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# Cost-Effective Small Firm Software Offshore Outsourcing

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### Summary

Offshore outsourcing of information technology functions and services in medium-sized and larger firms is common internationally. The usage of IT outsourcing in Sweden is significantly lower than for instance in the USA. It has been estimated that outsourcing constitutes less than one percent of the total value for purchased IT services and IT production in Sweden each year. In addition, the usage of outsourcing is even more moderate in smaller firms. One reason behind this is a belief that it is not cost-effective for smaller firms to use outsourcing.

In this thesis, we investigate whether it is economically and practically viable for small IT firms based in Sweden to outsource their production directly to off-shore suppliers. To aid us in answering this question we document the outsourcing process of small firms, the relevant costs for implementation of offshore outsourcing for small firms and their mitigation, as well as the largest obstacles for small firms in the offshore outsourcing process.

We have performed a number of interviews with representatives from the Swedish information technology industry and analysed the data using transaction cost theory and a nine-step process framework for IT outsourcing by E. A. Sparrow.

The outsourcing process of small firms follows Sparrow's framework to a large extent, but some steps are clearly more important to the small firms. Our conclusion is that offshore outsourcing is a viable production alternative after adaptation to the conditions of small firms.

The most important process steps where the major parts of the costs are found were: identifying what projects to outsource offshore, developing the statement of requirements, choosing a service provider and managing performance.

Costs mainly arise from management and developer resources, project communication and travel and accommodation expenditures. The costs are frequently reduced using a set of mitigation tactics, such as employing managers with outsourcing experience, contract standardization, encouraging cultural exchange and an extensive use of mail, instant messaging, videoconferencing, and common network platforms.

Based on the theoretical framework, our analysis and conclusion, we have condensed our findings into an easy-to-use four-step model for cost-effective small firm software offshore outsourcing.

## Index

<i>Summary</i> .....	2
<i>Index</i> .....	3
<i>1 Introduction</i> .....	4
1.1 Background and problem discussion.....	4
1.2 Purpose.....	5
1.3 Scope and limitations.....	6
1.4 Vocabulary.....	6
1.5 Thesis outline.....	6
<i>2 Method</i> .....	7
2.1 Approach.....	7
2.2 Deductive and inductive method.....	7
2.3 Choice of theoretical foundation and criticism of the sources.....	7
2.4 Selection.....	7
2.5 Data collection.....	8
<i>3 Theoretical frame</i> .....	11
3.1 Outsourcing definitions.....	11
3.2 Small firms.....	11
3.3 Transaction cost economics.....	11
3.4 Small firm transaction cost mitigation.....	14
3.5 Sparrow's framework for managing offshore outsourcing projects.....	15
<i>4 Results</i> .....	23
4.1 Interviews.....	23
<i>5 Analysis</i> .....	32
5.1 Outsourcing process.....	32
5.2 Significant transaction cost parameters.....	40
<i>6 Conclusion</i> .....	44
<i>7 Discussion</i> .....	46
Written sources.....	48
Interviews.....	49
<i>Appendix 1 – Questions for the nine steps in Sparrow's framework</i> .....	50

## 1 Introduction

### 1.1 Background and problem discussion

The use of outsourcing has increasingly become a standard procedure for enterprises to externalize parts of their organizations and to benefit from globalization. More recently, media attention has shifted towards offshore outsourcing.

Few industries can present such a growth rate as the information technology outsourcing industry, the total turnover in the world is estimated to exceed 100 billion USD in 2005 and within that sector offshore outsourcing is the fastest growing segment. This trend started in the middle of the 90's in the USA, and was initiated because of alleged cost savings of 30-60 percent when using overseas providers compared to using providers in the USA (Casale, 2001).

The information technology outsourcing sector in Sweden has an annual turnover of 2.2 billion USD with an annual growth rate for 2005 of approximately 5 percent. Even though offshore is mentioned as an alternative in one third of all IT purchases only approximately 80 million USD go to offshore outsourcing services which are directly bought from an offshore supplier. This is less than one percent of the total value for bought IT services and production within Sweden each year (Excido, 2005).

An international overview shows that over the last decade, many firms in the USA and in Western Europe have outsourced software development tasks to offshore sites in countries such as India, Russia and the Philippines. The trend today is towards an increasing amount of offshore sourcing of software development taking place between small firms and offshore vendors (Carmel et al., 2005).

Popular geographical areas to outsource to today are e.g. India, China, Russia and Eastern Europe (Sparrow, 2004). India was the country that started the offshore era, and is considered to have a head start in its capacity as "first mover". English is spoken widely, and the population is relatively highly educated. An emerging market for offshore outsourcing is China which today has no significant part of the software production taking place in the world. The country is trying to establish itself as IT industry friendly, and IT production is today concentrated to Guan Dong, Beijing and the Shanghai province. The cost of programmers is significantly lower compared to Swedish levels. China's educational system has traditionally been focused on engineering and lower-level programming. As a result, IT architecture and IT innovation have been lagging behind. In Russia and Eastern Europe the salary levels are very low compared to Western Europe and USA, and there is a long tradition of software development and mathematical training in the education system since the time of communism. Today many former Eastern European countries are member states, or striving to be, of the European Union which simplifies service trading (Sparrow 2004).

There are several different models for how to handle offshore outsourcing. One way to distinguish offshore outsourcing is to define it as near-shore or offshore. A near-shore location is one that is closer in terms of geography, culture, time zone and language compared to an offshore location. Near-shore could be a viable solution because of the ease of travel, which increases ability of control as well as familiarity with cultural behaviour and proximity to customers (Eastwood, 2005). The most common form of offshore today is starting a co-operation with any of the multinational providers of outsourcing services. They, in turn, establish or use already established IT production centers or clusters around the world. This

often requires a longer relationship and a significant size of the business that is outsourced. Another delivery model is to use companies with sales staff and management in Europe or the US, but with programmers located offshore. These suppliers know the markets and the local culture of their clients, implying a relatively low risk for the buyer and a price typically lower than any of the multinational companies could offer. To an increasingly larger extent, smaller offshore companies are being established, trying to sell their services directly to customers in Europe and the US. This solution is described in literature as the most risky solution, but also the least expensive solution. This solution has until now mainly been recommended for small scale, non-critical projects. (Sparrow, 2004)

The reasons to why small and large firms have chosen to outsource are numerous: skill shortages, cost, capacity, flexibility and a “bandwagon effect”, where companies do as others do (Carmel et al., 2005). However, there are several difficulties that the firm could face when using offshore suppliers. Communication may be impacted by technical issues such as telecommunications infrastructure; lack of language skills is also a common obstacle, as well as time zone coordination difficulties (ibid.). Experience also shows that cultural compatibility can be a problem when there is a vast geographical distance between the supplier and the client (Casale, 2001). Another issue is that the offshore team often lacks knowledge in the business application used by the client and transferring this knowledge is complicated by distance (Carmel et al., 2005).

Larger firms often have the internal resources and technical capabilities to deal with these obstacles and their associated transaction costs. For the smaller firm with more limited resources for travel, research, and control, this is harder and they face relatively high transaction costs (Carmel et al., 2005). Small firms must also deal with the relative shortage of management resources since that in small firms the entrepreneur is often involved in operational and managerial tasks and therefore her time is scarce. Small firms do normally not have expertise in finance, legal, or information technology and as a result they do not have resources in-house to set up strategic software development projects. Furthermore, small firms tend to be more diverse than large firms and have fewer documented sources of information. This results in them being more impenetrable to transaction partners (Nooteboom, 1993).

Very limited research investigates if small firms are suitable for offshore outsourcing and how they should mitigate their relatively high transaction costs. We will in this thesis research how the offshore process is performed, what type of transaction costs occur and how they are mitigated. We will also present a model for offshore IT outsourcing adapted to the needs and costs of small firms.

## **1.2 Purpose**

### **1.2.1 Main**

The main research question is to investigate whether it is economically and practically viable for small IT firms based in Sweden to outsource their production directly to off-shore suppliers.

### **1.2.2 Support**

As an aid in answering the main research question, we pose the following supporting research questions:

- What does the outsourcing process of small firms look like?

- What are the relevant costs for implementation of offshore outsourcing for small firms?
- How could the costs be mitigated?
- What are the largest obstacles for small firms in the offshore outsourcing process?

### 1.3 Scope and limitations

To limit the scope of our research, we have used some limitations.

- We only study small Swedish firms.
- The firms studied are all purchasing firms, no suppliers are investigated.
- Focus on the initial attempts of implementing an offshore solution, not on the long-term costs of continuous outsourcing.

### 1.4 Vocabulary

Term	Explanation
CTO	Chief Technology Officer.
Domestic	Involving one's own country.
Far-shore	Outsourcing to a different part of the world.
Near-shore	Outsourcing to a country close to the domestic base.
Offshore	Outsourcing to a firm located in another country.
On-shore	Outsourcing in one's own country.
SEK	Svenska enkronor. Swedish currency. 1 SEK $\approx$ 0.137 USD $\approx$ 0.108 EUR [July 2006].
Use case	A way of documenting user scenarios when designing information technology systems.

### 1.5 Thesis outline

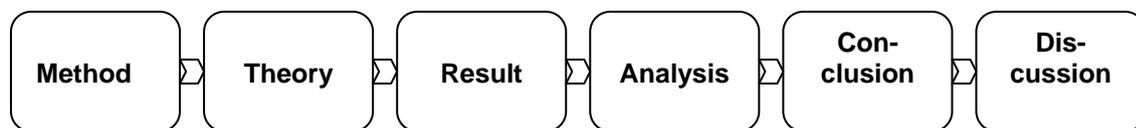


Figure 1.1. Thesis outline.

The paper is organized as follows: In the next section we present the research methodology and sample description. In Section 3, we present a summary of the theoretical frame. In Section 4, we present our results and empirical findings of the small firm offshore outsourcing process and cost mitigation strategies. In Section 5, we analyze our results using the theoretical framework. In Section 6, we present our conclusions, and finally, in Section 7 we elaborate on our conclusion and make a model contribution.

## **2 Method**

### **2.1 Approach**

We have chosen a qualitative approach. We have tried to find information regarding the costs involved in IT outsourcing. The main goal has been to achieve a better understanding of the subject and to give concrete advice for strategic decisions. That motivates the presence of a qualitative approach, where understanding is a central concept (Gustavsson, 2004).

We have chosen this approach since the purpose of the study is to describe how small and medium-sized enterprises use outsourcing, and if possible, understand and explain how they could do it cost-efficiently.

This has also affected the data collection. We have mainly focused on trying to understand the outsourcing decision process in small firms and develop new knowledge by performing partly unstructured interviews.

As a contrast, a quantitative study generally has the ambition to be able to generalize to a larger population than the one that has been target for the study, and thereby generate general knowledge (Gustavsson, 2004).

### **2.2 Deductive and inductive method**

In this thesis we have based our collection and classification of empirical data on Sparrow's framework for IT outsourcing (Sparrow, 2004). We then analyze the empirical data comparing it with the predictions of the transaction cost theory and Sparrow's framework. This is called a deductive research method (Gustavsson, 2004).

In the latter part of the study we have chosen to, based on the gathered data and our analysis, try to create a cost-effective small firm software offshore outsourcing model. In this part, we use an inductive method; we start with our empirical data and from that form a theory on our own.

### **2.3 Choice of theoretical foundation and criticism of the sources**

Plenty has been written on the subject of outsourcing and in particular IT outsourcing. Most of the material, however, tends to describe how outsourcing can be managed and the cultural aspects of outsourcing, not the actual costs associated with it. Most literature is also focusing on larger firms, and rarely describes the problems inherent to small and medium-sized enterprises. This means that we have found a limited number of theories and models that match our research question problem. Therefore, we have used an extension of transaction cost theory and Sparrow's framework. We have also used other material, such as research papers and articles that we consider relevant to our study.

It is possible that other authors of a similar study with the same research question would have used a different selection as theoretical foundation.

### **2.4 Selection**

The selection in this study is based on a comprehensive list of information technology companies maintained by a large Swedish IT publishing house (IT-guiden, 2006). The companies in the list are categorized into thirteen different groups according to the type of main business. The revenue and number of employees is also listed for a major part of the

companies. Due to the limited time available to this study, we selected companies from three main categories: business software/enterprise resource planning systems, entertainment/games and software. They were not selected to be representative for the industry as a whole. Since our study is aimed towards small firms, we only selected companies or strategic business units that had revenue of maximum 100 MSEK. In addition, we have also been in touch with representatives from other companies, especially during the initial search for an interesting research topic. All in all, we consider that the list contains companies of various sizes, giving a good span of software producers in Sweden.

