

Measuring the Impacts of an IC Development Service: the Case of the Pietari Business Campus

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Abstract: Intellectual capital (IC) development includes a wide set of activities focusing on the improvement of an organisation's intangible resources. However, it is often unclear what kind of impacts different IC initiatives have. The current literature lacks appropriate methods for identifying and measuring them. If it is not possible to assess the impact of various development activities it is difficult to justify IC investments or choose between alternative service providers. This paper, based on a case study, examines how to assess the impacts of an IC development initiative. The empirical research setting is the Pietari Business Campus, a knowledge-intensive business service organisation providing various development services for its twelve member companies operating in the St. Petersburg region in Russia. In this paper, the literature is first examined to understand how the impacts of development activities can be assessed in different contexts. The characteristics of these approaches are then utilised to formulate the assessment methodology used in the case study. The empirical assessment consists of both numerical indicator data and subjective interview data. The case study showed that the activities and outputs can be measured quite accurately but that the outcomes are difficult to capture. The main challenge results from external changes taking place and making it difficult to observe the outcomes of development activities. Due to the challenging nature of the assessment task and the relatively low managerial priority of the issue (on the customers' side) it is suggested that subjective assessment methods may provide sufficient information in many cases. Although this paper is focused on IC development, there may be similar contexts in other knowledge-intensive services in which the lessons of this study might be useful.

Keywords: effect, impact, intellectual capital, intellectual capital development, knowledge-intensive business service, measurement, service

1. Introduction

Companies must develop their competencies continuously in order to remain successful in competition. Sometimes they utilise external service providers to acquire resources to complement their own internal development efforts. Knowledge-intensive business service (KIBS) firms provide expert services such as consulting and training in order to support their customers (Den Hertog, 2000; Miles et al., 1995). The output of a service activity – especially in the case of KIBS firms – is usually more or less intangible. In the context of development projects carried out by a KIBS company a relevant question relates to the value of the service (cf. Zeithaml, 1988): what kind of impacts are created as a result of the process and how can they be measured? This paper examines the theme of service impact measurement in the context of intellectual capital development.

Intellectual capital (IC) management consists of activities related to, e.g., identifying, developing, measuring and reporting on the intangible assets of an organisation. IC development – a key aspect of IC management – focuses on the improvement of IC-related resources and activities in practice (Lönnqvist et al., 2008). While IC-related resources include, for example, skills, brands and working atmosphere, IC development activities consist of various practices such as development discussions, customer satisfaction surveys and employee training. According to the literature (e.g. Lönnqvist et al., 2008; Salojärvi, 2005), many of these activities are already carried out in companies without necessarily considering them as “IC development activities”.

In practice, various services (related to training, education and brand improvement etc.) are available to support managers with IC development initiatives. However, it is not clear what kind of impacts different development initiatives have, if any. The current literature lacks appropriate methods for identifying and measuring these impacts. If it is not possible to assess the impact of development activities it is difficult to justify the IC investments or choose between alternative service providers.

Measuring the effect of IC development activities (e.g. competence development project) carried out within organisations is challenging for a number of reasons (cf. Antikainen et al., 2008). First, when

assessing the outcomes we should be able to identify the factors making an impact. In addition to a specific development activity, other changes may also take place. For example, significant changes in the business environment (such as the sudden economic decline at the end of 2008) or organisational changes (e.g., the replacement of a CEO) may have a major impact on an organisation's business performance. Thus, it may be difficult to determine which part of the benefit is caused by the specific development activity and which is due to other factors. Second, it may take some time before the impact of an intervention is realised. Thus, the outcomes may not have been realised at the time of assessment. Furthermore, it is difficult to link the investment (the development activity) and the effect if there is a long time lag (especially when taking into account all the impacts of other changes taking place).

This paper is based on a case study. The empirical research setting is the Pietari Business Campus (PBC). PBC is an innovative platform for providing IC development services for its twelve member companies operating in the St. Petersburg region in Russia. This paper examines the impacts that the PBC's IC development services have on its member companies. Through the case analysis an improved understanding of the challenges related to assessing the impacts of IC development initiatives is obtained. The paper also presents a procedure for assessing the impacts of IC development services. Although the focus of the paper is on a specific type of service (IC development) we believe that the findings are applicable in other, similar knowledge-intensive business services.

