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Signed: (Betty Nabuuma)

Date:

**Supporting Re-sourcing Decisions: The Case of
Maintenance in Uganda's Downstream Oil
Industry**

by

Betty Nabuuma

A Doctoral Thesis

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ABSTRACT

A re-sourcing decision is a sourcing decision subsequent to an outsourcing arrangement. Effective management of re-sourcing decisions is vital in ensuring the stability and continuity of organisational operations supported by outsourced critical activities. However, despite the importance of this stage in the outsourcing cycle, most outsourcing research has focused on outsourcing determinants and outsourcing process control stages.

The study reported in this thesis set out to explore maintenance re-sourcing decisions in an asset-intensive service organisation operating in a capital constrained economy. The objectives of the study were to determine the factors that influence the management of maintenance re-sourcing decisions in asset intensive service organisations and to propose a management model for guiding maintenance re-sourcing decision making processes in such organisations. In order to achieve these objectives, a qualitative style oriented in-depth case study was adopted. Results from a thematic data analysis revealed that the management of re-sourcing decisions is impacted by factors that fall into three categories: the purchasing organisation's structural elements, external structural elements and boundary spanning elements. However, of the three categories, boundary spanning elements were found to have a greater bearing on the effectiveness of the most critical stages, incumbent supplier performance evaluation and incumbent to alternative supplier comparison.

In addition to the recognised role that outsourcing models play in guiding sourcing decisions, this study has revealed the importance of three more key enablers. These include: recruiting qualified and experienced individuals into boundary spanning roles, developing and maintaining enabling environments for boundary spanners to engage in behaviour that supports the purchaser's goals and values, and, developing information management systems targeted at enhancing regular capturing of incumbent and alternative supplier capability and capacity before re-sourcing decision time.

The results from this study will primarily benefit sourcing managers in asset-intensive service organisations operating in capital constrained economies that have outsourced or intend to outsource maintenance.

Key words: Case study; Evaluation; Maintenance; Outsourcing; Purchaser; Re-sourcing decision; Suppliers

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LIST OF ABBREVIATIONS

C&C	Capability and capacity
CCC	Core competence concept
CMMS	Computerised maintenance management systems
DMU	Decision making unit
DSOI	Downstream oil industry
EPSRC	Engineering and Physical Sciences Research Council
HSSE	Health, Safety, Security and Environment
IS	Information systems
IT	Information technology
KPI	Key performance indicator
L/C	Load to capacity ratio
MTBF	Mean time between failure
OEM	Original equipment manufacturers
RBV	Resource based view
RCM	Reliability centred maintenance
RDT	Resource dependency theory
RFP	Request for proposal
SET	Social exchange theory
SLA	Service level agreement
TCE	Transaction cost theory
TPM	Total productive maintenance
UNBS	Uganda national bureau of standards

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CHAPTER 1:

INTRODUCTION

1.1 Background to research problem

In a world where competition is continuously increasing, designing effective and efficient strategies to manage organisations has always been at the centre of business organisations. In an attempt to enhance their competitiveness and increase profitability, many organisations are focusing on a few core business activities and increasingly turning to outsourcing for all other activities (Burdon & Bhalla 2005). However, although outsourcing is a historically well established practice (Mahnke 2001, Zhu et al. 2001, Kakabadse & Kakabadse 2002, Burdon & Bhalla 2005), and people all across the world are feeling its impact (Mol, 2007), the decision to outsource and the integration of the outsourcing practice into an organisation are not always straight forward. While some organisations have actually realised some level of success (Bailey et al. 2002, Elmuti 2003), many firms have been disappointed with the results of their outsourcing arrangements (Leverly 1998, Lonsdale 1999, Park & Ungson 2001, Langfield-Smith & Smith 2003, Haland et al. 2005, Terry & Michael 2005). The presence of mixed results makes the re-sourcing decisions stage a very important stage of the outsourcing cycle.

However, although literature on outsourcing is enormous, within the last decade, most academic studies have focused on understanding outsourcing decision determinants and outsourcing process control. Generally, except for a few studies (Anderson & Weitz 1989, Weiss & Anderson 1992, Heide & Weiss 1995, Argyres & Liebeskind 1999, Lonsdale 2001, Whitten & Wakefield 2006, Whitten & Leidner 2006, Li et al. 2006), little emphasis has been placed on sourcing decisions subsequent to an outsourcing arrangement. While initial make or buy sourcing decisions are very important and worth investigating, sourcing decisions subsequent to outsourcing arrangements also call for dedicated attention. The fact that every outsourcing arrangement certainly has to come to an end either prematurely or at the end of a specified contract period (Cullen et al. 2005) cannot be overemphasised. During an outsourcing contract duration, the organisation itself and markets change in ways that might render past decisions inappropriate in a current context (Cullen et al. 2005). Unlike situations where sourcing evaluations are considered while activities are still under in-house provision, in which case an organisation's management is at liberty not to even consider an outsourcing evaluation, a re-sourcing decision is inevitable for an organisation that has already outsourced one or more of its

activities. The vast range of outcomes reported by literature on outsourcing arrangements emphasises the need to establish how re-sourcing decisions can be effectively managed. But in order to achieve this, it is important to first enhance our understanding about the factors that influence how re-sourcing decisions are managed and the various options that purchasers can choose from to suit the organisation's prevailing circumstances at the time of re-sourcing.

When outsourcing concerns critical activities, the importance of the re-sourcing decision is heightened. These activities are of strategic importance to the organisations that have outsourced them and their continuity and performance levels are critical to the success of the organisation as a whole. One such activity is maintenance in asset intensive service industries. Maintenance in most asset intensive organisations is a strategic function, the impact of which influences almost all aspects of an organisation including competitiveness, quality and safety (Murthy & Asgharizadeh 1999). The growing importance of maintenance has generated an increasing interest in the development and implementation of optimal maintenance strategies for improving system reliability, preventing the occurrence of system failures and reducing maintenance costs of deteriorating systems (Wang, 2002). Asset intensive service organisations are looked at as capital intensive organisations in which substantial investment has been made in the equipment used to carry out industrial business and where availability and performance of this equipment is of overwhelming importance in the success of the business (Mitchelson 1992). For such organisations, industrial equipment maintenance is often strongly related to the primary process of industrial enterprises (Mitchelson 1992, Van der Meer- Kooistra & Vosselman 2000). Such organisations, are faced with the challenge of ensuring the maintenance function continues to perform well at all times because the continuity and success of the business as a whole is dependent upon the effectiveness of maintenance service provision.

There has been a dramatic increase in the outsourcing of services like equipment maintenance (Murthy & Asgharizadeh 1999) especially in asset intensive industries (Panesar & Markeset 2008) However, equipment maintenance outsourcing has received minimal attention in outsourcing literature (Burdon & Bhalla 2005, Panesar & Markeset 2008, Taracki et al 2009). and yet it is a very critical activity in asset intensive industries. Additionally, most of the maintenance outsourcing literature focuses on maintenance sourcing determinants and implementation with hardly any maintenance literature that addresses the re-sourcing decision. The need for continuity in critical maintenance service provision, means that it is of interest to explore maintenance re-sourcing decisions where such activities have been outsourced in order to understand the factors that influence how such decisions are managed. Extant literature has revealed that one of the reasons for unsatisfactory outcomes from outsourcing arrangements has been a lack of clear guidelines (Lonsdale, 1999). While this has often been cited for initial

outsourcing evaluations, if organisations are to achieve success along the entire outsourcing cycle, structured guidelines are necessary to support all stages of the cycle.

Where organisations have chosen to outsource critical activities, the outsourcing effort is not complete until a post outsourcing review comparing objectives and what has actually been achieved is conducted (Zhu et al. 2001). This is necessary to establish whether the strategy is working as planned and to identify areas that require improvement or change. In this case the feedback loop in sourcing strategies is a means of informing organisational decision makers about successes, drawbacks, changes in business environments, and the need to act either in support of an existing strategy or total turnaround to new strategies (Hui & Tsang, 2004). The outcome of this evaluation and its implication can then be factored into subsequent sourcing proposals. Therefore, an understanding of the factors that influence re-sourcing decision management does not only enhance our understanding about the re-sourcing decision dynamics, it also provides the information required to support the development of a structured methodology to guide re-sourcing decision processes.

The author argues that the uniqueness of a re-sourcing decision warrants a different approach to that taken when an activity is still in-house. The very nature of the re-sourcing decision renders most if not all initial make or buy decision models (McIvor et al. 1997, Lonsdale 1999, Canez et al. 2000, Fill & Visser 2000, Franceschini et al. 2003, Gottfredson et al. 2005, Kakouris 2006) inadequate. For example, most make or buy decision models have as their starting point, an evaluation of the core activities and competencies of the organisation to determine what should and should not be outsourced. But, in the event that an activity has already been outsourced, whether core or noncore, it is already in the hands of an external provider and internal competence for that activity no longer exists. That is irrespective of whether the right decision was made in the initial outsourcing evaluation. However, at re-sourcing, the purchaser's concern is more likely to be whether the incumbent supplier is delivering according to the terms rather than whether the outsourced activity is their core competence. Another difference is that, at initial sourcing evaluation decisions, the organisation is often comparing actual internal supplier performance to the performance of external suppliers. But, during re-sourcing decisions, if returning the activity in-house were to be considered as one of the alternatives, actual supplier performance is compared with possible internal capability upon recruiting and training rather than actual performance.

The inevitability, importance and uniqueness of re-sourcing decisions for critical activities like maintenance in asset intensive organisations combined with inadequate literature resources to guide them, provided the motivation for the research on maintenance re-sourcing decisions. The emphasis is that previous sourcing delivery and implementation strategies result in outputs that

impact subsequent sourcing delivery options. One way of understanding interpretation of chosen strategy outcomes is to study how organisations choose and implement successive strategies. Therefore, an investigation into how maintenance re-sourcing decisions are handled and a knowledge of the significant factors influencing such decisions is one way of measuring what decision makers consider as satisfactory levels of performance in outsourcing arrangements as well as what elements need to be given particular attention during future re-sourcing decision processes.

This study therefore, aimed at investigating maintenance sourcing decisions subsequent to a maintenance outsourcing arrangement in order to increase our understanding of factors that significantly affect this decision process as well as develop a model to guide maintenance re-sourcing decision management. Given the variability of maintenance challenges for different industrial sectors and economies, the author chose to investigate maintenance re-sourcing decisions for asset intensive service organisations operating in the context of a capital constrained economy, particularly, Uganda's downstream oil industry

1.2 Problem statement and research justification

It has been argued, that equipment maintenance costs in many asset intensive organisations are a significant portion of the operational costs (Tsang et al. 1999; Parida & Kumar 2006), and that breakdowns and downtime in such organisations have a great impact on operational capacity, quality of organisation's activities, as well as degree of adherence to health, safety and environment concerns (Parida & Kumar 2006). While cost, uptime, and health and safety concerns hold true for all asset intensive service organisations, equipment maintenance in asset intensive service organisations operating in capital constrained economies presents additional challenges. For example, most of the equipment in service organisations operating in these economies are imported. As a result, there is limited opportunity to harness the benefits of state of the art maintenance and other after sales services that can be provided by original equipment manufacturers (OEMs), a challenge that organisations operating in developed economies are likely not to experience. Secondly, the often long distances between equipment manufacturing organisations and the service organisations using the equipment, often results in long lead times that make just in time purchase of spares almost impossible. Consequently, the need to store large quantities of spares increases inventory holding costs resulting in high working capital costs that make it hard for organisations to free up cash for core business operations. Thirdly, the poor infrastructure in capital constrained economies presents additional logistical challenges that make investments in assets that support maintenance works like vehicles and information technology systems very costly.

When asset intensive service organisations outsource maintenance, the activity is transferred to service providers who are operating under similar environmental constraints, except for the belief that this is their core activity in which due to experience and commitment, they have over time, learnt and developed capabilities that would enable them supply the service in a more effective manner at a reasonable cost. While there are a number of potential benefits to outsourcing such activities, they are only anticipated. Initial evaluations to establish whether to make or purchase the maintenance activity, negotiations and development of performance relationship management control structures are all made based on recommendations for successful sourcing deliberations' outcomes. But then, there is the actual implementation of, and, end of an of the outsourcing arrangement. Irrespective of how the end comes, predetermined or ad hoc, there is always the question of "how do we proceed from here?" This question holds, whether choices made in previous sourcing decisions were based on careful evaluation or not, and whether the elements of the environment under which the purchasing organisation and its suppliers are operating is constant or has changed. The importance of this decision is strengthened by the fact that equipment maintenance in asset intensive service organisation is a critical activity and therefore has a significant contribution to the success of the organisation's core business activities. Sustainability and stability of business operations calls for guidance frameworks to support the several stages along the organisation's life cycle. Research studies in maintenance sourcing decisions subsequent to outsourcing arrangements is one way of increasing our understanding on re-sourcing decision process dynamics, a prerequisite to developing guiding frameworks. This is also one step in the direction of ensuring sustainable business operations.

Organisations in Uganda's downstream oil industry (DSOI) are a typical example of asset intensive service organisations operating in a capital constrained economy and therefore, facing the challenges mentioned above. Equipment maintenance plays a vital role in ensuring high equipment availability for the organisations core operations of fuel distribution and marketing. Therefore, ensuring continuity and effectiveness in the provision of maintenance services is of utmost importance to the entire organisation. A brief background to maintenance in this industry is provided below.

1.3 Maintenance sourcing in Uganda's downstream oil industry

Initial investigation into the maintenance sourcing practices of organisations in Uganda's DSOI revealed that equipment used for dispensing petroleum products are owned by the maintenance purchasers. According to Martin (1997) maintenance outsourcing literature recognises three basic types of maintenance contracts; work package contracts, performance contracts and facilitators contracts. The outsourcing arrangements used in these organisations includes purchasing of both maintenance as well as management and coordination of the maintenance activity and could

therefore be likened to use of performance contracts. Unlike maintenance outsourcing arrangements controlled by work package contracts where clients perform all the planning and control logic themselves, maintenance sourcing arrangements managed with work performance contracts are often more complex (Martin 1997). Generally, with performance contracts, maintenance service providers are in charge of the design of maintenance concepts and the planning and control of maintenance activities of the technical assets entrusted to their care (Martin 1997).

In capital constrained economies like Uganda, most of the equipment used in this industry is imported and companies utilising the equipment are separated from manufacturers by significantly large distances. Therefore, from Kumar et al (2004)'s service delivery interfaces, the maintenance suppliers are usually independent firms and not OEMs. Further still, the multi-site nature of the purchaser's equipment location means a diversity of equipment operator capabilities, site access and fault communication challenges, and very high time constraints. The extensive equipment networks in the DSOI organisations demand substantial investments on the part of the suppliers in order to meet the necessary quality and delivery requirements. All this makes maintenance and maintenance sourcing operations in the DSOI very complex and consequently pose a much bigger challenge to organisations' decision making units than those encountered for maintenance in manufacturing organisations. This challenge warrants greater effort into establishing how sourcing decisions for maintenance in these organisations are planned, executed, evaluated and how maintenance service supply is sustained beyond present contract durations. This research study focused on meeting part of this need.

1.4 Research aim and objectives

The overall aim of this research was to explore how maintenance sourcing decisions subsequent to an outsourcing arrangement in Uganda's asset intensive service organisations are managed and propose a model to guide maintenance re-sourcing decisions for asset intensive service organisations operating in capital constrained economies.

The specific objectives of the research were

- To determine which factors play a significant role in influencing management of maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.

- To validate the re-sourcing model and make recommendations for use.

1.5 Definition of a few terms used in the thesis

The purchaser : The organisation that has outsourced one of its activities.

The supplier: The organisation that provides the outsourced activity to the purchaser

Asset intensive industry: In this study asset intensive service organisations was used to mean those industries in which substantial investment has been made in equipment used to carry out industrial business (Mitchelson 1992)

The re-sourcing decision: For any given activity, this is the sourcing decision that takes place subsequent to an outsourcing arrangement.

Supplier informant: This refers to a study informant from a maintenance supplier firm

Purchaser informant: This is refers to a study informant from or associated with a maintenance purchaser at the time of the research or the period before

Current or present outsourcing arrangement: This is the outsourcing arrangement taking place at the time the purchaser is carrying out the re-sourcing decision

The incumbent supplier: This is the supplier providing the service to the purchaser in the present outsourcing arrangement (the arrangement preceding the re-sourcing decision)

The alternative or prospective supplier: This is any other supplier besides the incumbent. The alternative or prospective supplier could be a present supplier for the purchaser but not for the activity for which the purchaser is undertaking the re-sourcing decision

Maintenance contract manager. The representative of the purchaser responsible for monitoring, supervising and evaluating the service of the incumbent supplier. In the case study, he was also referred to as the contract holder.

Country chairman: The top most position in the subsidiary of the multinational oil company working in Uganda

A capital constrained economy: In this thesis, a capital constrained economy means the economy of a least developed country.

Maintenance Load : The purchaser's size of maintenance work

Maintenance load to capacity ratio : (sometimes simply referred to as load to capacity ratio)
This is the ratio of the maintenance load to the supplier's capacity in terms of size and numbers of maintenance service delivery inputs specified by the purchaser.

1.6 Thesis structure

The structure of the rest of the thesis is as follows.

Chapter two presents literature review, first on outsourcing, followed by maintenance and finally maintenance outsourcing. The chapter concludes with a summary on the literature review and reason for undertaking the research is further emphasised.

Chapter three presents the main research philosophical streams and the view the author brought to the research process. The chapter also presents details of the research strategy selection and research design development process. It concludes with a brief discussion of the data collection methods employed and the approaches taken to strengthen the validity of the research process and results.

Chapter four presents a description of the case. In this chapter, details of the case itself and the context in which it operates are provided. Finally an overview of the maintenance re-sourcing decisions of the organisation where the in-depth case study was carried out is presented.

Chapter five presents the research findings in relation to the first objective. The research findings together with sourcing and maintenance literature provided the knowledge required to develop the maintenance re-sourcing model.

Chapter six discusses how the results from the case study were combined with knowledge from extant literature to develop a maintenance re-sourcing decision model

Chapter seven presents the model validation process and its results. The final version of the model from the validation process is also presented.

Chapter eight discusses the research findings in light of extant literature

Chapter nine concludes the thesis. The chapter begins by presenting a summary of the findings. This is followed by an outline of research contributions. The author then presents the study implications for both practice and research. The chapter concludes with discussions on research limitations and potential areas for further research

CHAPTER 2:

LITERATURE REVIEW ON OUTSOURCING AND MAINTENANCE

Introduction

Chapter 1 provided a background to the research and highlighted the need to focus on understanding how re-sourcing decisions are managed in order to develop sustainable sourcing strategies. The chapter also introduced why the research focus was placed on industrial equipment maintenance. Since the study's focus was on the maintenance re-sourcing stage of the outsourcing cycle, this chapter examines existing literature on outsourcing in general and re-sourcing in particular. This is followed by a review of literature on industrial equipment maintenance and maintenance outsourcing. Finally, a summary of literature review and research gap are presented.

Since re-sourcing is the final stage of the outsourcing cycle, it is an outcome of choices made in the previous stages (Marshall et al. 2007). In order to understand and evaluate outsourcing outcomes, it is important to understand the objectives that an organisation aims to achieve and the controls that are put in place to support the achievement of these objectives. This led to a literature analysis that addressed issues of concern in the outsourcing stages preceding the re-sourcing decision. In analysing the various stages of the outsourcing cycle it was observed that at each stage, decision makers seek to simultaneously achieve certain outsourcing benefits while avoiding the risks that may erode or limit the chance of obtaining these benefits. Therefore the first part of the literature analysis looked at outsourcing motives and risks.

In order to make recommendations for each of the outsourcing stages, outsourcing literature revealed the application of several theoretical perspectives to propose suitable approaches to sourcing decisions under various contexts. Several of the common theoretical perspectives used in understanding the outsourcing phenomenon were analysed. From the issues raised by various outsourcing theoretical views and literature on outsourcing motives and risks, the author was able to extract the factors that influence outsourcing decisions in general and those several authors believed would influence re-sourcing decisions in particular.

Based on the classification of services into consumer and business services (Fitzsimmons et al. 1996), the following research acknowledges the presence of both consumer and business maintenance. However, the present research focused on re-sourcing decisions for industrial

equipment maintenance in asset intensive business service organisations. In this study asset intensive service organisations was used to mean those industries in which substantial investment has been made in equipment used to carry out industrial business (Mitchelson 1992) and where availability and performance of this equipment is of overwhelming importance in the success of the business (Mitchelson 1992, Van der Meer- Kooistra & Vosselman 2000). Although maintenance in asset intensive service organisations also involves facilities management, facility services are usually fairly standardised with often a lot of alternative service providers in the market (Lehtonen 2004). In the present study, industrial equipment maintenance was considered a more critical core activity for industrial service organisations. Therefore, more emphasis was put on analysing industrial equipment maintenance literature.

The chapter concludes with a summary of the literature review and the identified research gap.

Figure 2.1 shows the structure of the present chapter.

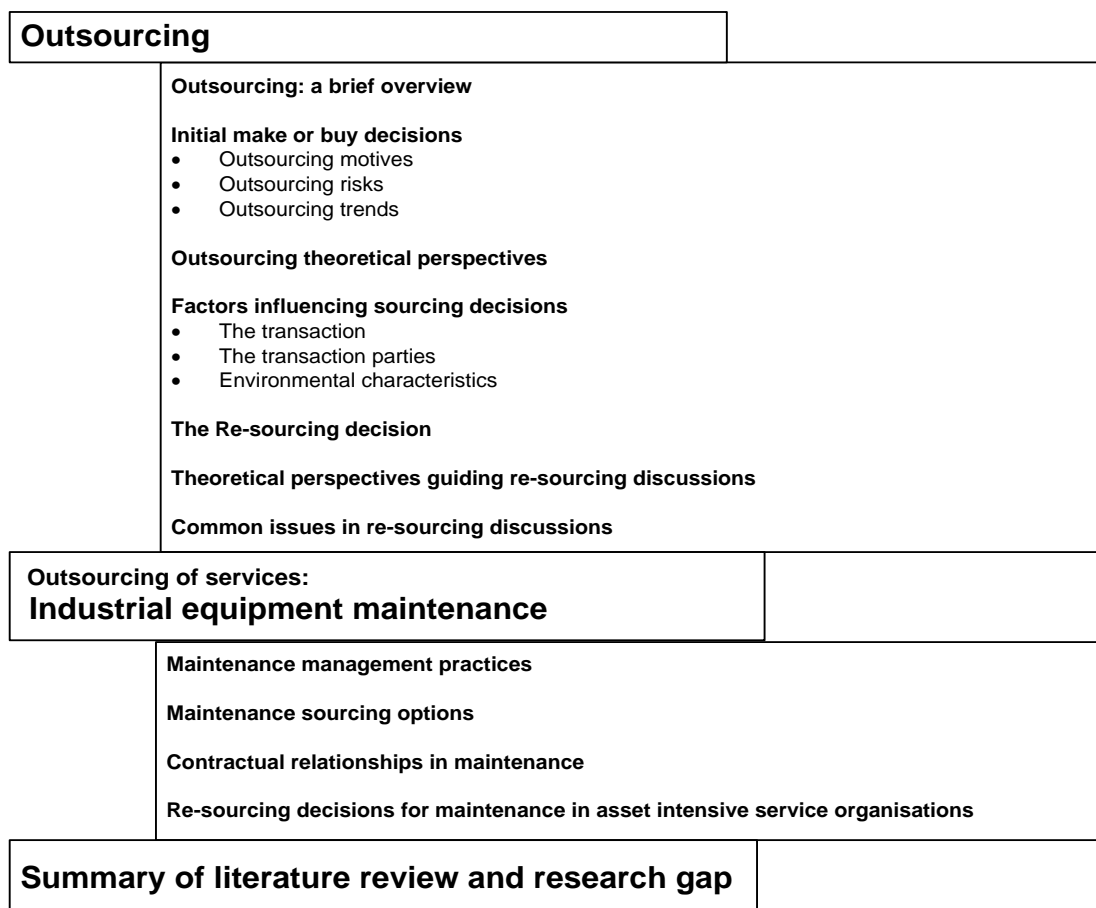


Figure 2.1 Structure of literature review chapter

2.1 Outsourcing: a brief overview

Outsourcing is a historically well established (Kakabadse & Kakabadse 2002) and increasingly growing practice (Bailey et al.2002) that has had a number of definitions (Willcocks et al.1995, Bailey et al. 2002, Mol 2007). One common stream among all the definitions is provided by Mol (2007) who points out that to say that “something is outsourced” means it is at present being procured from external providers.

However, despite this almost all encompassing definition by Mol (2007), outsourcing approaches and experiences are different and a number of dimensions have been used to categorise outsourcing. Depending on the activity being outsourced, an outsourcing arrangement could be related to product manufacture or service delivery (Bryntse 1996, Allen & Chandrashekar 2000, Nordin 2006). Sometimes the division is based on where the provider of the goods or service is located. Based on this dimension, the outsourcing arrangement could be called inshoring, nearshoring, or offshoring (Aron & Singh 2005). Looking at outsourcing through the management approach perspective, outsourcing could either be strategic or non strategic depending on either the reasons for outsourcing or whether core or non core activities have been outsourced (Quinn & Hilmer 1994, Alexander & Young 1996, Gottfredson et al. 2005).

The diversity in the characteristics of each outsourcing category demands a different approach at all stages within the outsourcing process. Right from whether the activity should or should not be outsourced (Quinn & Hilmer, 1994) through to the kind of outsourcing relationship control mechanisms that should be put in place (Van der Meer-Kooistra & Vosselman, 2000) For example, inshoring and offshoring present differing levels of uncertainty and perceived risk and consequently call for different criteria or more specifically, different criteria weight allocation when evaluating whether an activity should remain in-house or be outsourced (Aron & Singh 2005), what kind of supplier is required for the job and, management control mechanisms for the outsourcing arrangement. However, despite these differences among outsourcing categories, there are common themes that run across all categories. For example, motivations for outsourcing, risks involved, theoretical frameworks, general decision stages, and concepts.

According to Laios and Moschuris (1999), all make or buy decisions fall under one of three categories summarised in figure 2.2

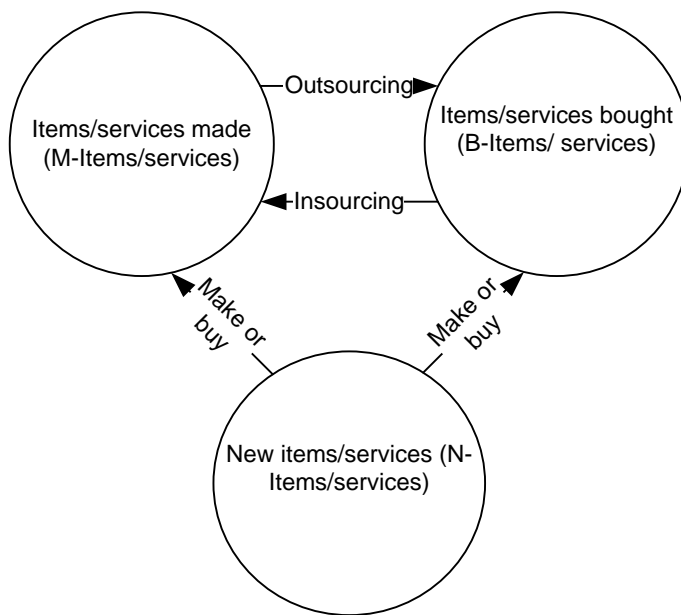


Figure 2.2 Classification of make or buy situations (Laios and Moschuris 1999).