In a qualitative study like this, the goal is to get as heterogeneous data as possible, to cover as many angles as possible of a certain problem, and to generate ideas (Gustavsson, 2004). The goal is not to generalize the results to an entire population. To draw statistical conclusions from our data for all Swedish small IT firms is impossible; the material is neither random, nor representative, nor complete. We still believe it is big enough to make rough categorizations and to make a research contribution.

### **2.5 Data collection**

Generally, there are few publicly available sources with figures describing the costs involved in IT outsourcing. The costs are rarely accounted for separately in the external accounting. Certain material on the industry and its future can be found in publications from industry organizations, but to get first-hand knowledge, a number of interviews were performed.

In our work with charting the cost sources, we have primarily performed open interviews with representatives from IT companies that have been personally involved in the management of IT outsourcing. Our intention was to get a deeper understanding for the mechanisms behind outsourcing decisions and to discover as many relevant costs related to the outsourcing as possible.

#### **2.5.1 Interviews**

We wanted to find out whether there were other cost categories than those appearing in the theoretical material, and find the reasons behind those costs, how to minimize them, and understand the small firm offshore outsourcing specifics.

We drew up an interview guide with questions regarding the costs for each of the nine steps in Sparrow's model. The text in the guide was gradually adapted to include the cost sources we discovered during each interview.

It is possible that the initial contents of the interview guide were affected by our limited knowledge in the field at the start, but we believe the costs stated were relevant. In those places where codification and classification has been arguable, it is noted in the results.

The intention was to interview persons with experience of managing IT outsourcing at Swedish IT firms, with knowledge of and insight into the entire outsourcing process, the decision-making, and the costs involved. We sent mails to all in all about 70 companies, asking them if they had been involved in IT outsourcing activities. In the mail, we presented ourselves, the purpose of our study, and the interview guide that we intended to use during the interview. We also offered anonymity. None of the interviewees wanted to remain anonymous.

Eight interviews were performed. All interviews were done orally. The length of the interviews varied between 30 minutes and 1.5 hours, depending on the time available to the interviewees.

The selection of persons for interviews was determined entirely by the willingness of the respondents to participate in the study. It is therefore possible that our results could have been different with a different selection. However, we consider that the relevance of the interviews performed has not been notably affected by this. Our aim was to get knowledge around the cost sources and IT outsourcing decision-making in general, and therefore the questions were of a more general nature, and not specific for or dependent on the conditions of any particular company.

During the oral interviews, either performed at the offices of the interviewees, or via telephone, the interviewer asked questions and noted down replies. No interviews were recorded. We asked questions based on the interview guide sent to the respondents prior to the interview, but we also added complementary questions around areas judged as interesting during the interviews.

We chose personal interviews, because we believe that this makes it significantly easier to perform a partly unstructured interview, and to better understand the answers given by the interviewee. It also gave us the possibility to immediately control if we had correctly understood the answers.

The results from each interview are also influenced by the person doing the interview. However, we believe that through discussing the interview results afterwards we have made the differences negligible and that they do not interfere with the result of the study.

The eight persons interviewed were all judged to be well informed about the IT outsourcing process in their company, and all showed great interest in the topic. The answers we obtained gave interesting insights for further analysis.

Table 2.1 summarizes our sample of small firms. The client firms ranged from 1 to around 100 employees. The firms with more than a hundred employees were allowed into the sample because the clients had smaller units that were largely independent from the parent company. Because of the authors' location, the sample client firms are all in Sweden. We had no restrictions on location of the offshore unit.

Table 2.1. The firms included in the study.

<b>Firm</b>	<b>Nr. of employees</b>	<b>Turnover (MUSD)</b>	<b>Offshore location(s)</b>
Anders Sjöberg; Bröllo.se m.fl.	1, The owner	0,54	China, Macedonia and Russia
Cognos	A total of 140 of which a third are programmers	16	Czechoslovakia
Extenda	88	18	India
GE Healthcare, previously Amersham Biosciences	The IT deparment contained of 45 people the whole company of over 5000 employess	>1,000 USD	India
Gladebad.no AS	3	0,1	Ukraine
Industri Matematematik	150	18	India
Kompetensnät AB/Rubal Offshore	2	Start up	Russia
Vinnova	A total of 160	190 (Budget). Government authority without interest in profit maximization.	Russia

### 2.5.2 Secondary sources

To complete our material we have used research and media articles, as well as trade organisation statistics of IT outsourcing.

### **3 Theoretical frame**

In this section, we start out by giving definitions of outsourcing and small firms. We then continue by introducing the main points in transaction cost economics, and elaborate on its relation to outsourcing and to small IT firms. The processes and costs involved in offshore IT outsourcing is further detailed by a study of an outsourcing framework.

#### **3.1 Outsourcing definitions**

There are a number of activities involved in contracting out IT services (Currie & Willcocks, 1997):

Sourcing is the management-level decision-making process for resource allocation in business processes. Sourcing options include the use of employment, contract labour, contracted suppliers or joint business ventures and partnerships.

Outsourcing is the delegation to an external third party of the continuous management responsibility for the provision of business services under a contract that includes a form of service level agreement. Outsourcing generally refers to activities previously resourced internally, with contracting out favoured for activities never conducted in-house.

Strategic sourcing is the systematic and comprehensive use of sourcing analysis and decision-making as a fundamental element of an organizations general business strategy. It generally refers to large scale and long-term relationships rather than piecemeal and short-term arrangements for narrow functions.

One can also distinguish between on-shore, near-shore and off-shore outsourcing. Near-shore outsourcing is essentially one that is “closer in terms of geography, culture, time zone and language compared to an offshore location” (Eastwood, 2005). Near-shore country locations offer the advantage of similar time zones, ease of travel and potentially greater control due to familiarity or physical and cultural proximity to the customer (ibid.).

Eastwood (2005) defines project outsourcing as a model, where the customer identifies a specific project needing completion and prepares all necessary project-related materials. The customer then retains an offshore vendor to deliver the project. At the completion of the project, the engagement ends. If the project is likely to last more than three months, and there is no forecast beyond the initial project, he considers this is an appropriate model to choose.

#### **3.2 Small firms**

Defining what constitutes a small firm is hard. There is no single definition, mainly due to the fact that there is a wide diversity of sectors, business types and different definitions in different nations. For instance, Carmel et al. (2005) mentions the UK Companies Act, in which the definition of a small firm is a company that employs 50 or less employees.

#### **3.3 Transaction cost economics**

Small firms are not likely to have the same financial resources as larger firms. The outsourcing of software production presents smaller firms with both communication and coordination problems, and it is therefore necessary to use a theoretical framework that provides the tools for an analysis of the coordination costs, taking into account the peculiarities of smaller firms.

Williamsson (1975, 1985) introduced the notion of transaction cost economics (TCE). Nootboom et al. (1992, 1993) elaborated on these ideas, and extended them to encompass the differences between small and large firms. We have used the latter as a general framework for our study, and below we give a brief description of TCE and its relation to transaction costs in small firms when performing offshore outsourcing.

Total economic cost can be decomposed in different ways. Wallis and North divide it into production costs and transaction costs (Wallis and North, 1986). A transaction cost is a cost incurred in making an economic exchange. Furthermore, transaction costs can in turn be decomposed in several ways. For instance, Milgrom and Roberts (1992) divide it into motivation costs and coordination costs.

Business units within a firm can be combined into larger units or separated and outsourced, depending on their production and transaction costs. Rationally acting firms will chose market-based strategies when the savings in production costs due to outsourcing outbalance the increased transaction costs (Carmel & Nicholson, 2005).

The decision to produce in-house or to organize production outside the company also depends on the frequency of transactions, the degree of asset specification or customization needed for the transaction, as well as vendor opportunism and uncertain conditions.

According to Nootboom (1993), the involvement of smaller firms leads to higher transaction costs, both for themselves and for partners. He has augmented the TCE framework to handle small firms by including economies of scale, scope, experience and learning. Transactions in this environment can be analysed using three generic stages: contact, contract and control. This work has been further expanded by Carmel & Nicholson (2005), and is summed up below.

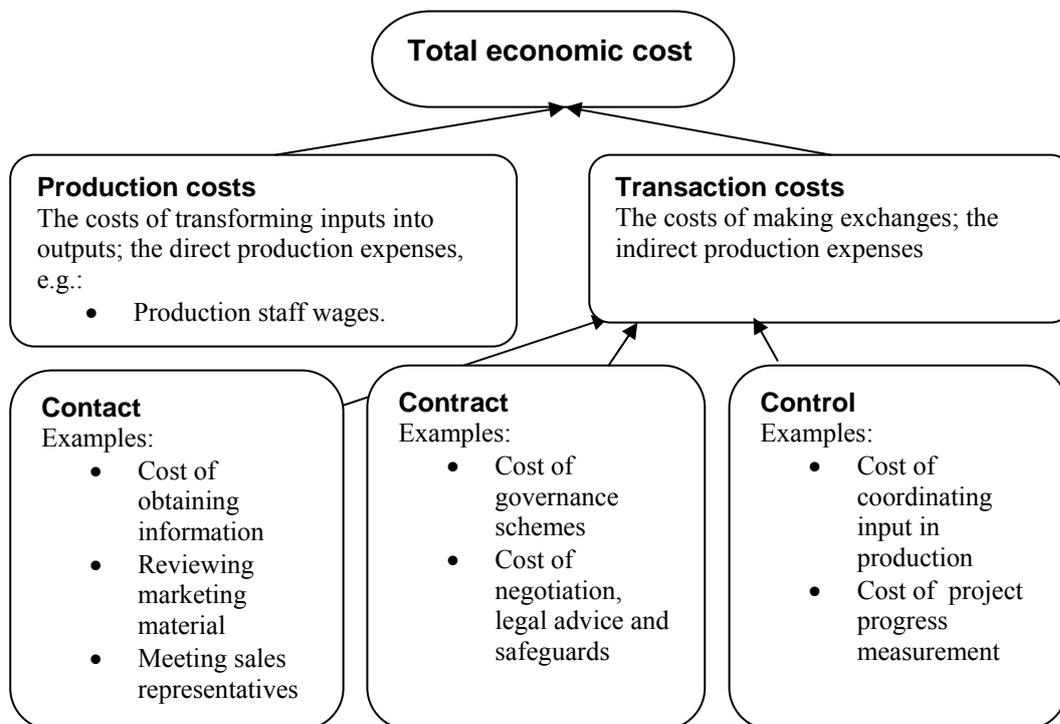


Figure 3.1. The decomposition of transaction costs into contact, contract and control costs.

### **3.3.1 Contact costs**

The costs of contact include “costs of search and of marketing: the collection and the provision of information or experience on price and quality of the product, and on needs of the user” (Nootboom et. al. 1992).

Buyers are exposed to search costs when looking for offshore vendors, but are often hampered by economies of learning compared to larger firms: they have fewer specialized staff members, they generally have lower education except for within scientific industries, and a more narrow perspective due to the dominance of an entrepreneur. This means smaller firms are “unlikely to have competent internal expertise to conduct search, evaluation and implementation of offshore software sourcing.” (Carmel & Nicholson, 2005). A small firm is left with the choice to either learn the legal and cultural norms practiced and held at the vendor’s location, or hiring consultants and lawyers at relatively high costs.

Nootboom et. al. (1992) further notes that “Costs of contact often contain a so-called threshold: in order to contact and assess a potential transaction partner one has to incur certain minimal costs regardless of the size of that partner or the size of the transaction: the cost of making an appointment, travel, setting up a diagnosis or audit, writing a report, evaluating a proposal, etc. Such threshold costs weigh more heavily for small than for large volumes of transaction. This creates a problem for the small firm as a buyer: the supplier has to expend relatively high marketing costs per unit of sale, which may be prohibitive below a certain volume.”

### **3.3.2 Contract costs**

Contract costs include “governance schemes” which “refers to a specific construct, in the form of agreements on content, procedures and rules, designed to govern a specific transaction” (Nootboom et. al., 1992). Contract costs arise when preparing the transaction agreement. According to Nootboom (1993) “costs include search of information on reliability of the transaction, possible contingencies in the future, degree to which investments will be sunk, [...] costs of negotiation, legal advice, set up of arbitration, design of safeguards and guarantees against misuse.”

Contract costs also include “the process of becoming aware of a need and the possibility of its fulfilment; the searching for fitting solutions and alternatives; trial, evaluation and decision.” (Rogers, 1983 referenced in Nootboom et. al., 1992).

According to Carmel & Nicholson (2005) the “contracting across international legal regimes presents high threshold costs for small firms” due to more difficult and costly procedures for enforcing contractual clauses, and lack of sufficient skills in international business.

