

# **THE INFLUENCE OF ENVIRONMENT ON IT-OUTSOURCING**

Towards the development of a model

## **MASTER THESIS**

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## **Preface**

This research project has been a great learning experience for me and I would to extend my gratitude to those that played an important part in making it possible. First I would like to thank Stephan Maathuis and Dr. Arjan Wassenaar for initiating this research project and for providing invaluable advice and insights that helped me complete it. Secondly I thank Roshan for helping me organize the field research at his company and all those who took the time after work for answering my questions. Last but not least my gratitude goes out to Kodo, Alafi and Asif. Our countless (and often late night) discussions have been invaluable and I look forward to having boatdrinks with you all in due time.

After working on this project for well over a year I present the research in this report in the hope that it may contribute in some form to those involved in outsourcing related research.

Enschede, August 18<sup>th</sup> 2008,

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## Summary

Fields of research concerning practices of an international nature typically considers theories related to environmental characteristics of prime importance. For practitioners such theories are invaluable for systematically analysing these environments. However in the IT outsourcing field no dedicated models exists for doing such analysis while this practice typically takes place in an international context. As a result, practitioners need to apply theories from other fields such as from marketing or operations research. Unfortunately, these theories are not fit for purpose and as a result may not be comprehensive, lead practitioners to consider factors of limited or no importance, and fail to explain the relevance of factors in relation to IT outsourcing. This observation and recent surveys and case study reports demonstrating the need for more dedicated theoretical insights have led to the following research objective:

*To contribute to the development of the existing outsourcing literature by exploring the role of environmental factors in the IT outsourcing field.*

To reach this objective, this research attempts to provide a considerable step towards the development of a model that explains the influence of environmental factors on the success of IT outsourcing. To do so the following research questions were posed:

- 1. What are the characteristics of outsourcing when it concerns Information Technology?*
- 2. What are the main problem areas associated with outsourcing and what factors are found to be particularly important?*
- 3. What is an appropriate concept for an environment in relation to IT outsourcing?*
- 4. What research model can be constructed for relating the selected concept of environment with IT outsourcing?*
- 5. To what extent do empirical findings support the research model and what additional insights are gained?*

The first two research questions are aimed at developing a theoretical foundation prior to constructing the research model. This has led to three main insights: first, a substantial amount of factors were identified that have shown to be influential to the success of outsourcing. It was further concluded that these could largely be grouped into those related to the transaction, the outsourcer, or the supplier which illustrated that factors related to environment are not addressed. Second, the main problem areas that are associated with IT outsourcing were identified. These provided valuable insights to current issues while also strengthening the idea that environmental aspects may play a role. Lastly, it is argued that modelling the phenomenon of IT outsourcing as a process is most viable for explaining the influence of environmental factors. The literature provides two arguments for this: First, many authors stress that following a pre-defined process is a prerequisite for success, implying that firms engaged in outsourcing should be aware of the phases they go through and perform key-activities in these subsequent phases. It was also found that theories depicting process models share key-activities that are to be

performed. As such a general process model was established upon which the research model is based.

The third and fourth research questions are aimed at proposing environmental factors that are expected to be important in the identified IT outsourcing phases. Literature describing environmental factors was explored and evaluated for this purpose. Based on this, as well as on insights gained earlier, it is argued that fifteen factors are expected to be relevant. These are subsequently used for proposing a theoretical research model. The environmental factors at this stage are not related to specific phases in the model since knowledge for doing the former was not possible based on the theory alone.

After finalizing the research model a pilot case study was conducted in accordance to the fifth research question. This provides a first step towards evaluating the model based on the practice while also allowing for additional insights to be gained for possible adjustments to the model. The pilot study was held at a software development firm in Sri Lanka. This company was particularly suitable for doing a pilot study as several companies worldwide have outsourced IT processes to this firm. Three main conclusions were drawn: First, it was found that twelve of the proposed environmental factors had indeed played a significant role. Secondly, two additional environmental factors were identified that had been of influence. Thirdly, several factors had been influential in some phases but were of insignificant influence in other phases. These conclusions demonstrate that the factors proposed in the model are indeed relevant and that using a model that acknowledges separate phases increases its potential for explaining what happened. However, it was also concluded that there were more distinct phases in the IT outsourcing process as was assumed in the research model. These phases were particularly important since considerable time had elapsed in transitioning between them and, more importantly, these phases showed to be influenced by different sets of environmental factors. Based on these conclusions the research model is adjusted to reflect these new insights. This means that two factors are added to the model and that additional phases are introduced. It is further demonstrated that these adjustments improve the usefulness of the model.

From the issues discussed above, it is concluded that the research objective has been met. Not only has the research demonstrated that environment is indeed a determining factor in IT outsourcing as was argued in the introduction, it also proposes a model that is rooted in both the literature as well as empirical insights. Furthermore, several concrete recommendations have been formulated that contribute to future direction of research.

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# 1. BACKGROUND, PROBLEM DEFINITION AND METHODOLOGY

## 1.1 Introduction and research background

The boundary of firms have always taken an important position in business and organizational research, not in the least due to its relevance to competitive advantage and firm performance. Specifically theories such as transaction cost economics and the resource based view are testament to this (Schilling and Steensma, 2002). Lonsdale and Cox (2000) formulate four dimensions to the issue of firm boundaries including conglomeration, horizontal integration, vertical integration and internal integration of supporting activities. In relation to these, a multitude of practices have been employed by firms to adjust there boundaries. These include long-term practices such as investments or mergers and acquisitions but also those with typically a more temporary nature such as strategic alliances, joint ownerships or cooperative ventures.

A practice that has come under increased interest is that of outsourcing. While primarily applicable to a firm's primary supply chain and supporting activities, it is precisely these two dimensions that are increasingly scrutinized by firms looking to reshape their business. Benefits obtained through outsourcing that have widely been recognized include cost reduction, improved quality of service, access to technological expertise, increase flexibility, round the clock service, and assurance of quality development (Ying, 2000; Khan and Curry, 2002; Bahli and Rivard, 2004). In achieving such benefits, the past three decades has seen a number of prominent changes in how the practice of outsourcing is being applied. Where initially firms looked for provision of supporting activities in the 80s and early 90s, activities on their primary value chain have since then increasingly been targeted for outsourcing (Lonsdale and Cox, 2000). Currently the kind of work that is targeted for outsourcing are (1) software programming, testing, and maintenance, (2) IT research and development; (3) software architecture, product design, project management, IT consulting, and business strategy; (4) physical product manufacturing—semiconductors, computer components, computers; (5) business process outsourcing (often 'IT Enabled Services') such as insurance claim processing, medical billing and accounting (6) call centers and telemarketing (Aspray et al, 2006).

Belonging to the Information Systems development field, it is particularly the first three types of activities that this research is directed towards as outsourcing arrangements in this field have shown to increasingly rely on characteristics typically attributed to partnerships (Lee and Kim, 1999; Kern and Wilcocks, 2000; Lee 2001). Partly due to difficulties in exhaustively stipulating contingencies in contracts and the need for extensive interaction with suppliers, these often termed 'outsourcing partnerships' are expected to be exposed to a blend of factors related to both outsourcing as well as to those traditionally associated with joint ventures and strategic alliances.

### 1.1.1 The role of environment in outsourcing

A review of the outsourcing literature reveals that issues discussed can largely be expressed using a transaction cost perspective and agency theory. For instance problems and influential factors either relate to the outsourcing transaction, characteristics of either

outsourcer or supplier, or coordination and motivation issues that the agency theory poses as inherent in a relationship between a principal and an agent. However, the views expressed in the previous section pose that both the transaction and the exchange of information do not take place in a void, especially when the outsourcer and supplier are globally dispersed. Instead this research poses that the influence of the environment of both the supplier and the outsourcer must be considered. Similar notions have broadly been adopted in related fields of research; for instance the fact that internationalization requires firms to be aware of the environment in which they operate has been extensively addressed in international business and management literature (see for instance [Root, 1994](#); [Ball and McCullugh, 2001](#); [Needle, 2004](#)). This awareness has more recently been expanded in research concerning inter-firm collaborations such as strategic alliances and joint venture ([Douma, 1997](#); [Mulyowahyudi, 2001](#); [Parkhe, 2003](#)). Explicitly recognizing an environment or a context in which activities are taking place has allowed research in these fields to specifically address a multitude of factors that have proven to be particularly influential. A lack of such recognition in the outsourcing field however is limiting its ability to address these factors. This is surprising as the need to explicitly address issues such as culture-clash, operational incompatibilities, and communication issues are increasingly identified and acknowledged in recent studies ([Heeks et al, 2001](#); [Carmel and Tjia, 2005](#); [Patel and Aran, 2005](#); [Cohen and Young, 2006](#)). While some authors are more dedicated to pointing out factors that are influential in relation to these issues, they are only superficially addressed (see for example [Smith and Mitra, 1996](#) and, more recently [Krishna et al, 2004](#) and [Kobayashi-Hillary, 2004](#)). Similarly, current best practice approaches for implementing and managing outsourcing largely ignores the role of environmental factors even though they may play an integral role. For instance Heeks et al (2001) identified a number of outsourcing projects who's failure they partly contribute to such factors ([Heeks et al, 2001](#)). Other case studies and surveys also provide indications that they play a role in more fundamental problems such as limitations to organizational learning, slow efficiency improvements and low service quality ([Aurora et al, 2000](#) [Khan, 2003](#); [SourcingMagazine, 2004](#); [CIO, 2004](#); [Nicholson and Sahay, 2004](#); [Ventoro, 2005](#)).

The observations made in the previous sections and the multitude of reported outsourcing failures constitutes the immediate background of this research. This chapter continues by introducing the research objective and, based on the current state of the IT outsourcing literature, the motivation for the research objective in the next section. This followed by the research questions that will be addressed in section 1.3. The remainder of the chapter describes the adopted research strategy in section 1.4 and 1.5, and concludes with an overview of the structure of this thesis.

## **1.2 Research objective**

The importance of environmental factors was argued in the pervious section and recent developments further strengthen the importance of research in this area. For instance the growing need for less expensive resources and threats from global competition has increased the outsourcing to countries where required resources, such as knowledgeable IT personnel, are readily available for lower prices such as India, China and Malaysia ([Hirschheim et al, 2006](#); [Khan and Curry, 2002](#)). This invariably is expected to lead to

environmental factors that are increasingly influential. In addition, in improving the efficiency of their outsourcing portfolio, firms have increasingly turned to selective outsourcing which has resulted in having a multitude of suppliers and thinning out resources available for managing individual arrangements (Cohen and Young, 2006).

Combining these observations with the fact that environmental factors are only scarcely addressed in existing theoretical models and typically lack comprehensiveness has led to the objective of this research which is:

*To contribute to the development of the existing outsourcing literature by exploring the role of environmental factors in the IT outsourcing field.*

During the literature study it became clear that the phenomenon of outsourcing itself is prone to several interpretations and that the literature does not provide a concise answer as to what can and what cannot be regarded as outsourcing. An additional research objective therefore is the formulation of a definition of outsourcing in the field of Information Technology as is the focus of this research. This objective is satisfied in the introduction of the literature review.

### **1.3 Research Questions**

The objective of the research that was formulated in the previous section leads to the central research question which is formulated as:

*What environmental factors influence the success of outsourcing IT projects?*

In order to answer the main research question, five sub research questions are formulated. Since a research model is to be developed, comprehensive theoretical and empirical knowledge about (IT) outsourcing is required. This should specifically identify existing knowledge regarding the outsourcing phenomenon, the main risks and problems associated with it, and the factors that the literature addresses as particularly important. Furthermore, selected literature must be reviewed in order to gain the insights required for proposing a concept that describes environmental factors that are expected to be relevant to the IT outsourcing field. Based on this, the main research question can thus be re-formulated into the following sub research questions:

- (1) *What are the characteristics of outsourcing when it concerns Information Technology?*
- (2) *What are the main problem areas associated with outsourcing and what factors are found to be particularly important?*
- (3) *What is an appropriate concept for an environment in relation to IT outsourcing?*
- (4) *What conceptual research model can be constructed for relating the selected concept of environment with IT outsourcing?*

In order to take a first step in determining the ‘correctness’ of the model, a pilot case study is conducted to observe how the research model functions. Due to the exploratory nature of the research the pilot study is also meant to provide additional insights that may contribute to more pertinent propositions. Therefore, a fourth, and final sub research question can be formulated as:

(5) *To what extent do empirical findings support the conceptual research model and what additional insights are gained?*

## **1.4 Research approach**

As outlined in the research objective, the research is focused on theory development instead of testing an existing theory. According to Wacker (1998) theory building research requires researchers to carefully define concepts, state the domain, explain how and why relationships exist, and then predict the occurrence of a specific phenomenon under study. This must then be followed by gathering of evidence that supports whether the phenomenon occurs. A number of research strategies are available for doing so including surveys, focus groups, experiments, grounded theory, studying the literature and case studies (Saunders, 1997). The approach chosen for carrying out this research consists of a literature study and a case study. These two strategies complement each other as the first results in formulated theory that can subsequently be tested, refined and further developed through case studies (Yin, 2002).

### **1.4.1 Literature study**

According to Eisenhardt (1989), case study research should ideally begin with no theory or hypothesis. However she concedes that conducting such research is hard to achieve without a priory specification of constructs. Yin (2002) on the other hand says that doing case study research requires researchers to have fundamental knowledge on the subject being studied. He further states that, in order to effectively observe a phenomenon, it is necessary to formulate a research model prior to carrying out a case study. Both of these requirements are addressed by reviewing and analysing the relevant literature. Such review has also allowed the research to build on existing knowledge which is commonly perceived as an important academic requirement (Saunders, 1997; Hart, 1998). Furthermore, the extensive amount of publications on outsourcing provides a good opportunity for investigating how existing knowledge may contribute to answering the research questions.

The literature study in this thesis consists of two parts. First, in order to define concepts, state the domain, and gain additional knowledge on the general research topic (such as its characteristics, success criteria, and influential factors), the existing literature on outsourcing is reviewed in chapter 2. The obtained knowledge is used for proposing and formulating the initial building blocks of a preliminary research model as presented in section 2.8.2. Chapter three reviews literature that addressed environmental factors from the field of information systems development, organizational theory and institutional theory. Finally, chapter four emphasises integration of the obtained insights in proposing

and a conceptual research model. Chapter four also finalizes the theoretical phase by providing the case study protocol and justifying the case selection.

#### **1.4.2 Case study**

In adopting a case study approach, three distinct forms can be distinguished: exploratory, developmental and test cases. As this research is focussed on developing a conceptual model, an exploratory case study approach is most appropriate. This leads to a rich understanding of the phenomenon being studied while at the same time allowing for adjustment of the conceptual model based on case study findings (Saunders, 1997; Yin, 2002). More developmental case studies and ultimately a test case are proposed for future research in section 6.2. Another distinction that is made in case study research is between single versus multiple case studies. A multiple case study is more robust as it allows for studying a phenomenon in different settings (Yin, 2002). With an eye on time constraints a single case study was conducted which may be regarded as a pilot case. Despite its limitation, a single case study still allows for observing the appropriateness of a theoretical model and, in accordance to Yin (2002) lead to more pertinent hypotheses and propositions for further research. This is in line with the objective and fits the exploratory nature of the empirical phase which is concluded with an adjustment of the theoretical research model.

#### **1.4.3 Adjusted conceptual research model**

As the case study is specifically exploratory in nature, its use mainly contributes to the determination to what extent the proposed model is appropriate in describing, as opposed to explaining, the observed phenomenon. In this phase a number of adjustments and additions to the model will also be proposed that were supported by the findings. In hindsight this further justifies the chosen approach.

### **1.5 Research reliability and validity**

Validity and reliability are of great concern in regards to the overall quality of the research (Yin, 2002; Saunders, 1997). Validity entails that the results of a research, in this case the proposed conceptual model, describes reality with a good 'fit'. Reliability implies that two or more researchers studying the same phenomenon with similar purposes reach approximately the same results (Gummesson, 2000). This section describes these two concerns and discusses what has been done to ensure that these aspects are met.

#### **1.5.1 Reliability**

Reliability of the research can be obtained by the adoption of research methods and procedures. For this research a standard procedure for exploratory case study research was adopted. A case study protocol was used in performing the case study and the steps of the research have been documented.

#### **1.5.2 Construct validity**

A number of methods of triangulation have been used in this research to ensure construct validity. Theoretical triangulation has been obtained by studying the relevant literature from different perspectives and viewpoints. This applies to both the literature reviewed in chapter 2 and chapter 3. Methodological triangulation has been applied by using

interviews and documentation as tools for gathering data during the case study. Since the case study was performed on company premises, the method of observation was also used in relation to the case study issues. Data source triangulation has been obtained through multiple interviews with various people concerning similar subjects. Respondents were also from distinct groups (junior/senior employees and Project Managers/Developers) and can therefore be expected to provide different points of view. When this approach has yielded conflicting data, an attempt has been made to determine what could cause such difference and which has the highest likelihood of correctness. Lastly drafts of the case study findings were continually discussed with two key participants that were particularly knowledgeable about the issues discussed in interviews. This, according to Yin (2002) should further increase validation of the findings.

### **1.5.3 Internal validity**

Internal validity is of specific concern to explanatory research where causal relationships are to be determined. Since this research does not determine such causal relationships but merely propositions concerning such relationship, internal validity does not apply.

### **1.5.4 External validity**

External validity deals with the extent to which the research findings can be generalized beyond the immediate case study (Yin, 2002). To achieve this, a theory must be tested by replicating findings in a number of case studies. Since a single, exploratory case study is performed, the relevance of this research lies largely in generating findings that can act as arguments for future, more exemplary case studies (Yin, 2002). As such the requirement for external validity does not directly apply. However it is addressed by proposing future research that adopts a number of developmental case studies. These findings can then be used for obtaining sufficient external validity.



## 1.6 Report structure

This report is structured in four phases that are described over seven chapters. The first phase constitutes the first three chapters and provides the theoretical foundation for the research model. Chapter two is the result of a review of the existing outsourcing literature and answers the first two research questions while the third chapter provides the required insights used to answer the third research question. This sets the conditions for the second phase of the research which is the proposition of the research model and the case study protocol and provides the answer to the fourth research question. This is followed by the empirical phase in which the proposed model is applied in a pilot case study. The findings are used to make several adjustments to the research model as well as to the guidelines and selection criteria for future field work. The fourth phase concludes the research by providing a provisional answer to the main research question, discusses to what extent the research objective was met, and makes recommendations for future research.

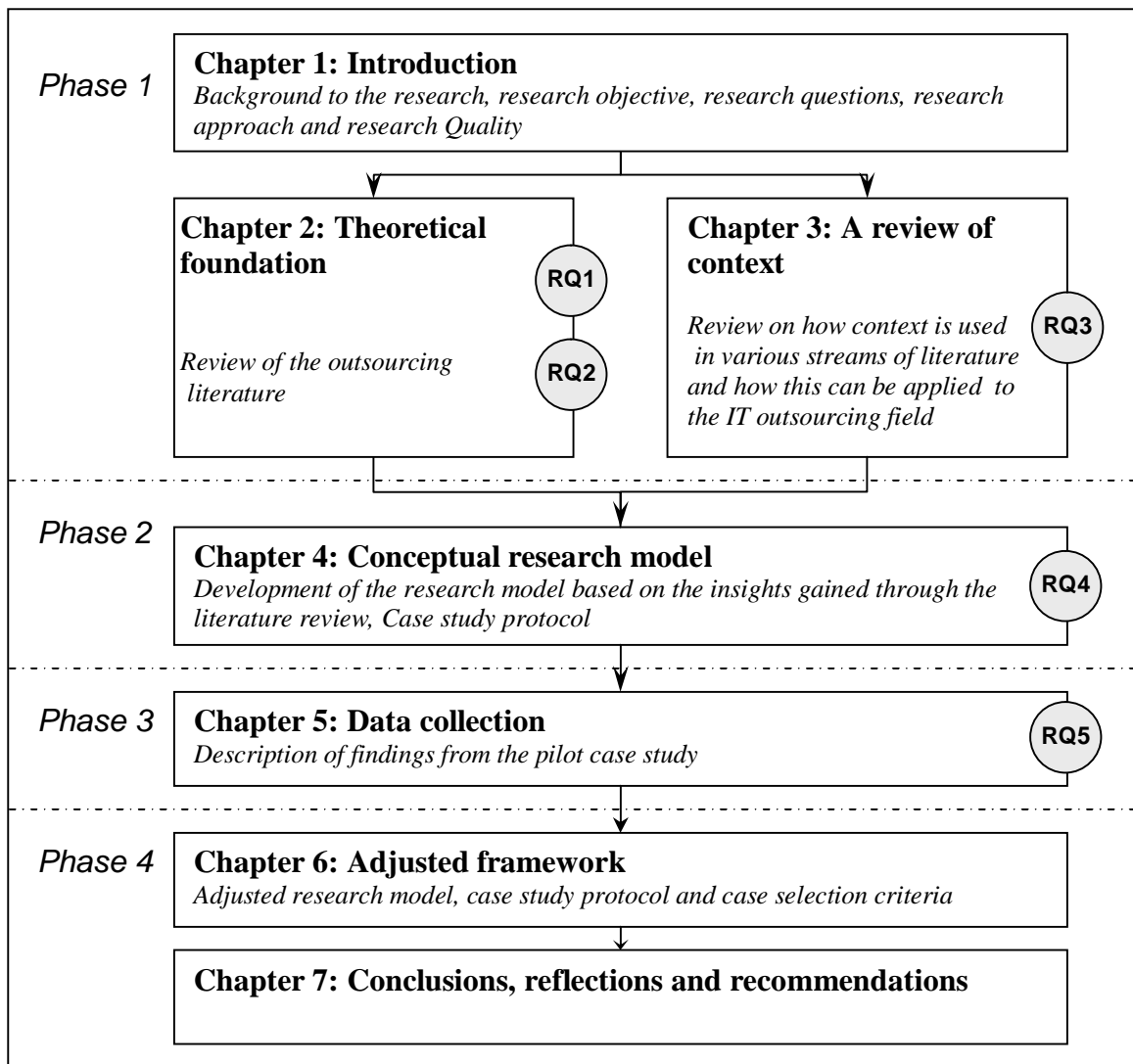


Figure 1 - Structure of the research



## **2. THEORETICAL FOUNDATION**

### **2.1 Introduction**

The purpose of a literature review is to provide insights into the knowledge and ideas that have been established on the research topic. Both identifying what is known about the topic as well as what has not yet been addressed is required before a contribution to the theory can be proposed (Hart, 1998). For this literature review the emphasis lies on gaining insights on outsourcing regarding its characteristics, success criteria, and influencing factors. These insights provide the theoretical foundation for the preliminary model presented in the concluding section of this chapter. Since Delen (2000) has indicated that the concepts of IT outsourcing and business process outsourcing are very similar, this chapter draws both from the outsourcing literature specific to the IT field as well as from general outsourcing literature. The chapter will begin by addressing the question of defining the research topic. Formulating of such definition is important since it provides boundaries on the relevance of the proposed theoretical model and reduces ambiguity regarding its applicability.

### **2.2 Definition of IT outsourcing**

In very general terms, outsourcing refers the phenomenon related to the obtainment of products or services from external suppliers in exchange for a fee. A more specific definition is not univocally provided by the literature. Instead authors use varying terminology and scope when addressing the outsourcing phenomenon and frequently adopt marketing oriented terms (Carmel and Tjia, 2005). While there are clearly similarities and a distinct overlap between the adopted definitions, it is apparent that out-tasking the maintenance of computer hardware has substantially different dynamics than outsourcing part of the IS function involving hundreds of employees and several departments. This pertains to its functioning, overseeability and impact on firm performance.