- Items or services made or provided by the purchasing organisation prior to the resolution of a make or buy issue (M-Items/services).
- Items or services purchased from external suppliers prior to the resolution of a make or buy issue(B-Items/services).
- Items or services used for the first time by the enterprise prior to the resolution of a make or buy issue (N-Items/services)

Of particular interest in the present research was make or buy decisions falling under B-Items/service which the author has termed re-sourcing. But due to limited literature on this phenomenon, the research was mainly informed by perspectives and concepts from the M-Items/services category which has been termed initial outsourcing decisions in this thesis. Therefore under outsourcing, the literature analysis that follows is based first on initial outsourcing decisions and implementation processes. It is then followed by an analysis of concepts believed to affect the re-sourcing decision process and output.

2.2 Initial make or buy decisions

The question of why firms should outsource certain activities is an increasingly relevant one for many practitioners (Mahnke, 2001). Several authors have argued about under what circumstances and conditions the firms should chose internal or external provision of activities (Brandes et al. 1997). Most of these debates have centred around the need to balance outsourcing benefits and risks.

2.2.1 Motivation for outsourcing

The trend towards outsourcing both locally and offshore has been increasing dramatically throughout the developed economies of the world (McIvor 2008). It has been argued that outsourcing has the potential to improve the performance of an organisation in a number of different ways (Bailey et al 2002). Generally, make or buy investigations are triggered by a firm's desire to improve the efficiency of the supply chain and to offer better products and services to its customers (Laios & Moschuris 1999). One of the motivations for outsourcing has been the potential it offers to reduce operational costs. This is either through scale economies by allowing a supplier whose core business is the supply of a particular activity to a number of organisations to take on the activity at a cost less than what the in-house team is incurring or by allowing more competent supplier organisations to handle activities in a more state of the art manner (Lacity & Willcocks 1998, Kakabadse & Kakabadse 2002). Other reasons for outsourcing are, access to external supplier capability and innovative efforts which may be expensive for the company to acquire and/or sustain, an opportunity to free up capital and make it available for more profitable operations, increased ability to forecast costs (Kakabadse & Kakabadse 2002), and the opportunity to concentrate all organisational resources on the core activities of their businesses (Quinn & Hilmer 1994, Kakabadse & Kakabadse 2002).

The general argument is that suppliers have the activity being outsourced or under evaluation for outsourcing as their main offering. Therefore, they should with the passing of time have gained potential advantages of focus, shared experience, redeployment of staff and assets, professional career structures, economies of scale as well as specialist management processes tailored expressly to the activities concerned. These advantages can create enough value to generate better services at a lower cost to the user, while providing the supplier with a profit margin (Alexander & Young 1996). Further still, finding more qualified partners to provide more critical functions usually allows companies to enhance the core capabilities that drive competitive advantage in the industries (Gottfredson et al. 2005).

Although it has been said that outsourcing has migrated from a tactical or operational to a more strategic perspective (Quinn 1999, Allen & Chandrashekar 2000) with strategic outsourcing literature suggesting that the reason for outsourcing has changed from primarily cost disciplines to core competence enhancement, greater service integration and/or higher value creation (Quinn 1999), the prime consideration for both approaches, tactical or strategic still remains cost reduction (Kakabadse & Kakabadse, 2000). The difference is that in the case of strategic sourcing, cost considerations are escalated to strategic levels of decision making thereby promoting different organisational forms or alliances (Kakabadse & Kakabadse 2000)

It has also been said that outsourcing permits companies to reduce risks (Buck-Lew 1992, McIvor 2003). This is believed to be achieved through converting fixed costs into variable costs, minimising overheads during slack times and transferring the necessity to be flexible in line with demand requirements into the hands of suppliers (Buck-Lew 1992, McIvor 2003). However this risk reduction advantage cannot always be guaranteed. For example, it has been said that outsourcing enables firms to get the services of organisations with more specialised knowledge in those activities. However, while specialised knowledge acquisition through outsourcing has its advantages, tapping into specialisation gains of others is a complex process that spans across the purchaser and supplier's activity systems (Mahnke 2001). Therefore, when it is possible to examine and desire capabilities on the outsourcer's side there is no guarantee that efficiency gains will be realised because the supplier needs to re-integrate outsourced activities (Mahnke 2001, Aron & Singh 2005), a process that might require substantial investments (Mahnke 2001). This implies that there still remains a number of risks in outsourcing which may create perceived disadvantages (Blumberg 1994). Therefore, while it is the desire of most organisations to harness the risk reduction benefits of outsourcing practices, the absence of a guarantee to always achieve the benefits makes knowing the risks imperative.

2.2.2 Outsourcing risks

Outsourcing comes with many risks (Quinn & Hilmer 1994, Quelin & Duhamel 2003, Aron & Singh 2005). In fact it has been said that when engaging in outsourcing, smart companies start off assuming that service providers won't be able to execute business processes as well as their employees perform them in-house- at least not for a long time (Aron & Singh 2005). Outsourcing risks include loss of critical skills, loss of cross functional communication, loss of control over suppliers, shift in balance of power over the contract period, loss of employee morale and other hidden costs (Quinn & Hilmer 1994, Bailey et al. 2002, Tsang 2002).

Salonen (2004) categorised outsourcing risks into relational and performance risks. Relational risks are the result of a supplier not cooperating in good faith with the purchaser while performance risks are the result of the supplier being unable to meet the specified performance targets. In a similar effort, Aron and Singh (2005), categorised outsourcing risks either as operational or structural. Where, operational risks are risks that the outsourced activities and related operations will not operate smoothly after the activity has been outsourced, while structural risks are those that arise if the relationship with suppliers does not work as expected. Under the operational risk category, the outsourcing organisations runs the risk of the supplier performing poorly due to lack of necessary skills (Van der Meer-Kooistra & Vosselman 2000). On the other hand, structural risks are derived from the assumption that service providers can and do have incentives to behave in ways that reduce buyers' financial benefits from outsourcing.

Some of these include the possibility of the power relationship changing as the contracts between suppliers and purchasers mature, and, inability of suppliers to put the necessary effort into recruitment, retention and training of personnel. Structural risks are said to be inversely proportional to supervisory efforts of clients and amplified by processes that require transfer of large amounts of tacit knowledge (Aron & Singh 2005).

Generally, it could be said that outsourcing risks are evaluated based on two dimensions. One has to do with the behaviour of people while the other has to do with actual task performance. However, these two dimensions can not be evaluated and discussed one independent of the other since performance in one is highly dependent on performance in the other. Poor technical performance results on the actual activity can result in frequent complaints which are likely to strain the relationship between the outsourcing parties. Similarly, poor relationship management may result in differing perceptions on subjective satisfaction measures of actual task performance and perceived risk.

Based on the above discussion it can be concluded that all benefits associated with outsourcing in general are potential benefits and can only be realised under certain circumstances. However, despite evidence and discussion of various outsourcing risks, organisations are being challenged to harness the benefits of outsourcing while simultaneously minimising its detrimental effects (Allen & Chandrashekar 2000).

2.2.3 Outsourcing trend

In 1995, Hendry (1995) made the following statement

“One of the strongest and most sustained trends within business over the last ten years has been the trend towards outsourcing. With increased fervour and conviction, corporations have sought to reduce costs by contracting out services and activities traditionally provided in-house”

More than ten years later, it could still be said that although there are many more reasons for outsourcing services and activities besides cost reduction, the trend towards outsourcing both locally and offshore has been increasing dramatically throughout the developed economies of the world (McIvor 2008).

According to several authors, the key to deciding what to outsource rests with those elements that differentiate the organisation, especially in areas of value and quality (Quinn & Hilmer 1994, Fill & Visser 2000, Van der Meer-Kooistra & Vosselman 2000). Some argue that while management must own those operations that define a company's core business processes, other functional areas that are non core should be considered potential candidates for outsourcing (Fill & Visser 2000). This guide though, has already been challenged by the increasing number of organisations

outsourcing even their core activities (Gottfredson et al. 2005). Nevertheless, the decision to outsource an activity or not is a very critical one and poor foundations in sourcing arrangements resulting from choice of wrong sourcing strategies provide little room for success. Outsourcing decisions require the recognition of a wide range of contextual factors and the implication of their longer term development (Jennings 2002, Nordin 2006,). Therefore, an organisation's sourcing strategy needs to reflect the organisations own approach to developing competitive advantage and its business context (Jennings 2002).

A number of theoretical lenses have been used for explaining the outsourcing phenomenon and to guide initial make or buy discussions (McIvor 2008). A review of the most cited ones in literature, transaction cost theory(Williamson, 1985), resource based view (Wernerfelt 1984), agency theory (Jensen & Meckling 1976), the evolutionary perspective (Mahnke 2001), and the strategic sourcing approach (Quinn & Hilmer 1994), will be presented before discussing specific elements of concern in outsourcing decisions.

2.3 Outsourcing theoretical perspectives

2.3.1 The transaction cost economics theory

The transaction cost economics (TCE) theory has been the most influential theory used in outsourcing discussions (Poppo & Zenger 1998, Argyres & Liebeskind 1999, Mahnke 2001, Nesheim 2001). It hinges on two assumptions regarding man's behaviour; bounded rationality and opportunism (Williamson 1985). TCE, using the transaction as the unit of analysis (Williamson 1999), suggests that outsourcing entails transaction costs including searching, information gathering, contracting, monitoring and controlling, safeguarding interests of transacting parties and re-contracting (Mahnke 2001) and that supplier markets do entail some risks for buyers with respect to price, quality and time (Mahnke 2001). These costs differ based on a number of dimensions; the degree to which transactions are supported by transaction specific assets, amount of uncertainty about the future and about other parties' actions, frequency with which the transaction occurs (Williamson 1999, Arnold 2000) and complexity of trading arrangements with asset specificity being the most important aspect of a transaction (Arnold 2000).

Williamson (1985) defines three types of asset specificity; site specificity, physical asset specificity which is the transaction specific capital investment that tailor processes to particular exchange partners and human asset specificity which refers to transaction specific know-how accumulated by transaction through long standing relationships (Williamson 1985). TCE advocates for internalisation of activities involving high asset specificity for the fear that these trigger opportunistic behaviour amongst involved parties leading to an escalation of transaction

costs required to restrain this behaviour (Nesheim 2001). While some using the TCE lens argue that organisations should avoid lock in situations by avoiding outsourcing of activities requiring investment of highly specific assets (Aubert et al. 1996), organisations are increasingly outsourcing such activities while those involving low asset specificity are being kept in-house (Mahnke 2001). Further still, more real world firms are outsourcing activities with high transaction costs (Bello et al. 1997)

There has been rather a significant challenge to the prominence of TCE as an explanation for boundary decisions (Poppo & Zenger 1998). Some authors have argued that the economisation of transaction costs alone does not explain the large number of alliances and partnerships witnessed in industry (Bello et al. 1997). If firms were following the propositions of TCE, more firms would be totally vertically integrated in uncertain environments where organisations routinely incur substantial transaction specific investments (Bello et al. 1997). In fact, according to Marshall et al (2007), TCE fails to recognise that in many industries, organisations are involved in complex and collaborative relationships that involve high levels of asset specificity as well as uncertainty and opportunism (Marshall et al. 2007)

Other criticism regarding the TCE approach is related to the use of ‘the transaction’ as the unit of analysis. For example, Argyres et al (1999) argues that focusing on the characteristics of an isolated transaction can be insufficient to explain the scope of the firm especially when transactions within the firm are interrelated. What TCE might predict as an appropriate governance mode for a single transaction might be costly or infeasible when analysed in light of other transactions because of the interdependencies that exist between them. That is, a firm’s past governance choices regarding a particular transaction whose governance modes are currently being debated, and other transactions within and out of an organisation, significantly influence the range and types of governance modes that it can adopt in future periods (Argyres & Liebeskind 1999, Mahnke 2001).

2.3.2 The resource based view

Another prominent theory employed in the decision of whether to or not to outsource an activity or service is the resource based view (RBV) (Wernerfelt 1984, McIvor 2008). Under this view, sourcing decisions are influenced by the ability of an organisation to invest in developing a capability and sustaining a superior performance position to its competitors. Despite the differences in what several authors define as a resource a firm’s resources can be conveniently placed into three categories, Physical capital resources, human capital resources, and organisational capital resources (Barney 1991, Cheon et al. 1995). Using RBV, several authors argue that firms that are able to build rare, valuable-non substitutable and difficult to imitate

resources are able to achieve an advantage over competitors (Neisheim 2001, McIvor 2008). Therefore, once organisations have identified and/or created critical resources, RBV advises that they should keep these in-house (Nesheim 2001) and outsource processes in which the organisations lack the necessary resources and capabilities internally(Cheon et al. 1995, McIvor 2008).

However, the productivity of a given resource depends on whether or not firms make the best choices of strategy and business organisation, given the market and technological environments in which they operate (Caves 1980). Therefore, the usefulness of a resource can change from time to time. The need to sustain or develop an organisation's competitiveness, has brought to light the importance of another concept; core competence. The core competence concept (CCC) is based on the contention that while for over a century, companies competed on the basis of the assets they possessed, the basis of competition has now changed and shifted from hard assets to intangible capabilities (Gottfredson et al. 2005). Under CCC, it is believed that for any organisation, the real source of advantage is in management's ability to consolidate corporate wide technologies and production skills into competences that empower individual business to adapt quickly to changing opportunities (Prahalad & Hamel 1990, Quinn 1999). Core competences are the sets of skills and systems that the company does at best in the world levels and through which a company creates uniquely high value for customers (Quinn 1999) or the skills, knowledge and technologies that an organisation possesses and on which its success depends (McIvor 2003).

When dealing with sourcing deliberations, CCC and RBV revolve around the same core rationale, which is their major point of disagreement with TCE. That is, a firm's capability has significant impact on the boundary choices that the firm makes (Barney 1999). While under TCE, choice among alternative modes of governance is primarily explained in terms of transaction cost economising (Williamson 1999), under RBV and CCC, more emphasis is placed on the importance of the activity or process under evaluation.

The major challenge with RBV or CCC is that the core competency for any one organisation is fraught with many ambiguities (Quinn & Hilmer 1994, Kakabadse & Kakabadse 2000, Burdon & Bhalla 2005, Nordin 2006) and is always subject to change (Van der Meer-Kooistra & Vosselman 2000). Strategic capabilities and resources are often hard to identify in practice and despite the help that has been provided (Hafeez et al. 2002a) managers are continually faced with the difficulty of judging whether they are dealing with resources and capabilities of critical strategic need (Mahnke 2001).

The major difference between TCE and RBV is that while under the TCE perspective internal hierarchical governance structures are for the purpose of safeguarding against high transaction costs arising out of highly specific assets and the risk of opportunism, under the RBV perspective, the reason for an internal hierarchical governance structure is for the firm to build competitive advantage by retaining core resources and capabilities (Nesheim 2001).

2.3.3 Agency theory

Since most outsourcing relationships are governed by some form of contracts, the agency theory has been looked at as a relevant theory in addressing sourcing challenges. According to Jensen and Meckling (1976), an agency relationship is a contract under which one or more persons engage an agent to perform some service on their behalf which involves delegating some decision making authority to the agent. Under this perspective, it is assumed that if both parties to the relationship are utility maximisers there is good reason to believe that the agent will not always act in the best interests of the principal. Implying there will always be some divergence between the agents decisions and those decisions that would maximise the welfare of the principal (Jensen & Meckling 1976).

The agency theory is concerned with resolving two problems that occur in agency relationships. The first is the conflicting goals and desires between the agent and the principal as well as the difficulty experienced and costs incurred by the principal in evaluating whether the agent has behaved appropriately. And the second is the problem of risk sharing that arises when the principal and the agent have different attitudes toward risk (Eisenhardt 1989a). The focus of the agency theory is on determining the most efficient contract governing the principal agent relationship given the assumptions about people, organisations and information (Eisenhardt 1989a).

The agency theory perspective differs from the TCE perspective in that while the unit of analysis for the TCE perspective is the transaction, the unit of analysis in the agency theory is the contract governing the relationship between the principal and the agent. Further still, whereas TCE is based on the importance and characteristics of the specific transaction between the parties entering into a contract, the agency theory deals more with the characteristics of the agents (Kochhar 1996). However, despite these differences, TCE and agency theory share similarities along many dimensions (Kochhar 1996). For example, in both theories, the issue of opportunism is a common dominant assumption about human behaviour (Eisenhardt 1989a) and in the presence of uncertainty, opportunism leads to conflicts between contracting parties due to the differences that might exist between the parties' goals. Purchasers then seek to set up governance modes that minimise both agency (Jensen & Meckling 1976) and transaction costs (Williamson 1991) that could arise as a result of opportunistic behaviour (Eisenhardt 1989a).

2.3.4 The evolutionary theory

According to this perspective, due to bounded rationality, members of an organisation's boundary decision making unit may not be expected to be in a position of an all knowing decision maker facing well-defined governance options (Mahnke 2001). Decision parameters might not be obvious to actors involved and search efforts to discover them might be constrained by existing capabilities and incentives (Mahnke 2001). Consequently, changes in firm boundaries are likely to proceed along a sequence of process steps, best thought of as experimental search and learning process, to discover possibilities for improvements in efficiency both in the short and long run (Bellon & Niosi 2001, Mahnke 2001).

Under the evolutionary theory, it is argued that managers responsible for deciding the scope of outsourcing, aware or unaware, are faced with switching costs arising from both governance inseparability (Argyres & Liebeskind 1999) and complementarity of capabilities within the firm (Mahnke 2001). Governance inseparability is based on the fact that any new transaction in which a firm may seek to engage may become linked inseparably with the governance of other transactions in which the firm is already engaged. Governance inseparability, a situation fuelled by existing contractual commitments and changes in bargaining power between two parties in a relationship is the reason why some firms may fail to switch from one governance arrangement to another for the same transaction or use an existing governance form for a new transaction. Since no firm can entirely avoid contractual commitments, all firms are at a risk of governance inseparability and consequently, most firms will over time be constrained by their existing arrangements. For example a firm's implicit and explicit contracts with managers may constrain firm's choice of organisational boundary (Argyres & Liebeskind 1999). The core of the governance inseparability argument is that in many instances, the governance of a given transaction will not be based solely on the characteristics of that specific transaction as stipulated by TCE. Therefore while firms may strive to economise on transaction costs, this process is subject to a set of historically determined constraints that play an important role in determining future organisational growth (Argyres & Liebeskind 1999)

Under the second dimension upon which the evolutionary theory hinges, complementarity of activities, Mahnke (2001) argues that capabilities in an organisation may not remain valuable to as full an extent when detached from their context-the nexus of routines in which they have evolved and in which they have developed. Therefore, the complementary active system can constrain outsourcing of particular activities since lost interaction effects and knowledge spillovers between activities can diminish the effectiveness of other activities (Mahnke 2001).

While theories like TCE and RBV stress efficiency-gains in terms of transaction and production costs, they overlook the interface between activities and neglect the learning dynamics that lead

to strategic consequences in terms of capability development and adaptability in competitive environments of varying dynamics (Mahnke 2001). The evolutionary perspective recognises that firms make contractual commitments and partly tacit capabilities develop in a path dependence manner. Under the evolutionary perspective, organisations are always trying to reduce the gap between the known and what can be known. Therefore, the process of outsourcing will be slower and more costly, the more capabilities are based on experience-based knowledge; the less interfaces between activities are specified ex-ante, the more complex outsourced activities are, and the less participants involved in the process of governance change are capable and willing to articulate and share their knowledge with external suppliers (Mahnke 2001).

The evolutionary perspective and TCE agree on the influence of bounded rationality. Secondly, in its affirmation of the importance and contribution of previous transactions on present or future transactions, the evolutionary perspective agrees with the governance decision concerns associated with asset specificity in TCE. Since according to these two theories, future activities are highly dependent on what organisations have done in the past (Teece 1994). If an organisation has invested in highly specific assets, the likelihood of change from one governance form to another is restricted in some way by the switching and transaction costs that are likely to arise (Williamson 1985).

From the perspectives so far discussed, TCE and RBV have been the most influential in directing outsourcing studies (Mahnke 2001, McIvor 2008). Although they have often been used independently in guiding outsourcing discussions and decisions, there is an increasing body of literature, supporting the need for combining the strength of both perspectives (Quinn & Hilmer 1994, Conner & Prahalad 1996, Arnold 2000, McIvor 2008) along with the strength of others (Mahnke, 2001) in understanding the complexities of outsourcing decisions and arrangements. Even Williamson who is an ardent supporter of the use TCE in guiding boundary decisions (Williamson 1985, Williamson 1991), conceded that the relation between core competence aspects rooted in RBV and TCE, are more complimentary than rival (Williamson, 1999), and a lot could be drawn from each to inform the other. One perspective that is the result of combining different outsourcing views is the strategic sourcing perspective (Quinn & Hilmer 1994).

2.3.5 The strategic sourcing perspective

Strategic sourcing has become a common concept in outsourcing literature. The main argument under this perspective is that outsourcing should be looked at and evaluated in a more strategic nature as opposed to the traditional focus on cost reduction (Mol 2007). Strategic sourcing literature suggest that the reason for outsourcing has changed from being primarily a cost discipline to one of core competence enhancement, greater service integration and higher value

creation (Quinn 1999). The convergence of TCE and RBV in outsourcing discussions and studies has created a more effective understanding of strategic sourcing (Holcomb & Hitt 2007).

Building on RBV (Wernerfelt 1984), TCE (Williamson 1985), and CCC (Prahalad & Hamel 1990), Quinn & Hilmer (1994) argue that, the key strategic issue in in-sourcing versus outsourcing decisions is whether a company can achieve a maintainable competitive edge by performing an activity internally usually cheaper, better, in a more timely fashion, or with some unique capability on a continuing basis. Under the strategic outsourcing perspective, organisations operating within imperfect supply markets should undertake in-sourcing/outsourcing evaluations by analysing the activity under review using two dimensions. That is, the activity's potential for providing competitive edge taking into account transaction costs and degree of strategic vulnerability, which is the potential vulnerability that could arise from market failure if the activity is outsourced. Under the strategic perspective, outsourcing decisions should in addition to transaction cost analysis, incorporate an analysis of production costs and strategic considerations (Bello et al. 1997, McIvor 2008). The TCE approach is considered to be primarily a short-term cost-based approach to which strategic importance could be incorporated to add a long-term perspective (Arnold 2000).

The main shortfall in operationalising Quinn & Hilmer's (1994) model is a lack of clear objective measures by which companies can establish whether activities are of strategic importance or not. There is often a possibility that what resources and capabilities are judged as strategically critical might have to do with top managements imagination as much as with current activity performance (Mahnke 2001).

2.3.6 Conclusion on sourcing perspectives

What is evident from the preceding discussions on sourcing perspectives is that the current approaches to boundary choices recognise that single theoretical perspectives are insufficient in themselves to guide sourcing decisions. For example, Quinn & Hilmer's (1994) work on strategic outsourcing, recognises the need to combine the transaction cost perspective with the core competence concept. Similarly, Williamson (1999), argues that economising on transaction costs is the 'main case' but not the only case in boundary choice. There is an emphasis that since the ability to transact and therefore managing the cost of transacting is itself a capability, there is a blurring of boundary between the capability aspects of production focused on in RBV and CCC and the transaction costs incurred in an exchange (Foss 1993, Williamson, 1999). The idea that TCE and RBV or CCC are best utilised to compliment rather than compete with each other is advocated by many several authors (Williamson 1999, Arnold 2000, Holcomb & Hitt 2007, McIvor 2008). Others advocate for a combination of TCE, RBV and the evolutionary perspective (Argyres & Liebeskind 1999, Williamson 1999, Mahnke 2001). Under this argument, a firm

could be described as an aggregation of units for which the organisation enjoys a comparative advantage and consists of a bundle of related resources when analysed based on RBV, a bundle of routines when viewed using the evolutionary theory and a bundle of transactions and contracts when viewed using TCE (Williamson 1999).

In summary, with TCE as the foundation theory in organisational sourcing discussions, other theoretical frameworks have rather that totally disagree with its propositions, provided another perspective, independent or integrated through which organisational sourcing decisions can be analysed, discussed and explained.

2.4 The outsourcing process

Several authors have broken down the outsourcing process into what the present author has defined as four generic stages. These include, the planning stage, the engagement phase, the implementation stage and, the outcome phase (Zhu et al. 2001, Cullen et al. 2005, Marshall et al. 2005, Kakouris 2006). In each case, results from consultations at each process stage inform the actions and discussions at subsequent stages. The discussion presented in section 2.3 had its main emphasis on highlighting the issues that several theorists, researchers and practitioners have focused on or have been urged to focus on when undertaking make or buy evaluations. The present section addresses the outsourcing process under the assumption that the organisations has carried out an outsourcing evaluation whose outcome has supported the outsourcing of a particular activity. Since the research study focus was on re-sourcing decisions, attention in the outsourcing process literature was given to supplier selection decisions, outsourcing relationship management and the re-sourcing decision. The rationale for this literature focus was that, in order to consider a re-sourcing decision, the activity should already have been outsourced. The focal elements of concern prior to the re-sourcing decision would then be the supplier selection and the management of the inter-organisational arrangement.

2.4.1 Supplier selection decisions

Successful sourcing choices are heavily dependent on the quality of decisions taken with respect to supplier identification and evaluation (Webber et al. 2000, Bailey et al. 2002, Kakouris 2006). However, selecting an appropriate vendor is often a non-trivial task, in which multiple criteria need to be carefully examined in order for the purchaser to choose the most efficient option (Webber et al. 2000). The significance and effort put into the process increase as the complexity of the outsourced product or service, the cost, and the time span of the anticipated buyer-supplier relationship increases (Kakouris 2006).

In their review of 74 articles addressing vendor supplier selection criteria in manufacturing and retail environments, Webber et al. (1991) observed that strategic management decisions affect the

relative importance that the various criteria have on the vendor selection process. The most important criteria cited were quality, delivery, technical capability, production facilities and capacity, financial position, performance history, warranties and claims, with quality ranked as extreme importance. Several authors have confirmed the importance of these criteria (Blumberg 1994, Bailey et al. 2002, Feeny et al. 2005, Kakouris 2006). Blumberg (1998) is more precise when it comes to quality, delivery and technical capability to include specific elements such as commitment to quality improvement and customer satisfaction, understand customer's business and market, commitment to technological innovation and long term service commitment. Besides the quality, delivery and technical capability aspects, there has been an increased emphasis on the importance of selecting suppliers that can demonstrate the ability to remain financially stable (Blumberg 1998, Kakouris 2006). A potential supplier in a weak financial position inevitably presents a source of risk, not only because it cannot commit itself to any financial investment, but also because it may not have the necessary resources to invest in personnel, equipment and development efforts. In some instances it might even go out of business (Kakouris 2006).

The first step in identifying potential suppliers is for a company to consider its own requirements (Feeny et al. 2005). Then, depending on the specific need and circumstances, companies will look into business process outsourcing for suppliers for different capabilities. For example, according to Bailey et al. (2002), technical capabilities are more important when selecting an outsourcing vendor of an operational activity, compared to basic service activity. The decision to choose a particular supplier or extend the relationship with the existing one should be guided through a thorough evaluation of relevant strengths in the desired capabilities (Feeny et al. 2005).

It has also been argued that in today's dynamic environment, strategic supplier selection and strategic partnerships with vendors are a key ingredient to the success of inter-organisational relationships especially for activities where there are very few suppliers, there are significant investment and switching costs as well as those activities that require long term contracts (Sucky 2007). In this case, the tasks of strategic sourcing are, in general, to identify, to evaluate, and to select vendors for strategic long-term relationships, which will furnish the buyer with strategic items or services in order to help maintain a competitive advantage (Sucky 2007).

In general, the capabilities, size of the supplier, and the inter-organisational relationship structure selected, will depend a lot on the nature of activity under consideration (Kraljic 1983, Quinn & Hilmer 1994, Gottfredson et al. 2005). For example, strategic sourcing decisions are focused on strategic items or services with high supply risk, high profit impact, and high market complexity while commodity items are more standardised and can be handled in a more tactical manner (Kraljic 1983, Quinn & Hilmer 1994).