A reason for high transaction costs in business services to the smaller firm, according to Nootboom (1993) is that in small firms the records needed to provide a service are lacking. The simple reason for this might be that they are too expensive to produce, especially considering the prohibitively high set-up costs for a small firm. The absence of documentation can also be a strategic advantage to a small firm; if it “[...] does not need formal procedures and records for internal coordination, their lack contributes to flexibility and speed of response, due to lack of bureaucratic obstacles”. Nootboom actually concludes that “the best response may be to simply accept the higher second order transaction costs.”

### **3.3.3 Control costs**

According to Nootboom (1993) the control stage consists of “costs of monitoring, settling disputes (‘haggling’), renegotiation, arbitration, litigation, loss of investments due to the relationship breaking up, etc.”

Carmel & Nicholson (2005) note that measures need to be put in place to control offshore software vendors, “process measures (percent complete, number of bugs), as well as outcome measures (meeting functionality, performance)”, but that small firms often lack the knowledge to do so and they are “less likely to be accustomed to long distance control”. Smaller firms also “lack the financial resources to absorb failures and learn from experience”, and therefore “cannot absorb the failures associated with learning from offshore outsourcing”. There might also be a lack of formalism in the form of records and documentation on coding and quality standards, which means “higher threshold costs at the start of outsourcing”.

Opportunism, in this context, is when one party to a transaction takes advantage of the other. Carmel & Nicholson (2005) state that “the distance between client and outsourcer accentuates the possibility for undisclosed ‘behind the scenes’ improvisations and unseen third party subcontracting”. Furthermore, “smaller firms tend not to have the ‘brand presence’ of large firms, nor the contract size to guard against supplier opportunism”.

Controlling the uncertainty causes high information cost, and Carmel & Nicholson (2005) mentions the macro, micro, and operational levels. Smaller firms have very few chances to affect the uncertainties of the macro level (wars, taxation) or the micro level (intellectual property rights), compared to larger firms.

Nootboom et. al. (1992) concludes that “transaction costs tend to be systematically higher for smaller firms”. They suggest several ways to mitigate this problem: Reducing transaction costs by “furthering norms that restrict opportunistic business conduct; by stabilizing market conditions to reduce exogenous uncertainty; by furthering technical standards or standardised procedures that reduce costs of search, evaluation, contracting, monitoring and arbitration... Individually, they can try to conduct business on the basis of personal trust.”

### **3.4 Small firm transaction cost mitigation**

Carmel et al. (2005) have studied the transaction costs in a number of small software vendors based in the US and in the UK. In their study, they find a number of transaction cost mitigation strategies for both clients and suppliers, which are detailed in the table below.

Table 3.3. Summary of transaction cost mitigation findings for small firms engaging in offshore outsourcing (Carmel et al. 2005).

Source of mitigation	Mitigation approach	Brief description of mitigation approach	Impact on transaction
Client side	Liaisons of knowledge flows	Key individuals that pivot the relationship between client firm and offshore vendor.	Lowers transaction costs, primarily via control cost reduction.
Client side	Gaining experience	Small firms use their strengths: motivated people, perseverance, flexibility.	Expensive trial & error until economies of experience are gained.
Client side	Overcoming opportunism	Small firms use their strengths: motivated people, perseverance, flexibility.	Expensive trial & error until opportunism is overcome.
Vendor side	Onshore presence	Vendor has “presence” of staff close to client, rather than offshore.	Reduces contact costs, contacting costs, and control costs, leading to an overall reduction in transaction costs for the client, but raises production and vendor transaction costs for the vendor that are passed on to client.
Vendor side	Reducing contact costs	Client has greater access to vendor firms primarily via internet-enabled mechanisms.	Transaction costs are reduced.
Vendor side	Simplifying contracting	Legal intermediaries specializing in offshore services have emerged.	Transaction costs are reduced.
Vendor side	Providing control channels	Vendors are providing control channels for their clients’ benefits.	Transaction costs are reduced for client. Transaction costs increases somewhat for vendor, which are passed on to the client.
Vendor side	Expertise intermediaries	Third party consultants specialize in assisting firms in the offshore context.	Transaction costs are reduced.
Vendor side	Standardization of services	Standard development methodology. Introduction of re-use in software production.	Lowers transaction costs for contract and control. Production costs are lowered.

### 3.5 Sparrow’s framework for managing offshore outsourcing projects

Sparrow (2004) argues that today many companies are experimenting with small and non critical offshore projects so they get experience and knowledge about how to do offshore outsourcing. She has developed a framework that contains nine steps which describe how a company should proceed when starting up and implementing an offshore process. She argues that compared to onshore outsourcing are there some significant differences to take into account when considering using offshore outsourcing:

- It requires knowledge of the relative strengths and weaknesses of the IT services market in other countries. To get this understanding the firm has to get an

understanding of the local business environment, geopolitical risks and knowledge of the different suppliers in each market. This requires a more thorough due diligence because the firm is often unfamiliar with the new business environment.

- The number of possible solutions increases dramatically when deciding to use global delivery models and new types of sourcing strategies have to be created.
- Employee issues will occur, it is often not an alternative to transfer staff to offshore suppliers which often result in redeployment and redundancy. As a result the firm has to transfer all knowledge about systems and business processes to the offshore team who will start from scratch.

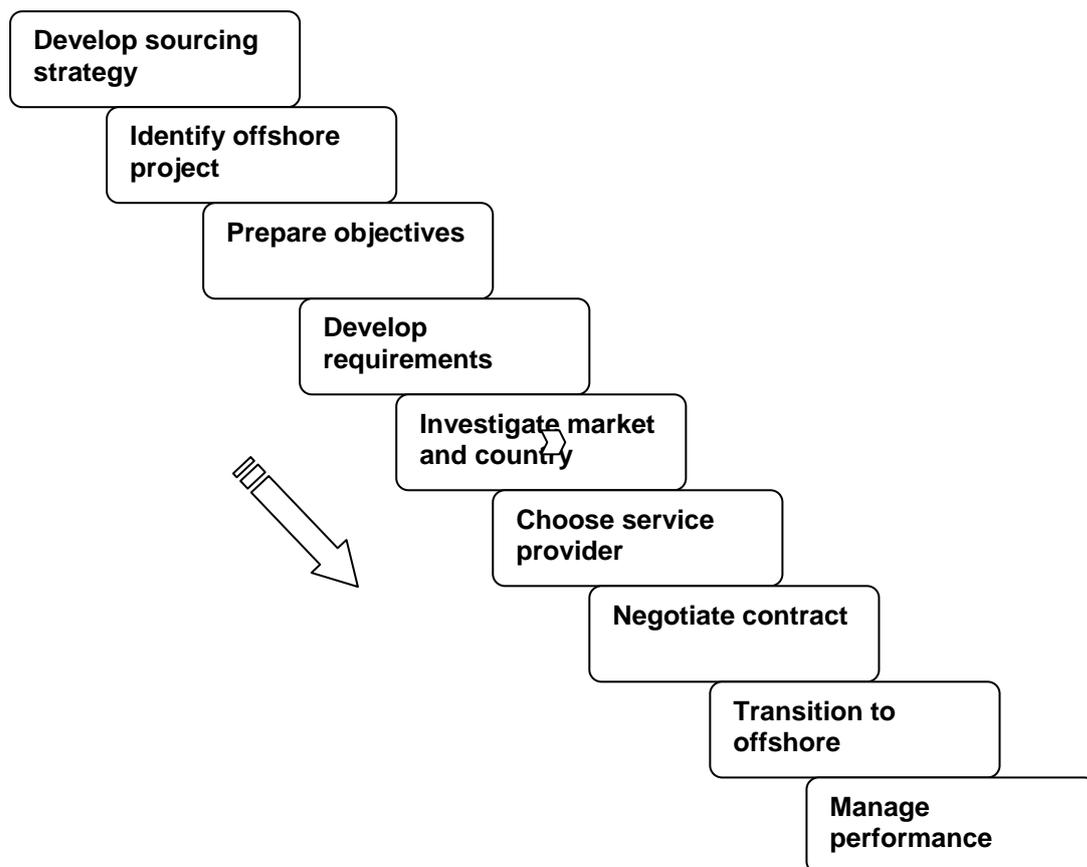


Figure 3.2. The nine steps in Sparrow's information technology outsourcing framework.

### 3.5.1 *Develop sourcing strategy*

When taking the decision to use an offshore strategy it has to be a part of an overall outsourcing strategy. Sparrow argues that an effective strategy identifies the most profitable way to supply IT services and at the same time takes into account corporate priorities and corporate culture. She identifies six key elements of a sourcing strategy that have to match.

*Corporate objectives* should reflect the organisation's aims and targets when getting into business prospects. Activities that create competitive advantage for the firm may better be kept in-house

*Corporate values and attitudes to risk* reflect how a company looks at outsourcing. Some companies have deep-seated beliefs of what to outsource and what to keep in house. Two main tracks are that a company only can keep control and flexibility over its IT resources if kept in house. The opposite view is that a company should only carry out core activities and therefore it should outsource as much as possible to derive the highest efficiencies possible. The attitude towards risk also determines what type of supplier the company will use. A risk-averse company will only use well-established suppliers.

*Analysis of IT services* by investigating which IT functions to keep in house and which IT services could be developed in conjunction with others. For instance by starting up a joint venture or a shared services centre where two or more companies get together and set up an IT function. The remaining functions are possible candidates for outsourcing.

To find the candidates, the firm has to consider whether the function creates a competitive advantage, instead of being just a part of the basic infrastructure. If so, it is a good candidate for outsourcing. The company also has to investigate which type of technical expertise that is available in the information technology department, and the system knowledge needed to take responsibility for its use as soon as possible. Finally, the company has to consider the track record and maturity of the IT services industry, which varies between countries and across the different IT functions.

*Single or multi-sourcing* is the choice whether to use one supplier or multiple suppliers. Service level agreements have to be developed for each outsourcing relationship. If using a multiple solution one of the suppliers could be adopted as a lead supplier that coordinates the others. Or alternatively the company can set up an arrangement that makes the suppliers mutually dependent of each other.

*Align with IT strategy* means that the sourcing strategy has to be in line with corporate IT structures such as technical architecture, data storage strategy, application software upgrades, enterprise resource planning system and quality management initiatives.

*Governance structures* include a definition of how to monitor implementation, reviewing progress and agreeing modifications. The governance structure needs to include representatives from finance and purchasing departments to coordinate the IT purchases so that it does not develop piecemeal with little or no regard to future requirements, system interfaces or creates uncertain boundaries in relation to the suppliers.

### **3.5.2 Identify offshore project**

When having decided to outsource an IT service the company has to decide to what extent it will use offshore resources, combining onshore, near-shore and far-shore solutions.

Some factors to consider when taking the decision to place some functions offshore are:

- **Specificity and clarity of the requirements:** Offshore projects work best when there is no confusion of what is required. The company should be able to document requirements in detail and get sign-off from all interested parties. Offshore is not recommended when there is a great need of clarification or an interactive development.

- User interaction: An offshore team will not be able to have frequent meetings with users. Offshore working is more effective when there is a limited need for frequent face-to-face meetings.
- Sensitive and confidential data: If data is going to be stored overseas or accessed remotely safeguards have to be put in place.
- Knowledge transfer: The offshore team will be in a need to learn more about the company, business processes and service requirements. The more that is documented and easily available the better.
- Team size: Cost advantages are significantly based on wage differentials and projects that only need a small team of “say 10 persons” or less are unlikely to generate enough benefit to justify the risk and expense to move offshore.
- Hardware and software requirements should be simple and there should only be limited impact on software licensing costs.
- Large backlog of application problems. Applications that have been running for several years are likely to have a number of outstanding problems and inadequacies that have not been addressed because due to low priority and cost issues. To move the backlog maintenance offshore could be an efficient solution.

### ***3.5.3 Prepare objectives***

The outsourcing organisation has to define what it wants to achieve and how it should know when the aims have been met. The objectives should determine how to structure and manage the offshore programme, which global delivery model to adopt, performance measurement criteria and the provider relationship structure. It is important to engage all stakeholders and departments in these objectives and therefore could it be wise to interview all key sponsors and stakeholders to get an understanding of their view.

Business case analysis sets out the reasons, advantages and justification for the offshore project. It should demonstrate that it is affordable, achievable and that it generates good value for the money. At the same time it is a valuable planning tool, which creates a deeper understanding of the project. Risk management is also a useful tool where the company should identify what type of risks that can occur and how severe they could be. At this planning stage it could be wise to determine what types of countermeasures are available, should problems arise.

### ***3.5.4 Develop statement of requirements***

Sparrow argues that offshore outsourcing requirements have to be expressed in written documents with clarity and in detail so that a geographically distant and non-native English-speaking team can fully understand the work that has to be done. She says that there are two key documents that have to be produced: the statement of work and the service level agreement (SLA). The statement of requirements should describe all functions that the service provider should undertake and the roles and responsibilities of both supplier and client. It should clearly define the scope of the work to be outsourced, milestones and deliverables, training and education requirements and the targeted service level to be reached. It could also be wise to include definitions of both parties' responsibilities and how the transition arrangements should be handled.