#### **2.2.1 Most relevant definitions of outsourcing**

For this research a definition of outsourcing will be developed on the basis of the most relevant definitions found in the literature. The reviewed literature shows that different names are used to reference outsourcing such as offshore outsourcing, offshoring, outtasking and nearshoring. It is apparent however that the authors refer roughly to the same practices and hence are comparable. Throughout the literature review the definitions shown in table 1 were found to be relevant to the research topic.

**Table 1- Various outsourcing definitions**

<b>Author(s)</b>	<b>Definition description</b>
Kern and Willcocks (2000)	“Outsourcing is the decision taken by an organization to 1) contract out or sell the organisations assets, people, processes and/or activities to a third party supplier, 2) which in exchange provides and manages assets and services for monetary returns over an agreed period of time.”
Hirschheim and Lacity (2002)	“Information Systems outsourcing refers to the third party management of IS assets, people and/or activities required to meet pre-specified performance levels of defined services either on-site or remotely.”
McIvor (2005)	“Outsourcing involves the re-drawing of the boundaries between the organization and its supply base by sourcing goods and services previously produced internally within the sourcing organization.”
Loh and Venkatraman (1992)	“IS outsourcing [..] is defined as the process of turning over part or all of an organization's IS functions to external service provider(s), [..] to acquire economic, technological, and strategic advantages.”
Patel and Aran (2005)	“Business Process Outsourcing is the contractual service of transferring one or more business processes to a third-party provider, where the latter takes over the management, ongoing support and infrastructure of the entire applications or processes.”
Cohen and Young (2006)	“Outsourcing is contracting with an external firm for the ongoing management and delivery of a defined set of services to a prescribed level of performance.”
Carmel and Tjia (2006)	“Outsourcing implies that tasks and processes are contracted to be performed outside the boundaries of the firm through a (third party) supplier. In case supplier ownership lies with the outsourcer itself it is referred to as captive center.”
Delen (2000)	“Outsourcing through a shared service centre (SCC) involves 1) transferral of certain business processes and its related company resources to a newly established SCC within the organization. 2) Subsequently receiving services originating from those processes from the SSC based on a service level agreement.”

### 2.2.2 Comparison of definitions

As is evident from table 1, typical definitions revolve around the fact that 1) they concern processes or activities that are performed in-house, 2) the execution of these is moved outside of a company's physical walls. Furthermore, regardless of whether a process is outsourced to an internal department (captive centre or SSC) or to a third party, it can be said that 3) ownership and control over how the process is executed and the necessary resources, such as people and assets are transferred to an external supplier. Finally, as indicated in the introduction, this research focuses on the Information Technology outsourcing which implies that the process that is transferred pertains to one or more phases of the Software Development Life Cycle. This leads to the following definition:

**IT Outsourcing is the practice of transferring the execution, ownership and responsibility of at least one phase of the Software Development Life Cycle and its related resources such as people and assets to an external supplier**

The characteristics of the Software Development Life Cycle are schematically presented in Appendix C.

### 2.2.3 Outsourcing as strategic organizational change

The research background and the formulated definition indicate that outsourcing shares characteristics with the phenomenon of strategic organizational change. For instance outsourcing inherently reshapes firm boundaries and the sourcing of goods or services previously performed in-house changes the role of human resources. This has also been mentioned by Willcocks, Reynolds and Feeny (2007) who observe that both IT Outsourcing and Business Process Outsourcing arrangements alike involve “[...] immense organizational, technical, and human resource changes [...]” (p.129). Therefore it is argued that an organizational change perspective can serve as an appropriate holistic basis for reviewing the outsourcing literature. More specifically this research uses the framework of organizational change as put forward by Pettigrew and Whipp (1991) consisting of the dimensions of process, content and context. Particularly the occurrence of the latter makes their framework attractive for this research as the objective is to add insights in this area.

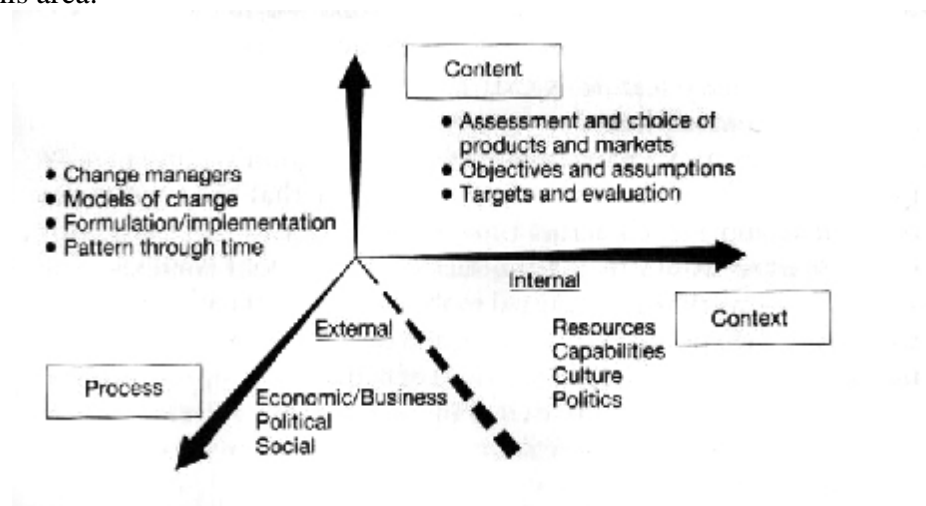


Figure 2 - Three dimensions of organizational change (Pettigrew and Whipp, 1991)

The framework is originally proposed to holistically capture organizational change within single firms due to for instance process re-engineering, the introduction of new technologies, new market expansion, or Quality Management implementation (Pettigrew and Whipp, 1991; Irianto, 2005). An essential difference with such view of organizational change and outsourcing, is that the latter inherently involves two organizational entities involved instead of one (e.g. the outsourcing firm and supplier).

### **2.3 The outsourcing decision**

Topics surrounding the outsourcing decision are typically the source of much debate (Kakabadse and Kakabadse, 2003). Based on findings from recent case studies it can be concluded however that the outcome of outsourcing is more successful if the decision is based on strategic considerations rather than being based on ad-hoc, experimental drivers or prompted by financial problems or shareholder pressures (Brandes et al, 1997; Ventoro, 2001). The literature shows several insights prescribing the outsourcing decision. Commonalities is that they revolve around determining what activities are potential candidates for outsourcing, and when to outsource these. The following describes several theories that prescribe methods and insights regarding the outsourcing decision.

#### **2.3.1 Core versus non-core**

One of the most basic approaches to the outsourcing decision is rooted in a resource-based perspective and revolves around determining the core capabilities of firms. These capabilities are the source of a firm's competitive advantage over its rivals and that are hard for competitors to imitate (Carmel and Schumacher, 2006). As these have the highest impact on competitive position and profitability, they should not be outsourced and hence the basis of the outsourcing decision lies with established knowledge about a firm's core and non-core competencies so that the former can be kept in house while the latter are candidates for outsourcing (Prahalad and Hamel, 1990; Quinn, 1999). This approach has however had criticism in being too simplistic and not taking into consideration numerous other factors involved the outsourcing decision (Saunders, 1997; Lankford 1999; Baldwin et al, 2001; Kakabadse and Kakabadse, 2003). This is especially the case in IT that is largely seen as a corporate function in non-IT companies while in software development companies it has become increasingly difficult to determine what IT development activity is core (Carmel and Tjia, 2006).

#### **2.3.2 Matrix of outsourcing options**

In response to outsourcing based on core versus non-core consideration, a number of authors have proposed approaches that root the outsourcing decision in a firm's strategy (Insinger and Werle, 2000; McIvor, 2005; Patel and Aran, 2005; Willcocks, Fitzgerald and Feeny, 2000). These approaches layer activities based on their importance to competitive advantage which are further decomposed based on current capability for performing these in-house. This results in a matrix of outsourcing options as shown in figure 3.

Key activities  Potential activities  Fundamental activities  Common activities	<b>Acquire capabilities</b>	<b>Build strength</b>	<b>Do it well</b>	Near certain	Probability that an activity will become a competitive advantage
	<b>Partnership or collaboration</b>	<b>Partnership or collaboration</b>	<b>Do it well</b>	Probable	
	<b>Buy</b>	<b>Outsource or develop multiple delivery sources</b>	<b>Sell or make profit centre</b>	Probable	
	<b>Buy</b>	<b>Exit or buy</b>	<b>Consider selling</b>	Not likely	
	Weak	Moderate	Strong	None	
Current internal capabilities of the organization to perform activities compared to competitors					

**Figure 3** - Matrix of outsourcing options (Patel and Aran, 2005)

Based on a matrix as shown above a determination is made whether activities should be outsourced, performed using a partnership, or kept in-house. The top and bottom most layers are the most straightforward. Key activities are those that will, with near certainty provide organizations with competitive advantage and should always be kept in house. When current capabilities in these activities are weak, resources should be invested to acquire these capabilities. Commodity activities consist of those that provide no competitive advantage and should be sold so that proceeds can be invested elsewhere. Emerging activities may provide competitive advantage in the future (i.e. become a core-competency) and should therefore not be fully outsourced. Instead, when current capability is weak/moderate, companies should develop capabilities through partnerships so that risk is shared with the supplier while involvement is maintained to facilitate possible internalization in the future. When current capability in emerging activities is already strong and little additional investment is required they should be kept in-house to retain full control and ownership. The same is true for basic activities that have little probability in providing competitive advantage but are a business necessity. These may also be kept in-house in order to stay knowledgeable in a particular area to remain a smart buyer (Patel and Aran, 2005).

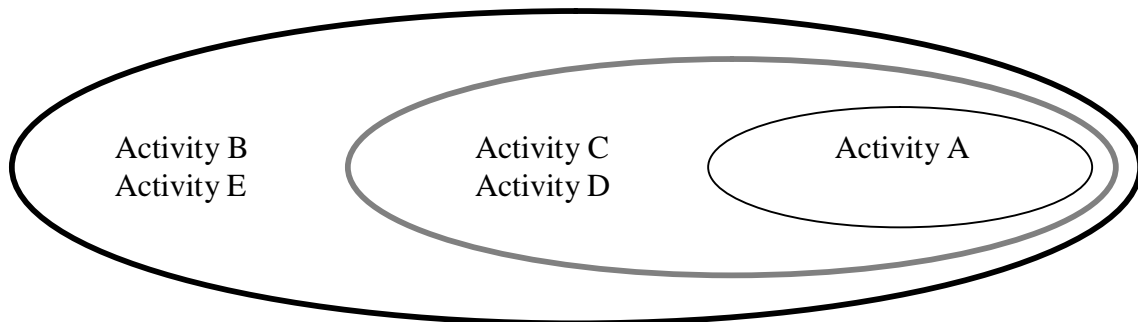
### 2.3.3 Activity ranking

One of the complications of the described approaches is that of differentiating between core and non-core activities is difficult due to various views on what is considered a core-competency. For instance a non-core activity may be a vital underpinning enabling a firm's core business (Jennings, 1997). An approach that addresses this issue is that of Franceschini and Galetto (2003) who propose the use of a multiple criteria decision aiding method to achieve a ranking of activities to be outsourced. This method transcends the considerations made in the pervious sections by not only citing core and non-core activities but also determining relative importance of activities using a weighed score.

**Table 2 - Multiple criteria evaluation matrix** (Franceschini and Galetto, 2003)

Criteria	Weights	Activities				
		A	B	C	D	C
Core business closeness	0.25	++	+	-		O
End-user involvement	0.50	-		O	+++	--
Easiness to monitor the Performance	0.05	O	--	++	-	+
Outsource competence	0.45	--		O		
Confidentiality	0.80	+++	O	+	+	O

This approach starts with the introduction of criteria such as total cost, easiness to monitor performance, and core business closeness. These are then weighted based on the importance that firms place on them so that activities can be valued based on their score in relation to the criteria. As a result the resultant matrix shows the relative strength of the relationship between the criteria and a particular activity. The criteria shown in table 2 results in a concentric stratification of activities as illustrated in the following figure.



**Figure 4 - Concentric stratification based on evaluation matrix** (Franceschini and Galetto, 2003)

The more externally placed activities are selected to be outsourced first. Activity B and E show the most potential for being outsourced since they have low to medium scores on the important criteria. Activity A is the least attractive candidate using this approach as it scores high on criteria that are considered especially important.

## 2.4 Outsourcing typologies

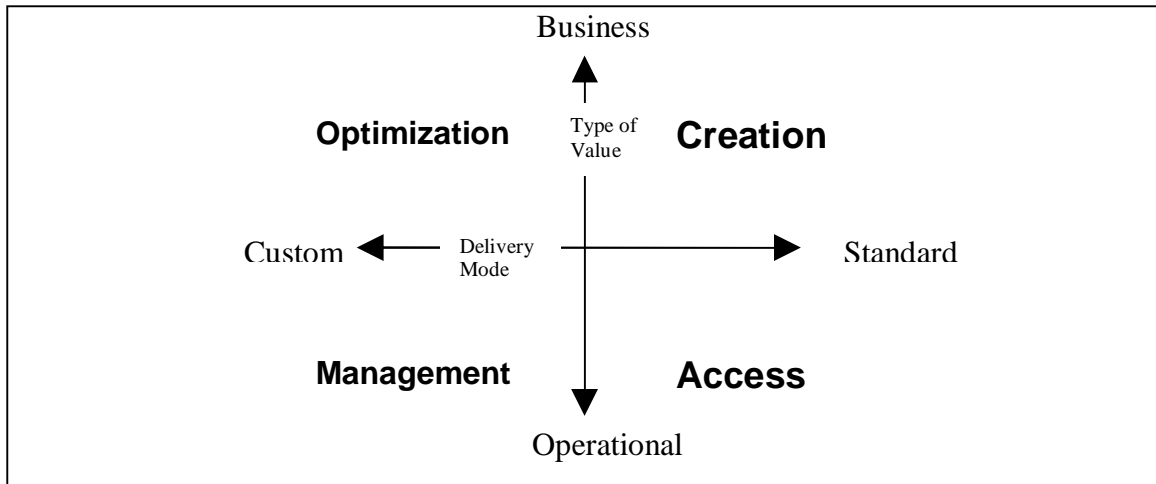
The previous discussion illustrates that firms have different motivations and expectations regarding their outsourcing efforts. This leads to the question of what forms of outsourcing arrangements are used by firms to satisfy these expectations. This section elaborates on two ways in which the literature classifies outsourcing arrangements. The first is based on the value achieved from outsourcing while the second is based on the relationship between the outsourcing firm and its supplier.



#### 2.4.1 Type of value outcomes and delivery modes

Both Cohen and Young (2006) and McIvor (2005) categorize outsourcing based on the type of value that is delivered by the supplier. McIvor differentiates between value that provides a direct impact on business outcomes, and which are therefore critical to competitive advantage, and value pertaining to costs and bottom line performance. He also relates activity importance to the volume and costs associated with sourcing an activity in relation to other purchases. He further stresses that activities with little associated cost and little impact on business outcomes do not have a 'low value' but require less strategic attention in managing the supplier relationship (McIvor, 2005). Similarly, Cohen and Young (2006) differentiate between processes that lead to strategic value on the one hand and operational value on the other. The latter concerns those services that have no direct relation to business goals, and whose impact on these goals is generally difficult to measure. These focus on so called operational concerns such as lowering costs or increasing productivity. Services that provide business value on the other hand, directly impact strategic business goals by contributing to competitive advantage, increasing brand dominance or by improving capability for innovation.

In relation to the type of value, Cohen and Young (2006) further differentiate between a custom and standard mode of service delivery. Customized delivery implies that services are adapted to the outsourcing firm's organizational idiosyncrasies and internal processes and workflows. The supplier provides the integration expertise and the service delivery therefore does not have to be adapted by the outsourcing firms (Cohen and Young, 2006; Ross and Beath, 2006). Standardization of service delivery on the other hand implies that the supplier delivers its service to all its buyers in a standardized way, often using industry standards. This requires outsourcing firms to adapt their own routines and processes. Service costs and integration considerations are the two main concerns for determining mode of delivery. While standardized services are cheaper due to larger economies of scale, adaptations to an organization's internal and external processes (i.e. services from other suppliers) may generate additional costs that outweigh the gains achieved. Another consideration is whether existing business units are willing, or can be forced, to initiate these adaptations. Process characteristics can also limit adaptability on the side of the organization as for instance processes with high degrees of specificity make customization on the supplier side inherent as standard services do not provide the required fit. Combining the types of value and mode of delivery leads to four quadrants as illustrated in figure 5.



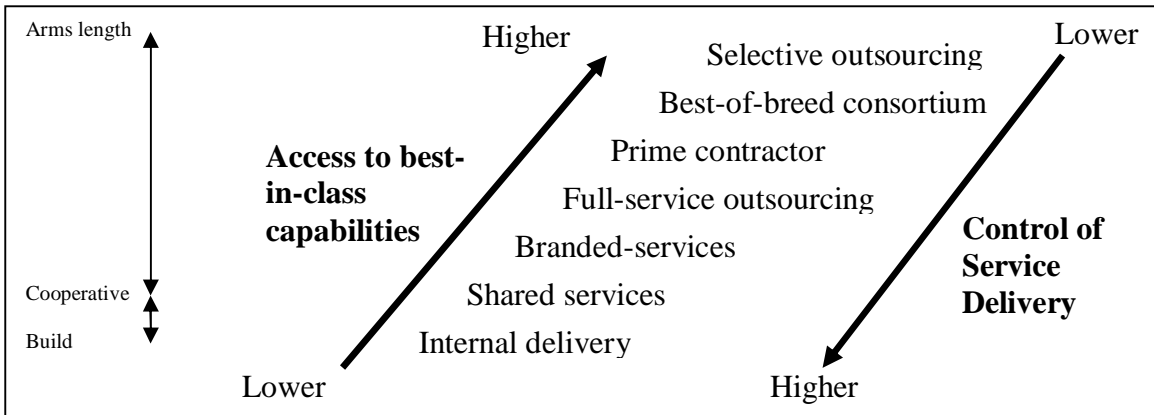
**Figure 5** - Four worlds of outsourcing (Cohen and Young, 2006)

In the top quadrants fall the services that provide outcomes with business value. Depending on their delivery mode these are termed *optimization* and *creation* respectively. Services that provide value of operational value belong to the quadrants termed *management* and *access* where the former provides these in a customized delivery and the latter through standardized means.

#### 2.4.2 Relationship types

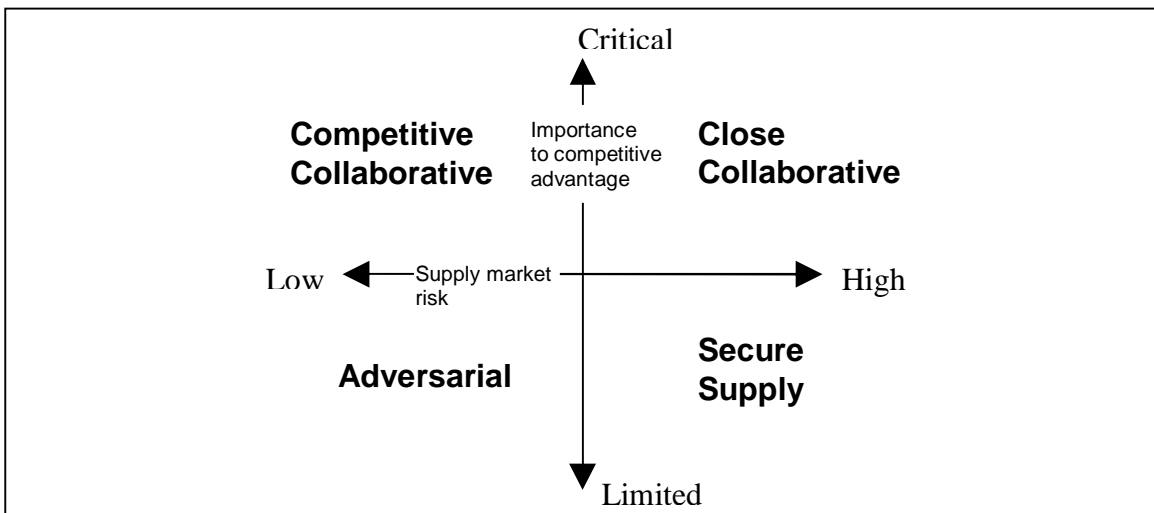
The previous section illustrates that outsourcing arrangements can be categorized based on the value objective and its subsequent mode of delivery. These characteristics are important shapers for determining the appropriate type of relationship between outsourcer and supplier (McIvor, 2003; Francheschini and Galetto, 2003). Other factors of importance are that of accessibility to best-in-class capabilities and degree of risk in the supply market (Cohen and Young, 2006; McIvor, 2003).

According to McIvor (2003), the importance of the objective to competitive advantage constitutes one of the key factors that determine the attention required for managing the supplier relationship and in turn whether the supplier relationship should be more collaborative as opposed to being arms length. This is also stressed by Cohen and Young (2006) who indicate that those outsourcing arrangements that generate business value as opposed operational value lead to higher relationship complexity due to more interaction and service levels that are difficult to measure. Other aspects that increase complexity are integration, joint problem solving, goal adjustments, inter-organizational information exchange and sharing of risks and benefits (Francheschini and Galetto's, 2003; McIvor, 2005; Ross and Beath, 2006). These kinds of requirements are difficult to stipulate in the type of contracts required for arms length relationships and requires more collaborative relationships. Processes with low importance to competitive advantage on the other hand do not require this as they are typically standardized and commoditized. These can therefore be managed through quantity- and quality based metrics (Cohen and Young, 2006). An advantage of the latter is that it allows for selecting best-in-class suppliers at the best price. This is typically not feasible through more collaborative arrangements (McIvor, 2003; Cohen and Young, 2006). These considerations largely determine the outsourcing relationship options illustrated in figure 6.



**Figure 6** – Relationship between access to best-in-class capabilities and control of service delivery (Cohen and Young, 2003)

As an additional defining characteristic for choosing a relationship option, McIvor (2003) stresses the importance of supply market risk. This leads outsourcing firms to incur some degree of risk that entails opportunistic behaviour of the supplier and reduction of control over outsourced processes (McIvor, 2003). The supply market risk related to the former can be attributed to the number of buyers and suppliers, degree of specificity, level of uncertainty and availability of information (McIvor, 2003; Francheschini and Galetto, 2003). Uncertainty in the environment increases supply market risk as conditions such technology or market demand may change during the duration of the contract. Renegotiating is typically expensive and may lead to opportunism. Depending on the activity importance and degree of supply market risk the four relationship types as stipulated in figure 7.