2.4.2 Interorganisational management control

Since transactions vary in attributes (Williamson 1999), there is no single way of managing business relationships for a buyer that is appropriate in all circumstances (Cox 2004b). However, despite this variability, the chances for organisational purchasers to make appropriate choices between alternatives can be increased if they are aware and understand both the buyer and supplier exchange circumstances that can exist as well as the full range of relationship management choices available for them when working with suppliers in any of these circumstances (Cox 2004a, 2004b).

However, even in situations where buyers have a range of sourcing choices, they cannot make their decisions in isolation because they are involved in a complex and only partially visible game with suppliers who have their own goals and motives (Cox 2004b). Therefore, the process of identifying factors that make a relationship work (Lehtonen, 2004) are in the interest of both purchasers and suppliers. Since the relationship between purchaser and supplier is the fundamental building block of all business transactions (Cox 2004b), understanding how to manage it is key to a successful outsourcing arrangement.

2.4.2.1 Formal and relational control patterns

The process of control is basically a process of monitoring something, comparing it with some standard, and then providing selective rewards and adjustments (Ouchi 1977). Inter-organisational relationships are manipulated using formal controls and/or relational governance (Poppo & Zenger 2002). Formal controls are the written contract, management initiated mechanisms designed to guide behaviour towards desired objectives whilst relational governance is unwritten, work based mechanisms designed to influence inter-organisational behaviour. While a number of definitions arise when relational governance is mentioned, common concepts include trust, open communication and information sharing, dependence and cooperation (Poppo & Zenger 2002, Goo & Nam 2007). The mechanism underlying relational governance which is to a great extent based on trust resides within individuals involved while contracts are external mechanisms of control that help to reduce uncertainty by constraining individual and organisational behaviour (Malhotra & Murnighan 2002).

While some have argued that stringent control measures may signal a lack of trust for suppliers who behave appropriately without such controls (Ghoshals & Moran 1996, Malhotra & Murnighan 2002) the role of formal contracts cannot be downplayed (Poppo & Zenger 2002). Irrespective of the relationship type chosen for an outsourcing arrangement, a good contract allows partners to set expectations and to commit themselves to short term goals (Dean & Kiu 2002, Barthelemy 2003). It provides a safety net in case the relationship fails (Leverly, 1998). It

is formal contracts that ensure that the early, more vulnerable stages of exchange are successful (Poppo & Zenger 2002).

Despite the argument that the use of binding contracts seem to keep interacting parties from seeing each other's cooperative behaviours as indicative of trustworthiness (Malhotra & Murnighan 2002), empirical work has also revealed that formal contracts and relational governance are in fact compliments (Poppo & Zenger 2002). In a complex contractual environment managers cannot always expect to rely on extended foresight to reach an optimal level of contractual completeness early in their contractual relationship (Mayer & Nicholas 2004, Marshall et al. 2007). Instead they must be prepared to respond to contingencies and learn how to address them contractually as the relationship unfolds. The presence of clearly articulated contractual terms, remedies and processes of dispute resolution, as well as the relational norms of flexibility, solidarity, bilateralism and continuance may inspire confidence to cooperate in an inter-organisational exchange (Poppo & Zenger 2002).

Relational governance may also promote the refinement and hence increased complexity of formal contracts. As a close relationship is developed and sustained, lessons from past periods are reflected in revisions of the contract. Exchange experience, patterns of information sharing, and evolving performance measurement and monitoring may all enable greater specificity and therefore complexity in contractual provisions. As a consequence, relational exchanges may gradually develop more complex formal contracts as mutually agreed upon processes become formalised (Poppo & Zenger 2002). In support of this argument, Mayer and Argyres (2004) observed that changes to the structure of a contract and new clauses in subsequent contracts are specifically responses to problems in earlier contracts and reflect learning over time. Resolving of current collaboration problems provides new insights and solutions which are incorporated into later contracts. The use of contracts therefore, does not only act as a framework or relationship control tool, but also acts as a repository for knowledge about how to govern future collaborations.

Using insights from TCE and the relational view especially the notion of trust, Van der Meer-Kooistra & Vosselman (2000) proposed three management control patterns relevant to inter-organisational relationships; market, bureaucracy, and trust based patterns (Van der Meer-Kooistra & Vosselman 2000). They based this on the differing characteristics of the actual transaction or activity outsourced, transaction environment, and transaction parties. In their analysis of Van der Meer Kooistra and Vosselman (2000)'s work as well as Spekle (2001)'s work on management control structures, Langfield-Smith and Smith (2003) identified the characteristics of the transaction, transaction environment and transaction parties suitable for

each of the management control patterns listed above (Langfield-Smith & Smith 2003). The author's general observation is that market based patterns are suitable for commodity items (Kraljic 1983) while trust based patterns are suitable for strategic items (Kraljic 1983) with trust playing a significant role in achieving control for the latter pattern.

2.4.3 Conclusion on interorganisational management control.

Management of inter-organisational relationships is a complex undertaking that involves management of both activities and relationships. The arrangement is further complicated by the fact that it involves not only a relationship between organisations but also relationships between people within organisations (Koh et al. 2004). Additionally, the context under which the inter-organisational parties operate are rarely static. Since the choice of an inter-organisational relationship control mechanisms depends on the characteristics of the transaction, transaction parties and transaction environment, then, there is also anticipation of change in control patterns over the relationship period due to changes in the characteristics of these three dimensions (Langfield-Smith & Smith 2003). For example, there is a possibility of an increase in trust as the relationship proceeds. This is attributed to the fact that contracting processes help to clarify each party's roles and responsibilities over time. It is this understanding of roles and expectations, and to a degree, joint learning that makes contracts have a positive effect on trust (Mayer & Nicholas 2004). The specification of contractual safeguards promotes expectations that the other party will behave cooperatively and thus compliments the informal limits of relational governance. Cooperative behaviour in the present then reinforces an expectation of cooperation in the future (Poppo & Zenger 2002). All this implies that organisations have to be vigilant in understanding how their relationships progress in order to make appropriate changes when necessary.

2.5 Factors influencing sourcing decisions

In analysing the theoretical perspectives guiding sourcing discussions, supplier selection decisions and interorganisational management control, several issues have been raised. These include assumptions under which propositions have been made, the units of analysis, the objectives of the outsourcing evaluation, context in which the organisation is operating and characteristics of the activities under review. In light of the aim and specific objectives of the research study reported in this thesis, the author found it necessary to analyse the factors that significantly influence the first stages of the sourcing cycle as a foundation for, establishing factors that have a significant impact on the way re-sourcing decisions are managed. An increased understanding about these factors was found necessary in guiding the process of developing the re-sourcing model.

The theoretical perspectives presented in section 2.3 have been used to discuss, and prescribe what several authors in outsourcing believed were the most appropriate sourcing choices for several organisational activities. For initial make or buy decisions and supplier selection processes, the unit of analysis and central focus for discussions based on these theoretical perspectives revolves around four dimensions. The characteristics of the transaction, the characteristics of the people involved, the internal organisational environment and the external organisation environment.

In successive stages of the outsourcing cycle, some of the elements within these dimensions become integrated. For example, the management control patterns presented by some authors (Van- der Meer-Kooistra & Vosselman 2000, Langfield-Smith & Smith 2003) argue that management control patterns are determined by the characteristics of the transaction, the characteristics of the transaction environment and characteristics of the transaction parties. In their studies, they combine the characteristics of the purchaser, characteristics of the people involved and the supplier from the external environment to form the transaction party dimension. Since the re-sourcing decision takes place after the sourcing implementation stage, this integration provides a valuable lens through which factors influencing sourcing decisions can be examined. The author has therefore chosen to pursue further discussions on factors that influence sourcing decisions under the umbrella of these three dimensions, the transaction characteristics, transaction parties and transaction environment. A summary of the elements under each dimension is shown in table 2.1.

Table 2.1 Factors affecting outsourcing decisions

Transaction characteristics	Characteristics of transaction environment	Characteristics of the transaction parties
<ul style="list-style-type: none"> ▪ Degree and type of asset specificity ▪ Measurability of activities and output ▪ Criticality of activity ▪ Frequency of transaction ▪ Uncertainty 	<ul style="list-style-type: none"> ▪ Environmental uncertainty ▪ Degree of market risks ▪ Institutional environments (rules systems and organisations) 	<ul style="list-style-type: none"> ▪ Bounded rationality ▪ Opportunism ▪ Behavioural uncertainty ▪ Inter-organisational power ▪ Risk perception and attitude ▪ Relationship history or experience with cooperation in networks or with specific parties

Source: (Van der Meer-Kooistra & Vosselman 2000)with additions

2.5.1 The transaction.

Transactions differ in a number of ways (Shelanski & Klein 1995) and are therefore categorised based on several dimensions. Generally, these dimensions include asset specificity, uncertainty and frequency (Williamson 1985), measurability of activities and output (Aron & Singh 2005), and criticality of activity with regard to creating and capturing value for organisational goal realisation (Van der Meer-Kooistra & Vosselman 2000, Aron & Singh 2005). Each of these dimensions will be discussed in turn

2.5.1.1 The degree of asset specificity

Williamson (1985) argues that asset specificity which includes, site specificity, physical asset specificity, human asset specificity and dedicated assets, is the most important dimension when considering sourcing options and controls. The major concern for transactions with asset specific investments is that, although there may be large numbers of qualified bidders at the outset, bidding parity at contract renewal stage may be upset due to the advantages gained by the incumbent supplier (Williamson 1985). These benefits include; the experience gained over the entire contract period, development of trust and relationships with either individuals or groups of individuals within the purchaser's firm and investments made by the purchaser in the supplier (Krause 1999).

Both form and degree of asset specificity influence the way in which transactions can be coordinated. While asset specificity types such as physical asset specificity and dedicated assets can be safeguarded by contracts, others like human asset specificity may be more difficult to settle by similar means (Kamminga & Van der Meer- Kooistra 2007). This, could be attributed to the fact that human asset specificity which arises due to learning by doing and which as a result increases the participants knowledge about special activities, materials, production and production processes of the firm (Van der Meer- Kooistra 1994) holds a high degree of tacit knowledge. For outsourcing arrangements where there is a high degree of asset specificity, organisations are advised to engage in highly cooperative outsourcing relationships with suppliers. But although cooperative outsourcing relationships are believed to have the potential of reducing the outsourcing risks, they often results in increased financial and social commitments which in turn raise transaction cost.

2.5.1.2 Measurability of activity and output

The level of control exercised or that might be required in an outsourcing relationship greatly influences the coordination requirements and consequently, transaction costs (Aron & Singh 2005). The essential element which underlies any organisational form of control is the assumption that it is feasible to measure, with reasonable precision, the performance that is desired (Ouchi 1979). Indeed, rewarding what the firm considers performance through the market

mechanism is only feasible when performance is easy to assess since in such circumstances, rewards can be unambiguously attached to results (Anderson 1985). When productivity cannot be assessed by results alone, this tends to increase monitoring and consequently transaction costs (Williamson 1985). Additionally, the inevitable presence of risks especially in high specific asset transactions requires management to identify and manage risks. But the harder it is for organisations to codify and measure the process and output with precision regarding a particular activity, the higher the operational risk involved with outsourcing that activity (Aron & Singh 2005). Similarly, the structural risks involved in outsourcing activities that are harder to monitor cannot be over emphasised (Aron & Singh 2005). Therefore, outsourcing activities with low output measurability, means the purchaser has to invest extensively in interorganisational control.

2.5.1.3 Criticality of activity

Another differentiating dimensions for outsourcing arrangements is the criticality of the task or function under scrutiny (Kraljic 1983, Sanders et al. 2007) or its strategic importance to the organisation (Kraljic 1983, Quinn & Hilmer 1994, Arnold 2000). Using two dimensions of purchasing importance to the organisation and supplier market strength or complexity, Kraljic (1983) divided items into strategic, bottleneck, leverage and non-critical with strategic items scoring high and non-critical items low on both dimensions. Kraljic (1983) argued that each item required a distinctive purchasing approach whose complexity is in proportion to its strategic implications. According to several authors (Quinn & Hilmer 1994, Nesheim 2001, McIvor 2008), organisations should outsource activities whose measure on the strategic vulnerability and core competence contribution dimensions is low and consider in-sourcing those activities that contribute greatly to the organisation's core competence as well as present a higher strategic vulnerability to the organisation if the outsourcing arrangement should fail to deliver on its promises. That is because, critical or strategic functions present a greater business risk to the organisation (Quinn & Hilmer 1994, Sanders et al. 2007) when their performance is low. The more critical a function, the more effort required by the purchaser in terms of relationship management (Duarte et al. 2004, Sanders et al. 2007).

2.5.1.4 Frequency of transaction

Transaction frequency is an expression of how often the buyer seeks to initiate the transaction (Fill & Visser 2000, Williamson 1985). It has been argued that as the frequency of transaction increases, the costs associated with monitoring the process and outcome of the transaction will be minimised by keeping the activity in-house while for low frequency transactions organisations choose to bear the risks associated with uncertainty by outsourcing (Williamson 1985).

2.5.1.5 Uncertainty

It has been argued that uncertainty is at the root of all market failures or transaction difficulties (Aubert et al. 1996). Uncertainty in transactions can be the result of many factors. Although in many cases uncertainty is discussed in relation to the environment and the people within and between organisations, uncertainty can also be embedded in the activity itself for example in the area of information technology. This uncertainty in the activity has the ability to impact perceptions of risk and thereby influence boundary choices (Williamson 1985). and interorganisational management control patterns (Van der Meer-Kooistra & Vosselman, 2000). Writing and enforcing complete contracts is more costly for highly complex and uncertain transactions. Therefore, it would seem that ,the higher the degree of uncertainty or the presence of unpredictable change (Miles et al. 1974) in the transaction activity itself, the more likely transaction costs of managing the relationship would escalate.

2.5.2. The transaction parties

Williamson (1999) argued that, the problems of organisations are not predominantly technological but have their origins in the attributes of transactions on the one hand and of human actors on the other. This brings to the forefront the significance of the influence of the nature of parties in or about to engage in a relationship on the chance and extent of relational risks (Van der Meer-Kooistra & Vosselman 2000). Elements under this dimension include bounded rationality, opportunism, behavioural uncertainty, interorganisational power, relationship history, and risk perception and attitude. The author discusses each element in the sections that follow.

2.5.2.1 Bounded rationality

A fundamental part of the sourcing decision problem is the fact that transactions are effected through innately imperfect human beings (Spekle 2001). Bounded rationality is a behavioural assumption that recognises that there are both rate and storage limits on the powers of individuals to receive, store, retrieve and process information without error as well as limits on the ability to articulate their knowledge or feelings by use of words, numbers, or graphics in ways that permit them to be understood by others (Williamson et al. 1975, Conner & Prahalad 1996). These cognitive limitations prevent individuals from possessing identical stocks of knowledge since each individual possesses experience, insights or skills that are to some extent different from that of another (Conner & Prahalad 1996). Further still, due to bounded rationality, decision makers cannot possess all the information required for making an optimal decision at the initial decision moment (Van der Meer-Kooistra & Vosselman 2000). The result is that the laying out of requirements for two contracting parties is never complete (Conner & Prahalad 1996) posing a risk on the transacting parties. This affects both initial sourcing decision processes as well as

subsequent decisions of supplier selection, design of interorganisational management controls and renegotiations or new negotiations at the end of existing contracts.

2.5.2.2 Opportunism

Besides having cognitive limits, opportunism and self interest are common dominant assumptions about human behaviour. Opportunism has been defined as, self interest seeking with guile and refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse, often leading to information asymmetry. Opportunism has been considered as an always present troublesome source of behavioural uncertainty whose effects organisations need to be protected from by developing appropriate safeguards can be devised ex-ante (Williamson 1985).

In contrast to opportunism based transaction cost theory, Conner and Prahalad (1996) argue that opportunism does not always exist. Rather, there is always irreducible knowledge differences between individuals which does not necessarily arise from a threat of purposeful cheating or withholding information (Conner & Prahalad 1996). In such situations, bounded rationality prohibits even honest people from reaching agreements since each party acting truthfully, may have a different view of the factors that would or should be taken into account in designing present and future courses of action based on predictions of uncertain, present or future, exogenous or endogenous realities (Conner & Prahalad 1996, Bellon & Niosi 2001). However, even if not every individual is continuously or even largely given to opportunism, differential trustworthiness is rarely transparent ex-ante. As a consequence, ex-ante screening efforts are made and ex-post safeguards against opportunism created (Williamson 1999).

Since both sets of arguments agree to the fact that bounded rationality exists among individuals, then it could also be inferred that whether an individual or a group of individuals is behaving opportunistically or not cannot be predicted with certainty by the party making the evaluation. It would then necessitate a comparison of production and transaction costs based on both the presence or absence of opportunism, to determine which sourcing approach, will give rise to less risks for the purchaser.

2.5.2.3 Behavioural uncertainty.

While there is general uncertainty arising from an unpredictable environment, there is also uncertainty arising from behavioural risks of the transacting parties. Due to both bounded rationality and opportunism, there is a likelihood for behavioural uncertainty to ensue (Williamson 1985). Behavioural uncertainty is uncertainty that arises because of strategic non-disclosure, disguise or distortion of information. This conscious supply of misleading signals by one party limits the knowledge that can be collected and analysed by the other party (Williamson

1985). The higher the asset specificity, the higher the impact of behavioural uncertainty in the interorganisational relationship.

2.5.2.4 Interorganisational power

Buyers and suppliers are dependent upon each other for the satisfaction of their resource needs. But a purchaser's power position in relation to the suppliers or a given supplier defines its ability to influence the terms and conditions of the present or subsequent contracts in its own favour (Argyres & Liebeskind 1999).

According to Cox (1999,2004b) and Lehtonen (2004), inter-organisational arrangements exist in any of four power position scenarios of buyer dominance, supplier dominance, buyer-supplier interdependence and buyer-supplier interdependence. But in order to develop and apply the most appropriate relationship control mechanism, organisations need to understand the power and leverage environments within which they are operating (Cox 2004b, Duarte et al. 2004). For example, It is believed that the need for a collaborative approach and also the success of the relationship is affected by the level of co-dependence and the power positions between purchaser and supplier (Cox 2004b). Based on the power position each holds and the relative share of value appropriation between buyer and seller, they can choose from non adversarial- arms length, adversarial arms length, non adversarial collaborative and adversarial collaborative (Cox, 2004b)

Several factors influence power positions between any two parties (Pfeffer & Salancik 1978, Ramsay 1994, Cox 2004b). For example, there seems to be an inverse relationship between the number of buyers in any given market and the potential purchasing power of any individual buyer (Ramsay 1994, Cox 2004b). The availability of alternative suppliers would reduce the purchaser's dependence on a supplier and thus contribute to his power over the supplier (Anderson & Weitz 1989). Similarly, when there are many purchasers and few suppliers, the suppliers are likely to have more power over the purchasers.

However, the net power that any party has over the other in the relationship or during negotiations is a function of the attractiveness of their resource to the other party (Pfeffer & Salancik 1978, Ramsay 1994,). Therefore, although money is the primary resource that the purchaser brings to the exchange relationship (Ramsay 1994, Cox 2004b), the attractiveness of the purchaser's financial offer to the supplier is directly proportional to the ratio of that offer to the supplier's total sales revenue (Ramsay 1994, Cox 2004b) and the profits generated or that could be generated from the delivery of that service (Cox 2004a). Therefore, power in the hands of any party to a prospective or ongoing inter-organisational relationship is only potential power until it is bestowed upon them by the other party.

2.5.2.5 Risk perception and attitude

There is little argument that an organisation's decision to outsource involves a consideration of multiple risks especially when it comes to critical or strategic activities. Therefore, organisational members perception of risk and their attitude towards it are of great concern in sourcing decisions. On one hand, the readiness of parties to invest in transactions, depends to some extent on the organisational members perception of the likelihood that in the future, gains will be generated by the investment (Van- der Meer-Kooistra & Vosselman 2000). On the other hand after evaluation of risks, the organisation's management response to the evaluated risks will play a big role in the organisation's decision regarding supplier selection and relationship management control. In their research work, Gilley et al (2004) observed that risk averse top management teams will be more likely to find outsourcing an attractive strategy for the activities that they would otherwise be responsible for if they were carried out in-house (Gilley et al. 2004).

2.5.3 Environmental characteristics

Because organisations are open social systems, they are constantly changing and their boundaries fluctuate accordingly (Miles et al.1974) depending on changes in internal or external environmental characteristics. There are conflicting assumptions about the structure of organizational environments, the origins and processes of environmental change, and the means for enhancing the capacity of organizations to sense and act on pertinent environmental information (Lenz & Engledow 1986). When firms are viewed as open systems(Miles et al. 1974), then a firm's ability to maintain and develop capabilities is embedded in an external environment, which may be signified by either the industry in which it is active, the technology it applies or develops, or alternatively, the wider institutional environment in which it is embedded (Mahnke 2001).

In relation to organisational decision making, the environment could be thought of as the totality of the physical and social factors that are taken directly into consideration in the decision making behaviour of individuals in the organisation (Duncan 1972). The strength of this definition is in the fact that it recognises the influence of both the internal and external components of the environment on the decision making units(DMU) within the organisation. Although this definition takes into account only those elements that DMU take into consideration when making choices and excludes parts of the objective environment that the DMU members might fail to recognise and/or include while making decisions, it is supported by several authors in decision making literature who acknowledge that as far as decision making is concerned, only what is recognised and included is what will ultimately affect the immediate decision output; choice (Miles et al. 1974, Daft & Weick 1984).

However, parts of the objective environment that might not be perceived by decision makers and consequently have little influence on the choices made, can affect the long term results that will be achieved or faced by the organisation (Miles et al. 1974). This increases the need for purchasing organisations to enhance the capacity of their information management systems.

Generally, the dominant aspects of an organisation's environment are assumed to exist in and around the industry or industries in which a firm competes. It consists of a particular set of competitive forces that establish both opportunities and threats. Strategic moves by any of these competitors can alter prevailing relationships and thereby change the pattern of forces in an organisation's environment (Lenz & Engledow 1986). In fact, it has been said that one cannot argue about a firm's outsourcing possibilities without looking at how a particular decision will affect the strategies of its competitors (Platts et al. 2002). The internal and external environment in which an organisation operates influence several stages of the outsourcing process (Fill & Visser 2000) and several issues arise when discussing the environment in relation to outsourcing. These are presented below.

2.5.3.1 The internal environment and uncertainty

The internal environment consists of those relevant physical and social factors within the boundaries of the organisation or specific decision unit that are taken directly into consideration in the decision (Duncan 1972). Elements of the internal environment include (1) the organisational personnel component which has to do with the personnel educational and technological and managerial background, skill and experience, interpersonal behaviour styles and availability of manpower, (2) the organisational functional and staff unit component, which has to do with the technological characteristics of organisational units, their interdependence, as well as their intra and inter unit conflicts, (3) organisational level component which relates to organisational goals and objectives, organisational integrative processes and nature of organisational products and services. Overall, environmental uncertainty refers to the complex, little known and turbulent nature of the environment within which an organisation functions and raises problems in predicting future contingencies that can confront an exchange relationship (Bello et al. 1997). In light of the components of the internal environment, internal environmental uncertainty refers to the difficulty in ascertaining adherence and conformity to contracted agreements when the performance of a task is allocated externally. It represents the difficulty in monitoring the behaviours of the external agency to which the task has been allocated and in measuring and evaluating its outputs (Bello et al. 1997). How effectively these processes are managed will in turn determine the effectiveness of subsequent sourcing decisions.

2.5.3.2 The external environment and uncertainty

According to Duncan (1972), the external environment consists of (1) customer component which has to do with the actual users of the items or services to be outsourced, (2) the supplier component, which has to do with the supplier and labour market as well as equipment and product parts supply, (3) the competitor component, which has to do with the competitors for both the suppliers and customers, (4) the social political component, and, (5) the technological component which has to do with technology velocity and trend.

With regard to the external environment, the degree of environmental uncertainty is a function of the amount of information that the organisation has or can acquire, the organisation's ability to know with precision how much the organisation would lose if the decision were incorrect, and, the organisation's ability to assign with some degree of confidence how the environmental factors are going to affect the success of the DMU in performing its function (Duncan 1972). In situations of high environmental uncertainty, decision unit members will not have the relevant information available for the factors associated with a decision and as a result, the outcome of the decision cannot be fully assessed (Duncan 1972). Frequent changes in technology, regular introduction of new and renewed products, and tough competition make the environment in which parties contract with each other very uncertain (Van- der Mer-Kooistra & Vosselman 2000). Coping with these changes requires faster response on the part of the sourcing organisation (Bello et al. 1997).

2.5.3.3. The supplier market

This has to do with the type and number of competent suppliers available in the market (Cox 2004b) and their locations (Kumar et al. 2004). For some activities, such as commodity items, there are usually more suppliers than for strategic items. Therefore, the purchaser's sourcing behaviour is not constrained. Similarly, for some industries, regions or countries, there are original equipment manufacturers (OEM) in good proximity to offer repair and maintenance services or other after sales services to the organisations using their equipment. On the contrary some organisations are established in regions where the only communication between them and original equipment manufacturers is constrained by distance and therefore limited to telephone, faxes, emails and in worse instances manuals. Such organisations have to depend on independent service providers (Kumah et al. 2004). Other factors that are of critical importance to a purchaser considering an outsourcing evaluation are; the level of training and management competence held by existing suppliers, history and experience in the field as well as kind of technology handled by them. The magnitude of the risk presented to parties in an interorganisational relationship such as dependence, opportunism, and communication challenges, is a function of the characteristics of the supply market (Williamson 1985, Marshall et al. 2007, McIvor 2008,).

2.5.3.4 The competitors for the suppliers

Sourcing decisions involve an analysis of available internal resource needs and the most efficient and effective means of meeting these needs (Prahalad & Hamel 1990, Quinn & Hilmer 1994, McIvor 2008). Although one of the major elements of concern is the absolute supplier market, purchasers are also concerned about who else in their industry or outside is seeking for the services of the same suppliers as well as who is actually vying for the same market. Therefore, the decision approaches and final choices that can be made by any purchaser will in addition to the number of existing suppliers in the market be affected by the number of purchasers competing for the suppliers (Duncan 1972, Pfeffer & Salancik 1978). These purchasers could either be from the same industry and therefore the individual purchaser's competitors or they could simply be competing for particular suppliers' products or services. The presence and decisions made by these competitors increases the level of uncertainty in the environment (Pfeffer & Salancik 1978).

2.5.3.5 The institutional factors.

The nature of the task, the work setting, and the presence of formal rules and regulations are the few of the situations that can affect strategic decision makers. The situational strength within an organisation both for its internal and external environment moderates the impact of individual differences among decision makers (Mullins & Cummings 1999). In strong situations, most actors interpret a situation in the same way and draw similar conclusions because the situation itself provides incentives to make the appropriate response (Mischel 1977). On the contrary, in weak situations, there is an ambiguity about the meaning of the situation and the appropriateness of various responses. The incentives for any particular response are unclear and the ability of individuals to respond may vary (Mischel 1977). Therefore, weak situations provoke different interpretations of the organisational environment (Mullins & Cummings 1999) while strong situations often governed by clearly specified rules on what should and should not be done, demands or organisational policies, facilitates uniformity of interpretation and response to organisational environments.

Still under the umbrella of institutional factors are factors like education, communication and transport infrastructure (Malhotra et al. 1994, Kumah et al. 2004, Malhotra et al. 2005). These determine the ease with which the activity purchasers will evaluate, monitor and assess the performance of the market and the suppliers. It will also determine perceptions of set up costs in case they considered returning the outsourced activity back in-house.

2.5.4 Conclusion on the factors influencing sourcing decisions

Generally, these three dimensions of transaction characteristics, transaction parties and transaction environments provide the inputs to the sourcing process. So far, with differing weights, elements discussed under these dimensions have been integrated in the outsourcing determinant and outsourcing process literature.