2. Literature review: Assessing the impacts of development activities

It is assumed that by investing in IC development work (e.g. developing recruiting practices) positive effects on a company's resources and activities and finally improvements on financial results (e.g. productivity and profitability) can be achieved. However, the literature shows that it is not clear what kind of impacts different IC development initiatives have (Kujansivu & Lönnqvist, 2007; Ross, 2002; Väisänen et al., 2007). Furthermore, the literature lacks appropriate methods for identifying and measuring these effects.

In the literature there are several models for measuring and managing organisation's IC as such. Examples of these are the Calculated Intangible Value (Stewart, 1997), the Value Added Intellectual Coefficient (Pulic, 2000), Knowledge Assets Value Spiral (Carlucci & Schiuma, 2006), the Danish Guidelines (DMTI, 2003) and the Meritum Guidelines (Meritum, 2001). They support evaluating the status of IC in the organisation at a certain time. In addition, these models provide a frame for the IC development work. However, they are not designed for assessing the impacts of individual IC development initiatives (cf. investment calculations in the case of physical assets), i.e. they are intended for the valuation and / or development of IC as a whole – not for understanding the effectiveness of a single IC development activity.

From a managerial perspective it is difficult to justify IC investments if it is not possible to assess the impact of the development efforts. Moreover, all development activities in a company should be prioritised and the selected development activities should be executed with the best possible input-output ratio (Taskinen & Smeds, 1999). The choice between alternative service providers (e.g. consultancies, public organisations) is also difficult to make. On the other hand, service providers need information about what kind of added value their services provide for customers' business operations. Measuring the impacts of IC development is considered difficult or time-consuming and, therefore, measurement is often neglected in practice. Thus, there is a clear need for a practical managerial procedure to support the measurement of IC development impacts.

The literature on 'impact measurement' is scattered so that studies usually address only the assessment of the impacts of a specific activity. For example, the assessment of impacts has been discussed in the contexts of competence development initiatives (Suikki et al., 2006), R&D projects (Herath & Park, 1999) and change management interventions (Scharitzer & Korunka, 2000). It is assumed that by seeking assessment approaches from several streams of literature (such as education, R&D and so on) there is a good chance to learn about the practices in each field. Next, some examples of measurement models presented in the literature are provided.

According to Scharitzer and Korunka (2000), the effects of *change management interventions* (e.g. a comprehensive restructuring process; the development of new customer-orientation) should be measured at three points in time: at least one month before the organisational change, shortly after

the change and one year after the change. The evaluation includes (in each step) two parts taking different perspectives on the phenomenon: customers' and employees' views. To measure both customers' and employees' expectations and experiences structured questionnaires are used. Taskinen and Smeds (1999) also introduced a framework for measuring the effects of *change management*. Two types of measures are used: The first type assesses change project management itself and the second measures the outcomes of the change project. The outcome measures are further divided into human resources, process and technology dimensions. A questionnaire, which includes both quantitative and qualitative measures, is used to assess the change.

Various evaluation models for the impacts of *IT investments* have been proposed. Love and Irani (2004) used a questionnaire which included three different benefit classes: strategic, tactical and operational. Respondents were asked to indicate the extent to which the factors were undertaken or had been experienced. Sun and Oza (2008) developed a method for measuring the benefits of implementing (and utilising) a specific IT system. The main idea is that both tangible and intangible benefits need to be evaluated. For tangible benefits, a spreadsheet calculation tool was developed. Instead, intangible benefits are measured using a proposed framework, which includes six key measurement areas. The assessment can be carried out most easily by interviewing managers. Giaglis et al. (1999) present a categorisation for the benefits gained from information systems. They distinguish, first, quantifiable and non-quantifiable benefits, and second, those benefits that are realised solely as a result of the intervention, and those that depend to a greater or lesser extent on other organisational factors as well. The Finnish Funding Agency of Technology and Innovation (Tekes, 2008) evaluates the effects of *R&D projects* carried out in companies at the end of projects using two types of questions: quantitative and qualitative. Similarly, the Academy of Finland (see e.g. Lemola et al., 2008, p. 44) uses an assessment procedure for the outcomes of *research programmes* financed by the organisation. Each programme is evaluated from at least the following aspects: achievement of the objectives, academic results and social impacts.