**Figure 7** – Types of outsourcing relationships (McIvor, 2003)

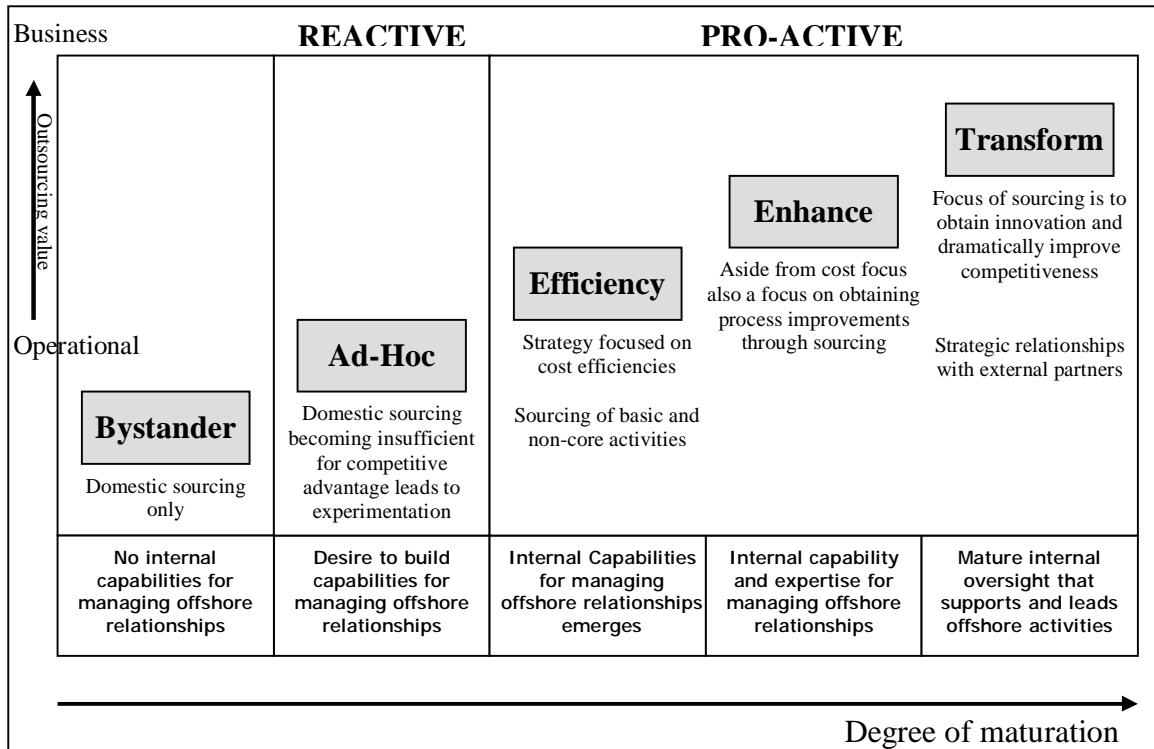
The above figure shows that the collaborative nature of the outsourcing relationship can be characterized as either *competitive* or *close* depending on the supply market risk. In the latter case, the outsourcer depends on a number of suppliers that can be played off against each other by allocating business depending on performance. A similar split can be identified amongst arms length relationships that require limited interaction and are

typically uni-directional. An *adversarial* strategy is applicable when the supply market is competitive, allowing buyers to rapidly switch suppliers. In cases where supply market risk is high, outsourcing firms can ensure continuity of supply by establishing longer-term relationships and agree on consigned stock arrangements. This type of relationship is termed *secure supply* (McIvor, 2003).

## 2.5 Evolving outcomes and expected objectives

The literature indicates that the desired objectives from outsourcing depend heavily on a company's experience, strategic focus, types of processes, stakeholder preference and environmental forces (Ventoro, 2005; Cohen and Young, 2006). Moreover there is an interrelation between what activities are outsourced and what the underlying motivations are. Specifically, Quelin and Duhamel (2003) argue that cost reductions, while important, are but one objective. Others include achieving greater flexibility, increased productivity, gaining competitive advantage, or increasing quality (Siakas, 2006; McLellan and Marcolin, 1995; Quelin and Duhamel, 2003). Furthermore, the literature demonstrates an evolutionary tendency governing these aspects.

The first authors to introduce a notion of maturation are Monczka and Trent (1991) in the domain of international sourcing. In their model, companies initially show a reactive approach (such as environmental or shareholder pressures) and subsequently become more pro-active in their sourcing strategies as their experience increases. A pro-active stance is characterized by the international sourcing being part of the global strategy and being fully integrated and coordinated in its operating units. An important implication is that the overall supplier relationship complexity will increase and the main condition for moving along this evolution is therefore characterized by a company's ability to manage this increased relationship complexity. Carmel and Agarwal (2002) introduce the SITO stage model (Sourcing of IT Offshore) based on research in the field of off-shoring of IT work by U.S. firms. Their model also describes a perceived progression of stages where each stage can be characterized by a set of strategic imperatives and internal firm dynamics. Similarly, Cohen and Young (2006) describe so called 'service deals' and argue that evolutionary progression also changes the nature of the value provided from outsourcing from operational value to business value (Cohen and Young, 2006).



**Figure 8** – Outsourcing as an evolutionary phenomenon. Adapted from Monzka and Trent (1991), Carmel and Agarwal (2002), Cohen and Young (2006).

### 2.5.1 Ad-Hoc and cost focussed outsourcing

This phase is generally focussed on experimentation and is often characterized by a company looking to see how outsourcing might work for them. Companies may have different motivations for experimentation but typically there is no immediate necessity for outsourcing at this stage. Motivations include obtaining quick cost advantage, following general trend, or pressure from the board of directors or shareholders (Ventoro, 2005). More pressing considerations such as a tight local labour market also drives companies to experiment with outsourcing. For example US companies facing a tight IT labour market in the end of the 90’s were forced to find alternative labour supply. Many Y2K remediation projects were subject of outsourcing because of this very reason (Carmel, 2006). Cost reduction can also be a pressing force when profit margins dissipate. Since cost efficiencies in this phase generally remain characteristic, the outsourced activities generally impact the bottom line performance and typically have limited importance to competitive advantage (Monzka and Trent, 1991; Cohen and Young, 2006). Kobayashi-Hillary (2004) typifies these as tactical processes since they relate to a specific problem or task and are generally short termed (Kobayashi-Hillary, 2004). Because the outsourcing decision is typically based on limited argumentation, companies in this phase are vulnerable for risks such as losing core competencies, exposure of intellectual property or exposure of company secrets to competitors (Glass, 2004). Research by Berends (1997) also implies this by showing that the outcome of outsourcing is more successful when it is based on strategic decisions rather than from ‘emergency action’. Cohen and Young (2006) stress this also and their evolutionary model starts with the assumption that companies have formulated a sourcing strategy and

have a good understanding regarding what process(es) to outsource and what to keep internally.

### **2.5.2 Enhancement focussed outsourcing**

After the initial stage, the evolutionary tendency lies in moving the scope from an experimental or cost focussed approach to one that can be characterized by the obtainment of operational enhancements. Since companies have limited resources, considerations other than transaction costs need to be made in order to obtain the biggest leverage from these resources. This implies allocating resources to those activities that generate this leverage while outsourcing those that do not. This also involves processes that companies may be able to perform internally but would require significant investment of existing (scarce) resources. Furthermore, firms may be economically unable to generate these capabilities and resources internally and as such have no other option but to source these from external suppliers (Cohen and Young, 2006). This phase is therefore characterized by firms contracting suppliers who are better capable of executing the outsourced activity. These contracts offer companies ways to gain relevant capabilities without having to become knowledgeable in issues that they are not skilled in and do not want to invest in (McFarlan and Nolan, 1995). This was also identified in the transformation of the IT function at British Petroleum. In 1990 British Petroleum concluded that most of their current IT function was better done by suppliers since there is always someone else who 'does it better'. They subsequently reorganized their IT function as locating, purchasing and integrating of technologies (Cross, 1995). A recent study also shows this trend as 23% of involved companies are using considerations such as: 'improve time to market', 'improve quality' and 'cost predictability' (Ventoro, 2005). Using Monczka and Trent's terminology this implies a more pro-active focus as opposed to one that is re-active.

### **2.5.3 Transformation through outsourcing**

Motivations for outsourcing has more recently also shown to include obtainment of technical skill-sets and industry expertise Ventoro (2005). These go beyond a question of resource allocation and deal with value creation through initiating supplier relationships. Cohen and Young (2006) typify this in their 'service deals'-model as a state in which a transformation is taking place in the way a company does business. This implies that the outcome of outsourcing in this phase is to dramatically improve the very competitiveness of the organization by creating new revenues, outmanoeuvring the competition and change the basis on which a corporation operates. These activities are close to a firm's core business and give the ability to find ways to drive innovation, increase process speed and provide a high degree of flexibility (McIvor, 2005; Franceschini and Galletto, 2003). While considerations regarding transaction costs and resource allocation still apply, the reasoning behind why processes are outsourced is based on fulfilling strategic concerns. As such suppliers increasingly find themselves competing head on with traditional onshore businesses (Loh and Venkatrama, 1995). Their study also points to the need for organizations to co-opt external partners in delivering required IT competences and engage in deeper, strategic relationships (see also Carmel and Agarwal, 2002).

## 2.6 Outsourcing problems and risks

While the practice of outsourcing provides firms with a mechanism to reduce cost, enhance operations, and transform the way they do business, it also adds additional risks and costs. Based on the outsourcing decision, the impact of costs is expected to be outweighed by the expected advantages and cost savings. However, outsourcing also carries additional risks and introduces additional problems. Citations of these are abundant in the outsourcing literature (see for instance [Elmuti and Kathawala 2000](#); [Min and Hokey, 1994](#)). Often such problems are the motivation for research relating to outsourcing (see for example [Kakabadse and Kakabadse, 2003](#); [Aubert et al, 2007](#)). Both escalating costs and unmanageable risks constitute the most commonly cited reason for back sourcing ([Hirschheim and Lacity, 2007](#); [CIO, 2007](#)).

### 2.6.1 Risks and problems associated with outsourcing

Aubert et al (2004) describe four types of risk: (1) a variance of distribution outcomes, (2) a probability of an adverse outcome, (3) an expected loss based on a probability function and a loss function and (4) as an undesirable event. The latter perspective concerns a wide range of negative events that are of material threat to an organization and seems to fit best in this research as it concerns the events that take place during an outsourcing arrangement that negatively affects the value that is to be achieved. These are not limited to the bottom line but may also be impact degree of product quality, time to market or speed of innovation ([Momme, 2002](#)). Therefore outsourcing risk can be presented as a direct, quantitatively measurable loss like poor turnaround times or hidden costs but may also have a qualitative proponent that describes more strategic loss such as loss of expertise, reduced innovative capacity or exposure of intellectual property ([Aubert et al, 1998](#); [Glass, 2004](#); [Kakabadse and Kakabadse, 2003](#)). An overview of issues cited by selected literary sources is shown in table 3.

**Table 3 – Problems associated with outsourcing**

Issues	Sources
<i>Strategic</i>	
Loss of core competence	(Aubert et al, <a href="#">1998</a> ; <a href="#">Barthelemy, 2001</a> ; <a href="#">Kakabadse and Kakabadse, 2003</a> )
Supplier dependence	( <a href="#">Willcocks and Lacity, 1999</a> ; <a href="#">Kakabadse and Kakabadse, 2003</a> ; <a href="#">McIvor, 2004</a> )
Inflexibility	( <a href="#">Willcocks and Lacity, 1999</a> ; <a href="#">Aubert et al, 1998</a> ; <a href="#">Elmuti and Kakabadse, 2003</a> )
Morale decline own employees	( <a href="#">Elmuti and Kakabadse, 2003</a> ; <a href="#">Kakabadse and Kakabadse, 2003</a> )
Loss of IP	( <a href="#">Kakabadse and Kakabadse, 2003</a> ; <a href="#">Carmel and Tjia, 2005</a> )
Exposed company secrets	( <a href="#">Carmel and Tjia, 2005</a> )
Loss of expertise	( <a href="#">Aubert et al, 1998</a> ; <a href="#">Willcocks and Lacity, 1999</a> ; <a href="#">McIvor, 2004</a> ; <a href="#">Carmel and Tjia, 2005</a> )
Loss of innovative capacity	( <a href="#">Aubert et al, 1998</a> )



Confidentiality issues	(Khan, 2002; Elmuti and Kakabadse, 2003)
<i>Relationship</i>	
Supplier opportunism	(Khan, 2002; Kakabadse and Kakabadse, 2003; McIvor, 2004)
Loss of control	(Aubert et al, 1998; Elmuti and Kakabadse, 2003; Veltri, 2007)
Poor relationship	(Min and Hokey, 1994)
Corruption	(Carmel and Tjia, 2005)
Culture issues	(Khan, 2002; Elmuti and Kakabadse, 2003)
Legal issues	(Elmuti and Kakabadse, 2003)
Disputes and litigation	(Aubert et al, 1998; Veltri, 2007; Veltri, 2007)
Difficulties renegotiating contracts	(Aubert et al, 1998; Willcocks and Lacity, 1999)
<i>Economic / Operational</i>	
Supply interruptions	(Kakabadse and Kakabadse, 2003)
Diminished quality of product/service	(Min and Hokey, 1994; Aubert et al, 1998; Kakabadse and Kakabadse, 2003)
Poor performance	(Min and Hokey, 1994; Veltri, 2007)
Data exposure	(Kobayashi-Hillary, 2004; Carmel and Tjia, 2005)
System exposure	(Carmel and Tjia, 2005)
Hidden costs	(Aubert et al, 1998; Barthelemy, 2001; Khan, 2002; Elmuti and Kakabadse, 2003)
Miscommunication	(Elmuti and Kakabadse, 2003; Kobayashi-Hillary, 2004)
Increased costs	(Aubert et al, 1998; Hirschheim and Lacity, 2002; McIvor, 2004; Veltri, 2007)
Geopolitical/Country risk	(Khan, 2002; Kobayashi-Hillary, 2004; Carmel and Tjia, 2005)

As table 3 illustrates, the literature adopts varying perspectives in citing outsourcing risks. Several use risk to express negative outcomes such as loss of control, disputes and litigation, and reduced quality of service. These authors typically relate these issues to the outsourcing decision<sup>1</sup> or to best-practice approaches for coping with them<sup>2</sup>. The other perspective uses risk to refer to the conditions leading to negative outcomes such as poor infrastructure or corruption (Aubert et al, 1998). For instance Elmuti and Kakabadse (2003) describe both political problems and loss of control as outsourcing risks but clearly they differ in that the latter has a direct negative effect while the first may or may not lead to such effect. These different perspectives account for the variety of issues, risks and potential problems being cited. The next section deals specifically with those conditions that may lead to cited negative consequences.

<sup>1</sup> See for instance Kakabadse and Kakabadse (2003)

<sup>2</sup> See for instance Franceschini and Galetto (2003) and Momme (2002)



## 2.6.2 Outsourcing risk factors

While a majority of literature focuses on negative consequences themselves, a number of authors identify the factors leading to such consequences. For instance Carmel and Tjia (2006) cite legal issues, the transition of resources, and the introduction of distance and time as the three main factors responsible for causing problems typically encountered in IT outsourcing. They furthermore identify five so called centrifugal forces resulting from the aspect of distance which they state: “causes team members to be propelled apart from each other” (Carmel and Tjia, 2006, p.56).

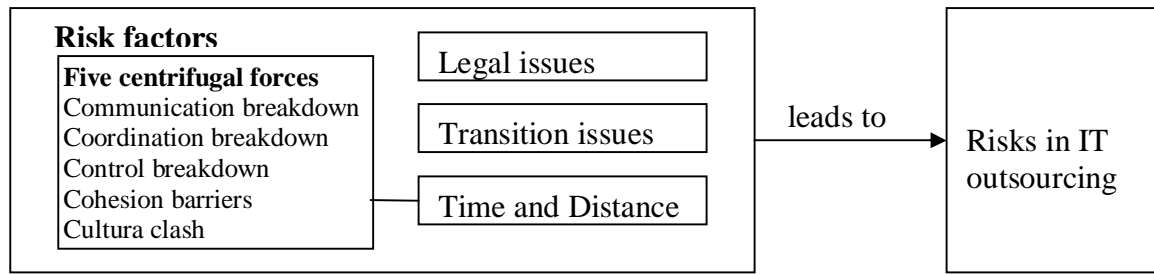
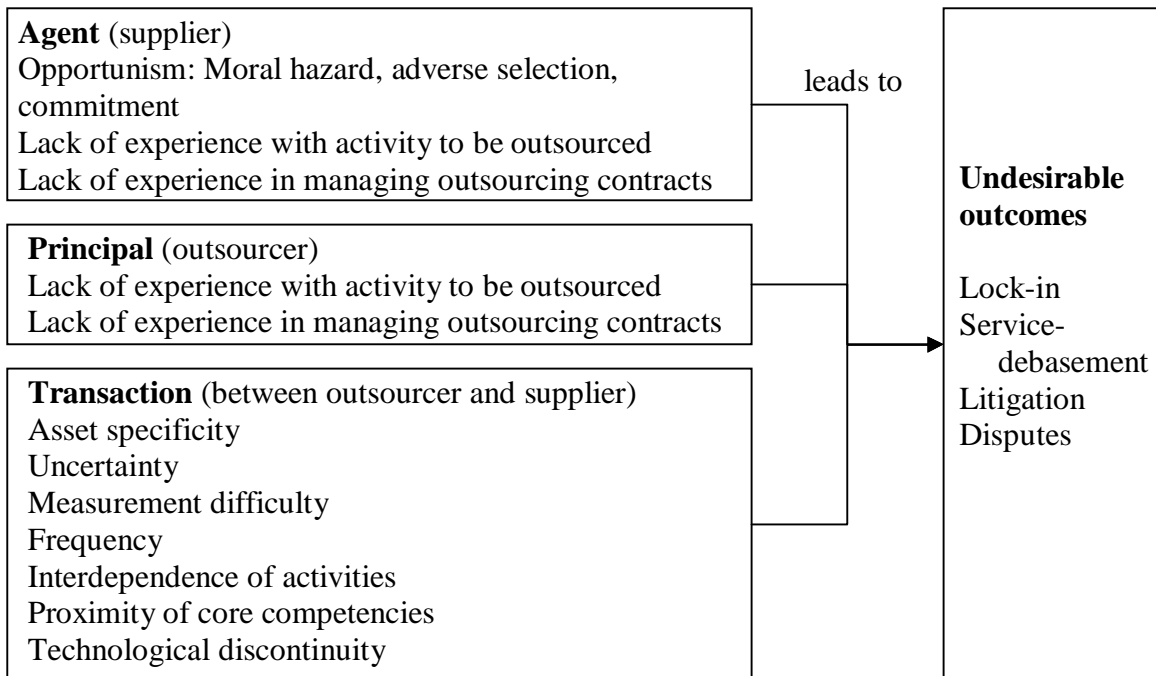


Figure 9 - Factors leading to risks in IT outsourcing (Carmel and Tjia, 2006)

While the above figure provides insights from a practical point of view on factors that contribute to problems, the cited factors resulted from personal experience in several outsourced projects over the last 20 years. As such it does not provide a sound empirical foundation for their conclusions but derive these from personal reasoning and normative judgement. Aubert et al (1998, 2007) on the other hand offer an academic approach using a risk assessment perspective. As theoretical foundation both the transaction cost theory and the agency based perspectives are used for categorizing risk factors. As such factors are structured to those inherent to the relationship between the outsourcer and supplier (using agency theory perspective) and transactional characteristics between them (using a transaction theory perspective) (Aubert et al, 1998, 2007). Building upon these findings, Bahli and Rivard (2003) subsequently cite the most common undesirable consequences that these factors may induce including cost escalations, service debasement, lock-in, disputes and litigation<sup>1</sup>.

<sup>1</sup> Aubert et al (1998) also cite commonly occurring negative consequences as provided in table 3 but they do not offer a causal relation between these and the risk factors described in their empirically tested framework.



**Figure 10** - Factors leading to undesirable outcomes in IT outsourcing (Aubert et al, 1998; Bahli and Rivard, 2004)

## 2.7 Outsourcing implementation

Risk assessment and management are important contributors to the success of an IT outsourcing venture (Aubert et al, 1998). As such a substantial part of literature prescribes implementation approaches and strategies that should contribute to the achievement of enhanced value, decreased risk uncertainty and cost reductions (Franceschini and Galetto, 2001; Kakabadse and Kakabadse, 2003; McIvor, 2005; Cohen and Young, 2006). The literature shows several perspectives pertaining to implementation of outsourcing arrangements consisting of both prescriptive and descriptive orientation including key implementation capabilities, structured approaches for successful implementation, and relational and social exchange considerations.

### 2.7.1 Key-capabilities for implementation

Several authors stress the capabilities that firms should possess in order to successfully implement an outsourcing arrangement. These capabilities are either distilled from research where certain competences were present in firms that were more successful in outsourcing compared to others or are based on authors' experience in the field of outsourcing (see, for example, Carmel and Tjia, 2006; Cusick and Prasad, 2006). This section largely focuses on findings from the Cranfield study by Kakabadse and Kakabadse, (2003). This survey amongst seven hundred and forty-seven organizations showed that sixty-nine firms exhibited the characteristic of 'best practice'<sup>1</sup> who were at the same time identified as high performing compared to the remainder of the sample.

<sup>1</sup> Best practice is determined in the Cranfield study to be "the degree to which there exists a visible commitment at top management level to the strategic direction being pursued by the organization and consequently the value outsourcing contributes to strategy" (Kakabadse and Kakabadse, 2003).

From these firms, twenty-three core competencies were distilled that are organized in five categories, namely: being outsource-ready, possess skills for integrating outsourced activities, managing transactional and supplier arrangements and enhance staff motivation and performance (Kakabadse and Kakabadse, 2003). Table 4 shows the identified capabilities in more detail.

<b>Table 4 – Capabilities for achieving superior outsourcing performance</b>
<b>Key capabilities</b>
<p><b>(1) Outsource readiness</b>            a) Management agreement on outsourcing decision, b) outsourcing experience, risk management capabilities, c) skill for managing resource transfer, d) integration of outsourcing strategy with firm strategy, e) awareness of required resources, f) crisis management</p> <p><b>(2) Integration</b>            a) Re-arrange existing ways of working, b) integrate around activities already outsourced, c) apply quality controls</p> <p><b>(3) Management of transactional arrangements</b>            a) Selection of service provider, b) manage parallel outsource agreements, c) benchmarking service level agreements, d) ability for effective performance monitoring, e) capability of transferring resources to supplier, f) capturing previous learning</p> <p><b>(4) Management of internal relations</b>            a) Staff motivation, b) motivation of middle level management, c) employee performance improvement</p> <p><b>(5) Management of supplier relations</b>            a) Developing a shared understanding with supplier, b) quality of the relationship, c) recognition of cultural similarities and dissimilarities, d) contractual contingencies management, e) management of consortia relationships</p>

Table 4 shows that a wide range of capabilities were identified in the Cranfield study including internal capabilities such as integrating of outsourced activities and staff motivation, but also those pertaining to suppliers such as the ability for improving the relationship and managing contractual contingencies. They further encompass protectionist oriented capabilities such as performance monitoring and benchmarking. These are however limited, implying that opportunism was not a prevailing issue in their sample of sixty-nine high performing firms. This is in contrast to Wilcocks, Reynolds and Feeney (2007) who emphasize supplier opportunism and propose capabilities that increase leverage over suppliers. The capabilities proposed for this are part of the IS function of firms<sup>1</sup> and includes leadership, informed buying, making technology work, contract monitoring, vendor development and contract facilitation.

<sup>1</sup> These are based on research by Feeney and Willcocks (1998) that suggested four primary tasks of the IS function: eliciting and delivering on business requirements, ensuring technical capability, managing external supply, and governance and leadership. Only those specifically related to outsourcing are considered here.

The literature concerned with key competencies typically emphasises that analysing and building these capabilities is one of basic tasks that a firm should undertake (Wilcocks, Reynolds and Feeney, 2007). However it does not prescribe when these capabilities are important or what risks they address.

### **2.7.2 Social exchange and relational contracting**

Kern and Wilcocks (2000) stress that an understanding of the properties of outsourcing relationships is required in order to reach the objectives stipulated in the contract. Their premise is based on the fact that outsourcing relationships should, after contracts become operationalized, be partly based on relational governance as opposed to being based purely on contracts as non-contractual behaviour is likely to occur. This has also been addressed by others. For instance Cohen and Young (2006) stress that “[...] both providers and recipients have to move beyond the myth of the enemy and begin [crafting ] win-win relationships” (p144). They further state that adversarial relationships where parties see and treat each other as enemies have no place in the multi-sourcing environment that they champion in their text. Similarly, Pinnington and Woolcock (1997) observe that a reciprocal vendor strategy maximizes vendor contribution and competence. Other authors stressing the importance of relational and social aspects are Wilcocks and Choi (1995) and Siakas and Maoutsidis (2006). Despite this, theories typically fail to uncover these non-contractual dimensions. Therefore Kern and Wilcock (2000) propose an approach based on social exchange theory and the relational contracting perspective. This allows for understanding outsourcing as a continuous cycle of interactions, reinforced by mutual dependence and personal satisfactions that contribute to willingness for continual exchange, while also recognizing the necessity of contractual agreements between outsourcer and supplier. Figure 11 shows the determinants and dimensions of outsourcing relationships as proposed by Kern and Wilcocks (2000)<sup>1</sup>.