There have been mixed results on the degree of influence that each of the elements under transaction characteristics has on the decision to outsource and subsequent stages. Generally, organisations tend to easily outsource activities with a low degree of asset specificity, low uncertainty in transaction and transaction process, low transaction frequency, low ranking on criticality of activity and high measurability of activity and output. While organisations are increasingly outsourcing activities of high asset specificity, high strategic vulnerability, low measurability of activity and activity output, outsourcing arrangements for these activities are often taken with more caution (Van der Meer-Kooistra & Vosselman 2000, Langfield-Smith & Smith 2003) and at increased levels of transaction costs (Williamson 1985, 1999, McIvor 2008).

Each of the issues addressed under the transaction party dimension cannot be measured or even thoroughly discussed independent of other elements within the same or other dimension. For example, opportunism may be influenced by bounded rationality and behavioural uncertainty, the risk perception and risk attitude element can hardly be separated from uncertainty and asset specificity. The influence of transaction parties in organisational boundary decisions cannot be overemphasised since the choices that an organisation makes or actions that an organisation takes in responding to its environment may well be more consistent with perceptions of the environment than with more objective indicators of environmental conditions (Leifer & Huber 1977). Although variations in objective environments affect perceptions, individuals' character and organizational structures also influence how managers' perceive their environments (Yasai-Ardekani 1986) and the choices that they eventually make out of the available alternatives. This makes the transaction party dimension very critical for the effectiveness of sourcing decisions.

2.6 The re-sourcing decision

Once an organisation has outsourced an activity, a re-sourcing decision becomes inevitable (Cullen et al. 2005). This stage of the outsourcing cycle has been given different names by several authors. The surviving stage (Zhu et al. 2001), refresh stage (Cullen et al. 2005), the outcome stage (Marshall et al. 2007). But despite the difference in wording, the general argument put forward by all the authors is that, organisations need feedback about their outsourcing projects. The feedback process is concerned with assessing whether the outsourcing program was successful and involves determining whether the contract was renewed, terminated and the

activity brought back in-house, terminated and the activity regarded as no longer required (Marshall et al. 2007). It also involves establishing whether each organisation had met the criteria that were initially established for outsourcing as well as the nature of the relationship with the supplier (Marshall et al. 2007). A combination of decisions at this stage which have collectively been referred to as the 're-sourcing decision' in this study are a means of providing feedback to the purchaser's decision makers about prior inputs in the outsourcing arrangement.

2.7 Theoretical perspectives guiding re-sourcing discussions

While TCE and RBV have been prominent in explaining why firms should outsource some of their activities (McIvor 2008), there has been increasing concern over their inability to support other stages of the outsourcing cycle (Argyres & Liebeskind 1999, Mahnke 2001, Whitten & Leidner 2006). Although TCE and RBV provide some support in understanding re-sourcing decisions, the existence of an interorganisational relationship during the outsourcing implementation stage implies additional challenges that make TCE and RBV incapable of providing all the explanations needed to support re-sourcing decisions.

Other theoretical lenses have been used alongside TCE and RBV to provide more insight about what is likely to affect the re-sourcing decision. Among these has been, the social exchange theory (Whitten & Leidner 2006) the evolutionary theory (Mahnke 2001, Argyres & Liebeskind 1999) and the resource dependency theory (Pfeffer & Salancik 1978),

2.7.1 The social exchange theory

Social exchange theory (SET) is one of the prominent relational theories that has been used in explaining the creation of cooperative relationships in outsourcing arrangements. It focuses directly on the social process of give and take between parties and aims to promote an understanding of the behaviour of each actor contributing to the relationship (Kern & Willcocks 2000). Under the SET perspective, exchange interactions involve economic and social outcomes (Lambe et al. 2001). Overtime, each party in an exchange relationship compares the social and economic outcomes from their interactions to those that are available from exchange alternatives. From a SET perspective, the initial transactions are crucial in determining whether the outsourcing relationship will expand, diminish, remain the same or dissolve (Lambe et al. 2001).

SET has the potential to dissect the transaction process and to explain the interdependent contingencies in which each response is dependent on the other's prior action and simultaneously the stimulus evoking the other's further reaction (Kern & Willcocks 2000). Organisations evaluate outcomes from each transaction, and compare them to the level felt deserved as well as to the level of benefits provided by other potential exchange partners. If the level of exchange is

deemed acceptable, future interactions may occur. Lambe et al (2001) argue that the key activity that drives all the relationship development stages and allows firms to make outcome comparisons to desired comparisons and alternative offerings are, exchange episodes or interactions, that occur during various stages of relationship development (Lambe et al. 2001). Although SET provides a good lens through which to understand and evaluate re-sourcing decisions its limited in that it focuses on interactions solely between individuals and groups (Kern & Willcocks 2000).

2.7.2 The evolutionary theory

Another theoretical perspective through which re-sourcing decisions can be explored is the evolutionary theory (Mahnke 2001) mentioned earlier in section 2.3.4. Outsourcing processes take place in a particular, competitive context where changes in this context and learning responses to these changes are seen as key drivers of long term changes in the distribution of capability maintenance and development among firms. Mahnke (2001) argues that while some guidelines for helping organisations in their sourcing decisions are provided using other theoretical perspectives such as TCE and RBV, they do little to help managers understand switching costs during the process of vertical disintegration, fail to relate the process of outsourcing to competitive dynamics, and downplay long term consequences on maintaining and developing the dynamic capabilities of the firm (Mahnke 2001).

The rationale provided by proponents of the evolutionary theory in guiding subsequent sourcing decisions is similar to the arguments provided by SET except that the evolutionary theory goes beyond evolution of inter-party relationships to include the dynamics of the inter-organisation operating environment and the impact it has had on the organisation, as well as the impact of prior organisational decisions and contractual agreements on its subsequent sourcing decisions and the internal and external environment.

The evolutionary theory recognises that, turbulence in markets, industry frontiers and technologies never ends (Bellon & Niosi 2001). This turbulence may render previous or current sourcing strategies inappropriate for future requirements of the organisation. The turbulence may be the result of changes in the external environment in which the purchaser operates, unexpected outcomes from present outsourcing arrangements, or changes in the current state of the organisation that may change present organisational goals or requirements (Bellon & Niosi 2001). All these may cause purchasers to lose interest in their present interorganisational relationships or sourcing strategies.

The evolutionary theory emphasise the importance of an organisation's investment in knowledge creation and collection if the organisation is to compete favourably in an ever changing environment (Foss 1993, Bellon & Niosi 2001).

2.7.3 The resource dependency theory

Resource dependency theory (RDT) argues that all organisations find themselves dependent, to varying degrees to some elements in their external environment (Cheon et al. 1995). An organisation's dependency on another is the measure of its influence on other organisations. Therefore, in relation to re-sourcing decisions, a purchaser's dependency on a particular supplier is a measure of how much this particular supplier must be taken into account and how likely it is that he will be perceived important and considered in the purchaser's decision making (Pfeffer & Salancik 1978). The level of an organisation's dependence on another is said to be governed by three factors (Pfeffer & Salancik 1978, Cheon et al. 1995);

- The importance of the resource and the extent to which the organisation requires it for continued operation and survival
- The extent to which the interest group has discretion over the resource allocation and use
- The extent to which there are a few alternatives

In interorganisational literature, dependency is often discussed in relation to power (Pfeffer & Salancik 1978, Anderson & Narus 1990, Cox 2004b, Caniels & Gelderman 2007). For dependency between two organisations to provide one organisation with power over the other, there must be asymmetry in the exchange relationship, a condition which is likely to exist when the exchange is not equally important to both organisations (Pfeffer & Salancik 1978, Cox 2004a, Caniels & Gelderman 2007). For example, asymmetry in the exchange relationship might exist where the level of investments made by one party in the relationship relative to the other is great (Mahnke 2001). The issue of dependence is problematic because it has the potential to place the limit on the purchaser's ability to control the behaviour and output of the supplier. It is even made more complex by the fact that the amount of interdependencies that exist between organisations can change over time. This change may be the result of intentionally devised strategies by one of the parties or the result of the actions of other organisations within the environment that these two organisations operate (Pfeffer & Salancik 1978). For example, a solution to one organisation's uncertainties such as finding a new supplier has the potential to create new uncertainties for other organisations (Pfeffer & Salancik 1978).

2.8 Common issues in re-sourcing discussions

In light of the theoretical views analysed in section 2.7, a number of issues arise. These include, the issue of small numbers bargaining, outsourcing performance evaluation, incumbent supplier performance, switching costs, power dynamics, switching inertia, and dissatisfaction strategies. This is in addition to issues already mentioned under the three dimensions of transaction characteristics, transaction environment and transaction parties when discussing the earlier stages of the outsourcing cycle.

2.8.1 Small numbers bargaining

TCE holds that, depending on the level of durable investments in transaction specific human or physical assets, a condition of large numbers bidding at the outset does not necessarily imply that a large number's bidding condition will prevail thereafter. When substantial specialised investments are made, the initial winning supplier enjoys an advantage over non-winners in subsequent sourcing decisions thereby upsetting parity (Williamson 1985). In such situations, what was a large numbers' bidding condition at the beginning is effectively transformed into one of bilateral supply thereafter (Williamson 1985, Van der Meer-Kooistra & Vosselman 2000).

While this is generally true, there might be little concern for this element in environments where there was a limited supplier market at the outset of outsourcing. Some organisations have outsourced in environments where there is supplier monopoly and would therefore anticipate similar circumstances in supplier markets at re-sourcing stages. Therefore, the issue of small numbers bargaining is likely to be of great concern for activities and environments where there was more than one supplier when considering outsourcing for a given activity in the first place.

2.8.2 Outsourcing performance evaluation.

What is evident from all outsourcing is that purchasers need to reassess their initial sourcing decision before coming to the end of a given contract. These concerns imply that evaluation of outsourcing outcomes is at the core of re-sourcing decisions (Lee 2001, Cullen et al. 2005, Marshall et al. 2007). Several motives drive organisations into outsourcing one or more activities. Therefore, when organisations outsource, there are projected benefits (Jiang et al. 2006) or a set of objectives that these organisations expect to achieve during the implementation stage. Both technical and business benefits are significant motivators for outsourcing (Loh & Venkatraman 1995). Holmund & Kock (1995), established that evaluation of service quality in industrial networks is based on three dimensions, economic quality, functional quality and technical quality. This shows that the purchaser's evaluation of an outsourcing arrangement is in line with marketing literature that quality is multidimensional (Gronroos 1984;) and can be multi-level. While each dimension of service quality from an outsourcing arrangement, may contribute

differently to a purchaser's assessment, outsourcing success refers to the overall advantage obtained from outsourcing (Lee 2001).

One means of assessing the success or failure of an outsourcing program is to establish the decision outcome as perceived by the managers involved in the process based on their objectives at the beginning of the outsourcing process. But in order to carry out an evaluation of the appropriateness of the outcomes, there is need to measure the performance or outcome of outsourcing implementation. This implies the presence of a performance measurement system. According to Bititci et al. (1997,) a performance measurement system should enable the correct deployment of the strategic and tactical objectives of the business as well as providing a structural framework to allow the relevant information to feed back to the appropriate points to facilitate the decision and control processes. When well developed, a performance measurement system implementation has the capacity to foster managerial change and promote organisational learning because of its ability to acquire, distribute, interpret and store knowledge (Garengo et al. 2007). Although the use of a performance measurement system to drive continuous improvement can lead to significant improvement (Bititci et al. 2006), in order for it to be effective, organisations need to recognise that performance measurement is a cross functional issue which requires joined-up thinking at all levels of the organisation (Bititci et al. 2006).

An important aspect of any performance evaluation system is information. But, while information is key to any evaluation, the effectiveness of the performance management system depends on how this information is used to manage the performance of the business (Bititci et al. 1997). It is therefore critical that the performance management system puts into consideration the effect of soft factors such as culture, behaviour and attitudes together with harder factors such as reporting structures, responsibilities and the use of information technology (Bititci et al. 1997).

For any outsourced activity, outsourcing performance evaluation is based on two general levels. Outsourcing performance evaluation in relation to suitability of outsourcing and outsourcing performance evaluation in relation to a particular interorganisational arrangement. Depending on the degree of satisfaction with outsourcing in general, organisations can either choose to continue outsourcing or return the activity in-house. Similarly, depending on the degree of satisfaction with a particular supplier, organisations can choose to renew the contract, switch suppliers, return the activity in-house or a combination of any of these. The need to understand the degree of success with regard to the two levels, implies incumbent supplier performance measurement.

2.8.3 Incumbent supplier performance

At the heart of outsourcing evaluation is the evaluation of the incumbent supplier's performance. Several authors who have attempted to enhance our understanding of the re-sourcing decision

have included incumbent supplier's performance as one of the factors that influence a purchaser's decision to continue or dissolve an outsourcing relationship, and/or, to insource or continue outsourcing (Hoccut 1998, Yanamandram & White 2006, Kim et al. 2008). The evolution of the supplier's performance can be monitored using performance curves that show the relationship between the service level target and the outsourcing process performance during the implementation phase (Franceschini et al. 2003). However, the assessment of the incumbent supplier's performance with the help of efficiency curves is bound to be easier for activities with measurable outcomes (Aron & Singh 2005). In absence of measurable outcomes, organisations have to depend on behaviour evaluations that are often more subjective.

Another common incumbent supplier dimension often mentioned in discussions of future sourcing decisions for outsourced activities is service recovery (Bitner et al. 1990, Yanamandram & White 2006,). Service failure is a flawed outcome that reflects a breakdown in reliability (Spreng et al. 1995). Planned service recovery is a thought-out, planned process for returning aggrieved customers to a state of satisfaction with the organisation after a service or product has failed to live up to expectations (Zemke & Bell 1990). While, customer satisfaction is the intended goal of suppliers in a purchase encounter, mistakes are an unavoidable feature of all human endeavour (Zemke & Bell 1990, Boshoff 1997). It has been argued that although, poor service delivery may initially appear to be a disaster, opportunities abound for service companies to resolve problems by engaging in effective service recovery strategies (Boshoff 1997). Therefore, a good test of every organisation's commitment to service quality can be in the way an organisation responds when things go wrong for the customer (Zemke & Bell 1990).

Service recovery management is said to have a significant impact on how purchasers evaluate their suppliers. Spreng et al. (1995) argue that when a purchaser contemplates a service provider for the next transaction, the effectiveness of the service recovery effort may have a greater effect on intentions than the original service outcome. This is because, purchasers are usually more emotionally involved in and observant of recovery service than in routine or first-time service and are often more dissatisfied by an organisation's failure to recover than by the service failure itself (Bitner et al. 1990). Further still, service recovery efforts are likely to be more salient to consumers due to the heightened attention and evaluation as a result of the service failure in addition to the fact that it is the last encounter in the customer's memory (Spreng et al. 1995). While great service recovery cannot compensate for poor service delivery, it can go a long way towards limiting its harmful impact especially in cases where there is limited financial loss for the customer (Boshoff 1997).

The impact of service recovery efforts on the evaluation of a service supplier shows that a purchaser's evaluation can be based on either a specific transaction incidence or cumulative

experience (Jones & Suh 2000). Jones & Suh, (2000) study revealed that, overall satisfaction which is the result of a cumulative experience, was a better predictor of repurchase intentions when compared with transaction specific satisfaction. In this case, if the perceived quality of a supplier's current service offering is better than yesterday's perception, then there is a likelihood that the purchaser's overall level of satisfaction after the present encounter will have a positive influence on his desire to continue purchasing from the supplier.

2.8.4 Switching costs

Several studies have isolated perceived switching costs as one of the barriers that hold purchasers in inter-organisation relationships (Ping 1993, Morgan & Hunt 1994, Colgate & Lang 2001, Yanamandram & white 2006). When purchasers switch service providers they incur various costs ranging from time spent gathering the information about potential alternatives to foregone benefits that require continued patronage of an existing provider (Jones et al. 2002, Whitten & Wakefield 2006, Yanamandram & White 2006,). Organisations may therefore choose to remain in the disappointing relationships due to high perceived switching costs (Weiss & Anderson 1992). Different dimensions of switching costs are likely to be differentially related to certain antecedents and consequences in ways that are both theoretically and practically important (Jones et al. 2002). They are therefore time dependent and relationship specific.

While the concept of switching costs is easy to grasp, estimating the cost of switching is a demanding cognitive task that is also subject to a manager's bias (Weiss & Anderson 1992). Because switching costs are in general difficult to prove, managers may develop a preference for switching for a variety of reasons and then downplay the magnitude of perceived overall switching costs to justify their decision or managers may prefer to avoid switching and overstate switching costs to harmonise with that preference (Weiss & Anderson 1992). Also, dependence on a service provider caused by the lack of experience within an organisation can lead the purchaser's decision makers to believe they are locked into an outsourcing relationship and feel unable to terminate the relationship without incurring large switching costs (Whitten & Leidner 2006).

There are several switching cost dimensions (Weiss & Anderson 1992, Jones et al. 2002). Jones et al (2002) identified and described six switching cost dimensions under three broad groups. First, continuity costs that comprised of lost performance costs, and uncertainty costs. Second, learning costs that comprised of pre-switching search and evaluation costs, post-switching behavioural and cognitive costs and set up costs. And, thirdly sunk costs (Jones et al. 2002). Overall, a purchaser's perception of the cost of switching is influenced by the quality of information he has about the alternatives. However, given the presence of the pre-switching

search and evaluation costs that the supplier may incur in acquiring information, the possibility that he will use inaccurate information for his judgement may be high (Jharkharia & Shankar, 2007)

Although every sourcing evaluation often integrates perceived switching cost, Whitten and Leidner (2006) observed that there is a different perception to switching costs when a purchaser is satisfied with the quality of a product, relationship and service provided by a supplier and when he is dissatisfied. Firms satisfied with the quality of their outsourcing arrangements perceive greater switching costs than firms that are not satisfied. They also observed that organisations that switched vendors rated product and service quality as high as those that did not switch but relationship quality as low indicating that it is the relationship quality more than the product or service quality that influences perceptions of switching costs (Whitten & Leidner 2006).

Another important highlight is the effect of perceived set up cost component of switching costs on an organisation's decision to either continue outsourcing or return the activity in-house. There is empirical evidence to suggest that organisations that return activities in-house perceive lower set up costs than those that chose to switch (Whitten & Leidner 2006). This suggests that organisations dissatisfied with their present outsourcing arrangements where the outsourced activity require significant set up costs are more likely to continue outsourcing rather than return activities in-house.

2.8.5 Switching inertia

Another supplier switching barrier identified in outsourcing literature has been switching inertia (Yanamandram & White 2006). Organisations are often observed to persist in structures of many kinds (Weiss & Anderson 1992). Although some of these are maintained because they work well others persist even when the results are unsatisfactory (Weiss & Anderson 1992). Buyer's switching inertia has been defined by some as the organisation's persistence with an existing relationship with an incumbent supplier (Li et al. 2006).

Switching inertia could result from a purchaser thinking that alternatives are unattractive, perceiving high switching costs (Weiss & Anderson 1992), or that the purchaser is lazy, inactive or passive (Yanamandram & White 2006). Switching inertia not only places a barrier for prospective suppliers but also suggests that it is not enough for prospective suppliers to provide the same or marginally better levels of product or service relative to the incumbents. Rather, in order for alternative suppliers to oust an incumbent, it would be necessary to develop different

capabilities from the incumbents and offer a different bundle of attributes that provide significantly higher levels of value than the incumbent (Li et al. 2006).

2.8.6 Relationship duration

Several researchers have hypothesised and tested the influence of relationship duration on interorganisational relationship continuity (Anderson & Weitz 1989, Hoccut 1998, Giller & Matear 2001). There is an agreement in outsourcing research that long-term interorganisational relationships provide an incentive for suppliers to invest in what is necessary to provide their client with the required quality. The quality output generated from these investments is likely to lead to customer satisfaction and consequently relationship continuity. Additionally, long term contracts are likely to lead to improved communication, trust and interpersonal bonds which are often positively related to relationship commitment.

However in some situations, the kind of investments made in long term relations are also likely to increase one party's dependency on another, a condition that might lead to an increase in perceived switching costs and opportunism. The ability to select the right relationship tenure therefore requires a thorough knowledge of the environment in which the purchaser operates and of the commitment of the supplier to the success of their client's business.

Although many researchers advocated long term partnering relationships for successful outsourcing arrangements, there are situations where buyers and sellers are in a relationship in which they have no desire for a long term sustainability. All they are looking for are exchange partners who will accept their short term requirements (Cox 2004a). Therefore, to understand what a business transaction should involve and how it should be arranged, requires a basic understanding of what the goals of buyers and suppliers are when they enter into exchange relationships (Feeny et al. 2005, Cox 2004a).

2.8.7 Trust

Trust is another common concept in outsourcing literature. Trust in a working relationship has been defined as the belief by one party that the other party will perform actions that will result in a positive outcomes for it as well as not take unexpected actions that will result in negative outcomes (Anderson & Narus 1990). Literature on relationship continuity has identified trust as one of the ingredients that plays a critical role in the development of a long term relationship and in facilitating an exchange. Sako (1992) presented three forms of trust

- Contractual trust which rests on the expectation that the supplier will fully honour the agreements both written and unwritten .
- Competence trust, which is the expectation that the supplier has the necessary technical and management competences at his disposal

- Goodwill trust which is based on the expectation that the supplier will be willing to go beyond their contractual duty to help the purchaser should the purchaser need it.

Unlike contractual and competence trust, with goodwill trust there are no explicit pledges that have to be fulfilled or predetermined professional standards that have to be met. Instead, parties should just be willing to be indebted to each other.

However, although trust starts by taking a risk to trust the other party (Zaheer et al. 1998), there is a general belief that trust arises through learning and adaptation (Van der Meer-Kooistra & Vosselman 2000) and evolves with the appearance of a good track record in accomplishing stipulated goals (Kern & Willcocks 2000). With a similar view, Anderson & Narus (1990) hypothesised that Satisfaction with outcomes increases the supplier's trustworthiness and that a firm's review of another party's past results in comparison with expectations leads to a firm's prediction of the extent to which the party will follow through on its promises. In that case, satisfaction with outcomes increases the supplier's trustworthiness over time and determines the overall success of the relationship (Kern & Willcocks, 2000).

Much as trust at the interpersonal and interorganisational level appear to be distinct (Zaheer et al. 1998), there appears to be a thin dividing line between organisational trust and interpersonal trust. Trust has its basis in people, and interorganisational trust exists to the degree that given organisational members have a collectively held trust orientation toward the partner organisation (Zaheer et al. 1998). Therefore, it can be argued that trust established at the interpersonal level affects the overall level of relationship quality at the interorganisational level.

The multi level presence of trust means that purchasing organisations have to be careful about the individuals that interface with suppliers. While it is important for the purchaser to collaborate with suppliers (Kern & Willcocks 2000), the individual boundary spanners may have orientations and motivations that are different from those of the organisation. The result may be a loss of focus on the core reasons as to why the organisation ventured into the outsourcing arrangement (Kern & Willcocks, 2000). This raises the issue of the boundary spanner's commitment to the purchasing organisation. One essential component of an employee's commitment to an organisation is the ability of that individual to identify with the organisation by adopting as one's own, the goals and values of the organisation (Buchanan 1974). Where the boundary spanner participating in an organisation's sourcing decision is committed to ensuring that the values and goals of the organisation are upheld, then his behaviour will be aligned with this belief. Where this commitment is lacking, then the organisation has to ensure that it puts in place a system that supports the development of this commitment. One way of supporting organisational behaviour is to ensure that organisational purpose, performance measures and reward systems reinforce each

other to direct the employees into a certain behavioural orientation (Hanna et al. 2000). Where these elements contradict each other, there is likely to be a misalignment between the organisation's desired behaviour and what is being manifested by its employees.

Generally, it can be argued that since re-sourcing decisions take place after a purchaser has had some experiential knowledge about one or more suppliers' services, purchasers look for suppliers with a reputation of trustworthy behaviour and that have the technical and management competencies to perform the activities well. Where this trust has been developed, communication may be improved and interorganisational parties are in a better position to understand each other's requirements (Anderson & Narus 1990, Morgan & Hunt 1994). The result will be a greater predisposition to relationship continuity than in relationships where trust has not developed.

2.8.8 Power dynamics

Power is a complex and multi dimensional construct encompassing an influence that can be used to evoke desired actions from partners (Anderson and Narus 1990, Stannack 1996). But of significant concern when it comes to re-sourcing decisions is the use of power by partners in a relationship to meet particular objectives. For purchasing organisations, these include the desire to reduce the suppliers' possible alternatives by supporting an environment of many suppliers and few purchasers or reduce the number of alternative purchasers by increasing the degree of asset and product specificity. Once the number of alternatives has been decreased, then the purchaser has the power to lower costs (Stannack 1996). The reverse where suppliers work to reduce the number of available alternatives for the purchaser is also possible.

The dynamism of bargaining power between contracting parties becomes of great concern when it leads to situations of dependency. This is likely to occur in environments where the purchaser has outsourced into a limited supply market (Ramsay 1994, Lonsdale 1999), poor internal alignment, and contractual demands of asset specificity and uncertainty(Lonsdale, 1999). In this case, power differentials between outsourcing partners creates opportunities for the more powerful firm to act opportunistically (Anderson & Narus 1990, Ireland & Web 2007).

According to Cox (2004b), since value capture is the basic rationale for all companies when they enter into a dyadic exchange relationship, the search for an ideal form of mutuality where everyone gets their ideal benefits from the relationship is impossible because, the ideal sourcing outcome for the buyer is not commensurable with the ideal selling outcome for the supplier. This situation implies continuing conflict of interest between purchasers and suppliers with each striving to capture as much value from the relationship as possible. Since the more power one party has over another, the more value it is likely to capture from the relationship (Anderson &

Narus 1990, Cox et al. 2005), there is likely to be a continuing struggle to change power positions within the dyad during the contract period (Cox et al.2005) which will eventually affect the decision process and outcome at the re-sourcing decision making stage. Effects of changes in bargaining power might not be easy to mitigate because changes in bargaining power are often difficult to foresee due to a large number of interrelated factors that affect the relative power of contractors (Argyres & Liebeskind 1999). Further still, these changes might take place gradually over long periods of time so that their future impact is difficult to perceive (Argyres & Liebeskind 1999).

Overall, a firm with a greater relative dependence is more likely to have a relatively greater interest in sustaining the relationship by being more receptive to requests and amenable to changes suggested by the more dominant partner (Anderson & Narus 1990). Therefore, in order for the purchaser to ensure that it can meet both its present and future needs, purchaser dominance over its incumbent and suitable alternatives would be the most favourable position to hold (Cox et al. 2005) and where possible it should ensure it maintains net power over the entire outsourcing cycle.

2.8.9 Voice- exit and other dissatisfaction strategies

Based on Hirschman (1970) 's work, 'voice' and 'exit' are the main alternatives that people or groups of people take when they fail to achieve satisfaction in their settings or structures. If these two cannot be achieved then it is assumed that the dissatisfied party will resort to either loyalty (Hirschman 1970, Ping 1993), opportunism or neglect (Ping 1993). Exit is not a desired approach for many parties within relationships. In fact, while many product or service suppliers are interested in gaining new customers, efforts to retain existing ones are not diminished especially since the cost of gaining new customers usually greatly exceeds the cost of retaining a customer (Spreng et al. 1995). This is also true for the purchasers seeking for service and product suppliers. Indeed, there are situations where even under circumstances of dissatisfaction, the dissatisfied party with or without taking the voice approach will not exit (Humphrey & Ashfort 2000). Such parties to a relationship, are likely to become attached but uncommitted suppliers who although in a relationship are unwilling to invest in expensive quality improvements (Humphrey & Ashfort 2000).