### ***3.5.5 Investigate market and choose country***

Sparrow concludes that it is more demanding to investigate the global services market and a primary concern for a company is to investigate strengths and weaknesses of individual countries. It is important to first identify which country that meets your requirements and after

that choose a service provider. Each country presents various advantages and disadvantages that the company can do little or nothing to influence:

- **Salaries.** Compensation is influenced by various factors, but within each country there is only a limited variation of salaries incurred by different suppliers.
- **Social and geopolitical concerns** can override the advantages offered.
- **Geographical distance and time zone differences.** Language and cultural issues also have to be considered.
- **Business environment factors,** such as: Education levels, taxes, regulation, support for the offshore industry and the climate for solving legal problems.

### **3.5.6 Choose service provider**

Sparrow stresses that to select the best supplier the purchaser has to define the project clearly and unambiguously. It is important to devise how the bids should be evaluated and be clear of how to manage the relationships with suppliers. The author describes a selection process which is most suitable to a medium-sized to a large-sized organisation seeking to outsource a project that otherwise would be carried out in-house.

#### **3.5.6.1 Evaluation**

The company needs a formal evaluation process that is auditable, consistent and ensures that all suppliers are on the same playing field. The evaluation method is preferably evaluated in parallel with preparation of the business case and the statement of requirements. This should be agreed on before contacting potential suppliers to support an objective assessment. There is also a need to decide how much information that should be given to potential suppliers regarding the evaluation process and feedback on the outcome. The purchaser has to consider more than just the local wage rates; the technical expertise available and the efficiency of their business processes are also of high importance.

#### **3.5.6.2 Supplier assessment**

When evaluating if the supplier is a potential supplier to the organisation the following needs to be considered:

- **Culture:** Check if the supplier shows the beliefs and values that the organisation looks for among its suppliers. Check how well the suppliers' organisations culture match with your own organisation's beliefs and methods. This includes investigating if they give any education to train its staff in cultural issues to ease the offshore work.
- **Quality:** Make sure that the supplier has an approach to quality management that fits with your own processes and standards. Make sure that it has been independently audited in the last two years.
- **Responsiveness:** How fast does the supplier respond to requests, is it willing to adapt proposals to meet customer concerns and do they understand its customers' priorities?
- **Maturity and experience:** Check their previous experience and how many customers they have. It is also important to make sure that they use tried and proven processes and that they are stable financially.

### 3.5.6.3 *Project evaluation*

The company has to make sure that the supplier has capabilities and technical ability to deliver the offshore project. Some guidelines to follow are:

- The scale and range of technical resources available.
- Industry experience as well as integration experience (developing interfaces to other systems).
- Proposed project team membership, level of experience and qualifications.

After the evaluation criteria are set it is time to shortlist a number of suppliers which should not be more than five and not less than two. The list can according to Sparrow be produced in two different ways. The company can by reviewing marketing literature, annual reports and other types of written material about their achievements and service offerings get a picture of which companies to put on the shortlist. The other way is that the company issues a “Request For Information” (RFI). This is a formal evaluation which is suitable for bigger offshore projects and is done by sending out a questionnaire to “about twelve” potential suppliers together with a project outline. Questions should cover areas such as charges, skills base, technical expertise company accounts, number of employees and resource availability.

The last step in the evaluation process is to send the short list of suppliers a package of information that should contain background information about the organisation and the project so that the suppliers can see what business strategy and goals the company has. To protect both the supplier and the outsourcing company a confidentiality agreement should be signed in this phase. To clear things out it is important to bring a description of the selection and evaluation process and at which threshold it is not economic for the company to use offshore solutions. Suppliers should be asked to submit their costs using a specific format so comparisons easily can be made between different suppliers. Sparrow argues that a draft contract should be submitted at this time because it gives the purchaser a competitive advantage when negotiations will start later on because it will be the supplier who has to argue for changes instead of the opposite. By submitting a draft contract at an early point could potential difficulties be solved in an early phase. The company should also describe its management and transition plans. This should also include a structure plan for how the project will be overseen.

The author argues that the firm should not rely only on written communication at this phase and bidders must be able to interact with the organisation to fully understand objectives and requirements. It is important that additional information that is given to one bidder gets shared with all suppliers to ensure fair competition. The assessment should take into account the supplier’s written proposal and feedback on intelligence gathered during site visits and other discussions.

### 3.5.7 *Negotiate contract*

Sparrow stresses that offshore outsourcing contains a number of potential risks. Control and risk mitigation tools are therefore important and the contract is a key tool. Legal terminology should be avoided when possible because the contract is a living tool, which should be used by people as a steering document, and if English is not their native language it is extra important to use a terminology that is easily understood by both parties. The process to set up the contract is by itself a beneficial task as it forces both parties to address all issues and concerns at an early point and difficult and sensitive issues should not be avoided. The service level agreement in the contract defines the level of performance that the provider has

contracted to provide and gives the client rights and remedies if the supplier fails to deliver. The author argues that it is important to avoid a multiplicity of interrelated performance measures that only a few people can fully understand. Instead, simple and clear measures that focus on core activities should be used.

Sparrow argues that it is important that both parties start from a position of equal strength. The supplier is used to do these types of negotiations and it could be wise and to hire an expert advisor if the skills needed are not found in-house. The complexity in international agreements will require a blend of legal and business expertise. It is also important to have an alternative bidder ready if something goes wrong and that all parties are aware of this solution. An alternative is to negotiate with parallel suppliers to keep a strong competition as long as possible. Each hour of negotiation will require several hours of preparation and everyone involved has to count for several hours of travelling to and from the offshore destination.

### ***3.5.8 Transition to offshore***

Sparrow argues that in an ordinary outsourcing deal a transition of staff is usually included, but it is very rare when doing an offshore transition. Knowledge transfer is therefore a key factor in all offshore plans. There is a need to free up time for the onshore staff to train and educate the offshore team in what type of applications and interfaces that are used, as well as in the user's perspective of the project and how the organisation normally works. To meet the project's time and cost targets, it is a critical issue that the supplier sends experienced staff from the offshore team to the client. Staff retention might pose a problem that could lead to a need for constant training and education new members of the offshore team. It is of high importance that the client has his own project leader and not entirely relies on the supplier's team leader. In this phase the onshore staffs schedule should be partly synchronized with the offshore team.

Some transaction activities are:

- Detailed project planning.
- Transfer of responsibility for the offshore project.
- Set-up and introduction of governance structures and risk mitigation.
- Implementation of contract management process including invoicing and payment procedures.
- Introduction of how to process change requests and a establishing a communication programme.
- Implementation of problem management and escalation processes.
- Co-operation with trade unions and setting up new career plans and support for staff whose work is moving overseas.

### ***3.5.9 Managing performance***

It is important to get a good relationship with the supplier, share a vision of what can be achieved, monitor financial issues and set up key performance indicators. Key performance indicators are critical to assess how effectively the supplier meets the clients' objectives. But in addition to this there are dimensions when moving a project overseas. There is a potential for cultural misunderstandings, the possible use of different terminology and the need of giving detailed instructions, which may not easily be discussed with the offshore team. According to Sparrow it requires a skilled in-house team to obtain a good relationship and

derive benefits from the deal. This is often neglected since many companies do not succeed in managing the relationship after the ink has dried on the contract.

Besides working on a good relationship with the supplier, communication has to be thoroughly considered. Progress information gets more important so users can get a realistic picture of the project and control could be maintained. Because of different time zones the communication is often done via email and telephone messages that require processes ready to deal promptly with these messages. The communication has to be clear and unambiguous without local slang and jargon to avoid misunderstandings. It is important to set up a strategy for how different forms of communication tools should be used. A part of this strategy does preferably contain visits at the offshore location.

## 4 Results

### 4.1 Interviews

The answers from our interviews have been grouped together under each of the nine steps in Sparrow's outsourcing framework. For each step, we have formed a list of the claims made by the respondents, shedding light on the outsourcing process. We also include statements made concerning small firm costs as well as other comments considered significant. We also account for the respondents estimated level of satisfaction when using offshore outsourcing.

#### 4.1.1 Develop sourcing strategy

The interviews revealed how the sourcing strategies were developed. Some of the companies and their staff already had established contacts with offshore companies, and therefore it was a natural development of their strategies to involve external suppliers. Reasons for developing a sourcing strategy that were mentioned were:

- Not having enough human resource capacity.
- Not having enough technological knowledge, need for supplementary competence.
- General belief that outsourcing brings significant cost savings.
- High-cost structure in Sweden for equivalently experienced resources.
- Doing as other companies do.
- Desire to grow faster than permitted by organic growth.
- Possibility to get a faster time to market.
- Risk mitigation by using offshore sourcing as a safety backup.

We saw that in some cases the strategy of a parent company dictated the use of offshore outsourcing in its subsidiaries. None of the interviewed companies involved consultants in forming a sourcing strategy. One person mainly initiated the process. Decisions were made individually or in small groups, usually involving the CEO, the CTO and a project leader or product manager.

The time involved in developing a sourcing strategy has ranged from "a maximum of 40 hours" to "at least a week". One respondent estimated the cost involved in developing a sourcing strategy to 10 % of the overall project cost.

One respondent argues that "the sourcing strategy must be considered for each project, in some projects you can transfer 40 % of the programming offshore, in others up to 70 %" (Olsen).

Some respondents could not separate the process of developing a sourcing strategy from the initial overall process of setting up the offshore outsourcing project which includes identifying the offshore project and preparing objectives. This combined process could range from four weeks to four months.

An additional cost mentioned in the interviews is external and internal communication costs, convincing external stakeholders that outsourcing is a good idea, and making sure internal staff "is satisfied and not worried about this solution and to build support" (Mellring).

#### 4.1.2 Identify offshore project

When identifying what parts and projects to outsource offshore, the following was mentioned:

- Parts mandated by the strategy of the parent company.
- Use-case oriented (i.e. non-core) features.
- Software with low proximity to the user that does not involve user interaction elements, where most of the computational functionality lies (and therefore easy to define).
- Low complexity projects.
- Software that is “easy to program”.
- Software where it is easy to specify what is to be programmed.
- Parts not significantly dependent or tied to other software or systems that are developed on-site.
- Common product development in order to create technological platforms.
- Customization (slight customer-oriented modifications) of a common technological platform.
- Parts which are easy to test separately.
- Parts with a clear “owner responsibility”.
- Projects without narrow time margins or tight schedules.
- Unqualified parts of projects, considered a waste of in-house resources.
- Projects that cannot be handled with the current staffing, where there is no time to employ and train the staff needed.
- “Everything without the need for deeper understanding of the customer’s business process” (Krieg).

Another respondent says “we outsource everything except project management, the part which business analysts has set up and the architecture of the business process”. One respondent stated that they outsource “the software development” (Krieg).

Another interviewee explicitly stated that “complexity of the project is not a reason to avoid outsourcing” and that, in fact “Russian system developers were very good at solving architectural problems” (Andersson).

The selection process was said to take “a couple of days” (Olsen), at “no extraordinary cost” (Mellring). The work mainly consists of “having a list of projects and tasks prepared” (Andersson).

### **4.1.3 Prepare objectives**

The objectives mentioned during the interviews were:

- Cost effectiveness, lower costs.
- Short time to market.
- Getting established in the offshore country.
- Fast access to well-trained programmers.

Only one of the companies did a formal documented business case, where they briefly noted down “some possible risks, advantages and supplier models” (Mellring).

One of the interviewees mentioned that his end-customers were not involved in setting up the outsourcing objectives; they are only affected by the final result (Olsen).

In none of the cases preparing objectives required more than a week of the project manager's time.

#### ***4.1.4 Develop statement of requirements***

The development of requirements is a prerequisite to any software project, whether it is to be outsourced or not. The various steps discovered in developing the statements of requirements were the following:

- Conducting a pilot project (by a university student, the produced code and process model were then handed to the offshore supplier; the knowledge gained during the pilot allowed for payment per line of code or per window).
- Conducting a pilot project (in order to decide what should be done, and select the programming tools the offshore supplier should use).
- Developing an "initiative paper" on "10 pages" stating what needs to be done, what competences that are needed.
- Avoiding detailed contracts, using frequent mail conversations, screen dumps, and links to web pages as design references.
- Using a standard agreement with customers (basically a form which is later handed over to the offshore supplier in an almost unchanged format).
- Using a standard agreement with offshore developers.
- Making sure development partners are "good and certified".
- Agreeing on test methods.
- Decision on what automatic test tools to use.
- Pass on customers specification to offshore supplier (service levels, design constraints).