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<sup>1</sup> While this model has been tested through twelve case studies, it does not constitute a mature theory. However alternatives theories for illustrating outsourcing relationship characteristics with stronger empirical foundations were not found

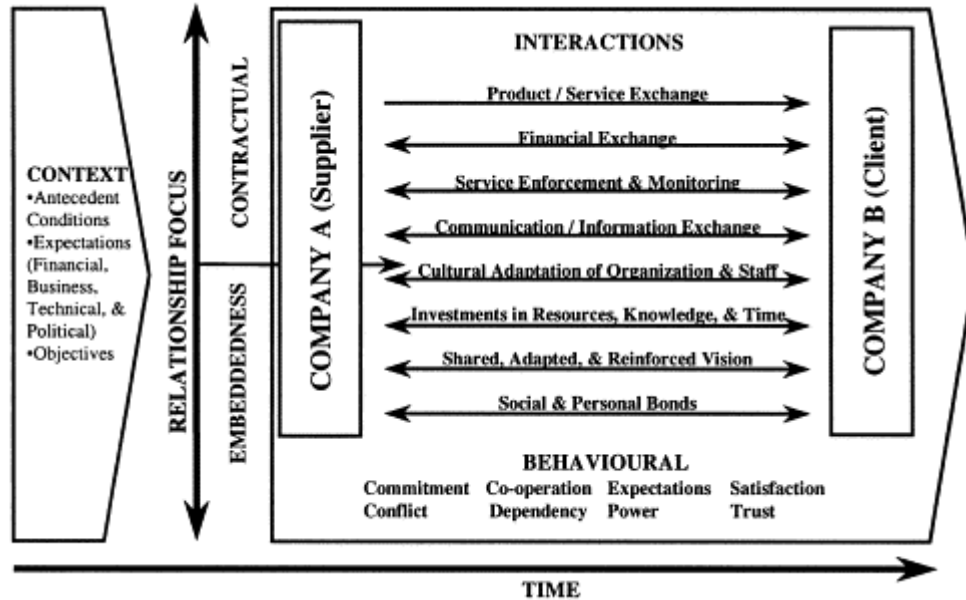


Figure 11 - Outsourcing relationship model (Kern and Wilcocks, 2000)

The key characteristic of the model is that it incorporates a relationship focus that is either more contractual or a more embedded in nature. The latter fosters social structures such as investment of resources, knowledge and time, or creating social and personal bonds, while the former is primarily concerned with realisation of terms stipulated contracts. Inclusion of these and the equal weight that these interactions are given in the model supports the view that outsourcing relationship as not solely dyadic but that many exchanges are based on compliance of the contractual agreement between outsourcer and supplier. Constant flexibility is however stressed in order to: “cater for the voluntary exchanges that will undoubtedly occur to preserve relational ongoingness” (Kern and Wilcocks, 2000, p.8)

### 2.7.3 Structured approaches for implementation

Several authors stress the notion that implementation of outsourcing arrangements should be rooted in strategic considerations and conditions that resulted from the outsourcing decision (Franceschini & Galetto, 2003; Momme, 2002; Haverhals, 2004). Structured approaches that provide sequentially ordered key-activities to be followed prevents firms from losing sight of strategic fundamentals and provides a tool for keeping track of all the important details (Cullen et al, 2005). Despite variance in terminology, three stages can be identified across literary sources providing such approaches: a strategic, tactical, and operational phase. In figure 12 the outsourcing processes offered by three leading authors are clustered into these stages.

#### Strategic phase

This stage lays the foundation for a structured implementation and requires a mostly introspective orientation. Aside from being preceded by the rudimentary decision of a firm to outsource, it also shares activities that were discussed as part of the outsourcing decision such as cost analysis, ranking of activity importance based on competitiveness, and benchmarking internal performance against external suppliers. This stage also

includes determining the appropriate outsourcing option and what supplier relationship is to be pursued (Cohen and Young, 2006). At the end of this stage firm should know themselves well enough to confidently publicize and articulate their needs (Cullen et al, 2005).

#### Tactical phase

This leads to the tactical stage which includes identifying potential suppliers, assessing and benchmarking their performance, and contract negotiations when a suitable supplier is located. Selection and evaluation includes developing criteria for provider selection, sending requests for information (RFI) and reviewing request for proposals (RFP's) (Carmel and Tjia, 2003). Due diligence is important in making sure the information provided by suppliers concerning their competence, capacity and legitimacy is truthful. Firms have the greatest leverage over suppliers in this stage which places great importance on the collected information which forms the basis of rational and informed decisions concerning performance targets, service levels, and terms and conditions (Cullen et al, 2005).

#### Operational phase

Firms move to an operational phase when the outsourced activity, possibly together with related assets, people and resources is transferred to the supplier who then takes over execution and related service delivery. At this point, renegotiating, terminating, back-sourcing, or transferring to another supplier is generally expensive and outsourcing firms rarely have the economic or political option other than to continue with the supplier. Furthermore this is the phase where advantages as well as problems and risks will appear (Cullen et al, 2005). After the activity is transferred and integration is established, this phase is generally typified by management of the relationship, monitoring of performance levels, and benchmarking performance of supplier.



determine ‘general’ key-activities which in turn provides an opportunity for structuring all the factors that were identified throughout the literature review based on their expected relevance in specific phases. The factors are distinguished between those related the outsourcer, the supplier, and the transaction.

**Table 5 – Combining factors with identified phases**

<b>Influential factors in the strategic, tactical and operational phase</b>
<b>Strategic phase</b>
<p><i>Outsourcer</i></p> <ul style="list-style-type: none"> <li>• Shareholder pressure</li> <li>• Financial problems</li> <li>• Firm’s perspective on its core and non-core competencies</li> <li>• Strategy of the firm</li> <li>• Available resources for internal investments</li> <li>• Stakeholder preferences</li> <li>• Probability that an activity will become competitive advantage</li> <li>• Existing internal capabilities for performing activity</li> </ul> <hr/> <p><i>Supplier</i></p> <ul style="list-style-type: none"> <li>• Supply market risks</li> <li>• Government approval</li> <li>• Taxes / Currency exchange</li> </ul> <hr/> <p><i>Transaction</i></p> <ul style="list-style-type: none"> <li>• Asset specificity related to outsourced activity</li> <li>• Characteristics of outsourced activity (i.e. closeness to core competencies, end- user involvement, easiness to monitor performance, presence of company secrets, and confidentiality)</li> </ul>
<b>Tactical phase</b>
<p><i>Outsourcer</i></p> <ul style="list-style-type: none"> <li>• Experience with outsourcing</li> <li>• Importance of the objective to competitive advantage (i.e. enhance operational efficiency/effectiveness, increase brand dominance, or improving innovative capacity)</li> <li>• Uniqueness of operational idiosyncrasies of outsourcer</li> <li>• Availability of industry standards related to activity</li> <li>• Requirement for best-in-class capabilities</li> </ul> <hr/> <p><i>Supplier</i></p> <ul style="list-style-type: none"> <li>• Supplier leverage (e.g. number of buyers and suppliers, degree of specificity, level of uncertainty, and availability of information).</li> <li>• Degree of risks and benefits shared by supplier</li> </ul>



- Willingness to adapt to operational idiosyncrasies of outsourcer
  - Measurement difficulty
  - Adverse selection
- 

*Transaction*

- Mode of service delivery (customized vs. standard delivery)

**Operational phase**

*Outsourcer*

- Experience in assessing delivered quality and managing contract
- 

*Supplier*

- Productivity
  - Imperfect commitment
  - Moral hazard
- 

*Transaction*

- Mode of service delivery (customized vs. standard delivery)
- Technological discontinuity
- Time zone differences
- Frequency

**General factors that influences all phases**

*Outsourcer*

- Staff morale
  - Willingness of existing business units to adapt operational idiosyncrasies
  - Strategic focus
  - Degree of maturation (e.g. internal capabilities for risk management, integration, and managing of supplier- and internal relations)
  - Expectations, satisfaction, commitment, co-operation and trust
- 

*Supplier*

- Expectations, satisfaction, commitment, co-operation and trust
  - Cultural similarities and dissimilarities
  - Interdependence of activities
- 

*Transaction*

- Relationship complexity (degree of interaction, need for joint problem solving, information exchange)
  - Type of activity that is outsourced
  - Type of value of the service provided
-

## **2.8 Conclusion**

To answer the first two sub-research question, the literature was reviewed in order to determine the characteristics of (IT) outsourcing, its success criteria, the most influential factors, and the main risks and problems associated with it. Through answers to these questions a preliminary research model can be constructed. The contribution of the literature is briefly summarized in the next section. In section 2.8.2 the gained insights are used to propose a preliminary research model that relates environmental factors to the IT outsourcing phenomenon.

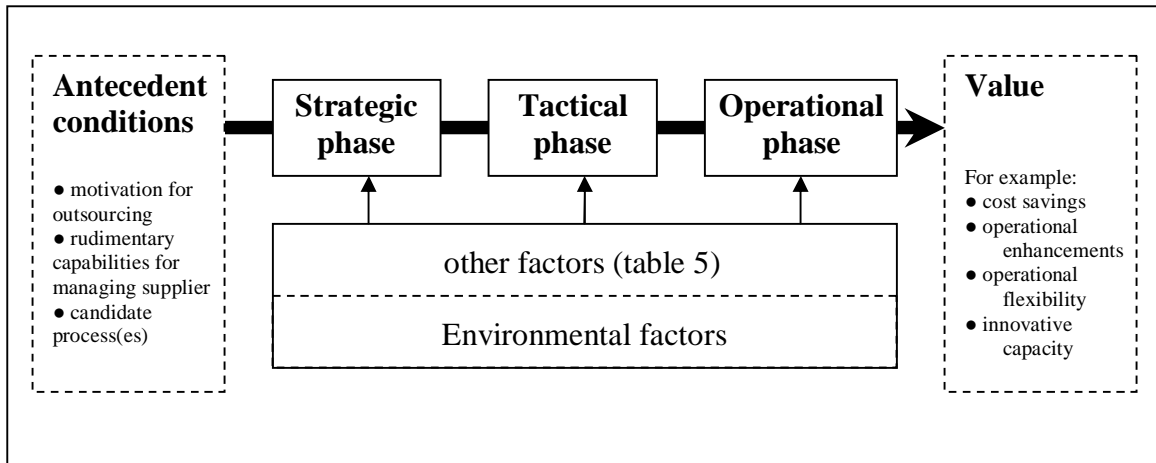
### **2.8.1 Contribution of the literature**

This section addresses the two main contributions from the literature. First, as illustrated in table 5, the existing literature provides an abundance of factors that are influential in the field of (IT) outsourcing but largely ignores environmental factors. At the same time the literature has shown that these are likely to play an important role in the success of IT outsourcing as many of the problems currently associated with outsourcing (as shown in table 3) may be attributed to environmental factors.

Secondly, it was argued that outsourcing presents a fundamental organizational change from an existing state to another. Combining this insight with the notion that the outsourcing phenomenon was found to consist of a number of key-activities for reaching that state leads to the proposition that a process model provides an appropriate foundation for a research framework. This is strengthened by the fact that scholars largely agree that the identified key-activities form a prerequisite for obtaining expected value from outsourcing. Furthermore, according to Pettigrew and Whipp (1992) an implementation process is inherently related to the environment as they state “[the implementation process] is a sequence of individual and collective events, actions, and activities unfolding over time in a context” (p.338). Finally, the literature contributes in this area by providing descriptive models of outsourcing processes that can be adopted in the research.

### **2.8.2 Towards a conceptual research model**

The choice of adopting a process model for describing the outsourcing phenomenon leads to two implications. First, both antecedent conditions and an outcome need to be defined for the process. Based on the insights from the literature review, the former is proposed to include a firm’s motivation to explore outsourcing as a viable mechanism for creating value for the business, a process that can potentially be outsourced, and either rudimentary capabilities for managing an outsourcing relationship or a desire to build these. The outcome is the value that is ultimately achieved whether it is of operational or strategic nature. Secondly, phases with specific activities must be identified that are executed in order to arrive at the expected outcome. For this the three phases and associated key-activities identified in section 2.7.3 are adopted (key-activities are elaborated upon further in chapter 4). Using this as a foundation the environmental factors that are to be explored in this research can now be related to the outsourcing process as shown in figure 13.



**Figure 13** – Preliminary research model

The following ideas are fundamental to the preliminary research model:

- IT outsourcing implementation consists of three groups of key-activities that are grouped in three distinct phases
- Each stage is assumed to be influenced by both the proposed environmental factors as well by the factors indicated in table 5. The latter is shown in the figure above for illustrative purposes and will be omitted in the final research model
- The environmental factors are considered to influence the phases of the process in two possible ways:
  - 1) problems are caused by characteristics of the supplier environment (for example the availability of labour and the type of available skills)
  - 2) differences between the environment of outsourcer and supplier is the factor that contributes to problems (for example culture or language)



## 3. Exploring the role of environment

### 3.1 Introduction

While the framework of Pettigrew and Whipp (1990) has provided a starting point and act as a holistic basis for the literature review, their description of context does not extend well into the IT outsourcing field. Therefore other descriptions must be consulted and reviewed in order to arrive at a suitable formulation as it will be used in the research model. Since a notion of “contextuality” has been addressed in the IS development field, this chapter begins by reviewing key authors related to that field. It proceeds by reviewing how environmental factors are addressed in business, marketing and organizational theory.

### 3.2 Contextual approaches in IS Development

Since the emergence of information systems, the idea of a context has been used extensively to describe various issues pertaining to problems in the area of IS Development (Ciborra and Lanzara, 1991; Croon, 1998). The emergence of these contextual approaches has been the trend that during the nineties technology was increasingly seen as being socially constructed and that therefore a form of social and cultural understanding was required in IS research. Commonalities between these approaches are their relevance to practices and activities situated at work and their close kinship with the field of action research. Furthermore, context is typically not perceived as an outer container but as a something that is continuously generated by its participants and subsequently manifested through participants’ actions (Ciborra and Lanzara, 1991; Croon, 1998). These approaches share similarities with concepts stemming from business and organizational studies but there are important differences as will be pointed out in this section.

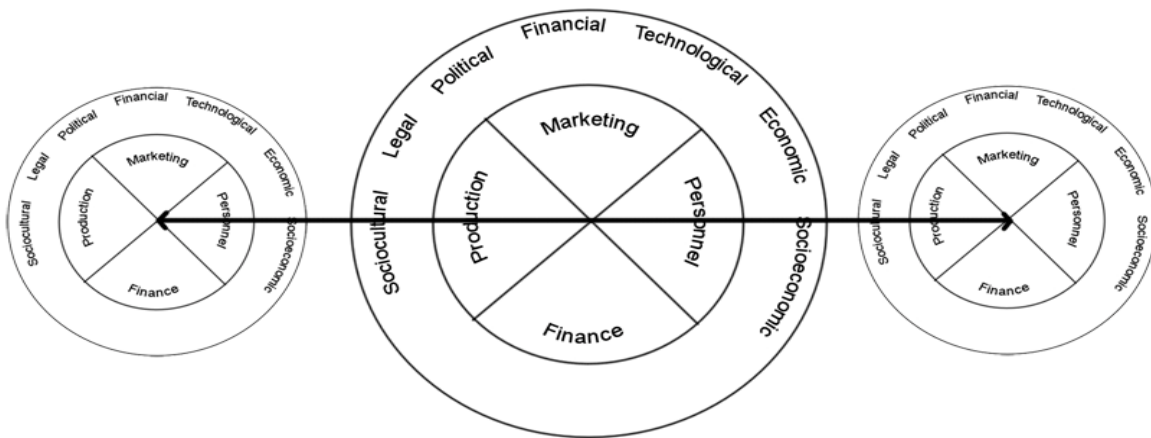
Ciborra and Lanzara (1991) build on the notion of the so called formative context which shapes the daily practical and argumentative routines of people at work (Unger, 1987). They further state that a formative context provides the required insights in the social and institutional aspects of IS Development in a fashion superior to that of traditional concepts such as organizational culture, frame of reference and schemas. They consider the latter as too explicit and disregarding to the taken-for-granted routines, institutional arrangements and material artefacts that influence the behaviour of actors in an organizational setting (Ciborra and Lanzara, 1991; Ciborra and Schneider, 1992). Formative context combats this shortcoming in two ways. Firstly it comprises both the institutional dimensions (i.e. division of labour) and unwritten social scripts such as problem solving styles and modes of conflict resolution. This allows for investigating how people’s cognitive schemas interact with both social and institutional structures and, in particular how this obscures the recognition of, for instance, alternative approaches to fulfilling tasks or alternative organizational forms (Ciborra and Lanzara, 1991). Second, the action oriented nature of formative context make it especially applicable for research in the domain of intervention and change as it allows for exposing and alerting designers and end-users to the formative context within which they are working. This alerts designer to design alternatives and facilitates user adoption information systems (Ciborra

and Lanzara, 1991). This action orientated nature is also central to other contextual approaches identified in the ISD literature such as the activity theory approach, situated action theory and the distributed cognition approach (Croon, 1998). Important to note concerning the latter is that it brings the analyses to a systems level as opposed to the activities level. According to Hutchins (1995) (as cited by Croon, 1998), human activity is an integral part of Information Systems and explaining cognitive properties without referencing the properties of the larger system can only be considered to provide partial understanding. To overcome this, the focus of interest among practitioners of distributed cognition lies with co-operation between people and artefacts they use. A unique attribute of situated action theory needs to be pointed out here: while situated action theory also focuses on the relationship between individuals performing an activity and the institutional framework (or 'arena') in which this action is taking place, it emphasizes the temporal and improvisatory nature of such activity (Nardi, 1996; Croon, 1998). The emphasis of distributed cognition and formative context on the other hand lie in persistent social and institutional structures. This particularly implies that the context in which activities are situated are is far from deterministic. Instead it stresses that persons constantly improvise and respond to their context depending on the unique circumstance.

Central to the formulations of context as they are used in IS research is that the unit of analysis does not pertain to individuals or environment but to the relationship between these (e.g. activity of persons acting in a setting). The situated action theory also implies that activities are in a constant flux and are unique in relation to the particular situation. Thus a central implication of these is that contextual aspects must be observed by analyzing actions of users of Information Systems (Ciborra and Lanzara, 1984; Croon, 1998).

### **3.3 International business and management**

Ball and McCulloch (2001) describe the challenges that firms are facing as a result of increasingly global competition which has forced them to enter foreign markets through for example exporting or setting up of foreign operations. It is specifically the latter that is the subject of their text in which they address these challenges in relation to foreign environmental factors that are introduced as a result of these operations. In doing so they propose a so called 'forces model' that distinguishes between internal forces over which management has a certain degree of control, and uncontrollable forces that are external to firms. The former consists of internal business activities such as production, marketing, finance and personnel. The latter are the factors surrounding and influencing these internal activities. They further cite that these forces are present both domestically and foreign which leads them to distinguish three environments: (1) the domestic environment, (2) foreign environment and (3) an international environment. The first relates to the uncontrollable forces in a firm's home country and the second to those present in the foreign countries in which the firm is active. The international environment subsequently refers to the interaction between the forces in the domestic and foreign environments. The forces model as proposed by Ball and McCulloch (2001) is illustrated in figure 14.



**Figure 14 - Domestic and foreign environmental forces**

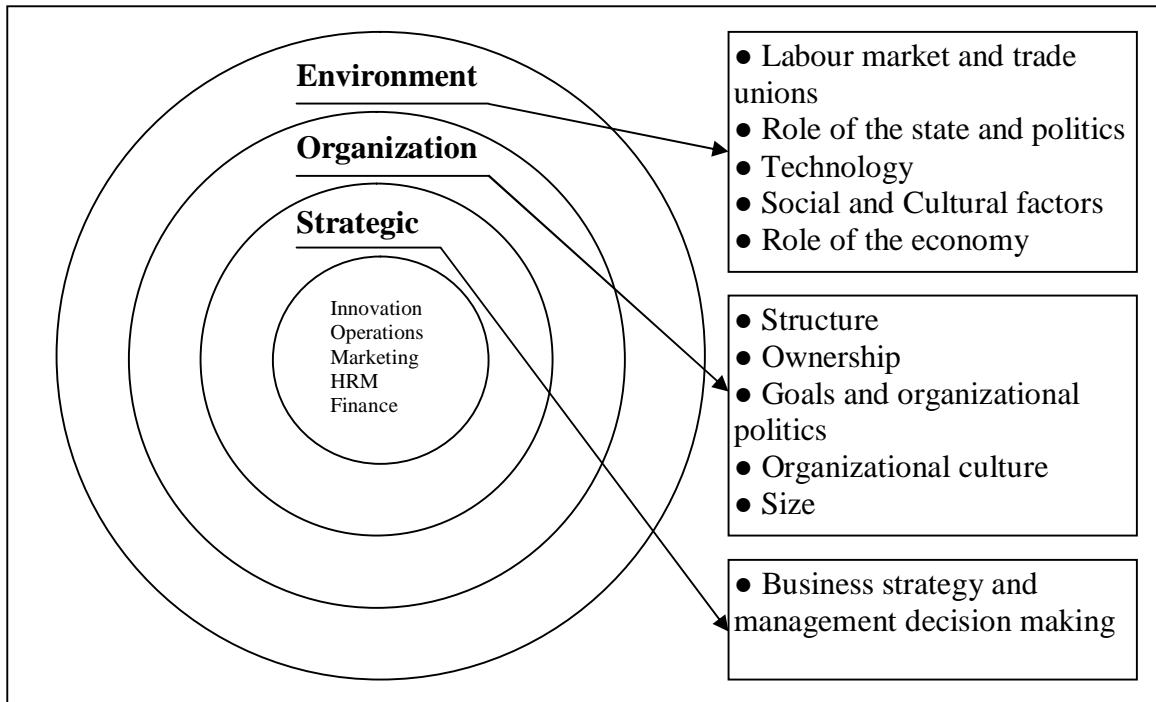
Ball and McCulloch's (2001) consider foreign operations as as intra-organizational entities that behave as satellites to the head firm. In case of inter-organizational interaction however, several authors have shown that characteristics of an internal context is important to the longevity of alliances (Parkhe, 1991; Douma, 1997; Mulyowahyudi, 2001). In response, Parkhe (2003) uses an institutional perspective for proposing four environments for describing organizational entities along multiple levels of analysis. The objective of the framework he proposes is to uncover differences between members of alliances. As such he distinguishes factors that are endogenous (i.e. due to firm characteristics) and exogenous (i.e. due to firms' respective environments) to an alliance. The latter conforms largely to the environmentalist perspective provide by Ball and McCulloch (2001) and is termed the external institutional environment, while the former describes a so called internal institutional environment (Parkhe, 2001). Table 6 shows these environments in more detail.