Therefore, although one of the important consequences of satisfaction is increased repurchase intentions (Spreng et al. 1995), increased repurchase intentions could also be as a result of lack of other alternatives, higher costs of switching (Ping 1993) or a preparatory stage for the dissatisfied party in an attempt to get to positions where they can either voice, exit or act opportunistically. When the supplier is the dissatisfied party in the relationship, his acts of loyalty may result in a

contract renewal that might in the long term deliver outcomes that cannot sustain the client's operations.

2.8.10 Supplier development

Supplier development initiatives are another form of organisational response to non satisfactory supplier capabilities and performance or a deficiency in the required resources for sustainable operations (Krause 1999). When analysed in relation to the discussion in section 2.8.9, supplier development bears the characteristics of a voice strategy as defined by Ping (1993). According to Ping (1993), the voice strategy involves actively working with the relationship partner to remedy problems. Similarly, Helper (1994) classified interorganisational relationships into voice and exit relationships. While in exit relationships a purchaser who has a problem with a supplier finds a new supplier, in voice relationships a purchaser works with the incumbent supplier to solve the problem.

Buying firms that encounter shortcomings in supplier performance and/or capabilities have several alternatives.

- Invest time and resources to increase the performance and/or capabilities of their present supplier
- Return outsourced activity in-house
- Search for an alternative supplier
- Choose some combinations of the previous three (Krause et al. 1998)

According to Krause et al (1998), purchasing organisations' supplier development initiatives can either be strategic or reactive. In strategic supplier development approaches, purchasers focus on identifying critical items and suppliers requiring development with the intent to create a supply base capable of providing a sustainable competitive advantage. In the strategic supplier development approach, In order for purchasers to improve performance, they attempt both to reduce the number of suppliers and to increase the efficiency of those that remain (Rogers et al. 2007). On the other hand, purchasers taking a reactive approach to supplier development are motivated by supplier non performance, adopting an ad hoc response to eliminating supplier deficiencies (Krause et al. 1998).

Although supplier development initiatives, both proactive and reactive have the potential to improve supplier performance and consequently the purchaser's performance, they are a cost to the purchaser which can eventually become a switching barrier (Krause 1999). Nevertheless, in some situations, this response to dissatisfaction may be the closest solution available to the purchaser at the time.

Summary on the outsourcing practice and research.

A general overview of outsourcing literature reveals that, within the last decade, most academic studies have focused on understanding outsourcing decision determinants and outsourcing process control. While contracting out is now broadly understood to be an attractive option, most of the available studies on the impact of outsourcing on firms performance rely upon perceived results rather than direct measures (Jiang & Quereshi 2006). Most of the literature has focused on areas of initial make and buy decisions, selection of suitable providers of products or services, and how to tailor inter-organisation relationships in such a way as to achieve desired benefits from outsourcing arrangements. Except for a few cases, in sales workforce choices and information systems (Anderson & Weitz 1989, 1992, Lonsdale 2001, Jones et al. 2002, Whitten & Wakefield 2006, Whitten & Leidner 2006, Yanamandram & White 2006), literature has shown little emphasis on the re-sourcing decision stage of the outsourcing cycle (Kern & Willcocks 2000).

Although there has been rampant growth in outsourcing (Kakabadse & Kakabadse 2000) and a myriad of benefits have been associated with outsourcing there is evidence of mixed results in the outcomes of outsourcing. While some organisations have actually realised some level of success (Bailey et al. 2002, Elmuti 2003), many firms have been disappointed with the results of their outsourcing arrangements (Lavery 1998, Lonsdale 1999, Park & Ungson 2001, Langfield-Smith & Smith 2003, Haland et al. 2005, Terry and Michael 2005). For example, many corporations have undertaken outsourcing in order to control or reduce costs only to find that outsourcing does not necessarily reduce costs as expected and that, actually, in some cases these costs actually increase (Kakabadse & Kakabadse 2000). Sometimes it appears the disadvantages of outsourcing outweigh the advantages even after an agreement has been signed (Kleim 1999). The disappointing results have been attributed to focus on achieving short term benefits, lack of formal outsource decision making processes and supporting methodologies, increased complexity in total supply networks, a difficulty in formulating and quantifying requirements (Lonsdale 1999), choice of wrong suppliers

There is also evidence that outsourcing challenges are not the same in every industry. For example the differences in the characteristics of goods and services makes the critical issues affecting their purchase decisions different (Bryntse 1996) right from benchmarking, selection of suppliers and relationship management control through to evaluation of supplier performance. Similarly, the institutional context (Van der Meer-Kooistra & Vosselman 2000) under which some industries such as that of energy or defence operate, impose differing constraints on decision making units of organisations operating in such industries compared to industries such as information technology and educational institutions. The differences between organisations go

as far as encompassing regional operations with infrastructure and economic status of developed countries presenting different challenges to those of organisations operating in the capital constrained economies of developing or least developed countries (Kumah et al. 2004, Malhotra et al. 2005).

Therefore, while the re-sourcing process could be looked at generally, results specific to either an activity, industry, region, or ownership (public or private, local or multinational) would be more relevant for both the academician and industrialist since this will observe critical issues and tailor solutions to a specific situations. The focus of this research is on maintenance re-sourcing in service industries operating in capital constrained economies. The next section has been dedicated to discussing concerns in services outsourcing research and more specifically maintenance, the service choice for this research study.

2.9 Outsourcing of services

Introduction

There has been concern over the dearth of purchasing and outsourcing literature for activities within a service industry context. For example, Bryntse(1996), observed that most of the purchasing literature was based on a manufacturing industry context in which service purchasing does not fit well. In 2000, Van der Kooistra & Vosselman commented that up until then, most of the research into inter-firm relationships had centred on sectors like the automobile industry and consumer electronics (Van der Meer-Kooistra & Vosselman 2000)which are part of the manufacturing industry. Even with the little available research work on services outsourcing, most of the work has been in the area of information systems (IS) outsourcing. In fact, according to Burdon and Bhalla (2005) over the past decade, there has been proliferation in the number of studies looking into IT enabled outsourcing and little attention had been given to outsourcing of services in other sectors such as Engineering and Facilities Management which have also seen explosive growth.

There has been increased attention to service purchasing in the last decade and a growing number of firms are making the “do-versus-buy” decision in favour of buying services formerly accomplished in-house (Fitzsimmons et al. 1998, Van der Meer-Kooistra & Vosselman 2000, Nordin 2006). But, it is generally emphasised that due to the features that characterise services, the service purchasing process is more complex and less standardised than purchasing of goods (Bryntse 1996, Fitzsimmons et al. 1998). Services have been described by many authors as less tangible, heterogeneous, perishable, and having simultaneous consumption and production (Lovelock & Yip 1996, Boyt & Harvey 1997). It is these very features that make decisions regarding service purchasing more complex than those involving goods. For example, the

intangibility of services makes specification of the service required less precise and evaluation of the vendor very difficult (Bryntse 1996, Fitzsimmons et al. 1998). Further still, service quality has many dimensions, reliability, responsiveness, assurance, empathy and tangibles (Parasuraman et al. 1985) most of which are not easy to measure and ascertain before purchasing. The difficulty in assessing capacity to deliver quality service before it is offered increases uncertainty (Lovelock & Yip 1996) in services purchasing compared to industrial purchasing of goods.

When it comes to services sourcing and evaluation, the challenge is not only with the difference between services and goods. While service businesses differ from goods based ones, the service industry itself is fragmented. And this fragmentation is characterised by several key characteristics that distinguish the nature of services offered (Lovelock & Yip 1996, Hussey & Jenster 2003). Authors in the service management field have proposed service typologies which they argue differentiate better between the management issues and concerns in different types of services (Silvesto et al. 1992). According to Boyt and Harvey (1997), classification systems can give new insights into each individual service type, thereby stressing the need for differentiated service strategies for individual market roles. This is also supported by Cook et al (1999) who argues that classification schemes are important because they allow for better understanding of the characteristics differentiating service organisations and give researchers a foundation for developing theories about the forces at work within specific organisations.

The utility of service classification schemes ultimately lies in their ability to facilitate the development of meaningful strategies and guidelines for service monitoring and operations (Cook et al. 1999). Therefore, whether someone is looking at service strategy locally or globally, it seems unwise to talk in broad brush terms about the service sector or service industries as though all organisations faced more or less the same strategic problems (Lovelock & Yip 1996).

Several dimensions have been used in the classification and discussion of service typologies, the common ones being production focus, people or their possessions, degree of labour intensity, length of customer contact or degree of interaction, extent of customisation, extent to which customer contact personnel exercise judgment in meeting individual needs, source of value added, front or back office (Lovelock & Yip 1996, Silvesto et al. 1992, Verma 2000). For example, Lovelock and Yip (1996) classified service processes into three categories based on whether the processes are primarily tangible or intangible and whether customers need to be physically present during service production. The three categories are; people processing services- involving tangible actions on customers in person, possession processing services- these involve tangible actions to physical objects to improve their value for the customer, and information based services- these involve, collecting, manipulating, interpreting, and transmitting data to create value (Lovelock & Yip 1996). Another classification is based on the physical

presence of the customer during service production, services could either be classified as ‘back office’ or ‘front office’ with people processing services being more of front office services compared to possession processing services and information based services (Lovelock & Yip 1996).

On a much broader level, services have been classified into consumer and business services. According to this classification, business services tend to be more technological in nature than consumer services because of the greater complexity of organisational needs (Fitzsimmons et al. 1998). This argument points to the fact that the differences in services would suggest different management strategies (Lovelock & Yip 1996) and more specifically different sourcing approaches (Fitzsimmons et al. 1998).

According to Hussey and Jester (2003), while it was once enough to provide a simple list of decision drivers for outsourced activities, it is no longer sensible to treat all outsourcing as the same because purchasers and suppliers face different issues for each type of outsourcing. It does not seem sensible to ignore this difference in research. But on the other hand, other researchers, despite the acknowledgment of the difference in service processes and their support for service type and industry tailored strategies, also warn against the mistake of examining services on an industry by industry basis (Lovelock & Yip 1996). Based on this argument, being able to strike a balance between the two extremes of over generalisation and over specification becomes the researcher’s challenge. Since the present research focused on the maintenance service, the next section examines trends in industrial equipment maintenance.

2.10 Industrial equipment Maintenance

The importance of maintenance in all sectors cannot be overemphasised. Concerning industrial equipment or machinery, maintenance is a complex and difficult subject often perceived as a cost rather than an activity that brings added value to an operation (Leverly 1998). However, despite this negative attitude, for many organisations especially, asset intensive industries, equipment maintenance cannot be taken lightly since maintenance costs are a significant proportion of an organisation’s operational costs (Tsang et al. 1999, Parida & Kumar 2006). Additionally, breakdowns and downtime have an impact on plant capacity, product quality, cost of production as well as an impact on health, safety and environment aspects (Parida & Kumar 2006).

2.10.1 Maintenance management practices

The various approaches taken by organisations in managing and controlling the maintenance function in any industry are subject to the way management views maintenance. Generally, the way maintenance is viewed by organisations has changed over the years. While in the early 1900s, maintenance was considered as a necessary evil, the period between 1950 to 2000 saw a

tremendous change in this mentality. Organisations begun to look at maintenance as an important support function that could both be planned and controlled (Parida & Kumar 2006). Today maintenance is considered as an integral part of the business process and is recognised as one of those activities that creates additional value (Parida & Kumar 2006). This value addition, it is believed, is achieved through better utilisation of resources such as people, time, utilities, enhanced product quality resulting in reduced reworks and scrap (Alsyouf 2006).

All maintenance activities can either be considered as planned or unplanned (Kumar et al. 2004, Yam et al. 2000). The former includes all activities that contribute to the avoidance of unexpected failures, handling of unplanned stoppages, as well as performance improvements. They can also include possible product upgrades and/or modifications, supplementary services such as productivity measurements, advanced training of operation and/ maintenance personnel, evaluation of maintenance strategies as well as assessing the service delivery process. In contrast, unplanned maintenance services encompass all those activities geared towards handling unpredictable equipment or facilities failures. This often results in corrective maintenance (Kumar et al. 2004). Figure 2.3 shows the classification of maintenance management practices

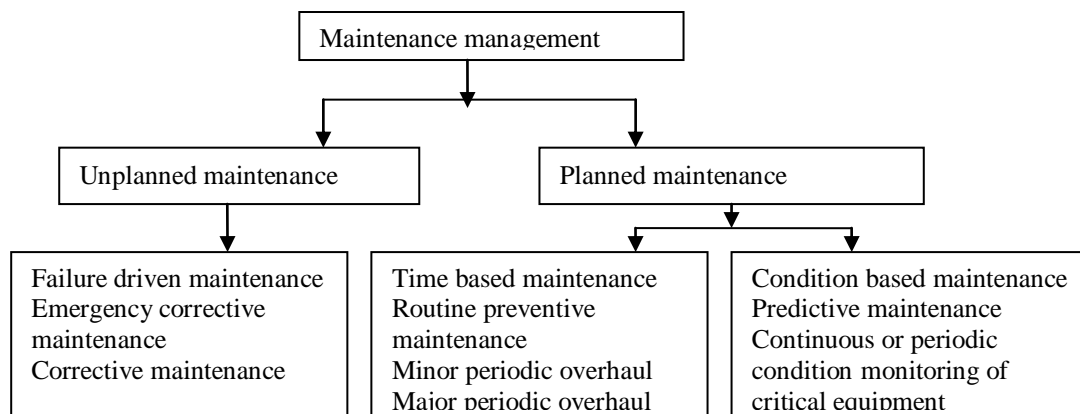


Figure 2.3 Maintenance management practices

The changing nature of business environments and technologies has had a great impact on the way maintenance is perceived and managed. Traditionally, good maintenance was perceived as how well a maintenance department responded to breakdowns (Tsang et al. 1999, Parida & Kumar 2006). With the development of planning techniques and the standardization of production equipment, planned maintenance techniques were developed to replace what was considered expensive, unreliable breakdown-based maintenance (Organ et al. 1997, Parida & Kumar 2006;). Therefore, although technological developments have heightened the complexity of equipment, it has also given maintenance new tools and techniques to aid the entire function. The result has been a shift from traditional to periodic preventive maintenance, and in advanced

levels, to predictive and condition based maintenance (Leverly 1998). This includes oil analysis techniques in components like gear boxes, vibration monitoring in rotating machinery (Leverly 1998), non-destructive material tests, automated data collection systems, computer tools, video technologies as well as software to aid the maintenance analysis and evaluation process (Scutariu & Albert 2007).

The benefit of advanced techniques such as condition based maintenance is the knowledge provided to enable maintenance personnel to provide “just in time” remedies (Leverly 1998) which work towards improving equipment availability through reduced downtimes. This approach, although expensive, reduces either, excessive maintenance efforts that could arise when use or time based preventive maintenance is applied or, unforeseen stoppages due to limited preventive maintenance practices. Too little preventive maintenance delivers a breakdown philosophy with high unit costs. But, as more preventive maintenance is carried out, the optimum point is reached before the effect of over maintaining with its associated labour costs and reduced availability can once again cause unit costs to rise (Leverly 1998).

Equipment manufacturing organisations have gone a step further to improve reliability and maintainability of systems right from the design stage, a concept referred to as reliability-centered maintenance (RCM) (Scutariu & Albert 2007). RCM is a systematic process used to determine what has to be accomplished to ensure that any physical facility is able to continuously meet its designed functions in the current operating context. But, despite the efforts of RCM, design limitations are acknowledged since RCM is only able to maintain the inherent reliability of the equipment or system design

One other common practice with regard to equipment maintenance is total productive maintenance (TPM). TPM is an aggressive maintenance strategy that seeks to improve overall equipment performance (Swanson 2001). TPM is designed to prevent the occurrences of stoppages due to failures and adjustments, speed losses resulting from minor stoppages and speed reduction and defect losses caused by process defects, start up and yield declines, by improving the methods of operation and maintenance of equipment (Chan et al. 2005) It is a continuous improvement strategy that goes beyond ordinary preventive maintenance approaches of routine, predictive and condition based maintenance to include operational aspects of equipment where operators must also protect the equipment they use (Chan et al. 2005). With TPM, the responsibility to keep equipment availability or reliability high is an organisation wide goal and responsibility of all stakeholders.

Maintenance is a labour intensive activity in which the contribution of people to its effectiveness cannot be taken lightly. Obviously, less effort is needed for simple routine activities like oil

change. But as maintenance activities become more complex, matching maintenance handling capacity is mandatory. While all the three types of maintenance differentiated by practice (failure driven, time based and condition based) as well as in-sourcing and outsourcing are currently in use in almost all industries, the degree to which each one of them is used differs. Maintenance requirements continuously change due to wear and tear, technological developments, changing operational requirements, product quality (Leverly 1998), equipment complexity, equipment operator skill and other factors. Organisations are now faced with a problem of deciding who and where to get competent maintenance personnel and how to retain them. The next section examines maintenance sourcing options.

2.11 Maintenance sourcing options

Previous efforts in maintenance including but not limited to the introduction and application of RCM, TPM, and computerised maintenance management systems (CMMS) generally focused on improving equipment maintenance using strictly internal resources (Leverly 1998, Huai &Cui 2005). But, the inability to acquire and retain necessary resources for excellent maintenance practices in-house has driven some organisations to outsource some or all their maintenance activities. The resources include administrative and technical personnel, spares, transport systems, asset status monitoring equipment/tools and maintenance information management systems.

2.11.1 Maintenance outsourcing

Outsourcing, which has already infiltrated many administrative functions, is now starting to make a significant dent in the area of maintenance (Murthy & Asgharizadeh 1999). With a growing shortage of skilled and experienced maintenance engineers (Leverly 1998), maintaining a reliable supply of qualified personnel for plant maintenance projects is becoming more difficult. Multiple industries are vying for a dwindling pool of individuals skilled in maintaining increasingly complex equipment (Schimmoller 1998). More than that, with today's focus on operational costs and a desire to reduce manpower numbers, there is an increasing probability of making maintenance a candidate for outsourcing (Leverly 1998).

Advances in engineering have made the current technological requirements of equipment maintenance higher than in the past leading to increased demand for skilled and experienced maintenance technicians and engineers (Murthy & Asgharizadeh 1999, Huai &Cui 2005). It is believed that outsourced maintenance provides capital intensive organisations with the opportunity to utilise unique technical and engineering techniques such as predictive maintenance and advanced equipment monitoring. Data from predictive maintenance techniques can then enable engineers to manage maintenance programs more effectively, resulting in reduced

downtime, minimised reactive maintenance expenses and higher plant availability (Schimmoller 1998).

However, with the ever increasing complexity of equipment, tremendous input is required to search, train and retain highly skilled technical personnel in every organisation (Murthy & Asgharizadeh 1999). The need for outsourced maintenance services is therefore likely to continue increasing in the future. The advantage with outsourcing maintenance is that professional maintenance suppliers have more opportunity to learn and master advanced maintenance technology (Huai & Cui 2005). For most of them, maintenance is in most cases their core competence and most of their resources are directed to perfecting the trade.

Just like outsourcing of other activities, there have been many approaches to maintenance outsourcing. For example, single or multiple suppliers have been taken on board to handle some or all the maintenance requirements of an organisation with advantages and disadvantages for each. While there are benefits to using multiple contractors, high overhead costs, billing charges and other administrative costs inherent to the use of multiple contractors, is a trend that should drive up demand for supplier companies that can respond to a wide range of maintenance requirements (Schimmoller 1998). On the other hand, using single suppliers might lead to the often unwanted opportunism that might result from the supplier dependence that can result from such relationships. The other approach could be the level of maintenance outsourcing. Some organisations might opt to outsource all their maintenance while others will outsource only part of it. Depending on an organisation's access to original equipment manufacturers, maintenance service providers could either be the original equipment manufacturers (OEMs) or independent organisations (Kumar et al. 2004). The various options available to maintenance purchasing clients pose a challenge to the sourcing decision makers when seeking to choose the best possible option given the various circumstances they find themselves in.

Generally, equipment uptime is measured by availability and depends on system's reliability, maintainability and supportability (Komonen 2002, Kumar et al. 2004,). Reliability and maintainability are a function of the equipment's inherent design (Kumar et al. 2004) and therefore assumed constant irrespective of contractor. Supportability which is a function of how effective the administrative routines are for scheduling, planning and executing maintenance as well as availability of spare parts, technical expertise, repairs tools (Smith & Knezevic 1996, Kumar et al. 2004) and other logistics is often the key component of most equipment maintenance outsourcing arrangements.

Although outsourcing of maintenance is on the increase (Tsang 2002), experience has shown that not all maintenance outsourcing arrangements have been successful (Leverly 2002, Tsang

2002). Poor performance has been attributed to lack of understanding of the maintenance activity, outsourcing it for the wrong reasons (Leverly 1998), contracts being task oriented rather than performance based, and relationships being adversarial rather than partnership because the profit motives of the parties involved in the relationship are not shared (Tsang 2002). While the contractor wishes to maximise returns, the clients major goals are to minimise costs (Tsang 2002, Cox 2004a) a situation that results in competitive bidding being the preferred mechanism for selecting contractors. In response to the lack of long term commitment from the client, the supplier makes minimal investment in staff development, plant equipment and new technologies. This short term tactic adopted by the contractor, often causes the client to replace one adversary with another, thereby setting a vicious cycle in motion (Tsang 2002).

Aware of the failures and successes, there remains a task of how to take it on from there. While a good outsourcing concept foundation is imperative for a successful maintenance outsourcing arrangement, failed arrangements, changing management and environments call for guiding frameworks to support successive sourcing deliberations.

2.11.2 Contracting relationships in maintenance

Maintenance functions in business organisations are mainly focused on industrial equipment. An interesting aspect of industrial equipment maintenance is that it is often strongly related to the primary processes of industrial organisations. Therefore, continuity in the service is very important (Van der Meer-Kooistra & Vosselman 2000).

It has been argued that success in outsourcing relationships comes only when strong partnering arrangements and cooperative relationships exist between the supplier and the purchaser (Huai & Cui 2005). Additionally, if outsourcing equipment maintenance is viewed as making maintenance someone else's problem, then the arrangement is doomed to failure from the very start. This is because although equipment maintenance experts will be specific in terms of quality, quantity and cost measures, their specifications cannot cover the possible needs of the plant, financial responsibilities and maintenance effectiveness as the requirements of both the plant and the vendor continuously change (Huai & Cui 2005). However, it is also reasonable to believe that it is the specifics surrounding the arrangement that determine whether it is worth engaging in a cooperative relationship or not (Cox 2004a, 2004b). This includes the demand for the vendor by competitors or other organisations (Bertolini et al. 2004), the key personnel in contract management, the dynamics of the organisation which could include increased equipment operation time, changing business strategy and changing organisational management (Kumar et al. 2004) and the contract itself.

According to Huai and Cui (2005), the difference between outsourcing and in-house strategies lies in management. While for in-house maintenance, the object of management is the activity itself, in the maintenance outsourcing strategy, the object of management is the outsourcing contract and the relationship (Huai & Cui 2005). Since the type of maintenance contract in use determines the relationship between the client and the maintenance service suppliers, it is important for the organisations to know the type of maintenance contract suitable for the maintenance arrangement they intend to have (Tsang 2002). When maintenance outsourcing is considered, it is important to know where responsibility for performance of assets lies. In case control is with the client, they should not only specify the maintenance requirements for the equipment but they should also relate maintenance effectiveness to asset performance. On the other hand, should the control of maintenance be passed to the maintenance provider, then, responsibility for asset performance should also be passed on together with appropriate financial responsibilities (Leverly 1998). But, the latter is fraught with complications since the way the client operates the equipment has great impact on equipment performance.

Martin (1997) categorises maintenance contracts into three. Work package contracts where the arrangement is for the maintenance provider to service equipment at a time specified by the client. All that is required of the maintenance service provider is to avail the required manpower, tools and spares. They could be performance contracts, where the maintenance service provider handles both the management and technical components of maintenance. The other is facilitator contracts, where the maintenance provider takes on responsibility for the equipment and the client only pays for the time when he uses them. These differ in complexity, knowledge base and duration (Martin 1997) and therefore present differing challenges to the maintenance purchaser.

Maintenance outsourcing relationships could be controlled in various ways. For example, through the pricing method. It could be a fixed price contract where the maintenance service provider agrees to repair all failures over a specified period and a penalty if the equipment is not returned to working state within a specified time. The penalty being a product of a constant and the positive difference between the realised repair time and the target repair time. Another option would be, whenever equipment fails, the maintenance service provider repairs it at a specified cost per repair and there are no penalties (Murthy & Asgharizadeh 1999). The organisation wishing to outsource its maintenance function has to choose which among the available options provides maximum return. Since equipment downtime means reduced operation time for client, care has to be taken to avoid excessive benefits for the client at the expense of the maintenance supplier because failure for the supplier to accomplish client's goals due to inadequate resources will negatively affect the client's business.

Since outsourcing equipment maintenance can be viewed as a contractual arrangement, designing a good contract should be at the fore front of every maintenance outsourcing arrangement. One feature of maintenance outsourcing is that the expected output in terms of technical performance can easily be measured. Therefore, using the output control mechanisms (Ouchi 1977) it is easy for the client to specify in advance the required technical performance requirements. But, in every outsourcing arrangement suppliers operate in three domains; delivery, transformation and relationship competence (Feeny et al. 2005). Besides competence in the activities that the parent company would like to outsource and the capacity for the supplier to meet future needs of the parent organisation, all outsourcing arrangements involve people and relationship management skills are imperative. Process and relationship monitoring and control is a challenging task for clients in outsourcing relationships and requirements for behaviour control (Ouchi 1977) are not easy to specify in contracts. The goal of the negotiation process is to arrive at an agreement in which both parties are satisfied with the outcome. But, it is impossible to predict all future situations and possible conflicts (Kumar et al. 2004). According to Kumar et al. (2004), both parties need to be prepared to renegotiate an agreement if the original is not feasible or fails because potential conflicts caused by changes in the market, may result in new capacity, capability or quality demands. While this is the ideal desirable commitment from both parties, this would be feasible only if both parties are likely to benefit from the modification in the original agreement or further still, if there is disparity in negotiation power between the outsourcing parties.

2.11.3 Re-sourcing decisions for maintenance in asset intensive service organisations.

While the importance of incorporating a life cycle concept into sourcing decisions has been emphasised (Cullen et al. 2005) most of what is available in literature about re-sourcing decisions is a mention of the sourcing options available to purchasing organisations. Three options are often cited, renegotiating with the incumbent supplier, bringing the activity back in house and retendering (Whitten and Leidner 2006, Cullen et al. 2005). Additional options include, a combination of any or all the three already mention, and supplier development which also is one or a combination of any of the three with additional resources from the purchaser in terms of supplier support. The options available are the same irrespective of the activity outsourced. The researcher believes that the difference in the challenges of managing re-sourcing decisions for outsourced activities arises out of the differences in the characteristics of the outsourced activity, the characteristics of the purchasing organisation and the internal and external environment in which it carries out its operations. At the time of undertaking this research there was no study that had focused on maintenance re-sourcing decisions. The research presented in this thesis aimed at filling the gap in maintenance re-sourcing literature exploring the management of maintenance

re-sourcing decisions in asset intensive service organisations operating in capital constrained economies. The next section concludes the literature analysis on maintenance outsourcing

2.11.4 Conclusion on maintenance outsourcing literature

It could generally be said that although maintenance outsourcing has become a prevalent practice in many industries (Murthy & Asgharizadeh 1999, Tarakci et al. 2009), academic research on maintenance outsourcing is still very limited (Tarakci et al.2009). Moreover, most of the academic research in maintenance outsourcing has focused on maintenance in a manufacturing or production context(Murthy & Asgharizadeh 1999, Ashgarizadeh & Murthy 2000, Van der Meer-Kooistra and Vosselman 2000, Kumar et al. 2004, Tarakci et al. 2006, Kumar & Markeset 2007, Panesar et al. 2008, Tarakci et al. 2009). There is limited research work on maintenance outsourcing in the services sector. More specifically, there is hardly any research on maintenance re-sourcing decisions. Therefore, the need for research to inform academic literature about maintenance outsourcing operations in asset intensive service organisations is great.