The requirements development is an ongoing process: a requirements specification is handed over to the offshore supplier that in turn returns a list of all questions arisen, which results in a new adjusted specification, and so on.

The time consumed in stating the requirements varied widely among the respondents, from "no extra costs, all these test tools and requirements have to be done anyway [...]" (Mellring), "one day of work" (Ericsson), "three days of work" (Olsen), to "about 10 % of the total project cost" (Andersson).

An issue with using offshore suppliers is the design of web pages ("look and feel"). Web designs are often not adapted to domestic preferences, and have to be reiterated several times, increasing costs (Sjöberg).

Not having prepared the requirements statements enough leads to higher costs. Also, if the offshore staff "does not have a similar background, it will demand a higher degree of documentation" (Krieg).

#### ***4.1.5 Investigate market and choosing country***

Our respondents had investigated outsourcing suppliers in Sweden, the Baltic region, the Czech Republic, Macedonia, Russia, India and China.

None of the respondents did a formal research on which offshore country to chose. However, some efforts were made:

- Brief search for information on the web.
- Use of personal experience and previously established contacts.
- Visits from potential offshore suppliers (local sales agents).
- “Common sense”.

Decision parameters to investigate the market were:

- Prior market knowledge.
- References.
- Geographical proximity (to enable face-to-face meetings).
- Sufficiently low price.
- Matching time zones.
- Knowledge of the systems currently in use.
- Mature offshore market.
- High probability that programmers will stay on the project and be motivated.
- Short notice time, to enable fast replacement of underperforming employees.
- Political considerations; “political stability”.

One respondent claims that “there are a lot of costs involved in the research of the market”, “for an actor that does not have local knowledge of these companies, this takes a long time” (Olsen). They have therefore engaged a native consultant working on the offshore location on a long-term basis.

Another respondent mentions, “it is easy to recruit in India, but it is also easy to lose personnel”. He recalls, “when members of the offshore team realized that the project would not be continued, they started to drop off the team”.

One respondent suggests, “it is cheaper to evaluate a number of potential suppliers using pilot projects than to do a complete market research” (Andersson). Another claimed, “any country with a price low enough was interesting” (Sjöberg).

A way to evaluate if programmers will stay on the project and be motivated was that “programmers are well paid compared to other citizens” (Olsen).

We have not found any particular costs involved in researching the market, except for the time consumed in the brief search for initial information.

### ***4.1.6 Choosing service provider***

The responses show that the selection of a service provider is based on a set of criteria:

- References; the number and the quality of previous successful projects by the provider.
- Ability to work on the domestic site.
- Ability to mitigate risk (handling project delays, accommodation, insurances, staffing).
- High competence, experience.
- Relevant competence.
- Single provider, with the ability to handle all issues.
- Ability to give satisfying answers to mail questions (sufficient maturity and/or perceived quality level).
- Ability to deliver.

- Management capacity.

The selection process involves:

- Studying marketing material.
- Following up on references.
- Telephone and videoconferences in the first screening using a predefined consultant competence profile.
- Meetings offshore with potential suppliers (managing directors and potential staff).
- Trial and error, i.e. trying a company and seeing if it works out.
- Competition among suppliers (a set of suppliers get a use case to solve and present within a predefined time period).

“Many days are invested in provider knowledge, but about only one [day] to do the actual selection” (Ericsson).

Another interviewee claimed that “three persons each spending twenty hours in videoconferences” and then “three people go to India and do further research” (Ericsson).

One company initially used a Swedish main supplier that in turn used offshore suppliers, to get used to the working process (Sjöberg).

Where trial and error has been used, the payments are used as an incentive, and divided into installments, “30 % in advance, 60 % when screen shots of the ready web site are available, and the remaining 10 % on final delivery.” (Sjöberg). He also states that “since costs are so low in China, 5 USD per hour, a project of 100 hours is only 500 USD, so one can evaluate the ready product, that is, a sort of project evaluation”.

### **4.1.7 Negotiate contract**

The responses given indicate the following steps are included:

- Asking for tenders from suppliers that are given a list of tasks and how they were to be performed.
- Translation of a standard Swedish consultancy contract into English.
- Hiring legal aid.
- No formal negotiation, only a request for prices to a number of possible suppliers.

No respondent hired a professional negotiator. The negotiations were generally performed by the project manager, which usually meant the CTO.

Negotiation parameters deemed important by the respondents:

- Knowledge of salary levels in the selected offshore suppliers’ country.
- Legal system used (domestic law preferred, i.e. Swedish)
- Long-term partnership.

“You have to strive for the establishment of a long-term partnership and it is impossible to solve all possible issues in terms of contract clauses” (Andersson).

Many of the respondents claimed that there were no extra marginal cost involved, compared to setting up a Swedish contract.

One of the respondents estimated the extra cost compared to a Swedish contract to 10,000 SEK due to extra legal advice fees. Another respondent claims that the first contract negotiation will be the most expensive, and costs will decrease with experience. He estimates that in his first project, “the legal and negotiation costs were 15-20 % of the total costs”.

Another way to handle the negotiation costs, was to have “no formal contracts at all” (Sjöberg).

The rights to the code have not been contractually bound, in fact “the Chinese suppliers have even put up the produced programs on their web sites under sections with names like ‘Games in Swedish’”. Since there is “close to no possibility to control the supplier’s use of code, there’s no need to control it” (Sjöberg).

### ***4.1.8 Transition to offshore***

The transition process was found to include these steps:

- Establishing project plans for each application.
- Selecting suitable programmers.
- Matching in-house employee competences with those of offshore staff, assigning an offshore “buddy” to each employee.
- On-site visits to offshore location, several companies did send their employees and technical experts to train and evaluate the offshore staff.
- Offshore staff flown to Sweden, initially to watch and learn from the Swedish staff, later to perform work on their own.
- Introduction to the Swedish company, its standards, its culture, and expectations.
- Offshore staff remains in Sweden during entire project period.
- Offshore staff returns to offshore location.

No transition at all was performed for one of the smaller companies, since it was entirely without in-house programmers or developed software (Sjöberg).

One respondent states that in the future they will “bring all members of the extended product development group to Sweden at least one time so that they get to know the Swedish team and the company culture”.

Costs identified:

- Severance pay and compensation for the redundant Swedish staff.
- Travel expenses incurred when visiting the on-shore location.
- Cost for introduction and education of offshore staff.
- Payroll for in-house staff that train the offshore staff.
- Insurances (offshore locations do not have suitable coverage for all business risks).
- Accommodation and office staff for visiting staff.
- On-site equipment (mobile phones, computers, secure internet connections).
- Costs associated with the productivity drop during the initial time period, on both sides.

One respondent mentions that the “start up time is 2-3 weeks with education and coordination activities” and that “during these weeks the productivity is very low and normally there is a Swedish project leader there those weeks” (Ericsson).

In one of the cases, effective re-use of and access to the already existing procedures and systems were said to result in “no special transition activities” (Andersson).

One respondent (Bergh) mentioned that the estimated project transition times varied “between 6 weeks up to 20 weeks per system and technology” but that this “turned out to be at least the double in time”. Due to this unexpected delay, “several of the dismissed employees had to have their contracts reinstated and prolonged”. As a result of the weak negotiation position of the company in this situation, and highly unmotivated personnel, this turned out to be an expensive operation. In addition, the costs for lodging the offshore staff for a longer time period added to the expenses.

### **4.1.9 Manage performance**

Managing performance was handled in a number of ways:

- Dividing project into steps.
- Setting up and using deadlines.
- Code review after each deadline (“at least a couple of days for each project”).
- Code testing.
- Monitoring the general project progress.
- Price suggestion for each change proposal.
- Some suppliers prefer fixed price, and are as a result keen to keep the client up-to-date, to avoid having to redo work without getting paid.
- Setting up a system where quality and tempo was measured and presented for in-house developers and offshore staff (e.g. “counting number of forms converted and tested”).
- Mail contact used as an ongoing method to measure progress.
- Using a common virtual platform; shared internal network, frequent interaction using teleconferencing and instant messaging.
- Using a limited set of tools and systems.
- Letting a common terminology evolve (to diminish language problems).
- Building loyalty with offshore staff (e.g. by a good introduction and integration at the start of the project, corporate parties).

To track the performance, it was considered that input and output must be well specified.

“One supplier suddenly, for a period, stopped answering my mails. Then I switched supplier. So, that means all money spent on the initial supplier was lost.” (Sjöberg)

Most companies use some mix of mail, telephone and video conferencing as well as instant messaging to keep in touch with the offshore suppliers. The need for contacts varies widely: “Maybe 30 minutes per programmer each day, and a telephone conference one hour each day with all programmers. We also used video conferences and many face-to-face meetings” (Ericsson). But not all companies have been in direct contact with their offshore suppliers: “only mail was used for interaction, no papers, no instant messaging or phone - I have not visited, seen, or spoken directly to my suppliers” (Sjöberg).

“Certifications [such as the Capability Maturity Model] are not worth that much, it sets standards for internal processes, more than the actual output” and it “makes the organization inert” (Ericsson).

“I don’t believe in certifications [such as certified developer]. In the case of Domino, it’s like reading the driver’s license theory and then start driving a car”, “practice from real-life situations are much more valuable” (Bergh).

Costs identified are due to:

- Time delays (e.g. caused by solving bugs).
- Low productivity, “when it takes three weeks to get the results from something that would normally be done in half a day, outsourcing is not as inexpensive as expected in the end” (Lindberg).
- Quality problems (“in the Domino project, there once were 60 open issues remaining at deadline, far below the performance levels normally maintained in Sweden”).
- Learning offshore staff existing systems and project models (sometimes without any prior knowledge).
- End-customer sometimes wants to be in touch with the offshore suppliers, creating additional costs.
- Slower turnaround at change requests (compared to domestic supplier).
- Language correction and translation.
- Communicating more clearly and consistently than when dealing with a domestic supplier.
- Money transaction fees.

Some respondents claimed that there was no difference in the time spent managing performance compared to a domestic supplier. Below are some examples of discussions concerning the costs for managing an offshore project:

“At least 10 % more hours are required when using offshore programmers. Around 20 % support hours have to be added for each hour of development. 10 % in preparing hours and 20 % hours added in quality control and review of offshore. If 10,000 hours are to be developed offshore, then you will have 1,000 hours in preparing, 2,000 in support during execution and 2,000 in quality control and review. In addition, allow 1,000 extra hours because of the [slower] tempo in India.” (Ericsson).

“Two persons were assigned to help the group of offshore programmers. The extra time for the project leader compared to an ordinary project was 30-50 % and for the product manager 50 %” (Mellring).

“Of the total project time, due to our communication problems, we spent 40 % on phone calls to the developers in the Ukraine, 10 % on local phone calls, 20 % were actual development in the Ukraine and 20 % on local development. And an additional 10 % to other related tasks.” (Lindberg).

“The representative in St Petersburg’s salary - he spends at least a week on a 2-3 month projects just in controlling issues” (Olsen).

“In Sweden, the project could have been done with half the workforce” (Krieg).

Risks and obstacles found:

- Language communication problems.

- Time zone differences.
- Longer time to delivery compared to domestic supplier.
- Reluctance in some cultures to report problems, resulting in unexpected delays.
- Tendency in some cultures to avoid saying 'no', resulting in time delays, and misconceptions.
- Problems integrating in-house and offshore staff
- Lack of motivation among offshore staff.
- Lack of understanding of the client's business process.
- Offshore staff reluctant to maintain old programs (seen as "boring").
- Misreporting of the number of worked hours.

### ***4.1.10 Estimation of satisfaction***

Six of the respondents report that they are satisfied, very satisfied or extremely satisfied with the use of offshore outsourcing. Two of the respondents are unsatisfied, and hesitant as to whether they would use offshore outsourcing again.

## 5 Analysis

In our analysis, we use the empirical data and compare it to Sparrow's framework and analyze it using the transaction cost economics theory, to form a well-founded opinion. We start by comparing the results from our interviews using Sparrow's framework, to get a picture of the offshore outsourcing process in small firms. We then continue by comparing our results to those predicted by the theory of transaction cost economy adapted to small IT firms, to find relevant costs and mitigation strategies.

### 5.1 Outsourcing process

To get an understanding of what the outsourcing process looks like in small firms, and to find differences between offshore outsourcing in larger companies compared to smaller firms, we strive to identify resemblances and differences from Sparrow's framework. From these findings we then note down obstacles that could render an offshore outsourcing project impractical to a small firm.