The impacts of *implementing different types of management systems* applied are discussed in several studies. For example, according to Beattie and Sohal (1999) the benefits of implementing ISO 9000 (carrying out a total quality management project) need to be measured from two perspectives: strategic business benefits and operational business benefits. Ukko et al. (2007) focused on the evaluation of performance measurement impacts (application of the Balanced Scorecard). They used interviews to assess outcomes from two perspectives – management and leadership.

Voisey et al. (2006) focused on the measurement of the impact of a *business incubation project* (i.e. developing and supporting entrepreneurial activity) on its participants. The effects are measured from four perspectives: hard client specific measures, hard incubator specific measures, soft client specific measures and incubator specific measures.

To summarise, although the focus of the different methods is on different types of initiatives, some common elements are emphasised. First, many models suggest that the effects achieved should be measured from different perspectives, with attention to both intangible (soft) and tangible (hard) factors and also to benefits obtained at different levels (strategic and operational). Second, it seems necessary to take into account the views of different stakeholders, such as employees, service provider and customers. Third, the assessment typically includes many data gathering methods, for example interviews and numerical indicators. Fourth, the measurement of the effects of a development initiative seems to be to a great extent based on the subjective assessment of individuals.

3. Case study

3.1 Description of the research setting

The empirical examination is based on case research. According to Eisenhardt (1989) case study is a research approach that focuses on understanding the dynamics within single settings. Case studies are used in order to study a certain phenomenon in selected cases. Case study was chosen because it emphasises the rich, real-world context in which the phenomenon occurs (Eisenhardt & Graebner, 2007) and enriches not only theory, but also the researchers themselves (Voss et al., 2002). In addition, case studies may use various data sources including interviews, survey data and observations (Gummesson, 2000; Yin, 1994).

The case organisation examined in this study, the PBC, is a network founded (in June 2007) and owned by twelve Finnish companies operating in the St. Petersburg region (overall about 350 Finnish companies operate in the area). The PBC provides IC development services for its member companies focusing on such areas as competence development and improving employer image. Examples of the development services are recruiting events, “learning from others” events, co-operation with educational institutions and training events. The PBC is a prime example of a KIBS organisation (cf. Bettencourt et al., 2002; Miles et al., 1995). Its most important assets include its close relations with the member organisations and good knowledge of their activities, co-operation with other training service providers, its training processes and activities as well as the skills of the PBC staff – all knowledge-based resources. Also, the main rationale for the PBC is to be able to make an impact on the development of the competencies and processes of its member companies.

There were many reasons for establishing the network. For example, at the time of its inception the markets in the area were considered to have great potential but to be challenging for Finnish companies due to the characteristics of the business environment. Another reason for starting the network was the belief that sharing experiences and competence development efforts would be useful for companies planning to enter the area.

The need for assessing the impacts of the network’s operations originated from the PBC. The main motive was to show to Tekes, an external funder of the PBC, the effectiveness of its activities. In addition, it was considered that the assessment information could be valuable for the future development of PBC’s activities. From the member companies’ point of view the results may provide useful information on the benefits of participating in the network.

3.2 Assessment procedure

The assessment procedure was developed by both studying the existing assessment models in the literature and evaluating the potential for obtaining data. The assessment methodology to be applied for PBC was first sketched by the authors. After some discussions with the PBC managers the final version of the model was formed as presented in Figure 1.