2.12 Summary of literature review and research gap

The reviewed literature has highlighted the ever increasing trend of the outsourcing practice in many organisations (Bailey et al.2002, McIvor 2008) especially in the western world. While most of the academic research has focused on

- outsourcing of activities in manufacturing or production industry context, and,
- answering why, what to, and how to outsource questions,

there is also evidence that

- the outsourcing practice has greatly infiltrated the service sector, although with less academic research attention compared with activities in the manufacturing organisations.
- there have been mixed results from outsourcing endeavours, with some reporting some level of success and others dissatisfaction.

When it comes to critical outsourced activities such as maintenance of industrial equipment in asset intensive organisations, it is no longer enough to deal with only why, what to, and how to outsource questions. Since equipment maintenance in asset intensive service organisations is often related to the core processes of the organisation, organisations are interested in the maintenance department's ability to provide sustainable maintenance activity quality. It is the interdependence between equipment maintenance and the core business operations of asset intensive service organisations that make continuity and stability in maintenance service delivery by service suppliers, whether internal or external teams very important (Van der Meer-Kooistra & Vosselman 2000). Consequently, this makes re-sourcing decisions for maintenance in asset intensive service industries of prime concern.

It has already been mentioned that there is a dearth of academic research output in the area of maintenance outsourcing (Tarakci et al. 2009) especially in the service industry context. Further still, little emphasis has been placed on re-sourcing decision process research, a very significant stage of the outsourcing cycle. The importance of this stage is derived from the fact that, in addition to informing organisations about the relationship between what they intended to achieve and what has actually been achieved, it also provides the platform from which the reactions of purchasers and their suppliers or suppliers in the market to a soon ending contract and its results can be studied and recommendations for improved practice proposed

The importance of maintenance is heightened for service organisations operating in capital constrained economies. In contrast to their counterparts operating in developed countries, they are far away from OEMs and consequently the spares source, there is poor infrastructure often necessitating increased capital investment by independent suppliers to meet the response and delivery times, and, the poor education institutions often result in poor labour markets especially for complex equipment. Further still, there is more awareness and affordability of condition based monitoring tools in equipment, making it easier to employ a higher ratio of preventive to corrective maintenance in developed nations compared to developing countries. Condition based monitoring enables better maintenance planning thereby making maintenance management more complex in least developed nations compared to developed countries. This environment makes maintenance sourcing a more challenging practice for organisations operating in capital constrained economies.

Often times, organisations with asset intensive network service operations in developing countries are multinational corporations. This is because of the cost required to set up such businesses. Locally owned businesses similar to those of large multinationals are usually on a small scale and have limited financial capacity and they usually have in-house maintenance teams. Since globalisation has enhanced cross border access into many countries, a number of organisations have been awakened to the numerous opportunities in which they can expand the markets for their products. There is a likelihood that this trend will continue in the future. One of the strategies that asset intensive organisations penetrating developing world markets can benefit from is maintenance outsourcing. This is because educational institutional systems rarely produce enough skilled personnel for each organisation to recruit and train its own personnel at minimal costs. Further still, because of different cultural settings it might be easier to deal with a few maintenance supplier managers than a host on individual in-house maintenance team members.

In accordance with Cullen et al. (2005)'s findings and subsequent recommendation that outsourcing will be most successful if it is viewed as a strategy with a life cycle rather than a one off transaction, this research recognises the need for sustainability of an activity and other

operations within an organisation that depend on it, over the life of the business. Despite the acknowledgement that previous research has focused on outsourcing and developing the outsourcing relationship while neglecting re-sourcing decision stages such as dissolution of relationships that are no longer viable (Kern & Willcocks, 2000) few studies have focused on the re-sourcing decision (Giller & Matear 2001, Whitten & Leidner 2006, Yanamandram & White 2006, Li et al. 2006, Kim et al. 2008). The research therefore stresses the need to look into management of re-sourcing decisions, the phase that not only completes the cycle of a given outsourcing arrangement, but where the next sourcing generation or cycle options are also assessed (Cullen et al. 2005, Marshal et al. 2007) The importance of researching on the re-sourcing phase is heightened by the numerous reports that have indicated that so far, outsourcing endeavours have yielded mixed results.

The literature review presented in this chapter was used as a foundation to inform the researcher about the areas that should be focused on in order to meet the objectives of the research. As highlighted in the previous chapter, the researcher set out to achieve the following objectives

- To determine which factors play a significant role in influencing management of maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To validate the re-sourcing model and make recommendations for use.

As a starting point, the researcher used salient elements from theoretical perspectives used to govern initial make or buy decisions, and those used to guide discussions for future sourcing decisions such as outsourcing relationship management. These were combined with elements identified by Vander Meer Kooistra & Vosselman(2000) in their work on management control of inter-firm transactional relationships to develop a research framework describing issues that might influence re-sourcing decisions. The framework shown in figure 2.3 provided the backbone for what to investigate in the data collection phase.

In this conceptual framework, the researcher begins by proposing that, re-sourcing decisions are influenced by three broad elements, the characteristics of the transaction itself, in this case maintenance service, the characteristics of the transaction parties, who are in this case the purchasing organisation and the suppliers, both the incumbent and others in the market, and the characteristics of the transaction environment. The aim of this conceptual framework was to guide the researcher to possible areas of focus when striving to meet the research objectives.

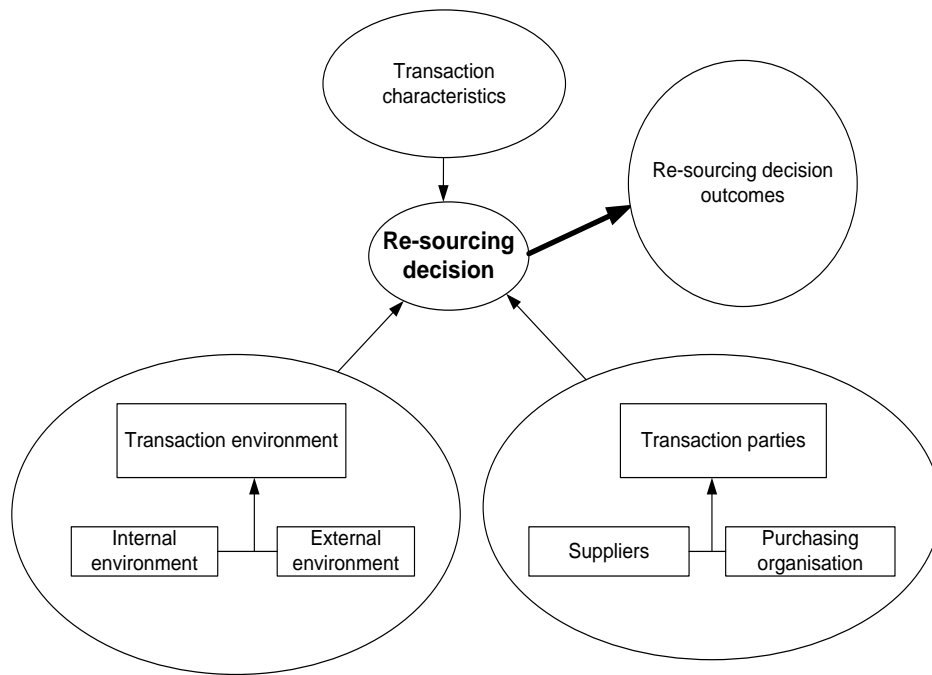


Figure 2.3 Research framework

The chapter that follows, describes in detail the strategy and design that the researcher followed to meet the objectives of the research.

CHAPTER 3:

RESEARCH METHODOLOGY

Introduction

Several research issues have been identified in the preceding chapter and translated into specific objectives. The main purpose of this chapter is to demonstrate that the appropriate research methodology was adopted to achieve the research objectives. The rationale used in selecting a research strategy, developing a research design, selecting research methods and data analysis techniques is explained. The first part is a recap of the research study aim and specific research objectives. This is followed by a discussion on research philosophical issues. Based on the research question, specific research objectives and available research strategies, the author goes ahead to discuss how an appropriate research strategy was selected and the research design developed respectively.

3.1 Research aim and objectives

Research aim

The overall aim of this research was to explore how maintenance sourcing decisions subsequent to an outsourcing arrangement in Uganda's asset intensive service organisations are managed and propose a model to guide maintenance re-sourcing decisions for such organisations operating in capital constrained economies. To achieve this aim, the researcher was responding to the research question,

“How can maintenance re-sourcing decisions for an asset intensive service organisation operating in a capital constrained economy be effectively managed? ”

In order to meet the aim, specific objectives were formulated.

- To determine which factors play a significant role in influencing management of maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To validate the re-sourcing model and make recommendations for use.

In this research study, **‘re-sourcing decisions’** are sourcing decisions made subsequent to an outsourcing arrangement. At the time of the decision the activity is no longer in-house, but in the hands of an external provider

In order to develop an appropriate research design for meeting the specified research objectives, it was necessary to review common research philosophies and research strategy recommendations. This review played a significant role in informing the researcher about the existing philosophical views as well as the merits and limitations of each research strategy.

3.2 Research philosophy

There are a number of dimensions on which research activity may be classified. It could be; the immediate purpose of research, nature of the units of analysis, duration/time points of data collection, data collection methods, data analysis methods, and philosophical basis of research (Meredith et al. 1989). This section is dedicated to discussions on research classification based on philosophical dimensions sometimes called research paradigms (Meredith et al. 1989).

Knowledge about major philosophical issues in research and how philosophical factors affect the overall arrangements which enable satisfactory research outcomes is very important. Understanding philosophical issues helps to: clarify research designs, inform the researcher about which designs will work and which will not, guide the researcher where necessary, and to develop designs that may be outside his or her past experience (Easterby-Smith et al. 2002).

Traditionally, there have been two major philosophical views used by researchers, the positivist and social constructionist views (Easterby-Smith et al. 2002, Tashakkori & Teddlie 1998). Various authors have endeavoured to explain the differences between them, the benefits and limitations of each, and how both views can be used to compliment each other in various research contexts (Meredith et al. 1989, Tashakkori & Teddlie 1998, Easterby-Smith et al.2002, Creswell & Plano Clark 2006). In their review of these philosophies, Easterby-Smith et al. (2002) contrasted the traditional positivist and social constructionist views based on eight features and provided a summary shown in table 3.1. Similarly, Tashakkori and Teddlie (1998) contrasted positivism and social constructionism based on six axioms summarised in table 3.2. The issues addressed in tables 3.1 and 3.2 are similar in many ways and provide the basis upon which many research methods are selected and research designs developed.

Although there has been a trend away from positivism towards constructionism since the early 1980s (Easterby-Smith et al. 2002), many influential researchers have argued that the difference between the two traditional paradigms, have been overdrawn and that the schism is not as wide as has been portrayed by purists (Tashakkori & Teddlie 1998). Currently, there are many

researchers who adopt a pragmatic view by deliberately combining both traditions (Easterby-Smith et al. 2002). Based on the differences presented in tables 3.1 and 3.2, in the present study the standpoint of the author is social constructionism. The author believes that the same incident or observable fact can be understood or described in many different ways and the aim of the research study is to increase the general understanding of the situation.

Table 3.1: Comparison of Positivism and Social constructionism

Features	Positivism	Social constructionism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progress through	Hypothesis and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be operationalised so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of whole situations
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases selected for specific reasons

Source: Easterby-Smith et al. (2002)

Table 3.2: Comparison of Positivism and Social constructionism

Axiom	Positivism	Social constructionism
Ontology: assumptions about the nature of reality	There is a single reality	There are multiple constructed realities
Epistemology: relationship between knower and to be known	Independent	Knower and known are inseparable
Axiology: role of value in inquiry	Inquiry is value free	Inquiry is value bound
Generalisations	Time and context free generalisations are possible	Time and context free generalisations are not possible
Causal linkages	There are real causes that temporally precedent to or simultaneous with effects	It is impossible to distinguish causes from effects.
Research logic : inductive or deductive	Deductive: emphasis on arguing from general to particular	Inductive: emphasis on arguing from particular to general

Source: Tashakkori & Teddlie (1998)

As a guide to the selection of the appropriate research methods, Meredith et al (1989) categorised research using two philosophical dimensions: the rational/existential dimension and the natural/artificial dimension, and compressed it into a framework shown in Figure 3.1.

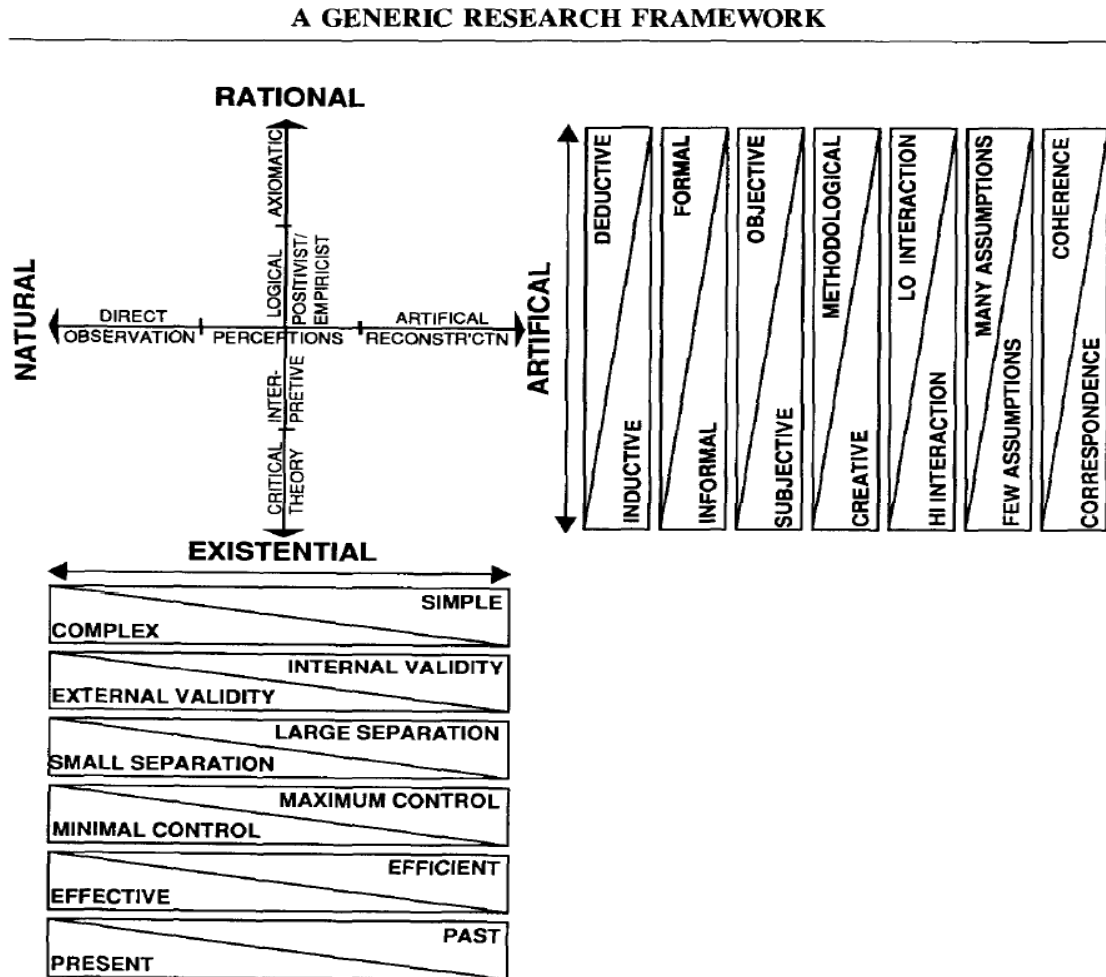


Figure 3.1: General research framework

Source: Meredith et al. (1989)

The rational/ existential dimension

This concerns the nature of truth and whether it is purely logical and independent of man or whether it can be defined relative to the individual experience. Meredith et al (1989) classify operations research, a discipline where maintenance and reliability sometimes fall (Buffa, 1980) into four generic perspectives based on the level of formalism.

- The axiomatic perspective in which a high degree of knowledge is presumed a priori, about the goals and socio technical structure of the organisation,
- The logical positivist/empiricist perspective which is the basis for most survey research. This perspective assumes that the phenomenon under study can be isolated from the context

in which it occurs and that facts or observations are independent of the laws and theories used to explain them.

- The interpretive perspective, which includes the context of the phenomenon as part of the object of study. In interpretive research studies, the focus is on meanings and interpretations rather than behaviour and the purpose is to understand how others construe, conceptualise and understand events and concepts. This perspective is relativistic in that facts are not considered independent of the theory or observer.
- The critical theory perspective which attempts to synthesize the positivist and interpretive perspectives.

In moving from the axiomatic to the critical theory perspectives of the rational/ existential dimension, there is a change from a deductive, formally structured, methodologically prescribed research process which entails a high degree of objectivity, requires a priori assumptions concerning primary constructs and restricts environmental interaction, to an inductive, less structured, typically subjective research process that requires more interaction with the environment. Researchers at the existential end of the rational/ existential dimension, are concerned more about the correspondence of their findings to the real world than their coherence with existing theories or laws (Meredith et al. 1989).

The natural/artificial dimension; This concerns the source and kind of information used in the research. At the natural end of the dimension is empiricism which concerns deriving explanations from concrete objective data while at the artificial end of the dimension is subjectivism which concerns deriving explanation from interpretation and artificial reconstruction of reality (Meredith et al. 1989). This dimension comprises of three categories:

- Object reality which refers to direct observation by the researcher.
- People's perception of object reality which relates to research conducted "through somebody else's eyes". In this category, the investigator's major concern is with the perception or abstract representation of the reality of individuals exposed to the phenomenon. Descriptive information about the phenomenon as well as people's constructs/models about what relationships are operative, can be ascertained through these second source methods.
- Artificial reconstruction of object reality; In this category, an attempt is made to recast the object reality as originally determined from object reality and/or people's perception of object reality (usually the researcher's own belief about object reality), into another form that is more appropriate for testing and experimentation for example simulations or computer models.

In moving from the artificial reconstruction of object reality to object reality categories of the artificial/natural dimension, research changes from that which is highly controlled, involves significant separation of phenomenon from researcher, yields conclusions with high reliability and internal consistency and uses highly abstractive simplified models, to research processes that are more directly concerned with the real phenomenon, closer to reality, less controllable, more current (Meredith et al. 1989).

Using the Rational/ Existential and Natural/ Artificial dimensions, Meredith et al (1989) provide a guideline of research methods suitable for each perspective on the two axes as shown in figure 3.2.

		←————→		ARTIFICIAL	
		NATURAL			
		DIRECT OBSERVATION OF OBJECT REALITY	PEOPLE'S PERCEPTION OF OBJECT REALITY	ARTIFICIAL RECONSTRUCTION OF OBJECT REALITY	
RATIONAL ↑ ↓ EXISTENTIAL	AXIOMATIC			<ul style="list-style-type: none"> • REASON/LOGIC/ THEOREMS • NORMATIVE MODELLING • DESCRIPTIVE MODELLING 	
	LOGICAL POSITIVIST/ EMPIRICIST	<ul style="list-style-type: none"> • FIELD STUDIES • FIELD EXPERIMENTS 	<ul style="list-style-type: none"> • STRUCTURED INTERVIEWING • SURVEY RESEARCH 	<ul style="list-style-type: none"> • PROTOTYPING • PHYSICAL MODELLING • LABORATORY EXPERIMENTATION • SIMULATION 	
	INTERPRETIVE	ACTION RESEARCH CASE STUDIES	<ul style="list-style-type: none"> • HISTORICAL ANALYSIS • DELPHI • INTENSIVE INTERVIEWING • EXPERT PANELS • FUTURES/ SCENARIOS 	<ul style="list-style-type: none"> • CONCEPTUAL MODELLING • HERMENEUTICS 	
	CRITICAL THEORY		<ul style="list-style-type: none"> • INTROSPECTIVE REFLECTION 		

Figure 3. 2: Framework for research methods (Source: Meredith et al. 1989)

Similarly, using two dimensions, the philosophical and epistemological views held by the researcher, Easterby-Smith et al (2002) presented a similar guideline to selection of what they referred to as, suitable research design shown in figure 3.3

In order to meet the objectives of this research study, it was necessary to understand how those involved in the decision interpret, conceptualise and understand events and concepts. According

to Meredith et al. (1989)'s generic research framework in figure 3.2, this research study is best pursued under the interpretive perspective of the rational/existential dimension. Additionally,

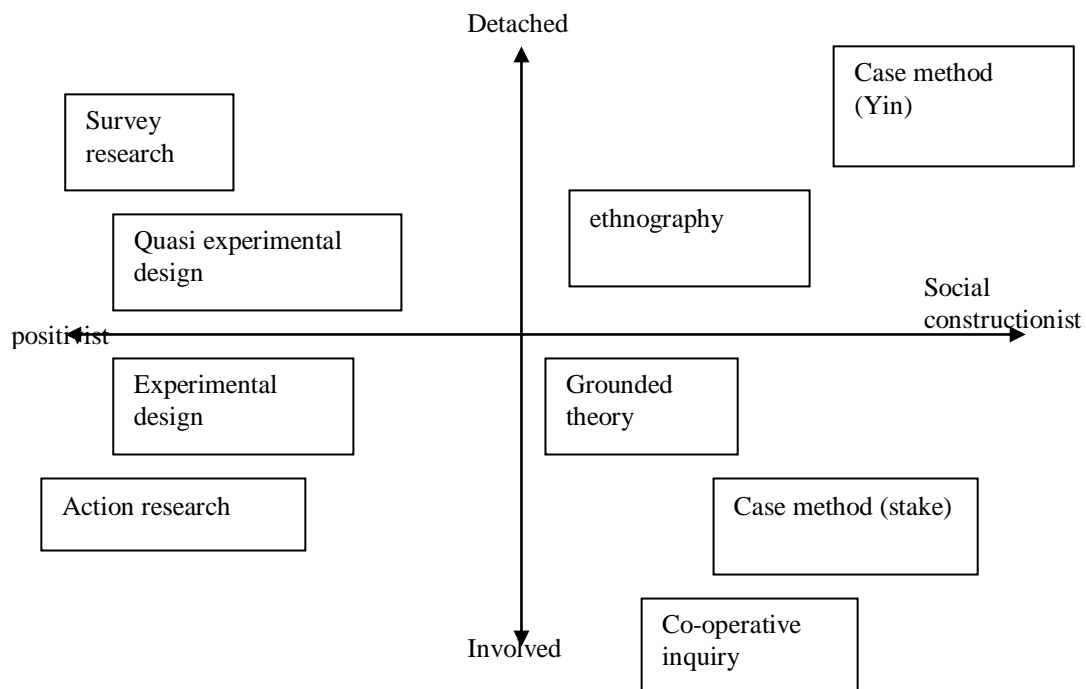


Figure 3.3 : Matrix of research designs (Source Easterby-Smith et al. 2002)

the decision under consideration is time bound, it was not possible to collect enough evidence about the phenomenon by direct observation. It was not possible to have a reconstruction of the event since there was no sufficient information about all the variables that should be included nor the relationship that exists between them prior to the field study. Therefore, the major source and kind of information that was used to answer the study's research question was from the insight that people had about the phenomenon of interest. This approach falls under "people's perception of object reality" category of the natural/artificial dimension. This made the primary technique through which data was collected qualitative.

3.3 Research Strategy

3.3.1 Research strategy selection

There are a number of research strategies. These include, experiment, survey, archival analysis, history and case study (Yin 2003). According to Yin (2003), research strategy choice is based on three criteria;

- the type of research question,
- the extent of control an investigator has over actual behavioural events and
- the degree of focus on contemporary as opposed to historical events

The current study aimed at exploring how asset intensive service organisations operating in a capital constrained economy manage maintenance sourcing decisions subsequent to a maintenance outsourcing arrangement in order to understand how the process proceeds and to determine significant influencing factors. While maintenance outsourcing is not a new strategy, most research in this area has been in the context of manufacturing organisations. Little is known about industrial equipment maintenance outsourcing in asset intensive service organisations. While existing literature is filled with outsourcing decision or make and buy models, most of these, focus on the initial outsourcing decision with the exception of a few in information technology (Giller & Matear 2001, Whitten & Wakefield 2006, Whitten & Leidner 2006, Yanamandram & White 2006, Kim et al. 2008). And again, these have also been in the context of developed nations. Studying maintenance management sourcing decisions for asset intensive service organisations operating in a capital constrained economy is relatively a virgin area. There being hardly any prior literature on sourcing decisions in least developed countries let alone sourcing decisions subsequent to an outsourcing arrangement for such core activities like equipment maintenance justifies a strategy suitable for exploratory and descriptive purposes, and one that brings the researcher as close as possible to the context in which the phenomenon of interest is embedded.

According to Yin (2003), although exploratory studies can be undertaken using any one of the five research strategies, the kind of question that the researcher seeks to find answers to provides another criteria for selecting the appropriate strategies to be subjected to further evaluation. With reference to the question criterion, who, what, where, how many, and how much questions are best answered using survey or archival analysis research strategies. On the other hand, the recommended research strategies for answering how and why questions are experiment, history and case study.

The present study sought to understand how asset intensive service organisations operating in a capital constrained economy manage maintenance re-sourcing decisions in order to understand the re-sourcing process and significant influencing factors. In order to determine the factors influencing the maintenance re-sourcing decision, there was need to know why particular events and incidents take place during the re-sourcing decision process. Therefore, the suitable research strategies were experiment, histories or archival analysis. Any one of these three research strategies enables the researcher to gain a deeper understanding of incidents and events over time instead of simply focusing on frequencies or numbers (Yin, 1984)

The second criterion used for selecting among the three research strategies suitable for handling “how” and “why” questions was the level of control and access that the researcher had over actual behavioural events. The researcher was aware that the possibility of controlling the

behaviour of the maintenance purchasing organisations while carrying out their re-sourcing decisions was non-existent. Therefore, experiment research strategy could not be adopted.

The third criterion had to do with the degree of focus on contemporary or historical events. According to Yin, 1984, histories are the preferred strategy when no relevant persons are alive to report what occurred and when a researcher must rely on primary documents, secondary documents, and cultural and physical artefacts as the main sources of evidence. On the other hand, the case study is preferred in examining contemporary events but when relevant behaviours cannot be manipulated. Following the evaluation described in the preceding paragraphs, the case study strategy was found to be the most suitable and therefore adopted. The case study research strategy gives the researcher opportunity to be close to his object of study thereby enabling inductive and rich descriptions. It also offers depth and comprehensive understanding especially in new situations where very little is known (Halinen & Törnroos 2005). Use of the case study strategy for this particular research problem is also supported by Meredith et al.'s (1989) research methods framework and Easterby-Smith et al.'s, (2002) matrix of research designs shown in figures 3.2 and 3.3 respectively.

Having selected the case study research strategy for this research project, it was necessary to explore the literature on its implementation in order to develop a suitable research design

3.3.2 The case study research strategy

Several authors have attempted to define what is involved in a case study strategy. According to Benbasat et al. (1987), a case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organizations). The boundaries of the phenomenon are not clearly evident at the outset of the research and no experimental control or manipulation is used (Benbasat et al. 1987, Yin 2003). Eisenhardt (1989a) on the other hand, defines a case study as a research strategy which focuses on understanding the dynamics present within a single setting.

Yin (2003) emphasises that the case study strategy consists of two parts, the scope and the technical aspects. In relation to the scope, a case study is an empirical enquiry which investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident. In relation to the technical aspect, a case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points and, relies on multiple sources of evidence, with data needing to converge in a triangulation fashion

Following a review of various researcher's work, Benbasat et al (1987) provided a comprehensive summary of key characteristics of case studies.