#### 5.1.1 Develop sourcing strategy

Sparrow argues that the sourcing strategy should be seen as a part of an overall strategy where up to six different areas have to be considered. This is partly confirmed by our research, which shows that the respondents consider outsourcing as a part of an overall strategy. However, they do not see any need for multi sourcing and they normally only use one single supplier. Our research shows that small firms that are subsidiaries can be forced to align their outsourcing strategy with the parent company's IT strategy, thereby limiting the need to develop an individual sourcing strategy. We believe that small firms mainly see sourcing as a tactical issue and due to their limited resources, they do not have the capacity to co-ordinate several suppliers.

The author also stresses that a vital decision parameter is deep-seated beliefs regarding whether one should use outsourcing or not. Another important parameter in the decision process is risk attitudes, which often forces companies to use only established suppliers. The belief-based decision-making was confirmed and companies were seen to be influenced to do as other companies do, a so-called "bandwagon" effect. As seen from our interviews, established personal networks affected decisions to a large extent, and most respondents were willing to take risk. They also argue that they lack the necessary resources to investigate unknown suppliers.

Our opinion is that, as a consequence of there being only a few persons involved in the decision-making process, deep-seated beliefs will be considered very important when taking sourcing strategy decisions. We believe that the focus on the importance of personal connections and trust building is a consequence of the small size of and entrepreneurial spirit in the decision-making groups.

Sparrow claims that when developing the sourcing strategy an analysis of the competitive advantages within their IT services should be done, identifying which technical expertise is needed and listing the outsourcing track record and maturity of the industry. We found that in small firms, the sourcing strategy is mainly built around the needs to cut costs, to gain human resource capacity and technological expertise.

We also found a parameter, which Sparrow does not mention: offshore outsourcing could be seen as a way for large firms to mitigate the risk inherent in using a small firm. This is done

when the small firm takes on a large project and mitigates risk by using a well-established offshore supplier. Some respondents also stress that faster time to market is an important issue when developing sourcing strategy.

Developing a sourcing strategy should, according to Sparrow, be done within a governance structure where representatives from finance, purchasing and IT departments are involved and engaged. In small firms it is process managed by one person or a very limited set of people. We believe that the development of a sourcing strategy in a small firm is done in such an informal way that the strategic approach involving all departments is not suitable.

An obstacle found in forming a sourcing strategy is the limited knowledge and interest among small firms regarding how to formally set up a sourcing strategy. In small firms it is also difficult to find a clearly defined separation of processes and project areas. However, no major obstacles to perform this process step could be found in our research.

### ***5.1.2 Identify offshore project***

Sparrow argues that when identifying the offshore project there should also be a selection of what to source on-shore, near-shore and far-shore. We saw no such mix and there was no conscious trade-off between the alternatives. We argue that this is an extension of the fact that small firms consider off-shore outsourcing as a tactical issue rather than a strategic issue. As a result, small firms act pragmatically. They lack the time and resources to handle more than one supplier. Personal ties are seen as more important than choosing between different sourcing alternatives.

Sparrow writes that specificity and clarity of requirements are important when identifying offshore projects since they work best when there is no confusion. As a result, Sparrow also argues that there is a need to document in detail and she stresses written records. Our respondents confirm the importance of stating their needs in clear specifications, but not in such high detail as proposed by Sparrow. Our belief is that this reluctance is caused by the small firms' unwillingness to be restrained by detailed and static specifications, bureaucracy and resource drainage.

Sparrow also stresses the ability to have face-to-face meetings in complex project settings. Our empirical data suggests that small firms instead stress the importance of defining clear project boundaries. Low complexity, easy testing procedures, clear ownership and generous time margins before project start-up are commonly preferred parameters used when setting these boundaries. We argue that small firms want to have simple relations with their offshore suppliers, as they see outsourcing as a support for their existing business, and not as a strategic partnership which would demand more formal control and face-to-face meetings.

Sparrow also states that offshore outsourcing is not recommended when there is a great need of interactive development. The responses to our interviews, on the other hand, reveal that some respondents regard high complexity and interactive projects as possible, depending on the ability of the supplier to work independently and with an innovative spirit.

Sparrow says that it is important for the supplier to learn more about the purchasing company. Our empirical material shows that this is possible only to a certain extent. Most companies kept business processes and processes with proximity to the customers for themselves. We argue that this again indicates that small firms use a short-term perspective and this is clearly

a risk to both the client and the supplier when it comes to the success of the project and keeping the costs in check.

Sparrow stresses that staff response to outsourcing is very important for the success of the process. All decisions should be justified and transparent. As seen in our study, it might get problematic when a parent company decides to use outsourcing and there are efforts made to communicate the need of offshore suppliers. Sparrow argues that when the team size needed for the task is less than 10 persons it is unlikely to offer enough benefit to justify risk and expenses to use offshore outsourcing. Suppliers often offer discounts to projects with more than 50 people involved and these projects usually give the best savings ratios. In our research we have found no such indications. Some small firms do not even have their own information technology staff, they could be said to be “born offshore”. In our view, there is no justification for the claim that outsourcing is not a valid option for small teams. Small firms have less costs for setting up and controlling these projects, which normally only require a short time period of planning before start up. This means that the costs during the selection process will be lower for both parties and due to the informal way of working the purchaser can accept a higher price and still get a profitable deal. Additionally, smaller teams working for longer time periods can also be valuable to suppliers, which is likely to result in competitive pricing and acceptable costs for the purchaser.

Another way to succeed is to initially avoid projects that would require major investments in hardware and software, e.g. licenses. Our results show that when working at the domestic location, certain hardware might have to be provided to the off-shore staff, but that is not a significant cost for small firms in this type of projects. Today, very limited investments are made at offshore locations.

Sparrow says that the suppliers’ knowledge of the application environment and their technical skills are important. This is confirmed by some respondents stressing the importance of supplier knowledge in the systems used. It is also important to avoid projects with volatile requirements and we saw that as a solution small firms avoid that type of projects. We argue that supplier system knowledge is a must, since small firms have very limited resources to train off-shore teams. In addition, the average short project lengths make such knowledge transfer both costly and unpractical.

The main obstacle in this phase is that it can be hard for small firms to identify which software parts to outsource. If that can not be done properly, it will hard for smaller firms to accomplish cost-effective offshore outsourcing.

### ***5.1.3 Prepare objectives***

In Sparrow’s vocabulary preparing objectives comprises defining how to achieve and how to measure performance and she argues that a business case is a proper way to determine which objectives are to be met. Sparrow writes that structured risk management could be used as a tool to identify which risks that could occur. We could not find any evidence of structured risk management taking place in small firms. We could see that none of the respondents focuses on preparing outsourcing objectives, and formal processes such as business case analysis were only used by one of the respondents. We also discovered in our study that some companies involve their customers in setting objectives for how the relationship should be set up. We argue that this is a consequence of the tactical and pragmatic way that small firms use off-shore outsourcing. Small firms normally do not have any experience or skills in formal

strategic planning; instead they tend to use operational information from their customers to prepare their objectives.

No practical obstacles to set objectives for a small firm could be found. We believe that, generally, no effort is needed, since the main objectives to use offshore outsourcing are clear from the start in a small firm: reach cost-effectiveness and gain access to competent resources.

### ***5.1.4 Develop statement of requirements***

Sparrow stresses that it is very important to document the requirements in written format in clarity and in detail so that a non-native speaker fully can understand what should be done. Some respondents consider this to be an iterative process where the supplier and the client together create a document with requirements. In some cases a written document from the client was used, but in other cases pilot projects were developed which practically showed how to do it. In one case existing externally developed software in itself was used as requirement statement, without written documentation. We believe that the perceived ability of the supplier to work independently and with an innovative spirit directly affects the needed level of detail in the requirements statement. We also argue that small firms should be aware of the risk in underestimating the need for preparing the requirements statement. Managing requirements changes at a later stage can be even more costly.

Sparrow argues that both a work and a service level document have to be produced by the client. Our respondents say that a standard agreement is often used, but no specific service level agreements for the offshore project are produced. Customers are often involved in the set up of requirements. We believe that there are a number of reasons that small firms do not use elaborate service agreements. Firstly, small firms understand that they are dependent on the good will of the supplier to succeed with the project. Secondly, it would go against their belief of trust and the usage of dynamic iterative processes. Thirdly, it can be very risky and resource consuming to enforce contract breaches at the offshore location in an unknown jurisdiction. Lastly, it is often hard to determine the cause for delays and determine the source for contract breaches.

Stating the requirements clearly enough could be a problem and a part of that problem is limited language skills. A main cause that creates obstacles during this phase is the lack of internal documentation. We believe that the reluctance to produce detailed requirements is based on the perception that it does not create enough value to justify the effort.

### ***5.1.5 Investigate market, choose country***

Sparrow argues that it is important to first investigate strengths and weaknesses of individual countries and that global services market is much more demanding to investigate. For the small firms in our research, the main focus is on finding suppliers in compatible time zones, suitable geographic locations and minimizing language difficulties. We could see that no structured investigation of strengths and weaknesses is made and as a result of the small scope this is not a demanding task for small firms. We argue that this is a logic way to act for the small firm, since the average project sizes do not justify strategic macro-economical studies. Small firms rely more in trust and personal networks than in strategic studies.

There are no significant obstacles to complete this phase. The limited search scope used by the small firms decreases the likelihood of finding the optimal market, which on the other hand could be costly if done thoroughly.

### **5.1.6 Choose service provider**

Sparrow describes a process best suited for a medium-sized to large organization. It consists of four parts: supplier evaluation, short listing suppliers, selecting a preferred bidder and due diligence.

Sparrow states that while assessing the suppliers “you need a formal evaluation process [...]”. We note that two of the interviewed organisations did set up structured evaluation processes, while the others did not. The main selection parameters found were price and competence. The two companies were the larger two in our interviews. This points towards our previous argument that the smaller a firm is, the more reluctant it is to use formal processes.

The framework lists a number of criteria based on culture, quality, responsiveness, maturity, cultural awareness, and methodologies. From our empirical material, we also note that the supplier assessment is made based on the ability to working on site, and that one single supplier can supply all the necessary services. We argue that this is due to the lack of resources which makes it hard for the small firm to co-ordinate and control the projects in other countries. Another reason is that a person on-site can be an inexpensive way to obtain knowledge about the off-shore team and their working methods, as well as a valuable communication link.

According to Sparrow, it is a necessity to assess whether the supplier has the capabilities and technical ability to deliver a project intended for offshore outsourcing. This is also emphasized by our results, where respondents have a high focus on quality and on finding suppliers with high as well as proper competence. For a small firm, there are no resources available to train and co-ordinate the off-shore team, unless they have planned for a long-term relationship.

Sparrow states that a financial appraisal of the supplier’s proposal should be made, to see if it is “financially sound and will deliver value for money”. However, this is not mentioned in our interviews, where instead references are used as a way of checking the firm’s credibility

Another step in choosing a service provider is drawing up a short list (of “around three”) suppliers. This is not supported by our findings; there is no extensive use of shortlists. In fact, some companies use trial-and-error and select the first company seen as sufficiently good. Again, we believe the reason for this being the limited resources of smaller firms, and the reliance on personal networks.

When selecting a preferred bidder, Sparrow states that “to rely on written communication with potential suppliers would be unwise”, and adds that “bidders need to be able to interact with your organisation to fully understand your objectives and requirements”. However, our results show that written communication constitutes a major part of the initial selection process, and, in the extreme case, no oral interaction at all has taken place.

In the framework, due diligence is seen as especially important when you will be dependent on an unfamiliar and untried offshore workforce, to confirm the provider’s claims regarding prices, the solution, the company, its references and the contract. According to our research, this does not seem to be a priority to small firms, where it is not carried out in any depth. We believe that this a result of the lack of a structured selection approach, and lack of resources.

The obstacles we have identified regarding a small firm's ability to choose a service provider according to the framework, is that it requires extensive resources to perform a thorough investigation, resources a small firm is unlikely to have. We also note that small firms have very limited knowledge of the differences between offshore markets.

### **5.1.7 *Negotiate contract***

Sparrow's framework focuses on contract structure, the service level agreement, the negotiations and the contract award. She mentions that contracts should be used as a control and risk mitigation tool, and also as a steering document. However, according to our empirical data, none of the respondents used the contract as a steering document; it is not used actively in that manner. We believe that the effort in producing such a detailed contract is perceived as too costly for the smaller firms, and it is therefore replaced by a standard contract. Another way to reach the same level of confidence in the supplier is by building trust. Contracts do not build trust, but try to remedy the lack of trust. In small firms, detailed contracts are instead replaced by frequent trust-building conversations with the suppliers.

Sparrow states that the contract structure should clearly define ownership of intellectual property. Our findings show, on the other hand, that it is seen as very hard to control property rights, due to limited finances and geographical distance, and therefore very little energy is spent on legally protecting ownership. In our opinion, small firms are not likely to possess the financial resources necessary to pursue legal action against a company working in a distant legal jurisdiction. It is therefore not meaningful to spend too much time on detailed contract clauses concerning intellectual property rights. This does, however, limit the use of small firm software outsourcing, as in some industries, it would be out of the question to not be able to control the property rights. A cost-efficient solution for small Swedish firms to reduce intellectual property right concerns could be to use suppliers in countries within the European Union, or in close vicinity.