**Table 6 – Environments** (adopted from Parkhe, 2001)

<b>Institutional environment</b>	<b>Level</b>	<b>Description</b>
<b>Exogenous</b>		
Societal culture	meta	Patterns of behaving and believing, and the cognitive blueprints for interpreting the world
National context	macro	Primarily includes surrounding industry structure and institutions and government laws and regulations
<b>Indigenous</b>		
Corporate culture	meso	Ideologies and values that characterize particular organization
Operational-level variables	micro	Management people and the structuring of the organization

The framework proposed by Needle (2004) that describes the context in which business operate, comprises of elements used by both Parkhe (2003) and Ball and McCulloch

(2001). It uses a categorization similar to that of Parkhe (2003) in formulating a concentric model comprising of three conceptual layers which he describes as different types of contexts. Business activities are situated at the core of these layers and are formulated as “[being] shaped by and in turn shap[ing] the contexts within which they operate” (p.4). The specific business activities that are considered are innovation, operations, marketing, finance and accounting, and human resource management. These roughly correspond to what Ball and McCulloch (2001) formulate as internal forces in their forces model. The three contexts that are identified as being relevant to these activities are the environment, organization and firm strategy.



**Figure 15 - The Business in Context model (Needle, 2004)**

The outer level of the business in context model is termed the environment and comprises of those factors that exist outside of the firm that interact with and, to greater or lesser extend, constrain it. This largely corresponds with the environmental forces proposed by Ball and McCulloch (2001) and the exogenous environments cited by Parkhe (2003) consisting of a national context and societal culture. Needle (2004) broadly defines the elements that exist within the environment to consist of a nation’s economy, role of state, technology, labour characteristics and culture. The second contextual level pertains to the organizational aspect that concerns the way people are grouped and how they operate in order to carry out business activities. An important difference with the environment is that these belong to the organization itself. Key aspects contained within this context is that of organizational goals, structures, size, ownership and, organizational and corporate culture. Firm strategy also exists within the firm and is concerned with the management decision that determines the direction of the business. As such this has the most direct impact on the business activities of firms and typically revolves around reconciling threats, opportunities and constraints that originate from the organizational and environmental contexts. Together with the organizational level this corresponds with the



indigenous environments cited by Parkhe (2003). Details concerning selected factors are addressed in chapter 4.

### 3.4 Conclusion

The conclusion regarding the way environment or context is addressed in the literature is twofold. First it discusses the insights gained from the literary review and how this contributes to the research model. Secondly it proposes the components of environment to be used in the research model and the terminology that is adopted.

#### 3.4.1 Contribution of the literature

The notions of context as they have been formulated in the ISD field show a number of fundamental similarities which limit their applicability to this research. Firstly, they have directed their focus on end users and, in particular designers and architects of information systems (Ciborra and Lanzara, 1991; Croon, 1998). This also observed by Bodker et al. (1993) who write that contextuality in IS design applies to the gaps between designers and end-users, and technology and end-users (as cited by Croon, 1998). More recent literary sources that address contextuality in IS development also follows this perspective (see for instance Soh and Sia, 2004; Liang and Xue, 2004<sup>1</sup>). The implication of this is that there is little direct applicability to this research which focuses on other roles in the IS development process (as is made clear in section 2.2). One could possibly argue the usefulness of these perspectives when research focuses on outsourcing of IT-enabled services where the unit of analysis relates to end users of information systems. Information systems currently used in these instances however (i.e. retrieval of customer information or payment histories) can hardly be termed “*leading edge information systems*” or the “*innovative endeavour*” that requires the type of enquiry that formative context<sup>2</sup> provides (Ciborra and Lanzara, 1991). Furthermore, as illustrated, the nature of these perspectives makes the subject of contextuality in ISD particularly suitable for intervention in a setting and not for its exploration which is the purpose of this research.

Secondly, partly arising from the discussion of the previous section, the literature has shown to adopt differing perspectives when addressing notions of context or environments. For instance the ISD literature uses a more internal perspective, focusing on the micro level. As such it pays no attention to external or environmental factors. Others address only macro level factors such as labour relations and state of the economy. Irrespective of these different perspectives however, numerous factors that may play a role in IT outsourcing were identified which are useful.

Finally, literature shares the notion that context is not consciously perceived. For instance, Ball and McCulloch (2001) point to a so called self-reference criterion which refers to “an unconscious referencing to one’s own environmental characteristics” (p.22). Similarly Ciborra and Lanzara (1998) stress the elusive and ‘taken-for-granted’ nature of

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<sup>1</sup> While their study takes place within an outsourcing supplier, their focus lies specifically with the phenomenon of IS design and its organizational implementation

<sup>2</sup> Formative Context is used here as an example; the same applies when considering the distributed cognition approach or situated action theory.

formative context while Leont'ev (1974) writes that “[actions] become routinized and unconscious“(as cited by Nardi, 1998).

### 3.4.2 Environmental factors adopted in the research model

As was noted in the previous chapter, different orientations on the role of environment exist ranging from an external to an internal orientation. However as the unit of analysis in this research lies with the outsourced process, both external and internal factors must be considered. Similarly, in the field of organizational change, Pettigrew and Whipp (1992) perceive the dimension of context to consist of both an internal and external elements.

The structure of the proposed conceptualization of context largely follows that of Parkhe (1991) by adopting a national context, culture and operational-level variables. Corporate culture is not adopted for two reasons: first, in keeping with the definition of outsourcing, a relatively remote customer-service provider relationship is assumed. As such interactions are expected to be relatively platonic and hence the values and ideologies associated with a corporate culture may not play a large role. This is strengthened by the observation that existing literature lacks mention of corporate culture when referring to cultural issues. Instead it typically refers to culture on a societal as opposed to a corporate level (see for instance Delen, 2005 and Krishna et al, 2004). Secondly, operational-level variables already address those operational characteristics that are a reflection of the values stemming from the corporate culture. Therefore those values that have an impact on operational variables are indirectly incorporated into the model.

The components are represented as three separate circles as they represent factors resulting from culture, national context and operational variables. However, as pointed out by several authors, there is a dependency between these factors which is illustrated as double arrows.

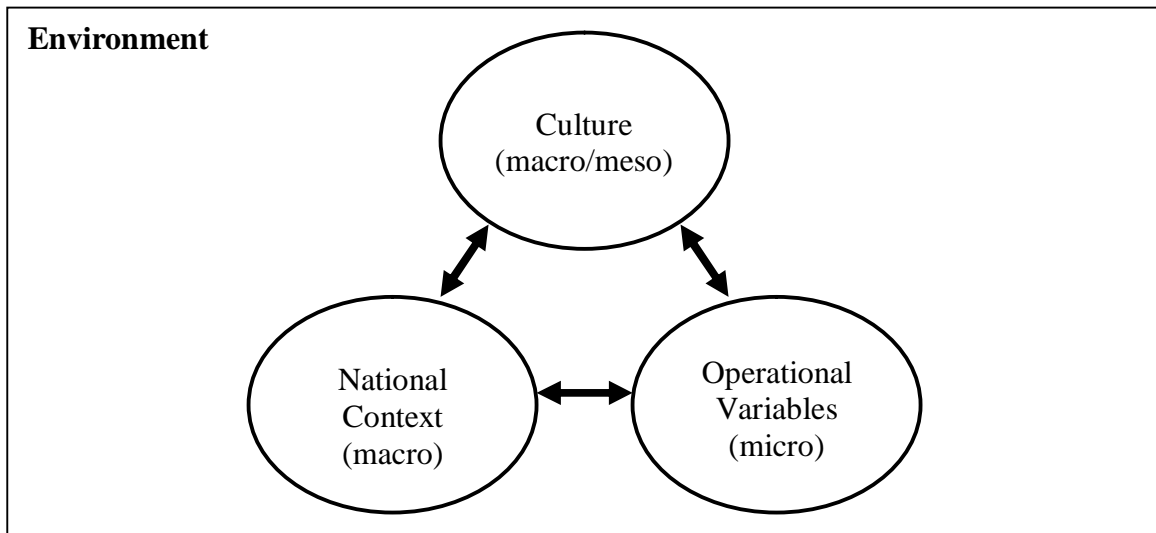


Figure 16 – Three groups of environmental factors

## 4. RESEARCH MODEL

### 4.1 Introduction

The purpose of this chapter is to combine the concepts that were introduced in the previous two chapters and to present the research model. It first discusses the phases of the IT outsourcing process and the factors that are currently associated with it. It then elaborates the environmental factors that are proposed to be addresses in the model.

### 4.2 IT Outsourcing process: Key-activities

The foundation of the research model is based on the outsourcing process and the most important factors that were identified throughout the literature review. As illustrated in section 2.7.3, the research indicates that that three distinct phases can be adopted, namely; a strategic, tactical and operational phase. The description of the outsourcing process follows the key-activities that appeared across the cited literary sources (e.g., [Franceschini and Galetto, 2001](#); [McIvor, 2005](#); [Momme, 2002](#)). The phases of the outsourcing process and its key-activities are shown in figure 17. As previously illustrated, the rudimentary decision to outsource and the generated value from outsourcing are used as the antecedent condition and outcome respectively (not shown figure below).

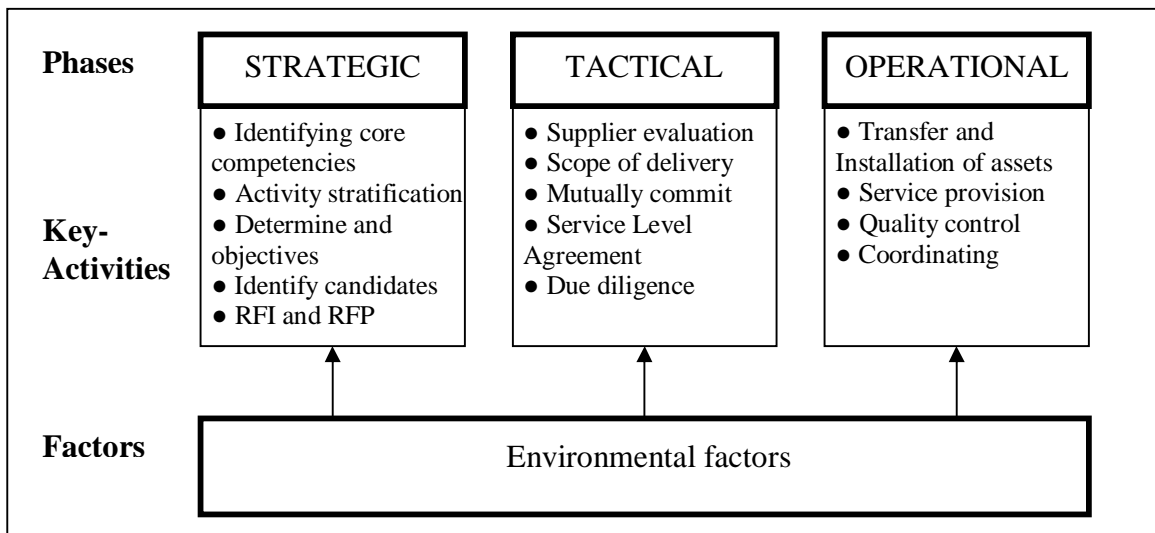


Figure 17 - IT Outsourcing process and related factors

### 4.3 Environmental factors

In accordance to the conclusion of chapter 3, the following sections elaborate on the factors that are adopted for national context, culture and operational variables. Since Parkhe (1991) provides only general definitions and scope regarding these, this sections draw largely on additional literature. Surveys and case study reports in the field of IT outsourcing are used to further illustrate why particular factors are chosen.

#### 4.3.1 National context

According to Parkhe (1991), the national context primarily consists of surrounding industry structure and institutions, government laws and regulations. This definition roughly corresponds with other perspectives reviewed in the previous chapter such as Needle (2006) and Ball and McCulloch (2006). It also has shown that the latter authors provide the most comprehensive set of variables (termed ‘forces’ in their text) as well as provide detailed descriptions of these and their relevance for international operations. As such it provides the best foundation to draw from. It adopts the following forces: (i) Legal, (ii) Labour characteristics (iii), Infrastructure, and (iv) Political stability.

##### *(i) Legal*

This relates to the legal framework that is in place in the outsourcing supplier’s national context. One of the primary concerns in the case of software development is that of laws and regulations concerning intellectual property and privacy protection. This requirement may result from company considerations (protect data against competitors) or it may be directly governed by laws in country of the outsourcer. Siemens CEO Henning Kagermann explains that their IT outsourcing activities in China are currently limited due to the country’s lack of protection of intellectual property rights (Gribnitz and Klusmann, 2006). Even when activities are limited to those that do not require protection of intellectual property, they may still contain sensitive information regarding a customers operations or data (social security records, medical data and so on) which may require protection under data privacy legislation. Furthermore, existence of laws governing intellectual property or data privacy does not necessarily mean adequate protection when implementation of these laws or enforcement is lacking (Khan, 2002).

Aside from the apparent strategic relevance of the legal framework to IT outsourcing, operational aspects have also shown to be affected due to legislation. A recent survey has shown that laws governing overtime and holidays influence productivity and introduce hidden costs (Overby, 2006). Restriction on overtime or shifting of working hours have shown to be particularly troublesome in some projects reported by Carmel and Tjia (2006). These concerned cases with impeding deadlines and cases where large time zone differences between outsourcer and supplier meant that overtime was often required for the creation of sufficient time overlap (Carmel and Tjia, 2006).

##### *(ii) Labour characteristics*

The knowledge intensive nature of IT outsourcing and the importance of a supplier’s ability of absorbing knowledge make availability of qualified human resources an indispensable prerequisite for success (Mehra, 2003; Lee, 2001; Gurak, 2003). Research by Forrester has shown that two out of five companies outsourced specifically to India for

its abundance of high quality IT workforce (Khan, 2002). However current trends are replacing the demand for traditional software development skills. Short-term market opportunities and pressures on time to market reduction is causing requirements and priorities to change on short notice and companies increasingly utilize third-party of-the-shelf (COTS) or open-source (OSS) frameworks as a software development basis. These developments change the job requirements with one requiring developers focussing on integration technologies, architectures and frameworks. Such projects require a different minded programmer and one with ‘enhanced’ or ‘creative’ software engineering expertise compared to one that does application development according to strictly defined functional spec packages or instruction-sets (Howthorne and Perry, 2005). Research by Cusumano and MacCormack (2003) has shown that IT skills found in the labour pool vary considerable between different nations. Similarly, an analysis of the Ukrainian IT sector by International Land Systems revealed that software developers have a strong orientation towards applied mathematics and physics (Zatolyuk and Allgood, 2004). To obtain fit between these characteristics and their IT development, International Land Systems only sourced that part of their project that required these skills to the Ukraine (Diamonon, 2002).

Another consideration is that of domain knowledge that is present in the labour market. This concerns both sector –and technology specific knowledge (Arora et al, 2001; Khan, 2002). Of over 100 US managers that were interviewed in a 2000 study, the majority indicated that sector specific domain knowledge in Indian software companies is low which results in these companies not being able to work with high level specifications (Arora et al, 2001). On the other hand, domain knowledge concerning technology (i.e. operating systems or programming language) was not deemed problematic as managers indicated that the ability to learn and adapt to new technological domain knowledge has shown to be far more important (Arora et al, 2001).

A final consideration related to labour characteristics is that of attrition rates. In general new developers do not immediately operate at 100% capacity in comparison to existing developers but their capacity gradually increases as knowledge transfer proceeds successfully (Carmel and Tjia, 2006; Overby, 2006). Costs associated with this ‘ramping up’ of efficiency can be considerable and high attrition rates means continuously losing part of the human resources that received this knowledge investment (Overby, 2006). A recent study illustrates that there are also strategic implications to this factors by showing that high attrition rates in India constitutes one of the biggest challenges in progressing beyond low-end software development and maintenance services (Aurora, 2001).

### *(iii) Infrastructure / Connectivity*

As governance, coordination and control is cited as important activities in outsourcing (McIvor, 2003; Khan, 2002) and software development in general, there must be an adequate infrastructure to support it. This factor refers to real or virtual infrastructure. Since virtual infrastructure is expected to be more important in daily activities, it will be phrased as connectivity.

### *(iv) Political stability*

Ball and McCulloch (2006) define political stability to exist when “a government can maintain itself in power and when fiscal, monetary, and policies are predictable and not

subject to sudden, radical changes” (p.287). This stability can be therefore considered to be an overarching factor of relevance as the characteristics of national context are strongly influenced by government policy and economic conditions. Changes of government or political leaders can put these developments on hold or even have adverse impact (e.g. through the introduction of laws that are unfavourable for foreign investment. Instability may further impact economic conditions and thereby characteristics of the labour market (e.g. through brain drain), connectivity (degree of maintenance and investment). Frequent changes to these factors require costly adjustments, lead to supply interruptions or cause delays (Khan, 2002).

**Table 7 - National context**

<b>Factor<sup>1</sup></b>	<b>Example impact on IT outsourcing risks</b>
Political stability	<ul style="list-style-type: none"> <li>● Unstable governments lead to low predictability and manageability of all other factors</li> </ul>
Legal	<ul style="list-style-type: none"> <li>● Generated Intellectual Property may not be protected</li> </ul>
- IP protection	<ul style="list-style-type: none"> <li>● Sensitive {customer, operations, financial} data may be at exposed</li> </ul>
- Privacy law	
Δ Language	<ul style="list-style-type: none"> <li>● Misunderstandings lead to delays</li> <li>● Translated specification may be incorrect or introduce ambiguity leading to miscommunications and delay</li> </ul>
Labour	<ul style="list-style-type: none"> <li>● A shortage of developers of required skill may limit scope of software development</li> </ul>
- Skill type/level	<ul style="list-style-type: none"> <li>● Complex problems cannot be solved leading to technical queries that require a response</li> </ul>
- Sector domain knowledge	<ul style="list-style-type: none"> <li>● Affects organizational learning and ability to retain knowledge</li> </ul>
- Turnover rate	
Connectivity	<ul style="list-style-type: none"> <li>● Impairing collaboration through use of e-mail video conferencing, and internal IT systems.</li> <li>● Access to remote resources such as libraries and databases may slow down or interrupt work.</li> <li>● Using internet as sources of information for keeping up-to-date with advances in technology</li> </ul>

#### 4.3.2 Culture

Culture is often cited in outsourcing literature and case studies but typically there is ambiguity concerning its distinct meaning. This research proposes the dimensions of Hofstede for operationalizing culture. Hofstede has defined culture as: *behaviours that arise from the different values that influence people’s thinking, feeling, and acting*. These differences either impact the functioning of the organization as a whole or the behaviour of individual people within the organization (Hofstede, 1981). The consequences of interaction between people of different national cultures are often dramatic and Hofstede cites the importance of these consequences in light of a firm’s international expansion. The types of international expansion that Hofstede (1991) refers to are that of Greenfield,

<sup>1</sup> Δ Indicates that the factor stems from the difference between outsourcer and supplier

acquisitions, mergers, joint ventures and strategic alliances. While omitting outsourcing, it can be expected to show equal relevance since outsourcing also requires human and organizational interaction to facilitate coordination and exchange of information (Delen, 2005), process integration (McIvor, 2005). This interaction is further compounded due to a certain degree of 'embeddedness' of the supplier (Kern and Wilcocks, 2000).

While many authors have shown criticism and pointed out constraints regarding the work of Hofstede, there is a degree of consensus over the relevance of the constructs he has introduced. Academics also agree that it is one of the few cultural studies with a strong research design, systematic data collection and a coherent underlying theory (Sondergaard, 1994). In addition, a large part of constraints cited by reviewers pertains to the scores that were determined for specific countries. In this research however the dimensions are used as constructs for operationalizing culture which implies that these scores are neither used nor measured.

*(i) Power Distance*

Describes the extent to which the less powerful members of an organization accept and expect that power is distributed unequally. Between a boss and a subordinate the power distance determines the extent to which they can influence each others behaviour. In cultures of high power distance, the resultant level of inequality is endorsed by both followers and leaders and as such followers put considerable dependence on their leaders to determine their behaviour (Hofstede, 2001). Since communication in software development exist between stakeholders on various hierarchical levels (e.g. business analysts, customer, project manager and developers) effective communication may be affected when conflicting orientation on distribution of power exist.

*(ii) Individualism*

Indicates the extent to which individuals are integrated into cohesive groups and strength of the ties between individuals. In individualist societies these ties are loose and people are expected to look after themselves and their immediate family. In collectivist societies on the other hand people are integrated into groups and group-interests are placed above that of individuals. Since working in (virtual) teams is an important characteristic of most software development projects, different orientations to group versus individual interests can lead to conflicting behaviours.

*(iii) Masculinity*

Masculine societies are more assertive and competitive while in feminine countries people are more modest and caring and leads to people being task oriented or relationship oriented respectively. In IT outsourcing these different orientations may lead to conflicting foci concerning results and performance measures and attitudes towards goal setting and goal attainment during definition project management outline. People of high masculine orientation can be expected to show a need for challenging goals that are linked to individuals and a subsequent recognition of achievement while those of feminine orientation will be more concerned with setting goals that emphasize reaching modest achievements and leave responsibilities of reaching these goals to the groups (Hofstede, 1991). A masculine orientation may also lead to a more hostile or



confrontational way in which conflict is resolved. While conflict resolution is also affected by other values such as willingness to compromise (Thomas, 1992), this research limits itself in this phase to the dimension of masculinity when addressing conflict resolution.

*(iv) Uncertainty avoidance*

Uncertainty avoidance is the extent to which members in a culture feel uncomfortable with uncertainty or unknown situations. In strong uncertainty avoidance societies there is fear in ambiguous situations and unfamiliarity. By contrast, weak uncertainty avoidance manifests in acceptance of ambiguous situations and risks is easily taken (Hofstede, 1983). The relevance of this can be directly deduced from research by Hazzan and Dubinsky (2005) where it was shown that cultures of high uncertainty avoidance prefer a more ‘tight’ methodology while those of low uncertainty avoidance prefer one that has a less ‘tight’ approach. The tightness can be reflected in amount of procedures, degree of detail of procedures as well as the use of standards (Hazzan and Dubinsky, 2005).

*(v) Time orientation*

As mentioned by a number of authors, this refers to a difference in the way that people approach time (Hofstede, 1994; Trompenaars, 1994; Parkhe, 1991; Perlitz and Seger, 2004; Koivisto, 1993). A general division can be adopted by identifying cultures with a linear vs. circular (Parkhe, 1991; Koivisto, 1993) or sequential vs. a synchronic (Trompenaars, 1994) orientation towards time. Those with a linear orientation follow the clock like an arrow and punctuality regarding deadlines and meetings is highly valued. Furthermore there is a willingness to delay short term gains in favour for a future gratification (Parkhe, 1991). A circular orientation sees time as a general framework in which tasks are to be completed. More value is placed on the here and now and satisfying current needs is more important than those in a distant future. People can also apply different time orientations depending on the circumstances. For instance contemporary Japan adopts linear time in daily routines but for long term planning, a cyclic approach to time (or *Makimono* time) is adopted (Koivisto, 1993). Since time takes a specifically important place in IT outsourcing in the form of project management, it can be expected that differences in regards to how time is valued is an important factor.

**Table 8 – Dimensions of culture** (based on Hofstede, 1994)

<b>Factor<sup>1</sup></b>	<b>Example impact on IT outsourcing</b>
Δ Power distance	<ul style="list-style-type: none"> <li>● Prevent people from asking questions, talking about problems, warning about unfeasible deadlines or proposing alternatives to instructions from superiors.</li> </ul>
Δ Collectivism	<ul style="list-style-type: none"> <li>● Different preferred levels of group cohesion between employees of different sites may hamper effective working relations</li> <li>● Opposing perception of responsibility for errors or bugs</li> </ul>
Δ Masculinity	<ul style="list-style-type: none"> <li>● Differences in appreciation for overall project performance</li> </ul>

<sup>1</sup> Δ indicates that the factor concerns the distance in how supplier and outsourcer score on this dimension



	vs. individual.
	<ul style="list-style-type: none"> <li>• Different tenacity in solving problems</li> </ul>
$\Delta$ Uncertainty avoidance	<ul style="list-style-type: none"> <li>• Rigor of testing procedures and at what level (validation, code review or unit/integration)</li> <li>• Lack of flexibility due to difficulty in adapting project management (deadlines/timeframes), or specification contents.</li> </ul>
$\Delta$ Time Orientation	<ul style="list-style-type: none"> <li>• Adherence to project management schedules and planning may vary</li> </ul>

#### 4.3.3 Operational level variables

Douma (1997) describes operational fit to exist when there is alignment of business processes and activities in which there is co-operation. Although he does not elaborate on what constitutes operational fit, expert interviews show that operational fit is perceived to be as important to alliance longevity as cultural / human fit and even more important than the organizational design of the alliance itself (Douma, 1997; p.259). Finally, as indicated by Harmsen (2007) in distributed software development, a technology difference between outsourcer and supplier introduces operating difficulties. Based on these insights, the factors adopted in the research model are: (i) technology, (ii) Software methodology, and (iii) maturity of the software process.