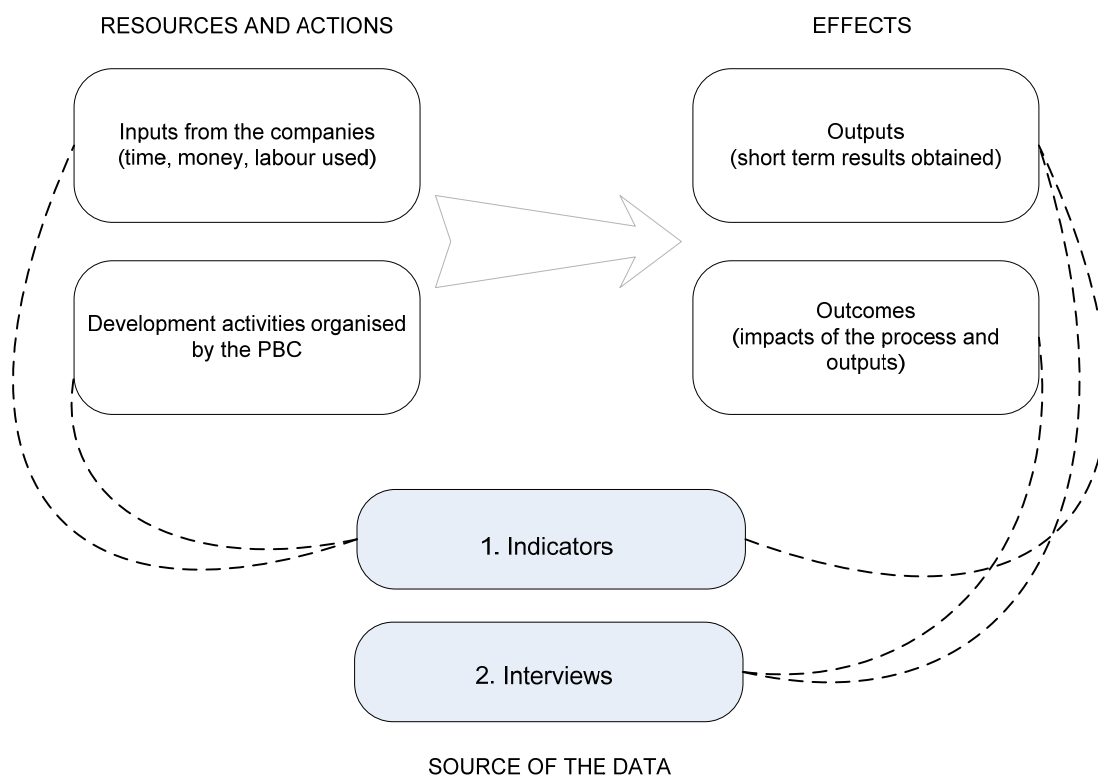


Figure 1: Assessment procedure for the impacts of an IC development initiative

Figure 1 shows simplistically the key factors of an IC development initiative from the point of view of impact assessment. First, there are certain inputs used in the development work, e.g. companies' money and time. Second, there is the specific development activity taking place (i.e. what is actually being done). Examples of these are educational and recruitment events. Consequently, the input usage and the activities organised lead to effects. Obviously, different kinds of activities have different effects (or they affect different factors). The outputs, such as a new acquired skill, and the outcomes, such as improved process performance, can be distinguished as the two main types of effects.

The assessment of the impacts includes two phases: a measurement using a set of indicators and a subjective evaluation carried out using interviews. The main idea of the procedure is that the two different data sources provide supplementary information which can be combined in an analysis to provide an understanding of the impacts of the development initiative (i.e. PBC's activities as a whole). First, the indicators provide an understanding of the concrete activities taking place and of their immediate results (outputs). These factors can be considered as necessary drivers for the outcomes. They do not provide information about the outcomes as such because they are usually observable only later on. In addition, the indicators should provide some information on the resources used. Second, interviews can capture the subjective understanding of the managers who often have a fairly good understanding of their companies. Subjective measurement has its drawbacks but it also provides benefits. The information about the outcomes (even if it is at least partially only about expected outcomes) can be obtained quite soon and it is fairly easy and cheap to collect. In addition, it is well known that objective impact measurement is very difficult to perform and thus its results may no longer be accurate. Interviews should also provide further information on the short-term outputs.

In practice, the assessment captured the activities provided by the PBC from launching the network in June 2007 to March 2009 (the first funding for PBC ended in May 2009). The indicators took into account all the activities and their immediate outputs during that time. Actually, indicators provide real-time information on the impacts of the PBC's operations (cf. bookkeeping). The interviews, instead, produce summarised information on the effects of different activities after some time has elapsed (cf. annual statement). In the context of PBC, two rounds of interviews were carried out. Figure 2 presents the process of implementing the measurement. It should be noted that some of the impacts may be realised after the interviews so they cannot be fully captured by the interview.