The complexity in setting up an international agreement requires a mix of legal and business expertise. But as seen from our data, small firms do not feel that they can afford extensive legal expertise; only one firm states that there were extra costs due to usage of international legal advice.

Sparrow stresses the need to decide which governing law to use, and to insist on easy legal terminology. Our respondents always preferred to use domestic law (i.e. Swedish law). Notably, one respondent did not even draw up a formal contract with its suppliers. Sparrow also adds that it is important that both the purchaser and the supplier are starting from a position of equal strength. In a small firm setting, the use of standard contracts gives the suppliers little choice, especially when smaller suppliers are used.

Our belief is that a cost-effective way to handle this situation is to copy the contents of a standard contract, thereby reducing the need for legal consultation. Often the offshore supplier has more sophisticated knowledge in setting up this type of agreements and might come with suggestions and ready-made contracts. Using these contracts, however, diminishes the bargaining power of the purchaser, and might hide issues the supplier does not want to reveal.

During negotiation, Sparrow mentions the importance of having an alternative bidder ready, or having parallel negotiations with suppliers. In the smaller firms interviewed, on the other hand, no formal negotiation process was used, and the process used at this stage, was a sequential interaction with one supplier at a time. We believe that the lack of parallel

negotiations is a result of a resources-benefits trade-off. If the small firm is inexperienced at using offshore suppliers, the lack of comparing offers might result in a quite substantial loss in cost effectiveness. Two or more simultaneous negotiation will most likely also bring other benefits, such as a more complete and detailed set of specifications.

To a small firm, dealing with a small offshore supplier, we regard the contract as a document of “false security”. Even though a thorough contract is set up, there are no real means to take action if the contract is breached. We believe that it is more important to set up other means to keep control. A suitable structure might include setting up a number of project iterations. Only after the delivery and acceptance of a development iteration does the supplier receive payment.

Also, in smaller companies, the interdependency between purchaser and supplier is large. The purchaser and the supplier are co-dependent. Therefore, it is difficult to “contract away” issues, and it is in both companies interest to successfully complete the project. The supplier is also concerned to get repeat business and to not end up with a customer that will act as a negative reference in the future. This could be used as a negotiation tool.

As we find the contract negotiation being of relatively small influence in a small firm setting, we conclude that there are no real obstacles for a small firm to successfully complete this step in the process.

### ***5.1.8 Transition to offshore***

Sparrow mentions that transition of staff is rare in an offshore agreement. Our empirical results support that none of the small firms had transferred staff offshore. We believe the reason for this is that small firms use offshore outsourcing as an expansion of their firms without having to employ new staff, it is not primarily used as a means of labour cut downs.

According to Sparrow, knowledge transfer is a key element in any offshore transition plan. In the small firms interviewed, that is the case; however, the firms try to keep business processes and knowledge about the customers in-house. We believe that the level of success in the offshore software production is related to the supplier’s understanding of the purchaser’s business process, or at least the processes surrounding the application being outsourced. The rationale used by small firms in justifying their keeping business processes secret to offshore suppliers is the fear of theft of business ideas, and the lack of secure legal protection and enforcement of intellectual property rights. It is our conviction that it is necessary for smaller firms to build a sufficient level of trust with the suppliers in order to provide the necessary information to succeed in using offshore outsourcing.

Sparrow also states that sending experienced staff from the offshore team to the domestic site is an effective way to reduce project time and cost. We have seen in our interviews that this is common practice among small firms. It is seen by the respondents as an effective way to handle knowledge transfer. However, it is also common that the supplier’s staff also goes to visit the offshore location. This is a cost-benefit trade-off. We believe that it is important for the supplier’s offshore project management staff to build mutual trust with the offshore team, and using the visits as a way of acquiring a certain amount of respect. By visiting the offshore location, and knowing the staff personally, it is much easier to build trust. We believe that video conferencing is a valuable tool in this trust creation, and can be used to minimize travel, but not to entirely replace it.

It is also mentioned by Sparrow that it is of high importance that the client has an internal project leader. This is very commonly used within small firms. We believe that the risk of failing a small firm offshore outsourcing project increases significantly if the purchaser does not have an authorized point of contact that is available to the supplier for continuous interaction. For a small firm, it is of great importance that the project does not develop in a direction not desired. To avoid this, daily interaction with offshore developers can be delegated to domestic developers. The author also states that “if the offshore team has a problem or needs information they may want to talk to your organization”. This is reflected by our respondents in a productivity drop during the initial time period, on both the offshore location side and at the domestic site.

Sparrow states that “if your organisation is new to offshore outsourcing it pays to allow extra time for transition”. We note that small firms are very likely to be new to offshore outsourcing, but that individuals might have prior experience that can aid in the transition.

Another point that is stressed is to make sure that process flowcharts, system documentation and project management records are fully updated, to be shared with the offshore staff. This is done to some extent in the small firms, but due to their small size, no documented processes are used, and therefore there is no relevant process documentation to share. We do not believe it is well spent time for a small firm without extensive process documentation to produce such information. However, the production of system documentation might aid in transition speed and reduce the time that has to be spent in person-to-person knowledge transfer.

One can also note that in some of the smaller companies, no transition at all has been performed, and that they used offshore outsourcing from the start. We would like to call these companies “born offshore”.

The most notable obstacles in this outsourcing process step are the limits the costs for travel and accommodation as well as payroll costs: especially in a situation where the process takes longer time than estimated there might be an unforeseen and expensive need to re-hiring staff. Also, we conclude that using the services of an offshore supplier in a remote location could result in time zone incompatibilities, straining the resources of a small firm. We therefore believe it is advisable for a small firm to use outsourcing suppliers in a compatible time zone.

### **5.1.9 Manage performance**

To manage the remote outsource service, it is important to identify key performance indicators, and they should be reviewed regularly. In the case of the interviewed small firms, we note that the performance management is rather done mainly by the use of iteration deadlines and post completion review and testing. We believe that an additional stress on deadlines could be achieved by postponing payments until each iteration deliverables has been approved.

The text also mentions that a skilled in-house team is needed, to handle key performance indicators, cultural misunderstandings, different terminology, etc. The respondents generally claim that existing competence at their firms is considered as sufficient.

Sparrow encourages companies to “ensure you have processes in place to deal promptly with messages and emails”, with the differences in time zones in mind. The solution in the interviewed small firms is using a variety of communication tools, mainly internet-based. We firmly believe that the project success rate increases significantly if the purchaser has at least

one authorized point of contact that is available to the supplier for continuous interaction. Daily interaction with offshore developers can be handled either by a project manager or be delegated to one or several of the domestic developers.

Sparrow promotes the need to set up a strategy for communication which preferably includes visits to the offshore location. Our results point to that the smaller firms do rarely visit the offshore location after project initiation. In our opinion, the cost-benefits of visiting the offshore location after project initiation are limited. Visits could be used as an error correction tool if communication problems arise, but should not normally be used during project process.

She also states that a company should “look for advantages and benefits [...] beyond simple cost savings”, and encourage the supplier to offer suggestions for improving or transforming the processes, the systems and the infrastructure; the purchaser should also “aim for a culture of continuous improvement in the management of the offshore project”. We noted that in the responses to our questions, the main focus for the smaller firms is on cost savings, and only a few changes to management process were suggested by offshore suppliers. Our experiences in small firm businesses point to that they tend to change practices only when forced to by external factors. Therefore, we do not believe that it is relevant for smaller firms to search for extended synergy effects with offshore suppliers. Offshore suppliers answer to an immediate need of the purchaser.

The obstacles in this outsourcing process step that we found in our interviews were the differences in time zones, language barriers and cultural problems. It could also be noted, that certifications were not seen as a reliable way to guarantee performance. We do believe that quality-oriented certifications could be very valuable to small firms. A sort of “surrogate certification” could be in using a consultant firm or offshore broker that aids in selecting an offshore supplier from a well-known set of offshore suppliers. However, the brokering firm would have to provide this service at a very competitive rate to be a plausible way out for a small firm.

### **5.2 Significant transaction cost parameters**

In this section we try to pin down the significant transaction cost parameters for a small firm about to plan and implement the use of offshore outsourcing. We have based our transaction cost and mitigation analysis on the findings of Carmel et al. (2005) and Nootboom (1992, 1993).

#### **5.2.1 Contact costs**

In our investigation we discovered that many companies had already previously had contacts with offshore suppliers. No company had used an external consultant in developing the sourcing strategy. This fact could be one of the reasons behind the high satisfaction in the interviewed purchasers in using offshore outsourcing.

A part of the search cost lies in preparing a business case supporting the objectives, to allow for efficient comparison between alternative offshore suppliers. We could see that this was not a commonly used method among the interviewed companies. We believe the reason for this lack is due to the relatively significant difference in cost between Swedish labour and offshore staff, which can be as high as three times as expensive. This limits the need for a thorough business case. However, we see a danger in the increased likelihood of forgetting to include risk prevention and mitigation costs in the offshore calculations.

To decide which supplier to select, many companies listed specific requirements and presented them to the suppliers. A couple of companies used standard forms in this process, and some made their own “initiative papers”, and thereby reduced the time needed to specify requirements to between one and three days. We believe that this initial contacting process can be further reduced by explicitly expressing to potential suppliers the need for a “creative response” process. The Swedish business climate calls for creative and independent suppliers, and to avoid unpleasant surprises, we believe companies should use suppliers with matching system development culture (i.e. for Sweden most likely the Baltic States or Russia, and less likely India).

Investigating markets is mostly done by searching the Internet, resulting in negligible costs.

When choosing country and service provider, we see from our empirical data that the contact costs are constituted by communication costs when screening potential suppliers, reviewing marketing material, and follow-up of references, as well as travel costs when visiting potential suppliers. A completely different approach is having only trial and error costs, i.e. trying one company at a time, and selecting the first one that delivers satisfactorily according to specifications. We believe that the former approach is the one suitable to most small firms, and the latter should only be used by companies prepared to handle the increased risks for money loss and delays.

Table 5.1. Contact costs and their mitigations.

<b>Step</b>	<b>Cost</b>	<b>Mitigation</b>
Develop sourcing strategy	Management resources	Use existing contact network and in-house experience
Identify offshore project	Management resources Developer resources	Use simple selection criteria, e.g. low complexity, clear ownership and separability
Prepare objectives	Management resources	Skip
Develop statement of requirements	Management resources Developer resources Communication costs	Find supplier staff with similar background Use standard forms Use email and instant messaging Build specification from pilot project
Investigating markets and choosing country	Management resources	Use the web Try suppliers using smaller test projects
Choosing service provider	Management resources Travel costs Communication costs	Use videoconferencing Involve in-house developers Use trial and error

**5.2.2 Contract costs**

In our research none of the respondents argues that contract costs have been significantly higher than when using a domestic supplier. The only extra cost we found was mainly because of translation issues, legal aid, and first-time set up costs. We do, however believe that respondents might not be able to discern costs specific to offshore outsourcing, or be inclined to respond in a way that favours the view of their own project success. It is obvious that searching for or translating contracts incurs a certain cost. Also, the lack of contracts increases the level of risk, and might severely increase the cost of litigation. The lack of contracts might also lead to an elevated sense of unease among purchaser management.

Table 5.2. Contract costs and their mitigation.

<b>Step</b>	<b>Cost</b>	<b>Mitigation</b>
Negotiating contract	Management resources Legal aid	Use experience Use translated domestic standard contracts

**5.2.3 Control costs**

In the transition to offshore, we have identified two separate scenarios. The first one is when you keep the entire or nearly all of the domestic staff, the second is when you replace all or significant parts of the staff with offshore resources.

If domestic personnel are to be replaced, the control costs found are to monitor the knowledge hand-over and the training process, in addition to the cost of temporarily having two developer resources performing the same task.

We found that costs associated with the management of performance arise in time spent managing the specific projects. Low productivity and quality issues need attention. Also, delay costs due to slow turnaround at change requests, as well as language correction and translation costs. Communication costs could increase due to a need to be more clear and specific. There is also a money transfer cost. Additional support hours induce costs, as well as increased project management costs. There is also a risk of opportunity costs, due to the decreased ability to discover misreporting of the number of worked hours.

We believe that some control costs can be avoided by decisions made in the contact phase, that is, in the initial decisions on how, when and where to visit offshore staff, how to conduct control, the decisions on which processes to use, by setting up proper delegation routines, and by selecting offshore countries matching purchaser culture.

Table 5.3. Control costs and their mitigation.