- Phenomenon is examined in a natural setting.
- Data are collected by multiple means.
- One or few entities (person, group, or organization) are examined.
- The complexity of the unit is studied intensively.
- Case studies are more suitable for the exploration, classification and hypothesis development stages of the knowledge building process; the investigator should have a receptive attitude towards exploration.
- No experimental controls or manipulation are involved.
- The investigator may not specify the set of independent and dependent variables in advance.
- The results derived depend heavily on the integrative powers of the investigator.
- Changes in site selection and data collection methods could take place as the investigator develops new hypotheses.
- Case research is useful in the study of "why" and "how" questions because these deal with operational links to be traced over time rather than with frequency or incidence.
- The focus is on contemporary events

Despite the challenges faced by investigators in case study research such as: time constraint, need for skilled interviewers, and care required in drawing generalisable conclusions, results obtained from case study research can lead to new and creative insights, development of new theories and have high validity with practitioners who are the ultimate users of the research (Voss et al. 2002). This is because case studies are unconstrained by the rigid limits of questionnaires and models and validity can be increased further through the use of triangulation (Voss et al. 2002, Yin 2003).

Having established the case study as the suitable strategy for answering the research questions, the study drew from the characteristics of case studies and the study requirements to develop an appropriate research design. However, in developing the components of the research design, the researcher has to have a clear stand regarding whether the research is going to proceed deductively or inductively. The next section clarifies the researcher's approach.

3.3.3 Choices between deductive or inductive reasoning

Research methodology literature often refers to two broad and extreme methods of reasoning; the deductive and inductive approaches. However, a long standing controversy exists regarding the role of induction and deduction in reasoning and scientific inquiry (Lawson 2005). There exists a

continuum that starts from pure induction on one hand to almost pure deduction on the other. In the former, no prior theory is used to structure the research process used to build theories. On the deduction end of the continuum, prior theory is used to give direction to the testing of theories that have been built up before data is collected (Perry 2001). Several authors argue that it is not possible to begin a study with no prior theory or concepts to guide the research (Eisenhardt 1989, Miles & Huberman 1994, Perry 1998) and that any researcher, no matter how unstructured or inductive, comes to the field with some orienting ideas (Miles & Huberman 1994). In this case, induction and deduction can be taken as linked research approaches in which trade offs might be made between loose and tight initial frameworks (Miles & Huberman 1994, Perry 1998).

According to Perry (1998), the difference between the two approaches can be viewed in terms of scientific paradigms, with the deductive approach representing the positivist paradigm and the inductive approach representing the phenomenological paradigm. Revisiting the two extreme philosophical orientations discussed in section 3.2, Constructivism, the philosophical orientation the author took for this research falls more to the inductive end of the deductive-inductive continuum. Perry (2001) argues that a useful form of case research is one that involves both induction and some very limited deduction. In this case, the researcher formulates a research problem, draws on extant literature to specify some potentially useful variables.

For the study reported in this thesis, the research approach was neither purely inductive because concepts from prior literature were used to guide the research process, neither was it purely deductive because the researcher did not set out to test a pre-developed theory. However, the author took a predominantly inductive approach. While there was hardly any maintenance resourcing research that could be drawn on to support the research process, the author believed that insights from the other stages of the outsourcing cycle could provide a good starting point from which to know what kind of data to collect. Information from outsourcing and maintenance literature analysis led to the formulation of a research framework that guided the data collection process

The section that follows is a description of the research design that was used for meeting the research objectives.

3.4 Research design

Yin (1984) lays down five major components of case study design: a study's questions, its prepositions if any, its unit(s) of analysis, the logic linking the data to the prepositions, and the criterion for interpreting the findings (Yin 1984). Even when there are no prepositions, the researcher is advised to state both the purpose of the study as well as the criterion under which an

exploration will be judged successful (Yin 1984). According to Easterby-Smith et al (2002), research designs are about organising research activity, including the collection of data in ways that are most likely to achieve the research aim. Based on these definitions, the researcher is required to develop a research design that will meet the specific objectives at one level and the overall aim of the research project in general. There are many potential choices to make when developing a research design with a few guiding themes into making the ideal choice for a particular situation (Easterby-Smith et al. 2002). These include;

- The decision by the researcher to either remain distanced from the phenomenon being researched or to get involved, a decision influenced by both the ontological and philosophical views held by the researcher.
- The sample size that should be used and the sampling technique to be used
- A decision on what should come first, theory or data, still a choice that is greatly impacted by the philosophical view of the researcher.
- Use of experimental designs or fieldwork, where at its extreme the former involves assigning elements at random to either an experiment or a control group while the latter involves the study of real organisations or social settings.
- Whether the researcher is interested in generating a universal theory or local knowledge?
- Whether the researcher is interested in theory verification or falsification

The paragraphs that follow detail the research design for this study. Having selected the case study research strategy, the research question was used to define the main unit of analysis. This was followed by the study selection of the sampling approach from a list of purposeful sampling strategies and selection of case study organisation. Finally, the data sources and methods used in collecting research study evidence as well as the data analysis approach are discussed.

3.4.1 Selection of unit of analysis

Although it is true that a research design specifies the unit or units of analysis to be studied (Patton 2002), it can also be said that each unit of analysis calls for a different research design and data collection strategy (Yin 2003). Decisions about samples, both sample size and sampling strategies, depend on prior decisions about the appropriate unit of analysis to study (Patton 2002). The unit of analysis could be individuals, specific events, strategies employed (Easterby-Smith, et al.2002). The key issue in selecting and making decisions about the appropriate unit of analysis is to decide what is it you want to be able to say something about at the end of the study (Patton 2002). As a general guide, the tentative definition of a unit of analysis and consequently of the study case or cases is related to the way the researcher has defined the initial research question(Yin 1984).

Based on the research question and specific research objectives, the primary focus of data collection was on what happens during the maintenance re-sourcing decision, what affects how it is conducted and the final choices made, and how the strategy taken and final choice made affect the purchaser and supplier organisation?. The unit of analysis was therefore defined as the “maintenance re-sourcing decision process” In this research study, the maintenance re-sourcing decision process has to do with

“the process of making a decision whether to continue with the current maintenance management service provider/s, return the maintenance function in-house or switch maintenance service provider/s or a combination of any of these three ”

3.4.2 Sampling approach

To address a research problem or question, the researcher decides which people and research sites can best provide information, puts a sampling procedure in place and determines the number of people needed to observe and provide data (Creswell & Plano Clark 2006, Miles & Huberman, 1984) as well as settings, events and social processes (Miles & Huberman, 1984) that require attention during the study process. The research questions, inform the sampling frame: where one goes to get the answers, with whom one talks, and what one observes. Sampling procedures can fall in either one of two categories, random probability sampling or purposive sampling (Patton 2002). Although some of the sampling strategies under each of these major divisions are associated with either the qualitative or quantitative approach, most can be used in both types of research. In practice a researcher will typically use a combination of sampling techniques that are most appropriate for the study being undertaken (Tashakkori & Teddlie 1998).

Since there was hardly any prior research on maintenance re-sourcing especially in the context of service organisations operating in capital constrained economies, a major component of this research was exploratory and descriptive. In order to generate an in-depth knowledge of the re-sourcing process, the primary methods of answering the research question were qualitative in nature. Therefore, the sampling procedure had to be one that supports the qualitative research technique. Qualitative inquiry typically focuses in depth on relatively small samples selected purposefully. The logic and power being in selecting information rich cases for study in depth (Patton 2002). Creswell and Plano Clark (2007) support this when they mention that in qualitative research, the inquirer purposefully selects individuals and sites that can provide the necessary information. In-depth studies require information rich cases from which one can learn a great deal about issues of central importance to the purpose of the inquiry (Patton 2002). Therefore, the purposive sampling technique was used to select both industry and case for the study.

There are a number of purposeful sampling strategies (Miles & Huberman 1984, Patton 2002) out of which the following were found appropriate for answering the research question prior to the field visits.

- Criterion sampling: picking all cases that meet some criterion
- Critical case sampling: permits logical generalisation and maximum application of information to other cases because if its true of this one case, its likely to be true of all other cases
- Typical case sampling: illustrates or highlights what is typical, normal, average.

The best suited purposeful strategy for the research could have been criterion sampling since this would permit excellent cross-case analysis a technique that enhances the external validity of research. The initial stages of research design were based on this sampling strategy and the following criterion was to be followed

- Firstly, since the study was on maintenance re-sourcing in an asset intensive service organisation operating in a capital constrained economy, the study excluded maintenance outsourcing in all manufacturing organisations.
- Secondly, since the study was interested in maintenance re-sourcing decision processes in asset intensive organisations, the second criterion was that the organisation should be an asset intensive service organisation that has outsourced maintenance
- The third criterion was that the organisation should have had a maintenance sourcing decision subsequent to a maintenance outsourcing arrangement
- There should be access to relevant data sources

Based on the first s criteria, a list of asset intensive service industry categories and organisations in Uganda was developed. This included organisations in the telecommunication industry, downstream oil industry, and utilities (water and electricity).

The next step was to identify which organisations within these service industries had outsourced asset maintenance. At the time of initial consultations, Uganda had three telecommunication companies, one electricity transmission company, one electricity distribution company, one company in charge of water and sewerage and 55 registered down stream oil companies. Initial contacts were made with informers working in the technical departments of these organisations. The results from these contacts revealed that apart from the water sector which had internal maintenance teams, the other industries; telecommunication, electricity distribution and transmission, and downstream oil industries had outsourced maintenance.

Out of the three categories of asset intensive service organisations that had outsourced maintenance, the researcher went ahead to establish when maintenance was first outsourced and whether there had been other maintenance sourcing decisions since the maintenance activity had been outsourced. The researcher established that at the time of developing the research design, only organisations in the down stream oil industry had undertaken maintenance re-sourcing decisions.

Initial contacts in the telecommunications industry revealed that, the three telecommunications companies used the same service provider for the repair of equipment in their networks but some were in the process of making changes and would soon undertake a re-sourcing decision. However, the researcher was not able to get a definite answer on when this was going to happen. With regard to the electricity distribution organisation, although they had outsourced maintenance for almost two years they had also not undertaken a re-sourcing decision. The design zeroed down to the downstream oil industry.

Information about which oil companies had outsourced or are outsourcing maintenance was collected from resource persons knowledgeable about their operations. Most of the information was provided by contacts from equipment maintenance service providers. The rationale for selecting them as initial contacts for this first phase information, was that since they are interested in marketing their services to the organisations in the oil industry, they should be aware of who is outsourcing equipment maintenance and who is not. Since the target of this research study is on the maintenance sourcing decision at the end of an existing contract, only those firms that have outsourced maintenance before were considered for further case selection stages.

In the downstream oil industry, only 5 out of 55 organisations were using external maintenance suppliers. Two of these organisations were disqualified from the study. One was disqualified because the organisation had just outsourced maintenance and had not had a maintenance re-sourcing decision yet. The other was disqualified because it was small and was outsourcing a very small component of their equipment network.

Based on an initial investigation into the maintenance function of the initially selected industries, the oil industry met the first three criteria and was considered as the most appropriate industry for the study. Firstly, it is an asset intensive service industry in which equipment maintenance was found to play a vital role in the achievement of overall organisational objectives.

Secondly, two of the three oil companies that had outsourced maintenance had changed service providers within the last four years which was external evidence that these two companies had actually engaged in maintenance re-sourcing decisions. The third organisation has been using the

same maintenance service provider since its initial decision to outsource maintenance. These presented a number of re-sourcing decision outputs thereby presenting diversity in decision results.

Since the researcher was interested in understanding the maintenance re-sourcing decision through the perspectives of both purchaser and suppliers, focusing the research efforts on one industry had the capacity to provide the researcher with an opportunity to gain a deeper understanding and provide thick descriptions of the phenomenon and its context. The research question was then narrowed down to.

“How can maintenance re-sourcing decisions for an asset intensive service organisation operating in Uganda’s down stream oil industry be effectively managed? ”

3.4.3 Selection of case study organisation

In order to select the case study organisation/s, the next step in the research process was to obtain permission from these three downstream oil organisations and their suppliers to carry out research in their organisations. To enable the reader follow the dynamics of this research, there is need to differentiate between the maintenance purchasers and suppliers that the researcher had to engage with in order to meet the research objectives. Although the request by the individuals and the organisations involved in the case study to remain anonymous was established later on in the study, the researcher has decided to introduce the abstract names now to facilitate the reader through the rest of the thesis. All the three oil organisations that had outsourced maintenance and undertaken a re-sourcing decision were subsidiaries of multinational organisations. From this point on these multinational organisations will be referred to as Petro1, Petro2 and Petro3. When referring to the subsidiaries which are the local establishments of these multinationals in Uganda, the researcher will refer to them as Petro1-U, Petro2-U and Petro3-U. Since the outsourcing of maintenance, all the three organisations, Petro1-U, Petro2-U and Petro3-U had selected from only two maintenance suppliers, who also because of the confidential nature of the information they were providing preferred to remain anonymous and therefore will be referred to as Supplier A and Supplier B. It is worth noting at this point that the three purchasers Petro1-U, Petro2-U and Petro3-U were covering more than half of the DSOI market.

Miles and Huberman (1984) refer to a case as a bounded context in which one is studying events, processes and outcomes. In order to successfully perform a case study, complete access to data collection sources is imperative. Therefore, random selection is neither necessary nor even preferable (Eisennhardt 1989b). According to Yin(2003), selection could be straight forward may be because of some special arrangement or uniqueness of study. With studies in which the numbers of qualified case study cases are many, use of screening processes based on number of

available cases is recommended. For smaller numbers, the screening may consist of querying people knowledgeable about each candidate or collecting limited documentation about each candidate. With larger number say above 30, the researcher/s is advised to use a two stage screening procedure in which first, quantitative data about the entire pool is collected from some statistical database after which criteria is developed and used to reduce the candidates to the desirable number of cases (Yin 2003). Whatever the stage in the research design, purposive sampling means that researchers intentionally select participants who have experience with the central phenomenon or the key concept being explored (Creswell & Plano Clark 2006). The guidelines given for selection of cases conform to the purposive sampling technique (Patton 2002, Creswell & Plano Clark 2006) in which a case is chosen because they can provide the necessary information.

This research was interested in the maintenance re-sourcing decision process and therefore considered data from the maintenance sourcing decision participants very significant in meeting its objective. There was therefore need for both access to the organisation and a willingness of individuals to participate. Therefore, the other criteria was to select cases or the case where there is access to all the necessary data sources. With case study research it is recommended that the researcher must contact the individual with enough authority to provide permission for the research to be conducted in a given site (Benbasat et al. 1987). Therefore final choice of case was made after communicating to managing directors or other high placed authorities in Petro1-U, Petro2-U, and Petro3-U and their suppliers.

Letters requesting for permission from the country chairman of each oil company and managing director of supplier firms to carry out research in their organisations were hand delivered in March 2008. Care was taken to avail the authorities with all the relevant information about the research study, the researcher, research assistants and the necessary resources in terms of who and what within the company might be required, other sources of data outside their organisation as well as the time frame and effort required of the organisation. Copies of university support letters are presented in Appendix A, and a copy of the researcher's request for permission to carry out research in the downstream oil organisations is provided in appendix B. The desired outcome at this point was that permission would be granted by all the three organisations.

After a week, the researcher received a response from supplier A and two weeks later a response was given by the country chairman of Petro1-U. The researcher followed up the remaining three with the help of other contacts within the organisation. The contact from supplier B revealed that all decisions regarding maintenance outsourcing are handled by the management team located in another country. The only information that could be obtained was some details of what takes

place when a given maintenance contract is about to end and what happens when the company takes on a new client or loses a contract.

The researcher also approached one of the maintenance sourcing decision unit members in Petro2-U and he promised to talk to the country chairman. He also asked the researcher for another copy of the letter of request which was provided. The country chairman of Petro2-U later asked for a soft copy of both the letter of request and introduction letters from my university with the intention of forwarding them to higher authorities in Petro2. Unfortunately, further efforts to get in touch with him were unfruitful.

When the researcher approached the informant in the third purchaser, Petro3-U, she was informed the organisation was the middle of a number of changes and the access needed might not be provided. The researcher was advised to send a reminder but still there was no response. The informant then advised me to approach a few of the individuals involved in the maintenance re-sourcing decision as individuals and not as an organisation. Since the researcher was interested in having the organisation as a case, this would not measure up to the criteria of total or at least significant access. Nevertheless, the researcher contacted the maintenance contract manager so that she could get to know him because he was believed to be a useful contact that would later provide useful information regarding the context or environment in which the case organisation was operating and suitable participant at the model validation stage. The next step was to consider whether using the only consenting purchaser in a single case study would provide the necessary data to understand the maintenance re-sourcing decision in a downstream oil organisation.

3.4.4 Analysing the suitability of using a single in-depth study approach

While still seeking for permission from Petro2-U, the researcher eventually became aware of the likely acquisition Petro2-U. But this was regarded as baseless by Petro2-U's country director in one of the country's major newspapers. Based on this information, and the hesitance of the Petro2-U and Petro3-U to provide permission to access data sources, the researcher thought it was time to develop another research design.

According to Yin (2003), regardless of any resource constraints, if multiple candidates are qualified to serve as cases, the larger the number you can study, the better. Based on this opinion, the multiple case study would have been a better approach. This could not be achieved because in the present study, total access was provided by only one organisation out of the three that had met the first three criteria. However, according to Patton (2002), there is no rule for sample size in qualitative inquiry. Sample size depends on what the researcher wants to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility and what can be done

with the available time and resources. Additionally, Kelliher (2005) argues that in the absence of cases for cross case comparison, data triangulation can be used to fortify validation in a single case. With permission from only one downstream oil company, Petro1-U, it was necessary to apply the rationales for a single case study to it and establish whether meaningful results could be obtained from one case.

Among the purposeful sampling techniques, Critical case sampling was found particularly important where resources may limit the study to only a single site (Patton 2002). Under such conditions, it makes strategic sense to pick the site that would yield the most information and have the greatest impact on the development of knowledge (Patton 2002). While studying one or a few critical cases does not technically permit broad generalisations to all possible cases, logical generalisations can often be made from the weight of evidence provided in studying a single critical case.

Yin provides five rationales for using a single case study (Yin 2003).

- When a single case represents the critical case in testing a well formulated theory. In this situation, the theory has specified a clear set of prepositions as well the circumstances within which the propositions are believed to be true and the researcher sets out to confirm, challenge or extend the theory where the case selected meets all the conditions for testing the theory.
- When a case represents an extreme or unique case
- When the single case is representative or a typical case. Here the objective is capture the circumstances and conditions of an everyday or common place situation. The case study may represent a typical “project” among many different projects, a firm believed to be typical of many other firms in the same industry, as examples. According to him, the lessons learned from these cases are assumed to be informative about the experiences of the average person or institution.
- When a case is a revelatory case, especially when an investigator has an opportunity to observe and analyse a phenomenon previously inaccessible to scientific investigation.
- When the researcher is undertaking a longitudinal case study. This is undertaken when the researcher is interested in studying a phenomenon at two or more different points in time.

In light of one of Yin (2003)’s rationale of using a single case study, when a case is the representative or typical case and Patton (2002)’s argument for critical case sampling, Petro1-U was subjected to an evaluation to establish whether it could be used as a representative case for organisations that had outsourced maintenance and undertaken maintenance re-sourcing decisions in the downstream oil industry.

Since all the three oil firms that had outsourced maintenance and undertaken maintenance re-sourcing decisions were multi-national organisations, with equipment at their retail sites similar to those of Petro1-U and using services of the same maintenance service providers, it was considered appropriate to use Petro1-U as a representative case. Further still, the context of operation was the same. Petro1-U had similar competitors both for business market share and maintenance suppliers like Petro2-U and Petro3-U.

Using Petro1-U, could also be seen as an employing the intensity sampling technique. Intensity sampling makes use of an information rich case/s that manifest the phenomenon intensely but not extremely (Patton, 2002). In intensity sampling, one uses excellent or rich examples of the phenomenon of interest but not unusual cases. The research was interested in the maintenance re-sourcing decision as the unit of analysis with maintenance re-sourcing as the phenomenon of interest. At the time of data collection, Petro1-U had had more maintenance re-sourcing decisions than any of the other two cases and therefore qualified as an information-rich case. The presence of more than one maintenance re-sourcing decision time points meant that the experiences at the different time points would provide more data to illuminate what goes on during the decision process.

According to Flick (1998), case sampling and selection decisions always fluctuate between the aims of covering as wide a field as possible and of doing analyses which are as deep as possible. The former strategy seeks to represent the field in its diversity by using as many different cases as possible in order to be able to present evidence on the distribution of ways of seeing or experiencing certain things. The latter strategy seeks to further permeate the field and its structure by concentrating on single examples or certain sectors of the field. Since the research study focus was on a relatively unexplored phenomenon in an unexplored setting, trading width for depth was considered an acceptable approach capable of generating the much needed thick descriptions of the re-sourcing phenomenon and its context (Kelliher 2005). Based on the results from this analysis, the researcher judged that using Petro1-U, in a single in-depth case study could provide the information required to meet the research objectives.

Therefore, an in depth case study from a single organisation within the downstream oil industry was conducted. Since for the first phase of the study the author was interested in understanding the maintenance re-sourcing decision through the perspectives of both purchaser and supplier organisations, a dyadic approach was used and involved data collection from both purchaser and supplier informants. Given that more than one maintenance re-sourcing decision had been taken in the last five years, different time points were included in the study of the re-sourcing phenomenon to enrich the case study.

3.4.5 Research methods

Research methods are aimed at collecting evidence from the data sources. The case study strategy relies on many data collection methods such as primary and secondary documents, questionnaires, direct observations and interviews of persons involved in the events (Eisennhardt 1989b, Benbasat et al. 1987, Meredith 1998, Yin 2003). The goal is to obtain a rich set of data surrounding the specific research issue as well as capturing the contextual complexity. According to Easterby-Smith et al. (2002), choice of research paradigm determines the methods of data collection and analysis. The epistemological view held by the researcher coupled with the research question will determine the most appropriate method/methods of data collection and analysis. Using multiple methods of data collection offers the opportunity for triangulation and lends greater support to the researchers conclusions (Benbasat et al. 1987). Triangulation uses of multiple and independent measures to study a phenomenon (Easterby-Smith et al. 2002). There are four types of triangulation;

- Data triangulation; the use of multiple data sources in a study or collection of data over different time frames
- Investigator triangulation; use of several different investigators to collect and analyse data about the same situation and eventually compare results
- Theory triangulation; the use of multiple perspectives to interpret a single set of data.
- Methodological triangulation; the use of multiple methods to study a single problem (Easterby-Smith et al. 2002, Patton 2002).

While multiple triangulation, a technique in which the researcher combines in one investigation, multiple observers, theoretical perspectives, sources of data and methods to strengthen the study (Denzin 1978), helps to develop converging lines of inquiry or conclusions (Yin 2003), a study's limited budget and time frame affects the amount of triangulation that is practical (Denzin 1978, Patton 2002). Further still, triangulation efforts might be frustrated by a lack of access to areas, types, or, levels of data. In research studies where there are restrictions to money and time, the researcher needs to make the best possible use of what is available (Denzin 1978). Aware of some of the limitations in this study, especially money and time, this research was conducted using data triangulation. In the first phase of the research, qualitative data was collected and analysed. The results were then used together with results from literature analysis to develop a maintenance re-sourcing model. This was later subjected to qualitative validation to establish whether it captured all the necessary elements in a resourcing decision and to judge its usefulness in guiding maintenance re-sourcing decisions.

3.4.6 Collection of qualitative data

The case study research strategy is an investigatory approach which involves commitment to the detailed exposure, interpretation of social action and its communication to a wider audience. For this kind of study, the use of the interpretive approach is well supported. According to Corbin and Strauss (1990), actors, in this case, maintenance re-sourcing decision makers are seen as having, though not always utilising, the means of controlling their destinies by their responses to conditions. They are able to make choices according to their perceptions about the options they encounter. Since, decision making is part of the information and interpretation process in organisations (Daft & Weick 1984), re-sourcing decision members of the maintenance purchasing organisation were found to be a major source of evidence in this research study.

In order to meet the first objective, decision makers in the maintenance service provider's organisation were also considered to be relevant data source. This was on the premise that they are aware at least to a great extent, of the time when they start getting involved in the re-sourcing decision with their clients, the kind of information that they were expected to provide, the criteria they believe or were told was used for analysis and evaluation and the behaviour of their clients during the process. Generally, as proposed in the research framework under transaction parties, their presence and contribution to the re-sourcing decision were believed to have an influence on the progress and outcome of the re-sourcing decision process. For this research, management in the supplier organisation was assumed to be and taken as the first recipients of the purchasers behaviours and requests as well as those who have the first opportunity to respond to the purchaser either in the position of an incumbent, or alternative supplier. Secondly, it was assumed that their behaviour could be one of the triggers of the re-sourcing decision. Therefore, the information provided by them in terms of facts and opinions would be used to corroborate the data from the purchaser informants and would be means of data triangulation. The researcher moved between these two sites (Petro1-U and Supplier A) to corroborate information provided.

The other group of resourceful individuals who provided relevant information about the phenomenon were stakeholders within the purchasing organisation but outside the maintenance sourcing decision group. Their perceptions about maintenance outsourcing and the re-sourcing decision process provided some more insight about the forces at play in the maintenance re-sourcing decision process. Despite the fact that they were not part of the maintenance re-sourcing decision team, as part of the organisation, they are affected by the outcome of the maintenance re-sourcing decision process. Additionally, being closer and more in touch with the decision makers than the researcher, they had the opportunity to access information about the decision process, influencing factors and outcome that the researcher might not be able to acquire directly from the re-sourcing decision unit members themselves.

Where possible, people who held similar positions in the other downstream oil companies and those who once held maintenance outsourcing contract management positions in those organisations, but have since either changed positions within the organisation or left were also contacted and interviews held with them.

For each of these four groups of people, multiple respondents were interviewed. This is on the basis that, no one person has all the required knowledge, and, the phenomenon being studied may have different interpretations and view points. Consequently, how and why questions may be subject to different interpretations (Voss et al. 2002). The primary data collection method employed was interviews because it is one of the most important sources of case study information (Yin 1994). According to Yin (2003), case study interviews are usually of an open ended nature, in which you can ask key respondents about the facts of the matter as well as their opinions about events. Interviews provide an opportunity for human affairs to be reported through the eyes of well informed respondents who can provide important insights into a situation. Interviews also provide shortcuts to the prior history of the situation, so that the investigator can readily identify other relevant sources of evidence (Yin 1984). However, the quantity and quality of data that can be obtained from an interview depends a lot on the researchers' skill (Voss et al. 2002). After the researcher has obtained permission from senior management to carry out research in the organisation there are still some challenges to overcome before any meaningful data can be obtained (Easterby-Smith et al 2002). One of the challenges that the researcher faces is how to obtain cooperation and trust inside the organisation. According to (Easterby-Smith et al 2002), in every study involving organisations, the researcher needs to develop a co-operative relationship with every informant for a successful interview.

The country chairman of Petro 1-U provided a tentative list of the people he believed would be the best contacts for the research. These included, the chief engineer, the retail manager who is the head of the department to which maintenance reports and the retail maintenance engineer who acts as the maintenance contract manager. The country chairman of Petro 1-U also liaised with the person in charge of research in the organisation to help me with the process of organising meetings with the key informants in the organisation. Through initial telephone interviews and informal meetings with a few employees from Petro1-U, other key informants were also identified. These included the projects maintenance engineer and the manager contracts and procurement. Other arrangements were also made to have interviews with three other engineers in the operations department. Although these three engineers were not directly involved with maintenance sourcing decisions, the researcher used some of the information provided by them to corroborate information provided from the other informants. For example since I had been informed that irrespective of the activity, the local contract team was the same, I needed to find

out from a contract manager of another outsourced critical activity about procedural facts and requirements and contributions of the person in charge of a contract, referred to as the “contract holder ”or the contract manager in Petro1-U. An interview with the country chairman was held at a later date.