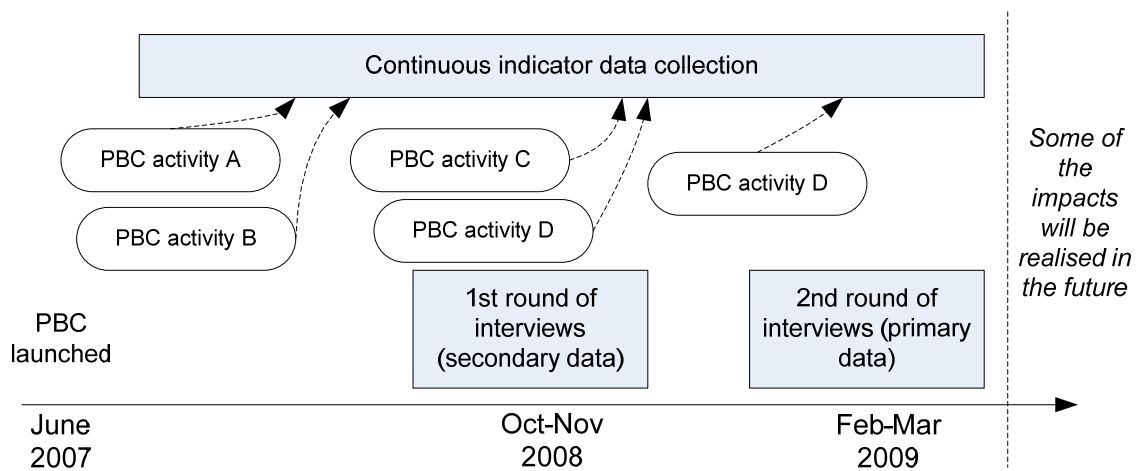


Figure 2: Process of implementing the procedure

In the following sections the results are presented in light of the indicators and interviews. Brief descriptions of the practical data gathering issues are also provided.

3.3 Measuring activities and outputs based on indicators

In order to identify relevant indicators for capturing information about PBC's activities and the outputs created four measurement perspectives were first defined according to the PBC's vision and strategic goals (cf. Kaplan & Norton, 1996). The perspectives are Recruiting Processes, Visibility and Contacts, Learning and Developing Operating Models and Financial.

Indicators were next chosen to represent each of these perspectives. It was also considered important that the indicators should provide information for the relevant factors presented in Figure 1 (i.e. inputs, activities and outputs). The benefits and burdens caused by the measurement should be taken into account when defining measures (e.g. Lönnqvist & Mettänen, 2005). Thus, another factor affecting the choice of indicators was the availability of data. Because the assessment of impacts represents only a small activity compared to the key tasks of the PBC there was only limited resources for data collection and indicator development. The indicators and their results are presented in Table 1. The results were gathered at the end of 2008. As the table shows, the indicators defined are fairly “light” and simplistic. In practice, the measurement results were collected manually (by a person from the PBC) and documented using Excel.

Table 1: Indicators and summary of the measurement results

Perspective	Indicator	Result
Financial	Costs per company* of recruitment events (€)	6,703
	Costs per company* of recruitment events without PBC (€)	34,747
	Costs per company* of educational events (€)	0
Recruitment Process	Number of recruitment events	3
	Number of participated companies in recruitment events**	15
	Number of received applications per company* in recruitment events	659
	Number of recruitments per company* in recruitment events	2
	Number of received applications per company* through co-operation with educational institutions in Russia	5
	Number of recruitments per company* through co-operation with educational institutions in Russia	2
Visibility and Contacts	Number of contacts with educational institutions in Russia	16
	Number of media appearances	7
Learning and Developing Operation Models	Number of attendance per company* in personnel training events	45
	Number of attendance per company* in “learning from others” events	9

* Company level data cannot be presented here due to reasons of confidentiality. The results refer to the total results of all participating companies

** Total in all recruitment events

In practice, the choice of indicators was a result of discussions between the researchers and the PBC’s personnel. For example, in the Financial Perspective *Cost per Company* was considered an important issue because cost savings (due to sharing development efforts between network’s partner companies) is one of the key motives for the network’s existence. Measuring Activities (e.g. *Number of Recruitment Events* and *Attendance at Training Events*) is a driver of the effects: if the PBC is not able to organise events no resulting recruitments can occur or if companies do not participate in the events they cannot be impacted either. Finally, improved visibility can be considered an effect of the PBC’s activities as such since one of its goals is to increase the recognition of the Finnish companies as potential employers.

The results in the financial perspective demonstrate the PBC’s impact from a cost savings perspective. The recruitment events would have been significantly more expensive for an individual company without spreading the costs over the network. The other measures describe the volume of activities organised by the PBC. In simple terms, many of these activities would not have been organised without the PBC’s efforts, and thus they can be listed as concrete impacts of the activities carried out by the PBC network.