##### *(i) Technology*

Flawless software cannot be guaranteed when technological differences exist between outsourcer and supplier. This pertains to technology used in each of the life cycle phases. Even small configuration differences such as variations in the compilation software can result unexpected bugs in a client's local system that don't appear in that of the supplier. This is especially apparent when a supplier works for more than one client (Harmsen, 2007).

##### *(ii) Software Methodology*

From the eight disciplines of the software development life cycle presented in Appendix C, two types of variations can be identified: firstly, the specific activities contained within the eight individual processes may vary. For instance differences related to project management (i.e. measures, metrics, tracking and control), implementation (i.e. programming language, control structures, data-types, and coding style), and design (notation standard, modelling methods, degree of formality). Secondly, fundamental differences exist between methodologies that, while using the eight disciplines described above, result in different ways in which these disciplines are used. Some have a more iterative approach that allows for changes in requirements after implementation is underway (examples are 'Extreme Programming' or Agile development) while others demand that requirements analysis, specifications and design is completed and perfected before implementation starts (such as the Waterfall model and 'Big Design Up Front').

##### *(iii) Software Process Maturity*

Aside from the differences in methods adopted for practicing software engineering, organizations vary in their degree of maturity in applying methods. This varies between

firms that rigorously follow methodology procedures versus firms that adopt more pragmatic approaches. While process maturity is increasingly addressed in outsourcing literature using the concept of CMM, it typically fails to describe different levels of maturity between outsourcer and supplier as a factor contributing to problems, let alone explain its influence. For instance Carmel and Tjia (2005) only emphasizes the value of CMM in evaluating supplier capabilities while Ross and Beath (2006) stress the advantages of accessing providers with levels of maturity that are superior compared to the outsourcer. However, only a few authors indicate that different degrees of maturity may also be an important factor that contributes to problems in outsourcing projects. For instance Overby (2004) states that for efficient cooperation, the offshore provider should remain within two CMM levels of the outsourcing firm in order to prevent substantial differences in process-flows. Similarly Dubey (2003) (as cited by Amberg and Wiener, 2005) warns that different maturity levels may result in a great deal of expenses in order to integrate the interface between outsourcer and supplier.

**Table 9 – Operational level variables**

<b>Factor<sup>1</sup></b>	<b>Example impact on IT outsourcing</b>
Δ Technology	<ul style="list-style-type: none"> <li>• Testing is unreliable; what works on site A may not on site B</li> </ul>
Δ Software process	<ul style="list-style-type: none"> <li>• Differences in process flows increases operational idiosyncrasies that need to be overcome</li> </ul>
Δ Process maturity	<ul style="list-style-type: none"> <li>• additional expenses are expected for successfully integrating software processes</li> </ul>

#### **4.4 Conceptual research model**

The complete conceptual research model can now be presented using the input from the previous section and is illustrated in figure 18 below. Currently the model does not discriminate factors based on their relative importance in specific stages. It is found that there is too limited literature to support this. Instead the case study protocol expressly addresses that this is a specific issue that needs to be explored.

<sup>1</sup> Δ Indicates that the factor stems from the degree of difference between outsourcer and supplier

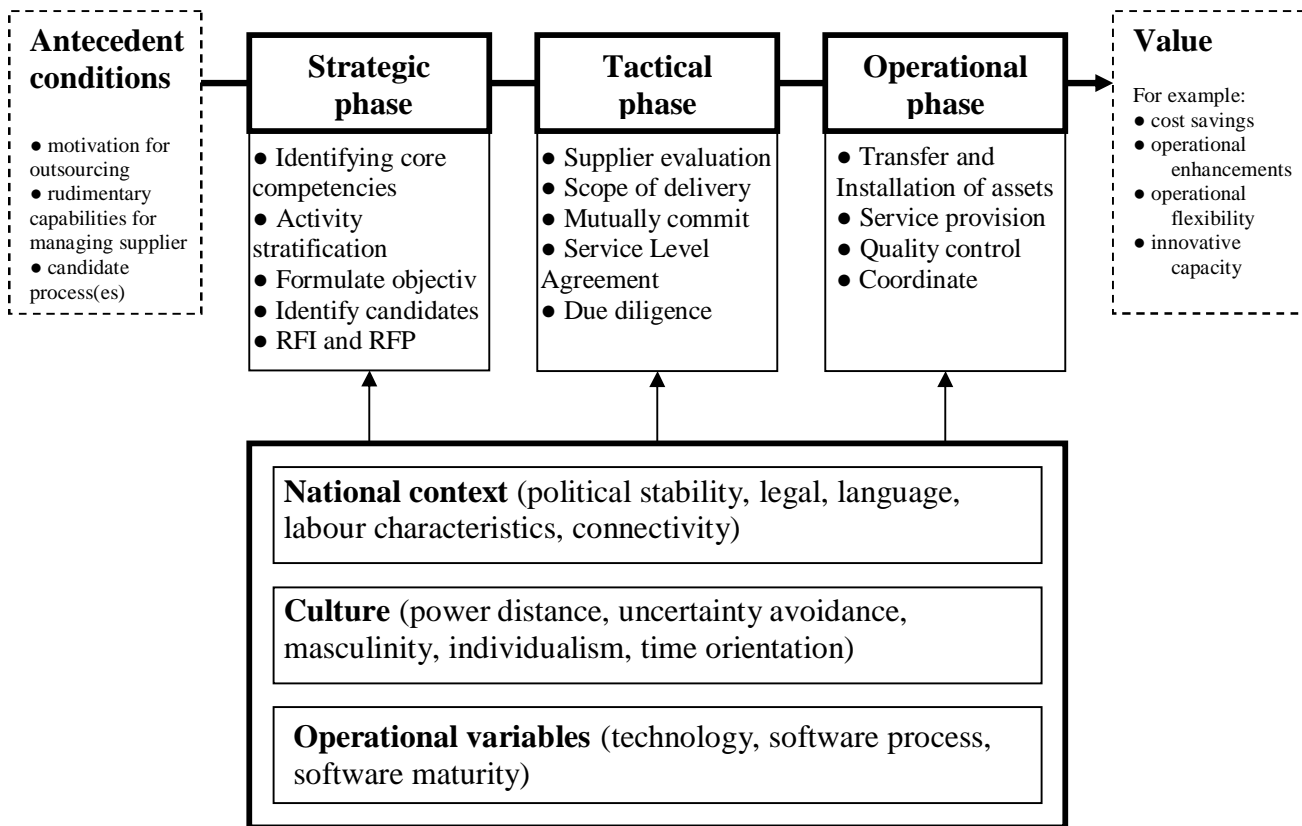


Figure 18 - Theoretical research model

## 4.5 Pilot Case study protocol

This section describes three main areas of interest related to the research protocol, namely; the pilot study issues, case selection criteria, and the pilot study questions (questions posed to the researcher). The complete protocol is presented in Appendix A and may largely be applied for future case studies as well. Adjustments to this protocol will be proposed in chapter 6.

### 4.5.1 Pilot study Issues

The formulated research model is developed using theories that originate from literature that is related to the research topic. For instance the foundation of the model is largely based on general outsourcing literature (i.e. not specific to IT), while international business, marketing and organizational theory was used to propose environmental factors. Therefore the issue that the pilot case study addresses concerns the accuracy and comprehensiveness of the research model by determining: 1) the extend that the developed research model appropriately describes the IT outsourcing phenomenon, 2) to assess whether the identified factors are relevant, and 3) to explore new insights that justify additions to the initial research model.

One of the challenges in analysing data is differentiation between experienced problems that related to environmental factors and other factors as presented in table 5. For this reason it is important that the researcher is aware of these factors.

#### 4.5.2 Case selection criteria

Based on the case study issues described in the previous section, the following characteristics were important in selecting a suitable (pilot) case. The selected case study largely meets these requirements.

Relevance: The outsourcing arrangement of selected case should conform to the definition provided in section 2.2.2. This implies that responsibility (or ‘ownership’) of at least one of the phase of the software life cycle (as described in Appendix C) lies with the supplier and that the arrangement is operational (i.e. service provision is taking place)

Diversity between outsourcer and supplier: As indicated in section 4.3, environmental factors are largely caused due to differences between outsourcer and supplier. Therefore, in order to find factors relevant to the research, a selection must be based on expected diversity between supplier and outsourcer.

Accessibility: As indicated in the previous section, problems need to be analyzed in order to find information related to important factors. This means that the case study company must be willing to share information and that respondents can speak freely.

#### 4.5.3 Pilot case study questions

The following questions are posed to the researcher in order to provide guidance to the researcher during the data collection. They are therefore not to be asked directly to respondents. The questions are primarily focused on identifying areas of the model that are insufficient and need elaboration. While the primary purpose of the pilot study is to explore the relevance and appropriateness of the selected factors, it is also used to test whether the research model is convenient for addressing influential factors.

*The source for providing answers to these questions will be software developers and project managers (for both these will contain respondents at senior and junior levels).*

**The first questions relate to the background of the company and specifically to the ‘process ownership’. This is important to verify that indeed the case study concerns outsourcing and not a joint venture.**

- What is the task of the supplier? What service is delivered and what is the input?
- What is the role of the outsourcer in execution the tasks that turn the input into the service delivery?
- What interaction is taking place and what is its nature (additional input, supportive, answering questions)?

**These questions are focussed on identifying problems and analyzing these in order to possibly arrive at the factors posed in the initial research model.**

- What are the main risks and problems faced in outsourced operations?
- What environmental factors can be inferred from these?
  - What specific activity was influenced by it?
  - How did the factor influence this activity?

How does the degree of influence compare to other factors?

- To what extent are these consistent with the factors defined in the initial research model?
- Which mitigation mechanisms for coping with a particular (set of) factor(s) can be identified?
- Does any identified mitigation mechanism fall in either of the two proposed categories?

**These questions relate to the appropriateness of adopting a process model for addressing influential factors.**

- Is a process model appropriate for identifying factors related to problems?
- Are the groups of activities in the model consistent with the practice?
- Are certain factors particularly important in specific phases of the implementation process?
- What phases are particularly influenced by which (set of) factor (s)?

**The following questions also need to be kept in mind in order to determine whether the research model is sufficiently operationalized.**

- To what extent are the elements of the research model measurable?
- Does the perspective of the supplier provide sufficient and relevant data concerning the research model?



## 5. Pilot case study

### 5.1 Introduction

This chapter describes the findings of the pilot case study that was performed in Sri Lanka over a 5 week period. Because the pilot study showed some unexpected insights concerning the phases of the outsourcing process upon which the research model is based, it describes these findings first before describing findings related to environmental factors. This chapter first describes the background of the case and concludes with a summary of the findings and a conclusion.

### 5.2 Background

The case study was performed at the Sri Lankan offshore software development office of a Swedish multinational that sells enterprise resource planning and asset management systems for medium and large enterprises in a wide range of industries and is a leading global business applications supplier with sales in 45 countries and more than 600,000 users across seven key vertical sectors: aerospace & defence; automotive; high-tech; industrial manufacturing; process industries; construction, contracting, service & facilities management; and utilities & telecom. The offshore office in Sri Lanka started operations eight years ago doing mainly customer support, and maintenance. In 2001 it started with the development of ERP applications for several business units. The offshore office consists of seven departments. Each of these is specialised in development of ERP applications for different industry segments. These are Financial, Human Resources, Sales & Service, Engineering, Manufacturing, Distribution and Maintenance. Each department is responsible for a certain industry segment and consists of a number of development teams each assigned to a specific business unit. The respondents are part of the 'service & facilities management' department which is among the three biggest within the offshore office with roughly 130 employees. A total of 12 respondents are sampled from teams responsible for business units in the US, UK, Netherlands, Germany, and Japan. Respondents include the project manager for each of the country teams and one additional developer from each team. The following figure illustrates this.

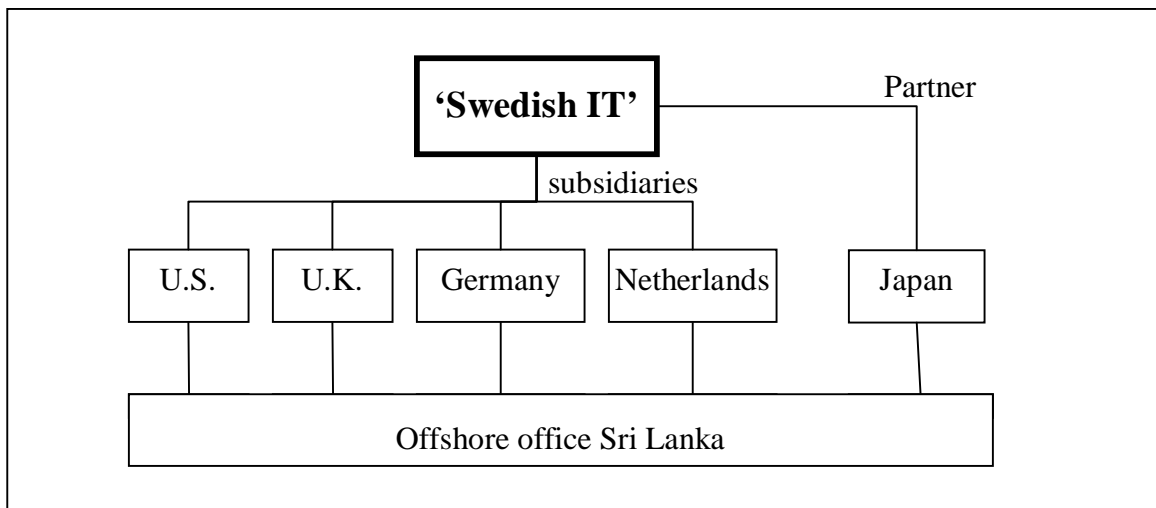


Figure 19 - Simplified organizational chart of case study

### 5.2.1 Process ownership

Figure 19 shows the ownership of the IT development activities that are relevant to the outsourcing relationships. The activities of which the offshore office is responsible are the software design and implementation based on the functional specification provide by foreign offices. Before delivery to a foreign office the software is tested. The specification writing activity lies mainly with the foreign office however the offshore office is involved and partially responsible for its content. In line with the definition provided in section 2.2.2 it can be concluded that the offshore office is indeed solely responsible for the software design and implementation.

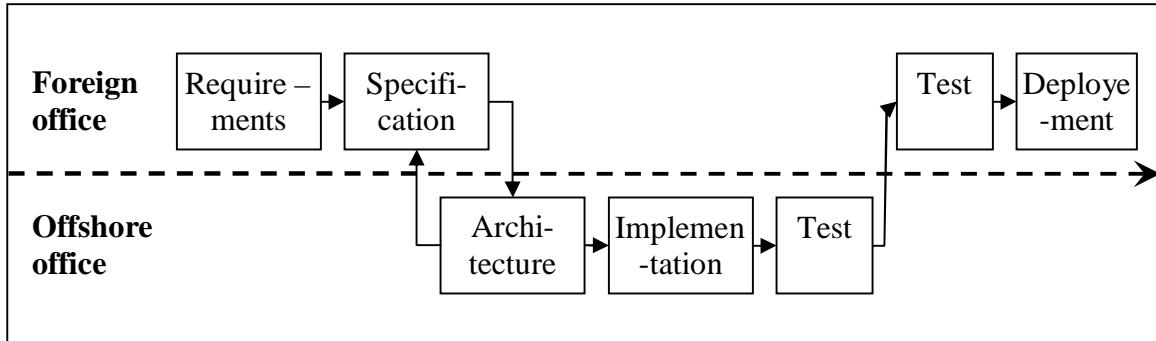


Figure 20 – ‘Ownership’ phases of the software development life cycle

### 5.3 Identified outsourcing phases

While the case study targeted the operational phase of the research model (as indicated in section 4.5.3), it was found that in fact three phases were identified with distinct activities; first, activities related to the transferral of operations to the offshore office. This mainly involved training developers of the supplier, transferring required software to the supplier, and aligning the software methodology. This was taking place in the first 9-12 months after the start of operations. This was followed by reliable operations that gradually gained efficiency and effectiveness to a sustained level that is maintained until the current period. The last three years were mainly characterized by the addition of several global subsidiaries of the outsourcer that began outsourcing their development operations to the offshore office. Around the time that the case study was held, a third set of activities had been initiated aimed at improving existing procedures, extending the scope of responsibilities and updating the technologies. Table 10 shows the three groups of activities that were identified and provides a rough time indication.

Table 10 - Three distinct sets of activities

Activity set	Time period*	Description
I	0-1	Transferring operations to the offshore office. Mainly training of developers and obtaining sufficient knowledge for reliable and independent work.
II	1-7	Ramping up operations to sustained level and provision of service to outsourcer. Also involved a gradual increasing of volume of work.



\* (year since starting operations)

## 5.4 Environmental factors

The following three sections describe the findings related to the environmental factors that were identified during the pilot study. Some factors were identified that were not part of the research model which is indicated accordingly. The relevance of the identified contextual factors is described based on the influence they had on specific activities. These include those activities described in the previous section since it quickly became apparent that the activities described in the theoretical research model were insufficient.

### 5.4.1 National context

The following factors belonging to national context were found to have influence activities related to operations based on problems that were indicated.

**Table 11 - Findings national context factors**

<b>Factor</b>	<b>Influence</b>
Political instability	<ul style="list-style-type: none"> <li>● Reduces productivity, limits physical access to supplier</li> </ul>
Economic condition in Sri Lanka *	<ul style="list-style-type: none"> <li>● key-personnel is increasingly pursuing job opportunities abroad as they see better economic future there. This is causing extensive brain-drain.</li> </ul>
Legal	<ul style="list-style-type: none"> <li>● Public holidays reduce productivity and interruptions of supply</li> </ul>
Language	<ul style="list-style-type: none"> <li>● Causes miscommunications, delays and translators are required which increases costs</li> </ul>
Labour	
<i>Skills</i>	<ul style="list-style-type: none"> <li>● Specification documents need to include very specific implementation related instructions causing additional time for writing them. It also limits the ability of more creative programming.</li> </ul>
<i>Commitment</i> *	<ul style="list-style-type: none"> <li>● Commitment is low which reduces ability to increase skill level of developers. As a result work the ability to increase scope of responsibilities is limited and offshore office contributes little in terms of innovation</li> </ul>
<i>Domain knowledge</i>	<ul style="list-style-type: none"> <li>● Additional time and expenses due to necessity for more elaborate specification documentation as business terms cannot be used</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>● Limited supply caused high costs which limited degree of interaction and, indirectly growth of the operations</li> </ul>

\* constitutes new finding

#### Political instability

Sri Lanka has been engaged in a civil war since 1984 and occasional fighting is taking place within the capitol city where the offshore office is located. This is currently causing

interferences with work since employees are often going home earlier citing that it is better from a security point of view to travel before traffic peak times. During such times work is not considered a priority and work gets delayed. Furthermore, travelling in the city after 22:00 is discouraged. As a result developers typically are not willing to stay at the office in the late hours. These hours (between 17:00 and 22:00) coincide roughly with the middle of the working day in the US and the end of the working day in Europe. Visiting the offshore site by foreigners is also increasingly difficult as Sri Lanka has a poor safety image and some governments advise citizens not to travel to Sri Lanka. A manager from the UK had been there for three weeks earlier in the year but had since left. At the time of the study no foreigners were present.

### Economic condition

The economic condition in Sri Lanka is poor compared to surrounding nations such as Vietnam, Thailand and India. Highly skilled people are increasingly moving abroad for better wages and to improve their living conditions. Especially the Middle East was cited as providing attractive job opportunities. This is creating a strong brain drain within the offshore firm which greatly affects improving of operations and also reduces the commitment of key employees.

### Legal

Sri Lanka has one of the highest numbers of public holidays in the world. Part of this has to do with a number of Buddhist celebrations throughout the year. Based on astrology, these days are scattered throughout the year and often fall in the middle of a working week. Employees are entitled to these days off by law and typically feel strongly entitled to them. On these days no work is done, although some employees do spend their day at the office doing games or surfing the web. Employees also often take an additional Friday off when such a holiday falls on a Thursday.

### Language

The English language is not mastered at both German and Japanese offices. While the Germans can converse in English to some extent during conference meetings or phone calls, the Japanese have a project manager present during conference meetings that translates for the other participants. All written documents are done in their respective native language and translators are used to translate the text to English. For the Japanese this is done at the Sri Lankan office while the German office has its own translators in Germany. Also translations have been made through the use of a free online translation application with very limited success. Especially for specifications, translations lead to many interpretation errors. This is mainly caused by translators not having any technical knowledge causing additional interpretation errors that a developer would not have ended up with had he read it directly in English. This is causing many delays and rework due to

### *Coping mechanism*

The project managers of both the Japanese and the German team plan to develop training manuals and language courses to give translators a more technical understanding of the software applications. The project manager of the German team indicated plans to get German translators into the Sri Lankan office which

allows them to provide them technical training. There were no plans for trying to improve the English language skills of employees at the offices in Germany and Japan.

#### Labour -> skills

A recently joined developer stated that IT education in Sri Lanka has high standards but is not preparing students to think creatively. Instead programmers are taught to write algorithms based on technically oriented specifications. Several respondents indicate that specifications contain such specific instructions that they completely remove areas of thought open for developers. However most project managers believe these details are a necessity for developers to perform their jobs. Appendix A shows an example specification document that confirms that they contain very specific instructions relating to the implementation and screen references are shown for additional illustration.

#### Labour -> commitment

The commitment of several employees was found to be a limited. For instance it was found that most employees had little personal interest in discussing software development technologies, programming languages or topics concerning new types of software methodologies such as extreme programming, agile software development. When exploring this further, two observations were made. First several respondents indicated that they mostly studied IT due to the good job prospects and relatively high salaries. It was also found that several developers entered the labour market with a bachelor degree in order to complete various management and business studies<sup>1</sup> in the evening hours and weekends. Two of the respondents indicated that they did not want to remain software programmers for the long term and that this attitude was relatively common. Motivation for working at the firm was mostly due to the good working conditions and working hours while the work itself was often valued on third place.

Second, in Sri Lankan society family is highly valued and generally takes a substantial commitment of younger generations around the age of 25. This mainly involves securing financial stability and taking care of elderly family members. Additionally, particularly married women of this generation are considered responsible for activities such as cooking, raising children, and taking care of housework<sup>2</sup>. Around half of the employees of the offshore were women and the majority of respondents indicated that most women at the company were already married or were planning to do so in the near future. Of the 100 employees at the department where the study was performed, six had their marriage at the time of study.

Project managers do not see limited the limited commitment as problematic. Instead they indicate that they prefer to focus on improving efficiency of current activities as opposed to a widening of the current activities.

#### Labour -> domain knowledge

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<sup>1</sup> Advanced level studies in Sri Lanka are to be compared with master courses in Europe and the US

<sup>2</sup> Due to the use of servants this often means overseeing and coordinating these activities as opposed to actually performing them.

During the first few projects, specification documents were not understood by developers. While this was caused by several factors it was found that the lack of knowledge concerning business concepts was a major factor. One of the developers explained that specialists often only needed a few sentences to explain customer requirements when it would actually require many pages if it included all the details that were assumed to be known.