<b>Step</b>	<b>Cost</b>	<b>Mitigation</b>
Transition to offshore <i>-replacing domestic staff</i>	Management resources Developer resources Travel and accommodation Communication costs Training costs	Educate offshore staff at domestic location Set up internet-based communication processes
Transition to offshore <i>-keeping major parts of domestic staff</i>	Management resources Developer resources Travel and accommodation Communication costs Training costs Equipment	Re-use existing processes Give structured introduction of culture and expectations
Managing performance	Management resources	Delegate daily performance monitoring to domestic developers
	Low productivity Quality issues	Try switching country Shared internal network Interact very frequently Use fixed price or workflow based price
	Communication costs	Use internet-based communication processes
	Language problems	Encourage domestic staff to feel comfortable using English Evolve common terminology via iterative communication process
	Money transfer cost	Use credit card or internet wallet solutions

## 6 Conclusion

We see that the outsourcing process of small firms follow Sparrow's framework to a large extent, but some steps are clearly more important for the small firms.

Based on our analysis, we do not consider *developing a sourcing strategy* as a necessary step for a small firm. Our analysis shows that it does not differ that much from day to day decisions whether to use a domestic subcontractor or not. *Identify offshore project* can be considered as a necessary step because it allows management to select projects with clearly defined boundaries and to determine needs. The objectives for a smaller firm are generally cost-effectiveness and access to competent resources and there is no particular need to *prepare objectives* in an elaborate manner.

A fundamental step is the *development of a requirement statement*, since if it is not done properly it will result in high costs and will also delay the project. This step is an iterative process, in which customers as well as suppliers could be involved. To maximize value and avoid a static structure, we conclude that small firms should strive for setting a minimum requirement level instead of highly detailed documents. We could in our results and in the analysis see that no structured *investigation of markets and choosing a country* was performed, instead decisions were mainly based on personal experience and networks. Parameters used for selection were time zone compatibility, language and geographical distance. It is seen as very important to *choose a service provider*, and a strong focus is on finding the right competences at a fair price. *Contract negotiation* is not viewed as an important or difficult task. Small firms rely on trust and standard agreements, where the incentives are the suppliers strive to get more business in the future.

Small firms do normally not transfer their staff to the offshore supplier, and as a result the *transition to offshore* is not regarded as a step for which extensive planning is needed, the most important is to have system documentation documents and project requirements in order prior to transition, to facilitate project transfer. The final step, *managing performance*, is of utmost importance to small firms. The processes are mainly managed by using deadlines and fixed-price incentives limit project time, costs and quality issues.

As seen above, there are four major steps that a small firm considers as vital for their offshore process. In these steps, we have found some practical obstacles. When trying to identify offshore projects, it can be difficult for a small firm to identify how to separate which parts of the software that should be outsourced, thereby rendering it impossible to use outsourcing as a viable option. During the phase of requirement statement development, an obstacle could be not being able to communicate clearly enough what work should be done, mainly due to language difficulties, and a lack of internal documentation.

In the process of choosing a service provider, there is often a high pressure on the internal resources of the firm, in terms of resources and capital. Even though transition to offshore is not considered as one of the most important steps in the process, there are significant costs associated with this part of the process, in terms of travel, accommodation and payroll costs. The management of performance can run into problems due to time-zone, language and culture problems. As seen from our results and analysis, there are indications that the small firm cannot rely on supplier quality and knowledge certifications for this type of problems.

Even though we found some speed bumps in the process, we have not found any major obstacles that could justify a small firm from not considering offshore outsourcing as a practically viable production option.

The findings in this report are based on a number of interviews. Due to their limited number, and the difficulties finding easily comparable projects, we cannot give any specific conclusions concerning quantitative measures of costs. This is why we have focused our work on finding the relevant costs when small firms are outsourcing information technology production offshore.

We can see that the major parts of the costs are found within four steps, these steps are: Identify offshore projects, develop statements of requirements, choosing service provider and managing performance. We notice that these steps are the same as the ones found being the most important in the offshore outsourcing process. In these steps some typical costs can be identified. In our analysis they are defined as management resources, communication cost, travel and accommodation costs and developer resources to support and lead the offshore project. As seen in the analysis, these costs are limited by using a set of mitigation tactics. An extensive use of integrated Internet technology such as common network platforms, instant messaging, videoconferencing and mail strategies help small firms reduce costs significantly. Managers with former experience of offshore outsourcing have been seen as an important way to further limit costs. Another technique to mitigate costs is through standardization in contacts with the offshore suppliers, as in using standard agreements and requirements as well as terminology. An additional way to mitigate cost is to integrate staff via using a common language and enhancing cultural understanding, for instance by arranging introduction events and mixing offshore and domestic staff.

The interviews suggest that some of the companies do not consider their offshore outsourcing to have been successful, however, the majority of the respondents answer that they are satisfied with their outsourcing solution and state that they will continue using offshore outsourcing, and would also use it in future projects. We therefore conclude that small firm offshore outsourcing has been shown to be economically viable.

Based on the conclusions above we claim that it is economically and practically viable for small information technology firms based in Sweden to outsource their production directly to off-shore suppliers.

## 7 Discussion

We believe that Sparrow’s framework is a bit extensive to use as an efficient model for small firms. It covers more than all relevant costs for implementation of offshore outsourcing for small firms, and there are too many detailed steps involved which will drain small firms of valuable resources, it does not fully take advantage of the pragmatic entrepreneurs of small firms.

We could distinguish two successful strategic small firm approaches to offshore outsourcing: Trial-and-error and multiple-choice selection. When using trial-and-error selection, the client strives to cut costs by directly choosing one supplier without any deeper investigation. If an insurmountable problem arises, the client switches directly to a new supplier. This of course increases the project risk, and might turn out to be more costly if many switches are needed.

We define multiple-choice selection as a process where many suppliers are investigated and contacted. This could be based on previously established contacts. During this process, an iterative elaboration of requirements could be performed with each supplier involved.

We could also distinguish between companies that already have an internal established development department, and small firms that do not, and we would therefore like to introduce the term “born offshores” to describe them.

Based on our analysis and conclusions, we also suggest a new model for cost-effective offshore IT outsourcing for small firms, taking into consideration the cost mitigation tactics discovered in our research.

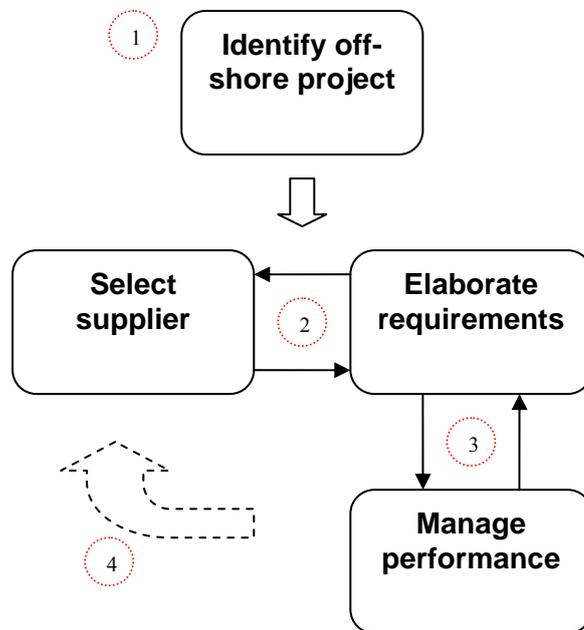


Figure 7.1. A cost-effective offshore IT outsourcing model for small software firms.

**Step 1: Identify offshore project**

Management and developers together select projects with clearly defined boundaries and to determine needs; default objectives are cost-effectiveness and access to competent resources.

- Divide software into separate parts with clear ownership.
- Verify that the functionality of each part is easy to test.
- Make sure documentation in English is available for each part from the start.
- Map what competences are needed for each part.

**Step 2: Select provider and elaborate requirements**

Use personal experience and the web to locate one or more candidate offshore suppliers. Make sure they possess the right competence and are indicating a reasonable price level, that they are located in a comfortable time zone, at a reasonable geographical distance, having a fair command of English, and a culture that matches the working methods and values of your firm.

Start an iterative process with the suppliers found, involving customers and suppliers to elaborate on a requirements statement. Small firms rely on trust and contracts based on standard agreements that are built at the same time as developing the requirements. In the case of using a trial-and-error strategy, only one supplier is involved in this step.

- Draft initial requirements statement; screen shots might suffice.
- Iterate requirements with offshore suppliers via mail and instant messaging, building trust.
- Use fixed-price incentives to limit project time.
- Specify maximum response times for communication.

**Step 3: Manage performance**

Use clear time limitations and post-delivery payments to encourage productivity and limit quality issues. Use frequent interaction between domestic staff and offshore developers. The requirements statement is elaborated further in iterative steps.

- Use deadlines.
- Interact frequently with supplier using mail and instant messaging.
- Use common web-based project handling tools open to all parties; use them to handle milestones, code access and review, change requests, and bug tracking.
- Consider placing an offshore representative at the domestic location, or vice versa.

**Step 4: Selection of new provider (Trial-and-error)**

If the supplier is using the trial-and-error strategy, a new provider will be selected if the chosen one does not meet the required service level. Normally no adjustments of the requirements are done before the switch to the new supplier.

We suggest a quantitative investigation of the costs involved and their prioritization in small firms as a topic for future studies. This could perhaps be done by a survey directed towards small IT firms. It could also confirm the validity of the model, and aid in further cost-mitigation strategy.

As a closing remark, our impression based on our research, is that offshore outsourcing is a viable option for small IT firms to use as a production alternative.

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## **Appendix 1 – Questions for the nine steps in Sparrow’s framework Outsourcing interview guide**

December 7, 2005

### **Introduction**

[Presentation of writers and thesis subject]

Name of interviewee? Position within company? Experience in this field?

Name of company? Size of company turnover? Mean budget/team members/time span of projects?

Estimate costs for each of the points below:

### **Develop sourcing strategy**

Sourcing strategy = corporate objectives, attitude to risk, governance structure, single/multi sourcing, service analysis (what to keep in-house, etc), align with IT strategy at work

How was the sourcing strategy developed? (using consultants?)

How long time did it take to decide on what to do?

What was the cost of this decision making process?

Who were involved in the decision?

What did you base your choice on?

### **Identify offshore project**

What projects/processes have been outsourced?

For each project:

How was the outsourced process/project selected?

What were the main criteria for selection?

What costs were associated with this selection?

### **Prepare objectives**

Objectives determine structure of outsourcing, global delivery models, performance measurement, relationship with provider

What objectives did your company have to use outsourcing?

Which stakeholders in or close to the company were the most influential in forming these objectives?

Did you build a business case to set out the reasons, advantages and justification for the project?

In that case, what kind of analyses did you perform (strategic case, options, benefits, cost, sensitivity, or risk analysis?)

What were the costs associated with preparing the objectives?

### **Develop statement requirements**

How did you go about to state your outsourcing requirements? (i.e. project plans, target service levels, design constraints, training and education, security, knowledge transfer, etc, etc.)

What were the costs associated with preparing the requirements?

### **Investigate market**

How did you go about to investigate the services market?  
(i.e. finding interesting providers and geographical areas)  
Examples: Using in-house knowledge, consultants, reports?  
Which countries did you consider interesting? Which not? Why?  
What providers did you consider? Which not? Why?  
What were the costs associated with investigating the market?

### **Choosing country and then service provider**

What were your evaluation criteria when selecting the provider? (financial appraisal, supplier assessment, project evaluation, due diligence)  
What did your selection process look like?  
What were the costs associated with selecting a provider?

### **Negotiate contract**

How did you go about to negotiate the contract with the chosen supplier?  
How long time did it take to negotiate the contract?  
What were according to you the most difficult parts to negotiate in the contract?  
Have you renegotiated the contract since then?  
What were the costs associated with the entire negotiation process?

### **Transition to offshore**

What transition activities did you have?  
(I.e. detailed project planning, responsibility transfer, set-up of governance structure, contract management, payment processes, change request process, problem management, risk mitigation, communication, career development for staff moving overseas, trade union relations)  
What were the costs associated with each activity mentioned?

### **Manage performance**

What key performance indicators did you use?  
What difficulties did you encounter (cultural/terminology/time zone, etc.)?  
What aids did you use? (Telecoms, IT, face-to-face meetings, etc)  
How did you manage compliance with the contract? Changes? Disputes?  
What administrative changes were necessary to manage the offshore performance?  
What were the costs associated with managing performance?

### **Finishing questions**

What would you do different today?  
Have you discovered any “hidden costs” you did not anticipate before?  
How satisfied are you today with the outsourcing project?  
Could you please try to put a percentage figure on each of the nine steps, as to how much money you think you spend on each step? Where is the majority of the money spent?