3.4 Assessing the effects based on interviews

a) Secondary data

First we used interview data collected by the PBC in October and November 2008. The interviews were primarily designed as a basis for strategy discussions and, therefore consisted of a wide array of questions. However, the interview outline also contained some questions related to the impacts of PBC’s operations. For example, questions such as “When you think about PBC’s operations, in which activities do you feel that the network has succeeded?” and “In which activities has the network failed or where would you have expected it to succeed better?” were considered useful. Thus, it was

considered cost efficient to utilise the existing interview material and not to burden the managers with an extra interview.

Eleven of the twelve companies participated in the interviews. Respondents were chosen by the contact person of the company; in some cases the person who had been in active co-operation with the PBC earlier was also interviewed. In total 13 interviews were carried out. Examples of the status of the respondents are Quality Director, Managing Director, Project Manager and Human Resource Manager. Most interviews were carried out face-to-face (four people were interviewed by telephone). In the following section, the interview responses related to the effects of IC development activities provided by the PBC are presented. The presentation follows the four perspectives listed in Table 1.

Financial: No immediate effects related to the financial issues were mentioned. This is probably due to the fact that at the time of the interviews PBC had been operational for a rather short period. Financial effects will most likely only be observable later on. However, it was mentioned that as a result of being part of the network, new customers and partners had been found.

Visibility and Contacts: Many of the managers interviewed mentioned that one of the most significant benefits of the PBC's activities is new contacts created among the members of the network. In addition, some of the managers mentioned having succeeded in improving the awareness of their company among the network. On the other hand, awareness among students was considered an important outcome because it might improve the company's image among them as an employer.

"I have been able to improve the awareness of our company among the other members of PBC and contacted by potential customers."

"The network has succeeded in providing the company with new business contacts..."

Besides the above mentioned benefits, many members of the network consider that the collective attitude and common ambitions of the members is one of the positive impacts of the PBC's operation.

"In addition, the solidarity (the sense of belonging to the same group) developed within the network is valuable to me."

Recruitment Process: The effects of the recruitment events organised were contradictory. One of the companies has been able to recruit new Russian employees for the business units operating in Finland. In addition, it was considered a positive effect that the co-operation with labour authorities had increased. However, some managers pointed out that the recruitment events were not successful in terms of gaining new employees.

"Recruitment initiatives through PBC did not succeed. The material we searched for was not reached through the recruitment events."

Learning and Developing Operating Models: Effects related to learning and developing operations were pointed out in many interviews. The PBC network has provided managers with new knowledge from other managers involved. Experiences shared about business in Russian markets were considered especially valuable. In addition, according to a respondent, Russian language skills have been improved. The network was considered "a resource of learning, knowledge and practices".

"Companies starting here, but mainly operating in Finland, have certainly benefited most from the network. They have gained assistance in entering the market and also knowledge through experiences and contacts."

Overall, in the managers' opinion the PBC's activities have succeeded in the creation of co-operation and networks among the companies. Furthermore, as discussed above, many companies have achieved some concrete benefits. However, there was also opposite opinions. Not all managers felt that PBC had added some value to their company.

b) Primary data

The interview data discussed above did not provide much evidence on the outcomes. Instead, many of the mentioned benefits can be characterised as short-term outputs (e.g. recruitment and improved language skills). Thus, it was considered necessary to conduct additional interviews focusing specifically on the effects of IC development activities. In addition, new knowledge on the measurement context was considered needed. Throughout February and March 2009 the member companies' managers were interviewed by one of the authors. In practice, only four out of twelve

managers participated in the interviews. The companies and positions of the interviewees are not disclosed here for reasons of confidentiality. Two of the managers refused, one had left the company and therefore was not available, and the others did not answer despite a number of attempts to contact them. The interviews were carried out face-to-face. The interviews lasted around 30 minutes and were organised in Russia or in Finland. The interviews were recorded during the sessions and transcribed afterwards. The interviews included the following questions:

- What are the concrete benefits of the PBC network?
- What kind of benefits could have been achieved?
- How has the economic crisis affected operation within the network?
- What other obstacles (within the network or in the company) have there been to achieving the potential benefits?
- What kind of challenges does the business environment (St. Petersburg in Russia) pose for operating in a network?
- Do you consider it important to measure and assess the benefits of the network's development initiatives? Why / why not?

The key findings of the interviews are summarised below.