### Connectivity

There is a great dependence on the corporate information system that facilitates interaction between worldwide offices. As a result, development work (writing code, testing, compiling and so on) requires a connection with the main office in Sweden for access to libraries, reference materials and code repositories. During the initial years of operation this connection has had poor response times and was often unavailable which completely stopped or delayed work. Also the use of phone conferencing was limited during times of peak internet usage and there were cost considerations in using bandwidth that put boundaries on frequency of use (i.e. only used for discussing more complex issues).

Reliability and availability of electricity is also limited and electricity blackouts are common due to the poor electricity infrastructure and pre-emptive power disconnects due to shortages in power supply. The latter is especially frequent during the hotter periods of the year when the hydro power plants cannot produce enough electricity due to droughts.

#### *Coping mechanism*

Over the last four to six years huge improvements have been seen in terms of connectivity due to substantial investments by the government making these problems obsolete. However, the current volume of operations would not be possible had it not been for these improvements since required bandwidth usage would have been far too costly and capacity would simply not have been sufficient. Problems with electricity blackouts are addressed by the use of large UPS systems.

### **5.4.2 Culture**

When analysing problems experienced at in operations, differences in power distance, masculinity and uncertainty avoidance were found to be of significant influence.

**Table 12 - Findings cultural factors**

<b>Factor</b>	<b>Influence</b>
Power Distance	<ul style="list-style-type: none"> <li>● Hampered communication regarding insufficient understanding about client requirements resulting in time consuming rework and not reaching deadlines</li> </ul>
Masculinity	<ul style="list-style-type: none"> <li>● Impacts the health of the relationship and problems are resolved slower as a result.</li> </ul>
Uncertainty Avoidance	<ul style="list-style-type: none"> <li>● Development lead time is longer as schedules are adopted to prevent stress and uncertainties regarding deadlines</li> <li>● Risk averse attitude limits willingness to extend the scope</li> </ul>

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of responsibilities, introduce new technologies, or build domain knowledge

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### Power Distance

All project managers and senior developers were aware of the fact that the high power distance that is characteristic within Sri Lankan organizations, inhibited interaction between stakeholders from foreign offices where power distance was much smaller. One project manager explained that in the past developers were often reluctant to raise questions during meetings with stakeholders or were not willing to make suggestions. This had often resulted in insufficient clarity concerning client requirements among developers which in turn led to incorrect software. These mistakes typically required time consuming rework that led to missing agreed deadlines and resentment from foreign offices, who often complained that questions should have been raised earlier.

#### *Coping mechanism*

Importance of open and unrestricted lines of communication is constantly stressed and is extended not only to communication with the outsourcer (e.g. business analysts or clients) but also within departments. For instance the concept of 'boss' is not used within the software development departments and the physical layout of the office consist of one large open space taking up 80% of the entire floor on which the office is located. Developers (both senior and junior alike) and project managers are seated on groups of four to six desks and seating arrangements are unrelated to seniority level. There are no separating walls or 'cubicles' and the only closed offices are conferencing and meeting rooms. One project manager indicated that most newly appointed developers required a 'change in attitude' concerning communication with stakeholders during conference meetings. While pointing out that "*Some people just don't show compatible attitudes in the long term*" he indicated that a change in attitude was usually achieved by pointing out they needed to speak openly about concerns and questions they faced and not be afraid to ask even stupid questions. This was also indicated by a developer that recently joined that indicated that she still found it difficult to adjust her attitude and that the project manager of her team had encouraged her to try and be more involved during discussions and ask more questions during conference meetings with BA's and clients. Developer's 'correct' attitudes are also included in yearly evaluations and consist of 1/3 of evaluation criteria.

### Masculinity

Developers indicated being occasionally confronted by employees at foreign offices in a very direct manner when issues arose. Particularly the Dutch, German and US offices were described by developers on these teams as sometimes being quite '*tough and strict*' and '*sometimes a little bit harsh*'. While not perceived as pleasant this was not seen as a major problem. In contrast, the degree of assertiveness at the American office has demonstrated a particularly strong adverse affect on resolving problems effectively and leading to a poor relationship. In cases of problems with delivered software, American BA's were perceived as looking to place blame and express anger towards individual developers and project managers. According to one project manager this often occurred

without sufficient justification. This frequently caused emotional distress and deteriorated the overall relationship.

#### *Coping mechanism*

It was communicated to all foreign offices that described behaviour and confrontation of individual developers is not accepted and that issues should always be “*addressed in a friendly manner*”<sup>1</sup>. Names of developers that coded certain segments within the software were removed making it impossible to traced back mistakes to individual developers, forcing issues to be addressed with the project manager. Assertive behaviour still takes place but the project manager for the Dutch office stated “*I guess it is part of my job to take some hits for the team*”. The US team has taken further steps by minimizing informal communications and developers were also instructed never to discuss problems individually. It was believed that documenting interactions largely prevented conflicts while resolving those that did occur quicker. The UK project manager stated that they are also adopting this strategy but that the specification process is still ‘*a little bit more informal*’ because operations with the UK just started.

#### Uncertainty Avoidance

An adverse feeling towards uncertainties was found regarding two issues. First, several project managers indicated that there was often pressure from foreign offices who felt that unreasonable amounts of time were scheduled and they often asked justification for schedules. Project managers felt that their main responsibility was to make sure that the scheduled work can get done within the deadlines that are set. Scheduling is based on 8 hour work days and no overtime is ‘risky’. The project managers of both the UK team and Dutch team said that this is done to ensure deadlines can be met and to create a “*relaxed working environment*” while maintaining their nine to five commitment that employees are find very important. In addition to this practice, project managers always scheduled an additional 20% worth of extra time on top of the initial prediction. Criticism is not well received and the project manager of the US team believed that longer working hours, reduction of days off or forcing tighter schedules would only lead to less satisfied employees who would become less productive as a result.

A second ‘risk averse’ attitude was found when enquiring about respondents’ willingness to extend the scope of their responsibilities, introduce new technologies, or increase their domain knowledge which could facilitate shorter specification documents that in turn would reduce time spend on these by foreign offices. Especially senior developers and project managers showed no desirability in these areas. Instead they indicated a preference for improving the efficiency of existing procedures and to increase standardization of procedures to prevent conflicts or unexpected issues.

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<sup>1</sup> How this is communicated to other office is not entirely clear however this appears to have been done through the main office. For instance one senior developer said ‘We told them that [described behavior] is not acceptable’. The term ‘We’ was often used when referring to the main office and offshore office jointly.

### 5.4.3 Operational variables

Similar to the previous section, these factors are attributed to differences between outsourcer and supplier.

**Table 13 - Findings operational variables**

<b>Factor</b>	<b>Influence</b>
Software methodology	● Introduced additional expensive and deteriorated relationship
Software process maturity	● Introduced additional expensive and deteriorated relationship

#### Software methodology

For the first few software development projects (done for the US office), only a rudimentary outline of requirements were provided in the initial phases of a new project. This left many requirement gaps in the initial specification document. Developers were expected to produce ‘preliminary’ software based on known requirements while requirements that had yet to be agreed upon with customer would be communicated while the project was ongoing. This iterative approach was incompatible with the methods adopted at offshore office which relied on complete requirements and specifications up front. Two senior respondents described that it was felt that the approach taken by US office was ‘unprofessional’. In response to these concerns to the US office, BA’s had explained that their approach to requirements elicitation simply did not allow for the writing of complete specifications at the start of projects. The main cited reason was that they lacked the required timeframe to finish the entire elicitation process with clients before having to move on to the next one.

#### *Coping mechanism*

Ultimately more rigorous requirement elicitation early on in projects is adopted by the US office in order to define complete specifications. Some projects were also divided in smaller, sub-projects so that some requirements were added to the earlier version of the software at a later stage. Whether the same issues would have been encountered with other offices is not known as this mechanism was applied to all subsequent relationships.

#### Software process maturity

The specification documentation used by the US office in pre-offshore times quickly proved to be insufficient and many conferencing sessions were needed to obtain a sufficient degree of understandability. This was problematic as conferencing meetings were expensive due to expensive bandwidth and time consuming. They were also categorized as having a negative atmosphere as foreign office felt they were wasting valuable time. While respondents explained that these problems also related to lack of domain knowledge among developers, they also believed that the software process used at the US office was far too informal and not according to a professional standard. The informal style adopted by developers in the US also led to software code that did not

contain use sufficient documentation, a standard syntax, or a clear and consistent coding style.

#### *Coping mechanism*

The maturity of software methodology was increased such as through the introduction of standards for code development, software structure, and documentation. A standard for specification writing has also been introduced concerning its structure and writing style to ensure that 'understandable' text is used (see Appendix ..). For instance the section that deals specifically with the definition of business concepts to their application logic counterparts illustrates the type of descriptions used throughout the document.

### **5.5 Conclusions pilot study**

Several conclusions can be drawn based on the pilot study. First, a number of environmental factors that were proposed in the initial research model were indeed found to be of significant relevance. Secondly, additional conclusion can be formulated related to 1) additional environmental factors that were found, 2) inaccuracy of the phases in the research model, and 3) operationlization of the research.

#### Environmental factors

First, certain factors were found to be inappropriate and the findings show that additional factors had significant influence on problems and issues faced.

- It was found that the commitment of the labour force and Sri Lanka's economic condition were of significant influence. These factors were not included in the research model.
- Findings showed that cultural differences concerning orientations towards time and degree of individualism/collectivism were not a factor. Technology differences also did not constitute a factor but this could be explained based on characteristics of the selected case.

#### Inaccuracies process description

The case study identified three distinct groups of activities that were 1) influenced by different environmental factors, and 2) were taking place in three separate time periods. This leads to the conclusion that the process description upon which the initial research model is based is insufficiently detailed to adequately describe the problems that were experienced and the role of environmental factors in relation to these. For instance the labour skill level provides no limitation on operations as they currently take place, but the described lack of skill has shown to limit the expansion of operational responsibilities as well as limit efforts to introduce new technologies. Similarly, transferring outsourced operations were limited due to differences in software methodologies but this factor was not found to be relevant in ongoing operations. Similar issues were found amongst other factors as illustrated in the table below.



**Table 14 – Conflicting causality when applying existing framework**

<b>Factor</b>	<b>Conflicting causality</b>
Labour (skill)	Existing type and level of skill were sufficient for transferring operations but affects ongoing operations as well as limit operational enhancements
Economic condition	Not shown to be much of an issue in first year, limited influence for ongoing operations, but impedes enhancements due to ‘brain drain’ of key personnel
Power Distance	Not relevant in transferring operations as this primarily concerned absorbing of knowledge, however an apparent factor in ongoing operations
Uncertainty Avoidance	Particularly a factor that limited efforts for improving existing operations and introducing new technology
Software process maturity	Carried major implications in transferring operations but were resolved before moving to next phase.
Software methodology	Affects ongoing operations but mainly complicated the transition to ongoing operations

Although the outsourcing arrangement of the case study was to provide cost efficiencies for the outsourcer, enhancing operations were still actively pursued. When the expected value from outsourcing is to enhance operations of the outsourcer, it can be expected that these activities are equally, if not more strongly present as the outsourcer in this case explicitly expects these enhancements. It can therefore be conclude that all three identified sets of activities (as presented in table 10) are expected to be relevant for other cases as well.

#### Operationalization

Measuring certain elements of the research model were unreliable and shows that more efforts are required in the operationalization of the research.

- When discussing the quality of developed software, ‘low’ quality was typically mentioned in relation to delays or miscommunications that had occurred during the development phase. It was further found that it was difficult to objectively determine ‘Quality’ of the delivered service/product. The complexity of the programming code and lack of detailed knowledge concerning it provided no basis to make any determination on the quality through observation.
- Although indications were that productivity was an important factor, it was difficult to objectively measure this based on subjective perceptions of respondents.



## 6. Adjusted research model

### 6.1 Introduction

This chapter addresses the conclusions of the previous chapter by proposing adjustments to the initial research model. The proposed adjustments resolve the constraints of the initial research model as well as add the insights that were gained through the pilot study. The changes proposed include extending the key-activities that are part of the outsource implementation process and changes to the adopted factors.

### 6.2 Outsourcing implementation process

The observation made in the previous chapter that the identified sets of activities (see table 10) are influenced by different environmental factors provides the primary argumentation for adjusting the initial research model to differentiate between these sets of key-activities. Furthermore, it was concluded in section 5.7 that the three sets of activities can be considered of a general nature.

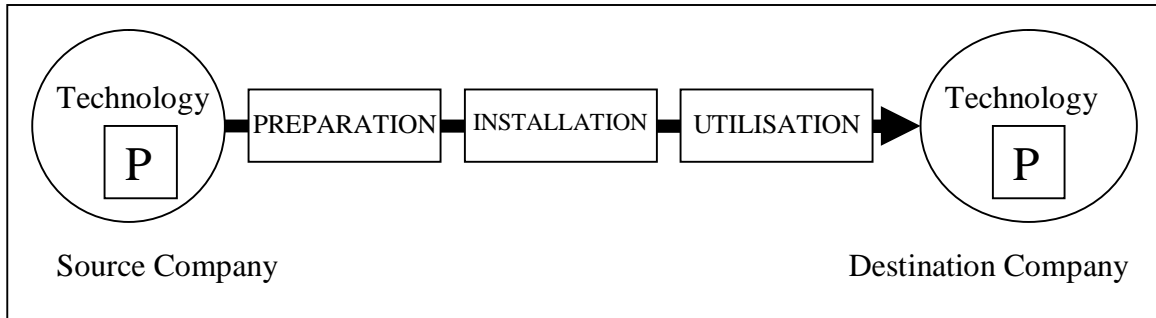
Before adjustments to the initial research model were considered, two activities were undertaken. First, the outsourcing literature that was gathered was re-visited to see if any insights were missed. This has resulted in limited additional insights that could be used to propose an alternative description of the current operational phase in the initial research model. While some sources discuss issues relating to the ramping up operations and learning curves (see [Kobayashi-Hillary, 2004](#)), state of ‘ongoingness’ of operations (see [Kern and Wilcocks, 2000](#)), managing the transition of the outsourced processes to suppliers ([Carmel and Beulen, 2005](#)), and the ensuring continuous improvement through co-management ([Cohen and Young, 2006](#)) they do not provide sufficiently detailed insights that can be used to related these activities as being part of a specific phase in an implementation process. While Momme (2002) explicitly states that his process model focuses on both a strategic as well as an operations perspective (p.), the phases he proposes do not provide the insights needed to ‘make sense’ of the case study findings.

Secondly, specific searches for the term ‘outsource’ with keywords such as ‘transfer’, ‘supplier OR vendor learning’, ‘operational improvement’, ‘continuous improvement’, or ‘learning curve’ were conducted. These have also yielded little additional literature. It was also found that the majority of the literature found with these keywords presents these issues from the perspective of the outsourcer ranging from the effect of learning on the make/buy decision or the overall operational improvements that outsourcing firms can expect from outsourcing. These observations have led to recommendations for future research in section 7.2.3 as well as lead to implications for proposing the adjustment to the initial research model as described in the next section.

#### 6.2.1 Adjusting the operational phase

In order to propose an adjustment to the initial research model with a literary foundation, insights from the field of technology transfer are used. In particular that of Steenhuis (2000) who developed a process model that describes the transfer of technology from one organization to another. His research on how (production) technology is transferred

amongst two companies has resulted in a process model containing preparation, installation, and utilization as illustrated in the figure below.



**Figure 21** - The technology transfer course (Steenhuis, 2000)

Similar to the first two phases of the outsourcing implementation processes described in section 2.7.2, the technology transfer course starts with a preparation phase in which opportunities are explored, proposals are developed and agreements are met. Since the outsourcing literature already describes these activities in great detail, it is particularly the installation and utilisation phase that are of interest in this section. Steenhuis (2000) found the installation phase to include the transfer of information, installing technology components, and production and delivery of the first product while the utilization phase was characterized by managing production, dealing with technical queries, and managing the production network (Steenhuis, 2000). When these descriptions are compared with table 10 it shows that these latter two phases roughly correspond with the first and second set of activities. The term ‘utilisation’ may not be accurate as they provide the service to the outsourcer as opposed to utilizing them for their own purpose. Therefore a more accurate term is ‘provision’. As the technology transfer course ends when the destination company is able to utilize the technology, it does not describe a phase that shares characteristics with the third set of activities. As such a phase termed ‘enhancing’ is used to refer to those activities that are geared towards improving procedures, introducing innovative ideas, updating technologies and extending the scope of responsibilities.

Table 15 illustrates that more detailed insights are obtained by adopting the phases discussed in the previous section by relating the factors shown in table 14 to these phases. As discussed, the operational phase is now considered to consist of installation, utilization and optimizing phase.

**Table 15 – Applying selected findings to adjusted phases**

Factors	Phases			
	< before >	<	after	>
	Operational	Installation	Provision	Enhancing
Labour skill level	•		•	•
Turnover rate	•			•
Power Distance	•		•	
Uncertainty Avoidance	•			•
Software process	•	•		
Software maturity	•	•		

While the table illustrates how the proposed adjustment is expected to improve the ability of the adjusted research model to provide insights into the role of environmental factors, it also demonstrates that certain factors are particularly important in some phases but not relevant in others.

### 6.3 Environmental factors

Findings from the pilot case study resulted in the identification of a number of additional environmental factors. These are: commitment of employees, and Sri Lanka’s economic condition. Both are added to the adjusted research model and are addressed in section 7.4.

### 6.4 Adjusted research model

The adjusted research model based on the proposed adjustments is shown in figure 22. While the presented model provides an improvement over the original model, additional research may be required in order to arrive at descriptions of the activities being performed in the newly added phases and what risks are associated with these. Section 7.4 in the next chapter provides directions for future research in this area.

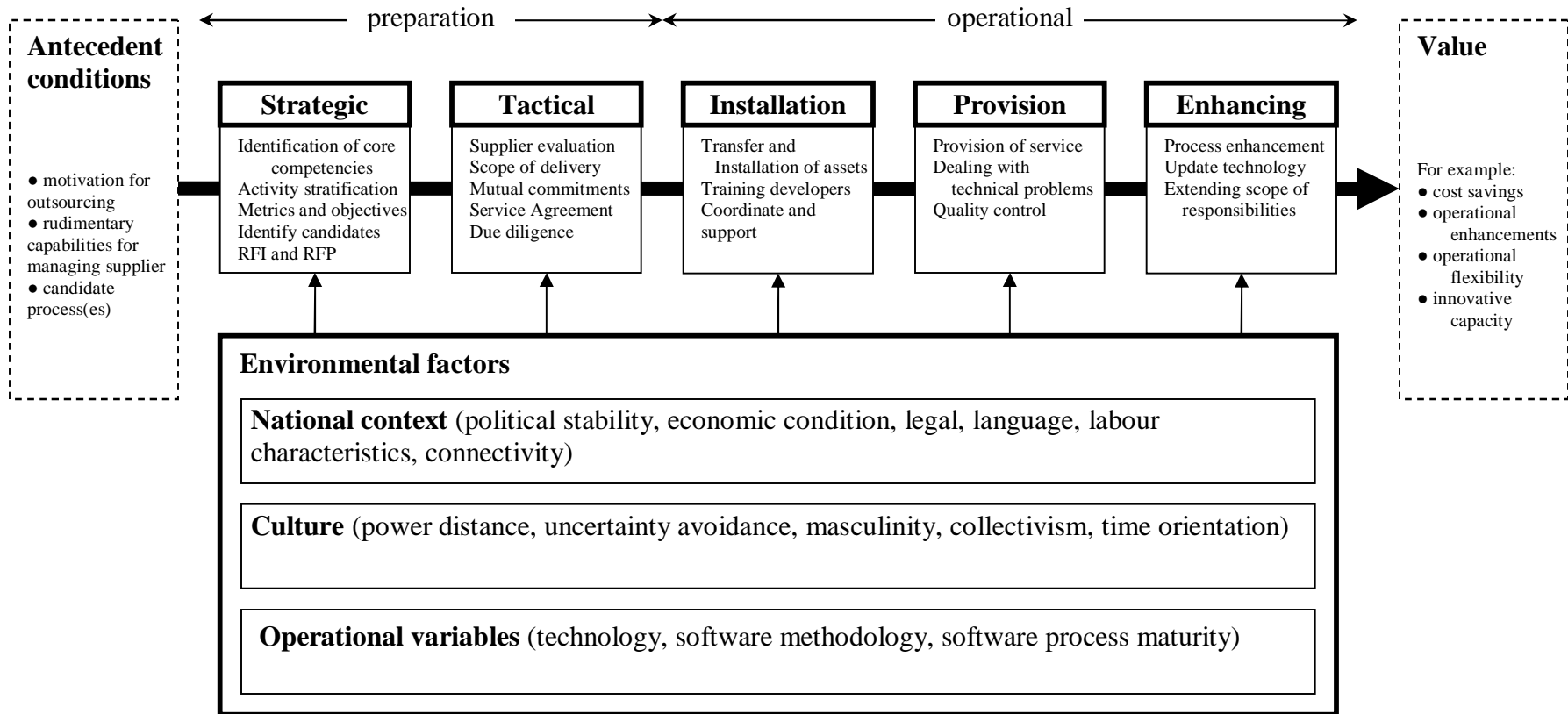


Figure 22 - Adjusted research model

## **7. Conclusions and recommendations**

### **7.1 Introduction**

This chapter concludes the research by answering the research questions and making recommendations for future research. As the research contains a number of limitations, these will be discussed first before describing the contribution and implication, and recommendations for future research. This chapter concludes with a reflection on the research.

### **7.2 Limitations**

The first limitation stems from the outsourcing literature that was used as a foundation for the research. While a process model has shown to be appropriate for exploring the influence of environmental factors, the pilot case study revealed that the phase descriptions provided by the literature were insufficient. Since the pilot study was not designed to uncover details concerning these phases, the findings, while convincingly illustrating additional phases, does not provide sufficient details concerning the activities that are contained within these phases. This limits the confidence of the completeness of the adjusted research model concerning these phases and has lead to a substantial requirement for future research. A second limitation is the fact that the pilot case study has not allowed studying all phases of the research model as respondents were mostly knowledgeable regarding the operational phase. However, as the outsourcing literature has shown to have a strong focus on activities related to preparation of outsourcing, it is expected that these two phases are accurately described in the adjusted research model presented in figure 23. In order to address the described limitations, a number of specific recommendations for future research are proposed.

### **7.3 Conclusions**

#### **7.3.1 Research objective**

The objective of this research, as stated in section 1.2, is: *To contribute to the development of the existing outsourcing literature by exploring the role of environmental factors in the IT outsourcing field.*

The research has met this objective by addressing three aspects. First, the research has demonstrated that environment is indeed a determining factor in the success of IT outsourcing projects and that further research in this area is desirable. It also proposes a model for explaining the influence of a number of environmental factors. The chosen approach has led to a model that is rooted in both existing theory as well new empirical insights. As such the model can be used as a fundamental starting point for further research. Furthermore, several concrete recommendations have been formulated that should contribute to future direction of such research.

#### **7.3.2 Contribution and implication**

While this research carries a number of limitations in its current state, a number of implications and contributions to the existing literature can be provided. First, in contrast to existing theory on IT Outsourcing, the developed conceptual model provides dedicated insights into the role of environmental factors. While far from being a theory, the research has also demonstrated that

these are indeed relevant enough to justify further study. The research model should help both academics and practitioners more readily understand the influence of these and eventually provide insight into identifying and mitigating its effect.

Secondly, the research has shown that current process models provided by the outsourcing literature are 1) not sufficiently detailed 2) do not adequately explain the relationship between factors and key-activities. Direction and arguments for further study in this area is described in the next section.

