are aware of how things are going on in the enterprises. What are the problems, where are the opportunities? (...) It’s a waste of time.” [F21]

4.3 Cooperation with universities

Cooperation with universities is significantly more common among analyzed firms than with other institutions. Interestingly, all nine hyper-growth firms in the sample cooperate with universities, especially technical universities (e.g., polytechnics). There are also clusters consisting of some of these firms and universities focusing on R&D projects. Furthermore, in several other hyper-growth firms, other projects or even new specializations for students have been created in cooperation with universities. Five of the remaining analyzed firms also cooperate with technical universities. Thus, in total, 14 firms from the sample cooperate with universities.

According to the managers’ opinions, the firms gather additional knowledge regarding the newest technologies thanks to such cooperation. Additional advantages mentioned included support in solving more complex technical problems as well as access to talents (students) who could be prospective employees and future collaborators.

However, again—as in cooperation with institutions—the lack of adequate mechanisms of cooperation and “business orientation” as well as the heavy bureaucracy seem to be major obstacles to such cooperation. On this matter, managers shared opinions such as the following:

“The problem is that there is no contact center or something like that with which I could contact in order to order or request some research. There is simply no such place ... because universities in Poland do not have any idea how to commercialize their knowledge (...). I’m afraid it is impossible to order research or something like this at the university; it must be circumvented using some strange methods.” [F22]

“The universities are not prepared to cooperate with business. And even if they are, they focus on more traditional industries—a good partner is someone who produces something like ventilation vents.” [F21]

Regarding the methods of effective cooperation mentioned by interviewees, the most popular way is cooperation with individual people working at universities. Thus, personal contacts seem to be of great importance. Indeed, cooperation between enterprises and universities starts from direct, personal relationships that are often established during studies. The interviewees shared similar opinions as the following:

“The only activities we take—with the university—are based on the people, I mean my contacts from the university that I graduated from. We are able to do something with individual people. (...) This is unavailable for firms without such contacts.” [F23]

“We have been cooperating very closely from the very beginning with the university I graduated from. We have also organized and created together a kind of scientific suborganization. We gave the software and the hardware, and the Dean Officer provided a classroom, and we held a workshop together, including MA and PhD projects. (...) It was possible thanks to the collaboration with people from this university.” [F26]

Likewise, cooperation is initiated from the interpersonal relationships of firms’ managers with individuals working at the universities. According to the interviewed managers, there are no effective formal structures at universities allow for the creation of cooperation between enterprises and these institutions.

5. Conclusion

This study explored the phenomenon of cooperation between high-tech SMEs and institutions providing support for the development of enterprises' international expansion and innovativeness, taking into account the managerial perspective. The first conclusion that emerged from the findings is that most of the examined firms avoid cooperation with institutions and do not utilize the policies created by the institutions. This outcome confirms previous research results (e.g., Woodward 2011), although previous research has not been conducted in high-tech firms, which by their nature are technology- and knowledge-intensive and dynamically changing. This research highlighted the major reasons for avoiding such cooperation, which consist of a lack of positive outcomes from such cooperation, excessive bureaucracy, a lack of knowledge about the offered policies and transparency of institutional programs, and the belief that the company should handle the development itself.

However, some of the analyzed firms (labeled as hyper-growth enterprises) actively use the support offered by institutions, regardless of the mentioned obstacles (e.g., excessive bureaucracy). This finding suggests that managers' perceptions of institutions are of crucial importance. Their perception of the reality, including institutions, has already been shown to influence organizations' activities and performance (North, 1997, Davidson, 1991). Another conclusion is therefore connected with the importance of managers' perceptions of institutions, which might be of greater importance for enterprises than the actual activities of these institutions. The qualitative approach allowed for exploring and understanding the underlying mechanisms that shape actual cooperation between enterprises and public institutions.

Contrary to previous, quantitative research examining the utilization of external supporting programs, which found that the enterprises utilize such programs only when managers or owners are incapable of providing support (Yusuf 2012), the results of this study show that the managers use the policies created by institutions as one of many tools for increasing their development. This study also suggests that hyper-growth firms proactively use all opportunities, including those offered by institutions, to increase their growth potential.

Almost 50% of the analyzed firms cooperate with technical universities. The major motivation for such cooperation includes access to additional knowledge regarding the newest technologies, support for solving more complex technical problems, and access to talents

(students), who are prospective employees and future collaborators. However, the barriers in effective cooperation are similar to those in cooperation with other institutions: excessive bureaucracy and a lack of adequate mechanisms for cooperation as well as the “business orientation” from universities’ side. It might also be concluded that cooperation between enterprises and universities almost exclusively results from interpersonal relationships between managers and individual people working at universities; the informal mechanisms are more important here than the formal ones. The findings also suggest that such cooperation is practically unavailable for enterprises where managers do not have such personal contacts.

What is clear is the need for further investigation into cooperation between enterprises and institutions, taking into account the effects of provided policies—namely, programs, funds, etc. Further processual studies might deepen the understating of bilingual cooperation. Another interesting direction for further studies is the impact of enterprises on universities and on both formal and informal practices occurring during cooperation. This paper has shown that many areas related to relationships between institutions and SMEs are worth further exploration.

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***Współpraca przedsiębiorstw zaawansowanej technologii z instytucjami publicznymi w Polsce:
z perspektywy kadry menadżerskiej***

Streszczenie:

Niniejsze opracowanie analizuje współpracę między firmami zaawansowanych technologii z instytucjami wspierającymi rozwój przedsiębiorstw funkcjonującymi na rynkach wschodzących. W badaniach wykorzystano metody jakościowe – studium przypadku. Analizę empiryczną prowadzono w 26 przedsiębiorstwach zaawansowanych technologii funkcjonujących na jednym z rynków wschodzących: w Polsce. Niniejsze opracowanie bada wsparcie instytucji oraz współpracę między firmami i instytucjami publicznymi z perspektywy kierowniczej. W wyniku analizy materiału empirycznego zidentyfikowano główne problemy i przeszkody stojące przed przedsiębiorstwami oraz sposoby rozwiązania problemów. Prezentowane wyniki badań poszerzają dostępną wiedzę, dostarczając empirycznych danych o firmach high-tech na jednym z rynków wschodzących w Europie

Słowa kluczowe: rynek wschodzący, instytucje publiczne, uczelnie, współpraca, przedsiębiorstwa zaawansowanej technologii

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