Two specific impacts were reported in every company. First, new customers and other partnerships (with other member companies) were acknowledged as the concrete benefits. Because the network includes companies from different industries (construction, maintenance, work wear etc.) customer-service provider relationships were considered possible. It was expected that these partnerships would finally lead to economic benefits. Second, new knowledge and understanding about doing business in the St. Petersburg region (e.g. related to economic issues and cultural differences) was seen as an important impact of the network. The network includes companies having operated in the area for many years as well companies having recently expanded to Russia. Therefore, sharing information and experiences with other members was considered fruitful. Despite the concrete benefits obtained, more new customer relationships (e.g. with Russian customers) and new recruitments (not many actual successful recruitments had been carried out) could have been attained as a result of the network. In addition, more emphasis should have been put on promoting the common interests of Finnish companies operating in the area. In relation to a single company, a network of companies should have more power when discussing with local actors (e.g. authorities, educational institutions). Finally, in addition to the potential benefits for member companies, potential outcomes from the point of view of Finnish society were pointed out: by supporting Finnish companies who are planning to expand on St. Petersburg the network also serves the Finnish export industry.

The current economic recession has clearly affected the PBC's operation. Most respondents, however, were quite surprised that so many members had resigned from the network due to the economic situation, because the absolute amount of the membership fee is not so high. Thus, resignation may be due to decisions to cut out all the "unnecessary" costs. Another important issue mentioned as an impact of the recession is the devaluation of the rouble (Russian currency). The devaluation is significant, especially to those companies that do not have their manufacturing operations in Russia. Besides the economic situation, a reason for not deriving all possible benefits is the time resources available. The scarcity of time for any development work is a reality and so it was in this case, too. In addition, the time spent on development work is out of actual work and therefore not considered tempting. For example, in a dynamic business situation it was considered a risk to invest too much time resources in the development work. Another challenge was the limited financial resources provided for the PBC. In order to be able to achieve more concrete benefits, a full-time employee at the PBC was considered necessary. Some of the obstacles mentioned are related to issues that cannot be influenced by the PBC or the member companies. An example of these is the prevailing employment markets. At the beginning of 2009 (when there was a need for new employees), there was a lack of the type of employees needed.

The Russian business environment differs from that in many other countries and therefore poses many challenges for a network such as the PBC. An example of this is the cultural difference between Russian and Finnish business people. Thus, the motives for co-operation between two companies often differ: Russian companies pursue their own interests, whereas Finnish companies consider the situation from the point of view of both partners (note: this was a subjective impression of the *Finnish*

managers interviewed). Another difference is that in Russian business there is typically a huge number of different actors (from material suppliers to salespeople) involved in the process, who all take their share of the profit. Therefore, being unaware of the procedures may cause problems from the financial perspective (i.e. one may be left with no profit). The third issue worth mentioning is the importance of social (in particular personal) relationship networks in Russia: managers need know the right people.

The assessment of the impacts was considered important, because it provides relevant information for various parts: the PBC's personnel, the participating managers and financiers. Based on the assessment, one can assess whether the aims posed for the PBC have indeed been achieved. In addition, the future directions and focus of the network's operations can be better designed. The need to continuously assess the benefits and to use an external assessor and individual interviews was considered important. It was, however, pointed out that measuring the impacts does not resolve whether the PBC network is considered necessary.

4. Analysis of the case study results

4.1 What can we say about the impacts of PBC's operations?

The results of the indicators showed that the PBC has carried out activities with the partner companies, i.e. we can specify the number and type of development activities created. According to the indicators, the PBC has been very active in organising different activities such as recruitment events and "learning from others" events. On the other hand, the indicators also reveal the resources acquired from the companies in terms of money and human resources spent. For example, the costs of recruitment events and the number of people participating in various events are reported. Overall, it can be observed that the activities were produced in a cost-effective manner using the network structure. In addition to the resources spent and development activities organised, the indicators provide essential information on the short-term outputs of IC development activities. The measurement results show, for example, that as outputs of the recruitment events the companies have received a large number of applications and also succeeded in recruiting new personnel.

However, the indicators do not provide insights about the actual outcomes. The interviews proved somewhat more revealing regarding the outcomes of the PBC's activities. The secondary interview data used provided some information about the benefits and the limitations of the activities. However, it seems that those interviews took place too early to be able to fully determine the impacts. In addition, the focus of the interviews was too broad. At that point we could only say that the PBC has produced activities with some positive effects, but the major outcomes will probably be observable only later on.