## **7.4 Recommendations**

### **7.4.1 Recommendations for practitioners**

Before recommendations for practitioners are made it should be emphasized that the objective of this research has not been to develop a prescriptive theory. Instead a first step has been taken in the development of a model that tries to explain the influence of environmental factors on IT outsourcing. In that light some recommendations can be made however:

Based on the conclusion that a process model is appropriate for describing the outsourcing phenomenon as well as explain why certain factors are important, this research can demonstrate to practitioners that adopting such a perspective when preparing or evaluating outsourcing related projects is crucial. Only by adopting such perspective can practitioners accurately determine what factors relate to specific problems and find solutions for solving these. As current IT outsourcing literature does not provide integrated insights concerning the influence of environmental factors, the research model can be used to assess the potential impact of factors that are to be expected based on a project and supplier's environmental characteristics.

### **7.4.2 Recommendations for further research**

The first recommendation for future research concerns the limitations that were observed regarding the phases of the outsourcing process. The purpose of the research has not been to explore these phases and its related activities as it was believed that the existing literature would provide an appropriate description. An additional review of the literature that was done after this limitation was observed has not led to viable alternative process description that meets the requirements discussed in section 6.3. In fact it confirmed the observation that the existing literature primarily focuses on strategic and tactical concerns as opposed to technical perspectives that explore operational issues. This is not only important for gaining insights concerning environmental factors but also for other influential factors as demonstrated in section 2.7.3. As a result it is recommended that future research puts efforts in this area.

Secondly, several conclusions made based on the pilot study findings need to be addressed. For instance some problems in measuring certain aspects were identified in section 5.5 and two additional factors were found. In order to fully incorporate these into the model some literature must be reviewed that describes these aspects.

The third recommendation is concerned with taking additional steps to further develop the research model. As was indicated, the objective of this research was not to develop a theoretical model but to take the first steps towards such a model. As such further research should, after



addressing the recommendations described above, perform a multiple case study research in order to satisfy the requirements for theory building that were described in section 1.5.

## **7.5 Reflection**

The reflection on the research is made regarding three primary areas: 1) the research strategy, 2) interviews, and 3) gaining access.

### Research strategy

The original objective was to do an in depth case study as part of the research strategy. However, during and after the data collection it was found that meeting the requirements for doing was not feasible for two main reasons. First, a unique opportunity for conducting interviews at a substantially large organization introduced time constraints in preparing for data collection. This put limitations on the theoretical insights needed to sufficiently answer the first four research questions. Secondly, it was discovered that the theoretical foundation did not provide an accurate representation of the IT outsourcing process. As a result findings did not show a good ‘fit’ within the research model. Changing the research strategy by adopting the empirical phase as a pilot study proved to be an appropriate step to counter these problems. It allowed for a more exploratory approach to the data that was collected and gave the opportunity to make substantial adjustments to the initial research model. The subtitle “towards the development of a model” was also added to the title of this report in order to clarify that the research at this stage presents the first few steps for the development of a theory.

### Interviews

A more or less ‘informal’ approach was adopted for doing interviews and some respondents were approached in a social setting prior to the interview session. In part this proved very successful as it provided an atmosphere where respondents seemed more willing to share information and discuss problems that had been experienced. However some respondents expected a series of questions and generally gave short and to the point answers. As a result these interviews were not as effective as they could have been if formal questions had also been developed. Furthermore, the informal nature of the interviews reduced the direction to the topics that were discussed. As such it was difficult to systematically cover the elements of the research model. Furthermore, many topics were discussed that seemed important at the time of the interview but that eventually turned out not to be relevant to the research.

### Gaining access

In the process to gaining access to the company where the case study was to be held the focus was on accessing people. This involved gaining formal permission, approaching potential respondents, and scheduling interviews. As a result accessing the work floor was limited and hardly any access was given to internal memos and other documents. The former was not perceived as a huge problem but limited access to documents made it difficult to check and elaborate on statements made in interviews by respondents. This also played a part in preventing sufficiently in-depth findings needed for meeting case study requirements. Further, as the company extensively documents communications with customers, a document study would have been an invaluable source of data by itself.



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## **APPENDICES**



# Appendix A: Case study protocol

## A.1 Pilot study Issues

The formulated research model is developed using theories that originate from literature that is related to the research topic. For instance the foundation of the model is largely based on general outsourcing literature (i.e. not specific to IT), while international business, marketing and organizational theory was used to propose contextual factors. Therefore the issue that the pilot case study addresses concerns the accuracy and comprehensiveness of the research model by determining: 1) the extent that the developed research model appropriately describes the IT outsourcing phenomenon, 2) to assess whether the identified factors are relevant, and 3) to explore new insights that justify additions to the initial research model. One of the challenges in analysing data is differentiation between experienced problems that are related to contextual factors or by other 'established' factors as presented in table 5. For this reason it is important that the researcher is aware of these factors.

## A.2 Selecting a case

Based on the case study issues described in the previous section, the following characteristics were important in selecting a suitable (pilot) case. The selected case study largely meets these requirements.

Relevance: The outsourcing arrangement of selected case should conform to the definition provided in section 2.2.2. This implies that responsibility (or 'ownership') of at least one of the phase of the software life cycle (as described in Appendix C) lies with the supplier and that the arrangement is operational (i.e. service provision is taking place)

Diversity between outsourcer and supplier: As indicated in section 4.3, contextual factors are largely caused due to differences between outsourcer and supplier. Therefore, in order to find factors relevant to the research, a selection must be based on expected diversity between supplier and outsourcer.

Accessibility: As indicated in the previous section, problems need to be analyzed in order to find information related to important factors. This means that the case study company must be willing to share information and that respondents can speak freely.

## A.3 Selected case

The selected case for the pilot study is a large multinational software development firm with its head office in Sweden (from now on referred to as EuroIT). It develops enterprise resource planning and asset management systems for medium and large enterprises in a wide range of industries. IT is a leading global business applications supplier with sales in 45 countries and more than 600,000 users across seven sectors: aerospace & defence; automotive; high-tech; industrial manufacturing; process industries; construction, contracting, service & facilities management; and utilities & telecom. Interviews are to be held at one of the company's offices in Sri Lanka. Additional background information is provided in the next chapter.

The selected largely meets the selection criteria described in section 4.5.2. Concerning the relevance criteria; only aspects of the operational phase are explored. This is largely due to time

constraints which makes it infeasible to explore all phases. Secondly, it is expected that all contextual factors have some relevance in ongoing operations which means the case is expected to provide sufficient data concerning these. Finally, the operational phase is also the aspect of the research model of which the literature provided limited insights. It can therefore be expected that new insights may be found.

#### **A.4 Field procedure**

The main tool used in the field is that of interviews, observations and (limited) document study. A semi-structured interview style has been adopted as well as the use of open ended questions. The interviews will be characterized by a discussion that covers the concepts found in the framework where specific questions are mainly meant to ignite the conversation concerning certain concepts to be investigated. The key is to remain flexible due to the exploratory nature of the study. Notes are to be taken during the interview. Limited time considerations are to be taken into account. Since there are also a number of people scheduled to be interviewed with similar profiles, it is possible to talk specifically about one topic only and cover other topics during subsequent interviews. This is in line with how Yin (2002) characterizes a pilot case study; namely as having a broad focus as opposed to being specifically in depth. Directly after the interview is completed, the received information is documented and will result in a (draft) version of the case study findings which is further analysed and condensed in the final version of chapter 5 upon return.

#### **A.5 Gaining access**

Access to the company is obtained through a personal connection with a senior web developer who has been with the company for over 6 years. His standing in the company is high and his influence has resulted in obtaining permission to interview employees by the general manager of said department. This also includes access to documents. Permission is granted on the basis of anonymity and the company therefore does not grant a 'formal' permission or offer any involvement in the study or its results. However the interviews can be held on company premises for convenience sake.

#### **A.6 Schedule for data collection**

Interviews are scheduled on a daily basis with one respondent. They will be held at the company premises after working hours around 5 pm. Interviews are scheduled to last around 45 minutes. This is an appropriate compromise considering that employees are likely eager to return home after a full days work. On the other hand it gives enough time to have an in depth discussion on a number of topics.

#### **A.7 Unanticipated events**

- Since permission is of an informal nature and is given only by the general manager of said department of the offshore office limitations to accessing documents may exist. As the data to be gathered is of sensitive nature to both the company's competitors and its customers, it must be taken into account that this permission can be revoked prior to or during the study by the European head office.
- The current social situation in Sri Lanka is unstable due to a civil war that has recently intensified. The capital Colombo is frequently targeted by terrorist attacks and may influence the ability to schedule interviews. In the worst case it may make physical presence in the

country unsafe resulting in premature departure. The current level of safety is deemed reasonable based on various assessments from local contacts that were inquired prior to departure.

#### **A.8 Pilot case study questions**

The following questions are posed to the researcher in order to provide guidance to the researcher during the data collection. They are therefore not be asked directly to respondents. The questions are primarily focused on identifying areas of the model that are insufficient and need elaboration. While the primary purpose of the pilot study is to explore the relevance and appropriateness of the selected factors, it is also used to test whether the research model is convenient for addressing influential factors.

*The source for providing answers to these questions will be software developers and project managers (for both these will contain respondents at senior and junior levels).*

**The first questions relate to the background of the company and specifically to the ‘process ownership’. This is important to verify that indeed the case study concerns outsourcing and not a joint venture.**

- What is the task of the supplier? What service is delivered and what is the input?
- What is the role of the outsourcer in execution the tasks that turn the input into the service delivery?
- What interaction is taking place and what is its nature (additional input, supportive, answering questions)?

**These questions are focussed on identifying problems and analyzing these in order to possibly arrive at the factors posed in the initial research model.**

- What are the main risks and problems faced in outsourced operations?
- What environmental factors can be inferred from these?
  - What specific activity was influenced by it?
  - How did the factor influence this activity?
  - How does the degree of influence compare to non-context factors?
- To what extend are these consistent with the factors defined in the initial research model?
- Which mitigation mechanisms for coping with a particular (set of) factor(s) can be identified?
- Does any identified mitigation mechanism fall in either of the two proposed categories?

**These questions relate to the appropriateness of adopting a process model for addressing influential factors.**

- Is a process model appropriate for identifying factors related to problems?
- Are the groups of activities in the model consistent with the practice?
- Are certain factors particularly important in specific phases of the implementation process?
- What phases are particularly influenced by which (set of) factor (s)?

**The following questions also need to be kept in mind in order to determine whether the research model is sufficiently operationalized.**

- To what extent are the elements of the research model measurable?
- Does the perspective of the supplier provide sufficient and relevant data concerning the research model?



## Appendix B: Characteristics of Systems Development Life Cycle

Life cycle phases	Project management	Specification	System Design	Implementation	Testing	Deployment
<b>Phase characteristics</b>	<ul style="list-style-type: none"> <li>&gt; objectives and goals</li> <li>&gt; metrics and measures</li> <li>&gt; scheduling</li> <li>&gt; deadlines</li> <li>&gt; monitoring</li> <li>&gt; control and adjust</li> <li>&gt; number of stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>&gt; requirements gathering</li> <li>&gt; Type of requirements (functional, features, performance, quality)</li> <li>&gt; degree of detail</li> <li>&gt; completeness</li> </ul>	<ul style="list-style-type: none"> <li>&gt; modelling artefacts                             <ul style="list-style-type: none"> <li>- flow charts</li> <li>- box diagrams</li> </ul> </li> <li>&gt; notation</li> <li>&gt; degree of formality</li> </ul>	<ul style="list-style-type: none"> <li>&gt; coding language</li> <li>&gt; control structures</li> <li>&gt; data types and declaration</li> <li>&gt; coding style</li> <li>&gt; Doc types</li> <li>&gt; construct statements</li> </ul>	<ul style="list-style-type: none"> <li>&gt; system environment for testing</li> <li>&gt; type of test performed                             <ul style="list-style-type: none"> <li>- unit test</li> <li>- integration test</li> <li>- validation</li> <li>- path testing</li> </ul> </li> <li>&gt; detecting bugs</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Configuration</li> <li>&gt; Environment variables</li> <li>&gt; Existing software</li> <li>&gt; interoperability</li> </ul>



## Appendix C: Example Specification document

This is part of a specification document that illustrates its characteristics as described in chapter 5. It includes specification background, scope, and the functional description. Names of the firm and of client have been altered due to confidentiality concerns. These are referred to as Sweden\_IT and Catfood respectively.

### Background

CATFOOD's finance representatives use Inter-company Returns from Logical to Physical warehouses to process customer returns also called ITAPP - Customer Return Material Authorization. This RMA customer service function creates one set of debits and credits. The amount being charged back should reflect an accurate representation of the product's cost. The original cost charged from the physical site to the logical site should be the amount credited. The inter-company markup should not be included in the cost (charge-back) this amount should be recorded separately.

The business requirement is to break out the inter-company markup and keep this value separate from the inventory value so (RMA's) customer returns reflect true inventory transfer costs. The desired modification will credit two sets of debit and two sets of credits financial transactions. The actual inventory value should be the cost credited back when the RMA is received through SWEDEN\_ITAPP Inter Site MHS – physical site to logical site customer return handling. The calculated inter-company markup should not be included in the inventory transfer cost but rather be posted to its own account.

CATFOOD has logical sites where all product is drop-shipped to its customers from a different site by using the source code of Internal Purchase Direct on the customer orders. When a return is done from one of these logical customers, the Return Material Authorization is created on the logical site. When the return transaction is performed in the logical site, the cost of sales and inventory are adjusted by the logical site's part cost \* the quantity. The logical part cost is not typically the cost charged from the physical site to the logical site on the initial sale. This cost also includes additional freight and duty associated with landing the part in the logical site's country.

The inventory is physically returned to the shipping site, but the RMA is on the logical site. The return is recorded on the logical site's RMA. CATFOOD modified the system to automatically transfer the product from the logical site to the physical site where it was actually received. Currently, the amount of the inter-company receivable/payable is based on the logical company's total cost rather than the original price and mark-up charged from the physical to the logical when the product was sold.

The business requirement is that the amount recorded as the inter-company receivable/payable be the original amount and mark-up charged from the physical to the logical, with the inter-company mark-up amount being reported separately. The sales price comes from the Supplier for Purchase Part record and the mark-up % comes from the corresponding supplier charge stored on the Supplier record or the charge on the supplier for purchase part record. CATFOOD

modified the system to create supplier charges based on a % of the purchase price. These calculated charges are stored on the Supplier or Supplier for Purchase Part record. Rather than adjust the existing transactions recorded during the transfer, an adjustment transaction will be created to adjust the amounts to the correct inter-company amounts.

### **Scope**

KAT118B – High level

Create parameter to store currency rate type. Need to store a unique rate type, such as BUDG. Parameter must be at company level.

Change existing SWEDEN\_IT COMP-IN and COMP-OUT transactions so that when calculating the cost difference between sites it uses the BUDG currency rate rather than accounting rate type.

Change existing SWEDEN\_IT COMP-IN and COMP-OUT transactions so that these transactions reference the original RMA. Currently these transactions are automatically created by a previous modification.

Create a new posting type for standard price difference between the two sites (based on CATFOOD costing / business process)

Create new control type to be used with the above posting type. The new control type will get the country from the RMA line, and if the line has no country, then get the country from the RMA header. This function is needed by Germany.

Create a new posting event in SWEDEN\_IT for an adjusting entry to the COMP-IN and COMP-OUT RMA transactions.

At COMP-IN and COMP-OUT (from the RMA process only) create an adjustment entry using the new posting event / posting type, and previous COMP-IN and COMP-OUT posting entries. Transactions will be created in both COMP-IN and COMP-OUT sites.

Calculate adjustment value based on the currency code for the site, the BUDG currency rate, the standard cost, the supplier for purchase part record (INT supplier or default supplier), and the charges (as a percent). Use this calculated value as the amount in the COMP-IN / COMP-OUT adjustment.

Add RMA reference information to the new COMP-IN / COMP-OUT adjustment.

## Definitions

### SWEDEN\_IT Currency Rate Types

Currency Rate Type	Currency Rate Type Description	Ref Currency Code	Default Type
1	Daily Rates	USD	Yes
2	other	USD	No
BS	Balance Sheet Rates	USD	No
BUDG	Budget Rates	USD	No
IS	Income Statement Rates	USD	No

### SWEDEN\_IT Currency Rates

Currency Code	Rate	Valid From	Conversion Factor
ARS	0.324465	4/12/2007	1
AUD	0.73244	4/12/2007	1
BRL	0.46788	4/12/2007	1
CAD	0.861549	4/12/2007	1
CNY	0.124188	4/12/2007	1
EUR	1.193175	4/12/2007	1
GBP	1.727116	4/12/2007	1
HKD	0.128841	4/12/2007	1
JPY	0.008405	4/12/2007	1

### Posting Type

Posting type is a standard SWEDEN\_IT term used in posting control (accounting rules).

Posting Type	Posting Type Desc
M152	Return of Delivery Overhead
M57	Delivery Overhead

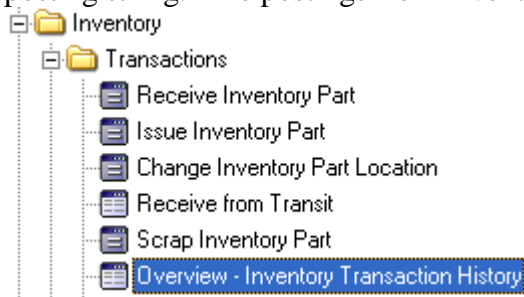
### Control Type

Control type is a standard SWEDEN\_IT term used in posting control (accounting rules).

Posting Type	Posting Type Desc	Code Part Name	Control Type	Control Type Desc
M152	Return of Delivery Overhead	Account	AC1	Fixed value
M57	Delivery Overhead	Account	KAT1	Delivery OH Cost Element

## Postings Generated from Posting Control

As inventory transactions are performed, posting control is used to derive an accounting string / posting string. The postings from inventory related transactions can be seen in the below screen.



An inter-site order (for this document) is defined as a customer order resulting from an external customer (Customer X) placing an order with site A where the order line is supplied by site B. Only orders that originate with an initial customer order, then a PO, and finally a shipping customer order will be considered as an inter-site customer order.

## Inter-site Order – Internal Order

The internal order is defined as the shipping customer order (internal customer – CATFOOD Germany Site 321 where the order is at site 312) in an inter-site order.

### Normal Order

A normal order is defined as all other non inter-site customer orders. A normal order can be created manually (key in a customer order supplied by the customer order site), or by any other process utilizing the incoming order screen.

CATFOOD processes numerous replenishment orders. An example of a replenishment order is a PO (in 161) is created for site 111 as the supplier. In SWEDEN\_IT this PO creates a customer order. The customer order in a replenishment process (described) is considered as a normal customer order.

### Supply Site

The supply site in a customer order is dependent on the customer order line / supply code. Each customer order line will have a supply code. The supply code will be used to determine the supply site.

On a normal order the supply code typically will be inventory order, shop order purchase order direct or purchase order transfer. On a normal order the supply site is the customer order site.

On an inter-site order the supply code will be internal purchase direct or internal purchase order transfer. All INT% supply codes will have a supplier listed on the order line. The supplier is used to determine the supply site. In SWEDEN\_IT 2004, the supply site on an inter-site order is listed on the order line.

For CATFOOD and this modification, the supply site for all orders where the supply site is null will be the customer order site. Else the supply site is the supply site listed on the customer order line.

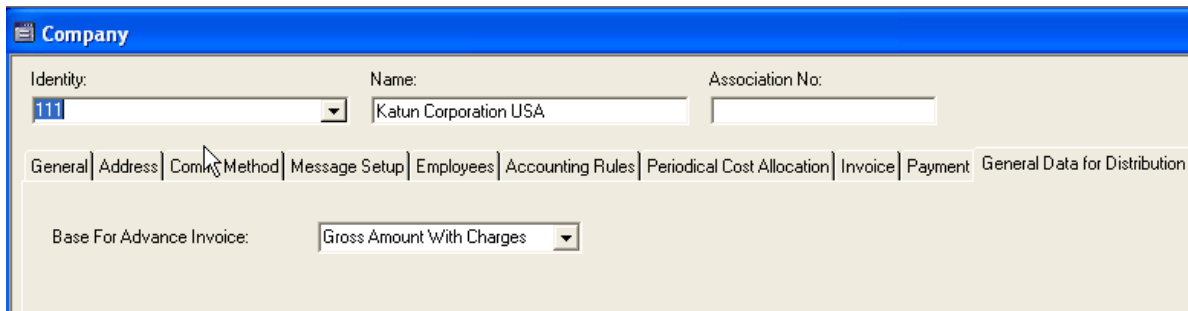
## Functionality Description

CATFOOD is an international company with a number of different sites. The CATFOOD standard cost includes a number of different cost components or cost elements. One component of cost represents an inter-company markup. Based on the CATFOOD business model an RMA is created for 1 site and the parts are returned to a different site. As the returned inventory is received to stock, a previous CATFOOD modification will automatically create an inventory transfer to move the inventory (in SWEDEN\_IT) from one site to another. As a result, CATFOOD needs to create a posting / cost adjustment so that the value of the transfer is recorded at the correct amount.

The functional changes described below are intended to resolve the costing / posting issues relating to the RMA – return to inventory / inventory transfer process.

### Create COMP-IN / COMPM-OUT adjustment currency rate type

CATFOOD needs to use a specific currency rate type as part of the described functionality. On the company / General Data for Distribution Tab (shown below) create a new attribute. The attribute will be called COMPM-IN / COMPM-OUT adjustment currency rate type. The attribute will enable a user to select (from existing records) a rate type that will be used in the COMPM-IN / COMPM-OUT & Adjustment records described later in this document. The attribute must allow an LOV.



The screenshot shows the SAP 'Company' configuration window, specifically the 'General Data for Distribution' tab. The 'Identity' field is set to '111' and the 'Name' field is 'Katun Corporation USA'. The 'Association No.' field is empty. Below the field labels, there is a horizontal navigation bar with tabs for 'General', 'Address', 'Company Method', 'Message Setup', 'Employees', 'Accounting Rules', 'Periodical Cost Allocation', 'Invoice', 'Payment', and 'General Data for Distribution'. The 'General Data for Distribution' tab is active. In this tab, the 'Base For Advance Invoice' field is set to 'Gross Amount With Charges'.

### Alter COMPM-IN / COMPM-OUT – From KATCR44

The KATCR44 modification was created to automate an inventory stock movement from site to site as a result of an RMA return to inventory. As a result of this stock movement, SWEDEN\_IT performs a COMPM-IN and COMPM-OUT transaction in the inventory transaction history. The described changes will be required for the COMPM-IN and COMPM-OUT transactions that are generated as a result of the KATCR44 modification. Other instances of these COMPM-IN and COMPM-OUT transactions will not be affected by requirements defined in this section.

### Change Currency Rate Type / Currency Rate – COMPM-IN

As with all inventory transactions, SWEDEN\_IT uses the default currency rate type when creating accounting transactions. For CATFOOD, we must use a different rate type when calculating the cost differences between the two sites. The cost difference is used in the COMPM-IN transaction and noted by the M89 / M90 transaction as shown below.

Inventory at 312's standard	312	M1	426.78		COMPM-IN
I/C Stock Movement	312	M89		426.78	COMPM-IN
I/C Stock Movement	312	M89		34.78	COMPM-IN
Price Diff IC Stock Movement	312	M90	34.78		COMPM-IN

As this 34.78 cost difference is calculated, SWEDEN\_IT uses the default currency exchange rate type to get the current exchange rate. – For this KAT118B modification we will use the rate type found in the newly created COMPM-IN / COMPM-OUT - Adjustment rate type to obtain the CATFOOD currency exchange rate. If no rate type is found, then use the standard SWEDEN\_IT default rate type as the system does currently. Rate types are company specific, so similar to core SWEDEN\_IT we must look to the appropriate company for the rate type and currency exchange rate.

<----- end of example ----->