On the other hand, the interviews designed specifically for the purposes of this study succeeded in enhancing our understanding of the effects of PBC's IC development activities. Many of these benefits can be characterised as short-term outputs, such as enlarged customer and partnership network or improved competence in business in St. Petersburg. On the other hand, revenue achieved through the new relationships can be considered as long-term outcomes (to be realised in the future).

The interviews also revealed that there are many potential benefits that could have been achieved (or can be achieved in future). The PBC network provides many opportunities of which only small part was realised. For example, by working more actively towards joint interests in Russia, e.g., new Russian customers could be found. Additionally, by supporting potential Finnish companies in expanding on Russia positive outcomes from national aspect could be obtained.

According to the interviews there are many obstacles to deriving benefit from the network. The limited financial, human and time resources can clearly be seen as such obstacles. On the other hand, to achieve the possible positive effects the business environment itself poses many challenges (importance of personal networks, pursuing one's own interests etc.) which cannot be controlled.

4.2 What were the main challenges in assessing the impacts?

Earlier in this paper the importance of and need for assessing the impacts of the PBC's operations was discussed in the context of the interviews. However, in light of the experiences gained through carrying out the interviews the PBC's member companies seem to lack motivation to support the

assessment process. At the beginning of 2009 all member companies were contacted and asked to participate in the assessment. However, only four out of twelve managers agreed to do so. It was the authors' perception that the managers were occupied with more important business decisions and thus they were not truly interested in finding out the impacts. In addition, the IC development cost maybe considered as "sunk cost", i.e. the money had already been used, so there are more important things for managers to focus their attention on. It seems that a strong managerial commitment would be a good asset in this kind of measurement process as it is in many other contexts.

Another big issue affecting the assessment of the impacts of the PBC's operations is the sharp decline of the economic situation during the latter part of 2008. Thus, the PBC's development activities play only a small role in the major turmoil taking place among the companies. The demand for the products and services of many companies has dropped significantly and many companies have been compelled to lay off hundreds of employees. In practice, only one of the member companies of the PBC managed to avoid starting official negotiations for purposes of dismissing or laying off employees during the time of the assessment. Moreover, the devaluation of the Russian currency affects the operations of all member companies. Therefore, it is understandable that these changes make it even more difficult to assess the impacts. One might even question whether there is any sense in trying to make the assessment in this kind of environment.

Other challenges from the impact assessment point of view are related to the technical issues of measurement. First, it seems that quite a long time must elapse in order to capture the impacts. However, the more time goes by the more likely it is that some kind of disruptive change will affect the organisation making it difficult to perceive the impacts. Second, it is fairly easy to measure the inputs and concrete activities associated with IC development in an objective manner. In addition, the short-term outputs can often be evaluated. However, the outcomes are often intangible in nature and cannot easily be described objectively. Thus, subjective assessment may be the only practical approach to capturing information about the outcomes – especially when considering the scant resources available for carrying out such assessments.

5. Conclusions

There is a clear practical need – especially on the service provider's side – to be better able to assess the impacts of investments made to develop companies' intangible resources. There is also a lack of practical tools for making such assessments. In this paper, the literature was first examined to understand how the impacts of development activities can be assessed in different contexts. The characteristics of these approaches were utilised to formulate an assessment methodology to be applied in the case study. The assessment consisted of both objective indicator data on activities and outputs as well as subjective interview data on outcomes. Although the procedure was utilised only in the context of a single case, it should be generic and useful when evaluating the impacts of various IC development initiatives.

In summary, the assessment showed that the PBC succeeded in organising various events, which led to concrete positive effects for companies. The most significant were the new customers and other partners obtained, as well the improved understanding about doing business in the area. However, it was also emphasised that it could be possible to find even more new customers through the network. In addition, the network could put more effort into promoting the common interests of Finnish companies in the St. Petersburg region. This study also pointed out the most important challenges from the point of view of deriving all possible benefits: the economic crisis and the lack of resources (time and money).

The case study showed that the activities and outputs can be measured quite accurately but that the outcomes are difficult to capture. The main challenge results from the external changes making it difficult to observe outcomes occurring over an extended period of time. Due to the challenging nature of the assessment task and the relatively low managerial priority of the issue (compared to more important tasks) it is suggested that subjective assessment methods may in many cases provide sufficient information. Although this paper focused on IC development, there may be similar contexts in other knowledge-intensive services to which the lessons of this study might be applicable.

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