In the service providers’ firms, the following were the main contacts. The managing director, the administrator, technical manager and field engineer in Supplier A. These were the people responsible who engaged in the maintenance re-sourcing decision process. In supplier B, An interview was held with the maintenance field technical manager. Although he did not participate in the re-sourcing decision, he reported directly to supplier B top management in Uganda. He was able to provide some insight about supplier B’s top management’s decisions.

With regard to the context of operations, there was one contact from ministry of energy and mineral development, and, four maintenance sourcing decision unit members from Petro2-U, Petro3-U, and Petro4-U. One of the four contacts in this category used to be a maintenance contract manager of petro2-U and left the organisation. But he had engaged in a maintenance re-sourcing decision process before leaving the company in 2006. The other three were maintenance contract managers at the time of the study. The informant from the ministry of energy and mineral development provided general information regarding the downstream oil industry and nothing to do with maintenance re-sourcing decisions.

In relation to maintenance re-sourcing decisions in Uganda’s DSOI, there were 17 informants in total. These are summarised in the table 3.3

Table 3.3 Research study informants .

Organisation	Petro1-U	Other purchasers	Supplier A	Supplier B
Number of informants	8	4	4	1

The interview process: Gaining cooperation from identified well informed individuals

After identifying a tentative list of what the researcher believed were well informed respondents, the next issue to address was gaining the informants’ consent to participate in the study. Before the interviews in Petro1-U, the author was asked to provide a brief introduction to the research coordinator, who would then contact all the contacts in Petro1-U for each to suggest an appropriate time for either an introductory briefing or an interview. The list of informants which

included those provided by the country chairman and those obtained from other contacts was given to Petro1-U's research coordinator by the researcher. The introduction letter given to the informants is provided in appendix C. Depending on the response of each individual, an appointment for the interview was set. Although an introductory letter had been sent through the research coordinator, during the interviews the author who doubled as the interviewer began by explaining to the interviewees the purpose of the research. This introduction was a way of getting the interviewee to focus on the main issue of research and to gain their cooperation. The available methods for recording the interview data were explained to the respondents and a request for permission to use the recorder was made during the briefing or at the beginning of the interview. There was only one interviewee who gave consent for the use of a tape recorder during face to face interviews and one interviewee during a telephone interview. The author depended heavily on writing notes.

Another issue to address in relation to interviews is gaining the trust of the interviewee. A number of practical ways have been suggested to support the researcher's efforts to obtain the trust of the interviewee. One is to ensure the researcher is well informed about the company. The second is to use email or telephone communication rather than a formal letter in the initial contact. The third is not being over anxious about getting all the data in one go since relationships take time to form. It has been argued that it might be better to undertake a series of short interviews from which a useful dialogue flows, rather than to act hastily and alienate the interviewees through lots of pushy questioning (Easterby- Smith et al. 2002).

In this study, the researcher endeavoured to gather as much information about the purchaser and supplier companies before meeting with the interviewees. The researcher also managed to get some information about the interviewee before the scheduled interview. Secondly, for Petro1-U, after the research coordinator had communicated to the identified interviewees, the researcher managed to get the emails and mobile telephone numbers which were used to confirm interviews and where there was need to clarify on the information provided in the interview. Thirdly, the researcher reassured the informants that every effort would be made to ensure the raw data was not shared with anyone within the organisation especially where this might have a negative effect on the interviewee. Lastly, in some situations, especially in the supplier firm, the author often engaged in more informal discussions rather than lengthy interviews. Some supplier respondents appeared to be more at ease with short informal conversational style discussions than in formal interview arrangements.

Interview questions

Another element of case study research that needs to be addressed is the kind of questions that are asked during interviews and informal discussions. According to Maxwell (1996), the

selection of interview questions depends on the research questions, the actual research situation and what will work most effectively in that situation to give you the data you need. Interview questions are what you ask in order to gain an understanding about the things you want to know. Interview questions are judged not by whether they resemble the research question, but by whether they provide the data that will contribute to answering these research questions (Maxwell 1996). From Maxwell (1996)'s argument, one face of interview questions is the content and wording. Another concern related to interview questions is the degree of structuring (Yin 1984, Miles & Huberman 1994). On one extreme are interview questions of open-ended nature in which you can ask key respondents about the facts of the matter as well as their opinions about events. On the other extreme are structured interview questions often used in formal surveys (Yin 1984). However, a researcher can choose to use focused interview questions where interviews may still remain open-ended but for which the interviewer follows a certain set of questions derived from the case study protocol (Yin 1984). The focused type of interview questions are appropriate when the interviewer thinks that some facts have already been established.

In this study the author combined open ended interview questions with focused interview questions. An interview guide shown in appendix E was used during the interviews. It indicated major areas of concern, and/or possible questions. In Petro1-U, the first two questions were the same for almost all the interviewees, being interviewed for the first time. These two questions had to do with describing the role that equipment maintenance plays in achieving the goals of the organisation and the company's maintenance outsourcing experience. The rationale for this was to first of all have a uniform starting point and also to have a question as open as possible so as to compare responses from all interviewees about the maintenance outsourcing experience. The questions that followed although bounded within the context of maintenance outsourcing in general and maintenance re-sourcing decisions in particular, were specific in wording depending on the response given during these first two questions and questions generated after interviews with other informants. Follow up interviews with interviewees that the researcher had already met in an earlier interview depended on answers generated in either an earlier interview with this particular informant and/or others.

At the end of the interview, respondents were asked a few specific questions, as way of summarising the interview. These questions were aimed at establishing whether the researcher had understood the responses of the interviewee and to determine the degree of coherence amongst the interviewees on particular issues. At the end of these summarising questions the author thanked the interviewee for their cooperation, and reassured them of the confidentiality

that would be accorded to their contributions. At the end of the interview the researcher also requested for further support in the follow up stages.

In the course of the interview, respondents often suggested other persons that they thought would provide more insight on the maintenance re-sourcing process. In the purchaser's firm the interviews were for the start open ended and as more insight into the maintenance re-sourcing decision were obtained, they became more focused. In some instances, when an open question was asked, such as

“what would you call a successful maintenance outsourcing arrangement? ”

the interviewee responded by saying that was an open ended question. Although, the author would have thought it more beneficial to get a response to such an open question, there was room for flexibility to accommodate interviewees who seemed more comfortable with more focused questions.

In two incidences, the interviewee asked the researcher to send him a copy of the questions that would be asked during the interview. Although general questions about the specific topics of interest were provided, these changed during the course of the interview which was conducted at a later date. The researcher was aware that this could result in biased responses from the interviewees but adhered to the requests since it is believed to reduce the interviewees perception of the potential risk involved in exchanging information and interpretations (Easterby-Smith et al. 2002).

For the interviews with contacts in supplier A, the researcher approached the administrator, who agreed to set apart time for an interview. Other managers in the organisation were informed and interview dates arranged. Unlike Petro 1-U where it was always possible to have an interview on a pre-arranged day, this was not the case with contacts in supplier A except for the administrator. Due to the nature of work for the interviewees in the supplier company it was not possible to have interviews lasting for more than 30 minutes. They were often 20 to 30 minute interviews that often times turned into conversations. The researcher realised that it seemed more comfortable for the interviewees when a conversational approach rather than an interview approach was used. This could have been because the interviewees were constantly being called to attend to other duties. The reactive nature of their jobs always meant they had to keep moving from office to site, signing resource requisitions, attending to calls and other duties that it was almost impossible to get them in one setting for more than 30 minutes. Therefore even when they were willing to engage in a lengthy interview, it was often interrupted. The researcher often had to spend a whole day at supplier A's premises in order to get as much time within the contacts'

limited presence at the premises. But this gave the researcher the opportunity to observe behaviour and to generally get a feel of the context of the supplier's operations and to search the available documents such as request for proposal and contracts.

Additionally, despite the assurance of confidentiality, every time a formal interview setting was arranged the interviewees seemed to think the researcher wanted some information from them to take back to the purchasers. In a conversational setting the researcher was able to get the interviewees to provide as much information as possible in very short period of time. Therefore, although an interview guide was prepared for use with informants from the supplier firm, it was rarely used.

The processed interview data was returned to the informants for review before further analysis and model development. Comments on interpretation and further insights were provided and considered for subsequent review and analysis.

Other sources of evidence

Since informants and respondents are prone to subjectivity and bias (Voss et al. 2002), other sources of evidence were used in the study. This included documents such as requests for proposals (request for tender), pre-qualification documents and contracts. No written reports on events were provided. Archival records such as records about past and current maintenance service and performance (Yin 2003) were used to record events that occurred before the study and additionally used to validate respondents reports during the interview period. The assumption at the design stage was that access to these and other documents were provided. But it was not possible to access agendas and minutes of meetings. The researcher was aware that most archival records are produced for a specific purpose and a specific audience and caution was taken in interpreting the usefulness and accuracy of the records. In most instances, there were copies of the same document both at the suppliers' and purchaser's premises so documents like the contract, request for proposal/tender, prequalification documents, maintenance performance reports could be accessed from any of the premises. Where there were similar documents at both premises, the researcher was often referred by the purchaser to the supplier's firm. In some incidences, some documents were provided by the interviewees during or after the interview. Other information was obtained from the Ministry of Energy and Mineral Development website.

Direct observations were also used to cover the context of the organisation within which the maintenance re-sourcing decision is made (Yin 2003). Given the timing of the case study, the observations' focus was on understanding the organisational settings and interface rather than the maintenance re-sourcing decision itself.

From the analysis of qualitative data generated in the first phase of the study, a descriptive model was generated and passed on to informants in the down stream oil industry for validation. Since the model development and model validation processes are significant elements of this research, they have been discussed in two separate chapters, chapters six and seven. The section that follows describes the data analysis techniques that were employed.

3.5 Data analysis strategy

In general, data analysis is about interpreting data. The definition of the research's analytic strategy determines the limits of data collection and dissemination of results (Amaratunga et al. 2002). While the general procedure in data analysis for qualitative and quantitative research methods is the same, procedures for preparing the data for analysis, exploring the data, analysing the data, representing the data analysis and validating the data, differ for qualitative and quantitative research (Creswell & Plano Clark 2006). According to Yin (2003), data analysis consists of examining, categorizing, tabulating, testing or otherwise recombining both qualitative and quantitative evidence to address the initial prepositions of the study.

Miles and Huberman (1994) define qualitative data analysis as consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing and verification. Data reduction refers to the process of selecting, focusing, simplifying, abstracting, and transforming the raw data that appear in written up field notes or transcriptions and continues throughout the life of any qualitatively oriented project. The second activity, data display, is an organised assembly of information that permits conclusion drawing. Data displays, including many types of matrices, graphs, networks, and charts are all designed to assemble organised information in an immediately accessible, compact form, so that the analyst can see what is happening and either draw justified conclusions or move on to the next step the display suggests may be useful. The last component, conclusion drawing/ verification, is about deciding what things mean, noting regularities, patterns, possible configurations ,causal flows and propositions (Miles & Huberman 1984). In summary, data analysis is about a search for pattern in data (Neuman 2007) or how to make sense out of data and passing on that sense to a specified audience through various forms of presentation.

Although final conclusions from the research study may not appear until data collection is over, qualitative data analysis is a continuous iterative process of data reduction, of display, and of conclusion drawing (Miles & Huberman 1984). Data analysis which begins at the start of data collection lets the field worker cycle back and forth between thinking about existing data and generating strategies for collecting new, often better quality data (Miles & Huberman 1994, Easterby-Smith et al. 2002).

However, before the beginning of data collection, the researcher has to have a general analytic strategy in place (Yin 1984). According to Yin (1984), there are three dominant modes of analysis. Pattern matching which compares an empirically based pattern with one or more alternative predictions, explanation-building whose goal is to analyse case study data by building an explanation of how or why something happened, and time series analysis whose objective is to examine some relevant how and why questions about the relationship of events over time. Since the study was exploratory, the author began with a loose research framework indicating that the maintenance re-sourcing decision management is affected by factors that fall under three categories. The general analytic strategy employed for this study was the explanation building analytic strategy (Yin 2003). This strategy involves making an initial proposition about a phenomenon. This proposition is revised based on the data collected during the case study. New data is compared with the revised proposition and further revision undertaken based on the results of the comparison. According to Yin (2003), the main technique in explanation building is to ensure that rival explanations are entertained and to show that these rival explanations cannot be supported given the evidence from the case study events.

Data from a case study employing mainly qualitative techniques can take on a number of forms, field notes, interview transcripts, documents and other graphic representations (Coffey & Atkinson 1996). In this research the majority of the data was in form of texts developed from interviews and documents. Interpretation of texts may pursue two different goals. One is to reveal and uncover statements or to put them in their context in the text that normally leads to an augmentation of the textual material. That is, for short passages in the original text, page-long interpretations are sometimes written. The other aims at reducing the original text by paraphrasing, summarising, or categorising. These two strategies are applied either alternatively or successively (Flick 1998). The researcher used both these strategies.

In the first phase of data analysis, field notes from each contact were converted into intelligible write ups. These were further processed to fill contact summary forms using the example of possible 'contact summary form' contents given by Miles and Huberman (1984). Contact summary forms included, people involved, the events and situations, main themes or issues from and with the contact, the main question centred on by the contact, and new insights provided by the contact. Similarly, relevant documents such as contracts, request for proposal, and performance evaluation reports were examined and significant information from them presented on document summary forms. A copy of a contact and document summary form is presented in Appendix, F and G respectively.

A combination of data analysis techniques was used. Most of the early data analysis structure was based on grounded analysis (Easterby-Smith et al. 2002) an approach that uses some techniques from the grounded theory approach (Corbin & Straus 1990). The stages proposed by Easterby-Smith et al. (2002) for the grounded analysis methods were used to guide the process.

Familiarisation and reflection

The first stage of this approach is familiarising oneself with the data. At each stage of the case study, the author familiarised herself with the data that was collected through interviews and selected a set of issues that seemed to be important for understanding what was going on during the maintenance re-sourcing process. Some of the points of concern during the familiarisation and reflection stage were.

- What are the central activities that take place during the re-sourcing process?
- What was each activity aimed at achieving?
- What are the facts provided by the informants about maintenance outsourcing, the maintenance re-sourcing decision process, factors that lead to a successful re-sourcing decision outcome, factors that lead to a poor re-sourcing decision outcome ?
- Do all informants provide the same facts regarding these issues?
- If all informants do not agree on the facts, what is different and what is the source of that difference?
- What are the differences between the maintenance re-sourcing decisions taken in the time frame considered? If the outcomes are different, what brought about that difference?
- What are the main points of concern for each activity? What do the decision makers ensure happens and why? What do they try to avoid and why?
- Are these concerns similar to those raised in the existing body of knowledge in reference to the preceding stages of the outsourcing cycle.
- If not, what is different?

Each time the author went through a set of write up field notes from a given interviewee, similar questions were raised and answers to them sought.

Conceptualisation and cataloguing concepts

This is the stage at which the researcher begins to identify concepts which appear to be important in understanding what is going on in the data (Easterby-Smith et al. 2002). By focusing on the first objective which was concerned with determining the factors that influence the management of maintenance re-sourcing decisions, the author grouped several similar issues raised in the interviews under organising categories. For example when the interviewees talked about issues

like measurement, key performance indicators, service level agreements, performance reports, and satisfaction in response to an interview request such as

“Could you please describe how you manage the maintenance sourcing process when an outsourcing arrangement with a particular supplier is about to end”

the author thought of a code to represent a category encompassing all these issues. “Performance evaluation” appeared to be a suitable code for this category. Several codes were then developed to represent categories that would put together issues addressing a particular activity of the re-sourcing decision process, the resources required for the process, an experience or concern. In this step, descriptive codes (Miles & Huberman, 1994) were used to name and classify data in the field notes. For example, some of the codes for categories addressing activities of the re-sourcing decision included maintenance re-sourcing process, performance evaluation, and capability assessment. Codes representing categories addressing issues of concern when designing decision criteria were organisational characteristics, characteristics of outsourced activity, the external environment, and desired goals.

After grouping similar issues under different categories, the field notes were now analysed to identify themes under each category. Using thematic analysis (Altride-Stirling 2001), each category and issues they represented were used to identify themes within the field write ups. In an iterative process, the categories were also used to identify other issues within the field write ups that could also belong to these categories. According to Strauss and Corbin (1990), coding represents the operations by which data are broken down, conceptualised and put back together in new ways (Corbin & Straus 1990). Some codes come more or less directly from the interviewee’s words while others are a summary of what the interviewee seems to be referring to or describing at a particular point in text or reflect more directly the researchers conceptual interests (Coffey & Atkinson 1996). While some of the interviewees’ words were used to code the data, most of the codes were summaries of what the researcher perceived the interviewee to be referring to at a particular point during the discussion and the researcher’s conceptual interests. This approach was used because there was only one recorded face to face interview and one recorded telephone interview. According to Kelliher (2005), in situations where the researcher is unable to record, taking note of the meaning is more important than the exact words. Therefore, although the interviewer tried as much as possible to take note of the interviewee’s words, much of the effort was directed towards understanding and recording the meaning of what was said. Consequently, most of the field notes generated already had the researcher’s interpretive aspect in them. In this case, coding based on interviewees exact words was not always possible. Appendix H is a summary of the initial phases of the data analysis process including: identification of a category, the issues it represents and the themes relating two or more issues within the category.

Re-coding and linking

This is the stage at which the concepts developed are again checked against the original data to establish whether what the researchers know about the concept is what the respondents actually said and whether different respondents had the same interpretation for the same concept. Where differences exist, the coding is revised. Linking has to do with identifying the patterns that exist between concepts. The process involves linking data with more general models by moving between evidence and literature in an iterative manner. The themes that had been identified were then later reorganised into broader categories that represented. In view of the themes that had been identified, the author then addressed two questions. Can these categories and the themes they represent be meaningfully placed under the categories proposed before the data was collected? The progression of the contents of appendix H is discussed in introductory part of chapter five where the findings related to the first objective are presented.

3.6 Research protocol

Using a research protocol is a major tactic in creating the reliability of case study research (Yin 1984). The protocol contains the instrument as well as the procedures and general rules that must be followed in using the instrument (Yin 1984, Voss et al. 2002). It also indicates who or from where different sets of information are to be found. The core of the protocol is the set of questions to be used in interviews. It indicates the subjects to be covered, the questions to be asked and indicates the specific data required (Voss et al. 2002). It is a major way of increasing the reliability of case study research and is intended to guide the investigator in carrying out the data collection from a single case study irrespective of the number of cases in the study (Yin 2003). It serves as a prompt for the interview and a checklist to make sure that all topics have been covered. The present study's research protocol is shown in appendix D

An interview guide indicating major areas of concern and their subsections was used during the interviews. Stake (1995) advises that trying out interview questions in pilot form should be routine. Here the focus is not on the exact words but the meaning of the words. The research interview guide was piloted through in an initial interview with one research student, and two independent individuals one from the maintenance department of one oil organisation and another a manager in one of the supplier firms. This enabled the researcher to eliminate some conceptual terms from the interview guide. Especially those that would end up leading the interviewees for example terms like "switching costs" and those that were confusing like "backsourcing" a term that had been extracted from previous research on re-sourcing decisions. Some words like backsourcing were removed from the possible questions because in the pilot interviews done in Uganda, the two respondents could not understand them. Piloting of the interview guide only assisted in preparing the researcher for the individual interview sessions.

In the purchasing organisation, the first two questions were the same for almost all the interviewees, being interviewed for the first time. The rest of the questions depended on the answers and comments given during these first two questions and questions generated after interviews with other informants. But, care was taken to ensure particular elements indicated in the interview guide were covered. Follow up interviews with interviewees that the researcher had already met in an earlier interview depended on answers generated in either an earlier interview with this particular informant or others. The interview guide for data collection in the purchasing and supplier organisations is provided in appendix E

The processed interview data was returned to the informants for review before further analysis and model development. Comments on interpretation and further insights were provided and considered for subsequent review and analysis.

3.7 Validity issues.

In general, the value of any research efforts stems from the validity of its results and the extent of its contribution to the body of knowledge. According to Yin, (1984), there are four validity tests that can be applied to case study research

- Construct validity: establishing correct operational measures for the concepts being studied.
- Internal validity: establishing a causal relationship, whereby certain conditions are shown to lead to other conditions as distinguished from spurious relationships
- External validity: establishing the domain under which a studies findings could be generalised. That is establishing the applicability of research findings beyond the study group.
- Reliability: demonstrating that the operations of a study-such as data collection procedures can be repeated with the same results.

In this section the researcher presents how each of these validity issues was handled

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Construct validity

The research addressed construct validity through the use of data triangulation in which multiple sources of evidence were used to collaborate results (Darke et al. 1998; Yin, 2003; Kelliher, 2005). The first two sources of evidence were maintenance sourcing decision unit members from Petro1-U, and maintenance sourcing decision unit members from Supplier A. The author moved between these to sets of informants to corroborate data regarding the facts about the maintenance re-sourcing decision such as decision triggers, participation, selection criteria, and timing. At the end of each interview, summarised statements of the researcher's understanding of the interviewee's responses were voiced to the interviewee for comments. This enabled the researcher to establish whether the researcher had a clear understanding of what the interviewee had explained. The processed interview data was returned to the informants for review before further analysis and model development. Responses to the request for review were followed up by telephone. Comments on interpretation and further insights provided by interviewees were considered for subsequent review and analysis. The model developed was also returned to the organisations for the model validation process and results integrated in further analyses and presentation.

Internal validity

In case research, internal validity has to do with the soundness of the cause and effect relationships established Perry (2001). According to Perry (2001), case research searches for causal tendencies or generative mechanisms that suggest a causal relationship exists in only some limited contexts. Another internal validity test has to do with establishing whether the researcher has made correct inferences from the data generated during interviews and gathering of documentary evidence. Internal validity can be strengthened by establishing whether the evidence is convergent or whether all rival explanations and possibilities have been considered (Yin, 1984) or by using in-depth questions that emphasise the why issues (Hearly & Perry, 2000).

In this case study, the author used several sources of evidence to establish whether similar interpretations could be drawn from several sources of evidence. For example, when from the results of one interviewee in Petro1-U, the researcher made an interpretation about the factors that have positive effect on the effectiveness of a maintenance re-sourcing decision, care was taken to establish whether data obtained from other informants in PetroI-U could lead to the same interpretation. Where this was not the case, the author sought to understand why the difference

emerged by focusing on what within the context of the case could have influenced the difference in interpretation among the informants.

Additionally, the interpretations made from the data were compared with predictions made in literature. Where similar conclusions could be reached, the credibility of the research findings was enhanced. Where there was a divergence, reasons for this divergence were sought by seeking answers from subsequent interviews or analysing again the data that had already been gathered.

External validity

The goal of case study research is not statistical generalisation to a wider population (Yin, 2003). According to Walsham (1995), the main goal of generalisability from the perspective of interpretive case study research is to allow explanations of particular phenomena, derived from empirical interpretive research which may be valuable to other settings and organisations as interpretations of phenomena but which are not wholly predictive for future situations. He argues that generative mechanisms identified for phenomena should be viewed as tendencies which are valuable in explanations of past data but not wholly predictive for future situations. Based on Walsham (1995)'s argument, case study research conclusions can have useful application in settings beyond the present case study (Atkins & Sampson, 2002). Therefore generalisations made regarding maintenance re-sourcing decisions derived from empirical interpretive research in Uganda's downstream oil industry should be seen as explanations of maintenance re-sourcing decisions in asset intensive downstream organisations operating in a capital constrained economy which may be valuable both in future and in other organisations and contexts.

In this case study, in order to support the transfer of research findings to other settings besides the case study, the next chapter, was devoted to describing the case and its context. By understanding the characteristics of the case where the maintenance re-sourcing phenomenon was studied, the reader is able to transfer the findings of this case to other organisations that bear similar characteristics and operating in similar contexts.

Reliability

Reliability has to do with methodological trustworthiness and refers to the extent to which the research can be audited by developing a case study data base and by the use of quotations in the written report (Healy & Perry 2000). In order to reduce bias in data collection, analysis and conclusion drawing, the researcher endeavoured to document the research process as much as possible (Kelliher, 2005). A research diary indicating where and when each interview took place was utilised. The research also kept a record of all the people who were interviewed, their positions in the organisation, telephone or mobile numbers. Any changes to original schedules were noted and a brief on interview environment was also included. Yin (2003)'s tactic for

dealing with the reliability problem was followed. A research protocol including interview guide for the interviewer was used. A research database including all notes developed from interviews, documents and observations were stored both as soft copies and filed hard copies to enable the researcher and others interested in the less processed data to retrieve it when needed.

3.8 Challenges during the implementation of the research design.

One of the major challenges the researcher faced during field work was that of time. The interviewees often gave interview appointments that were very far apart. For example there are cases where the researcher's work was tremendously delayed because a necessary informant in Petro 1-U could only avail themselves for a interview more than a month from the time of contact. While other interviews could be arranged in-between the time of scheduling and the time of the interview, the interviewee being a key informant was thought to hold much of the basic information required to inform the research study and who the next interviewees should be. Such delays greatly affected the total time of data collection and consequently the cost of field work.

Chapter summary

The present chapter has described the research strategy selection process and presented the research design that was followed when conducting the research presented in this thesis. The researcher conducted two field work data collection phases. The first phase focused on mapping the maintenance re-sourcing decision process and determining the factors that influence how the decision process is managed. The second phase focused on validating the proposed maintenance re-sourcing decision model that had been developed after the first phase. The details of the model validation process are presented in chapter seven. The results of the model validation process and information provided regarding the factors that influence how re-sourcing decisions are managed were also included in the findings related to meeting the first objective.

In order to enable the reader understand the context in which the study about maintenance re-sourcing decisions was conducted, the researcher presents the descriptions of the case site in the next chapter. The research was carried out from January 2008 to June 2008. The descriptions include the details of the context or environment in which the purchasing organisation where the case study was carried out operates. This is followed by the descriptions of the organisation itself and its maintenance re-sourcing decisions since maintenance was outsourced. These descriptions provide a good background for the research study findings presented in chapter 5.

CHAPTER 4:

PETRO1-U: CASE CONTEXT AND DESCRIPTION

Introduction

In this chapter, the description of the organisation where the in-depth case study was carried out and its context are presented. Under case context, a brief background on Uganda's oil industry, equipment ownership and operation as well as the maintenance outsourcing trend is provided. Under case description, a brief account of Petro1-U's maintenance outsourcing history and motivation, execution and evaluation of outsourced maintenance activities is provided.

4.1 Case Context

4.1.1 Uganda's down stream oil industry

Uganda's downstream oil industry(DSOI) is one of the leading industries in Uganda's energy sector. It is also one of the leading contributors to Uganda's treasury resources through taxes and licence fees. At the beginning of 2008, when the author began the research study field work, the industry comprised of 55 registered private oil companies, five of which were multinationals. At that time, the five multinationals Petro 1-U, Petro 2-U, Petro 3-U, Petro 4-U and Petro 5-U, enjoyed 62% market share leaving 38% for the remaining 50 companies. On the recommendation of the case study organisation's management, the true names of the organisations have not been disclosed and those mentioned above are code names. The downstream oil company market share prior to initial data collection is shown in figure 4.1. In November 2008, after the end of the initial data collection phase Petro 3-U acquired 100% share holding of Petro 2-U. The Market share after this acquisition is shown in Figure 4.2

Until recently, all retail sites within the same region had the same pump fuel prices for all the products irrespective of the company owning the site. But currently, it is now possible to have differing pump prices for the same products at retail sites belonging to different companies within the same region. This is pushing various oil companies to develop strategies that minimise operational costs as much as possible in order to provide the customer with an attractive price while keeping both revenue and returns as high as possible in an environment filled with ever increasing competition for market share.

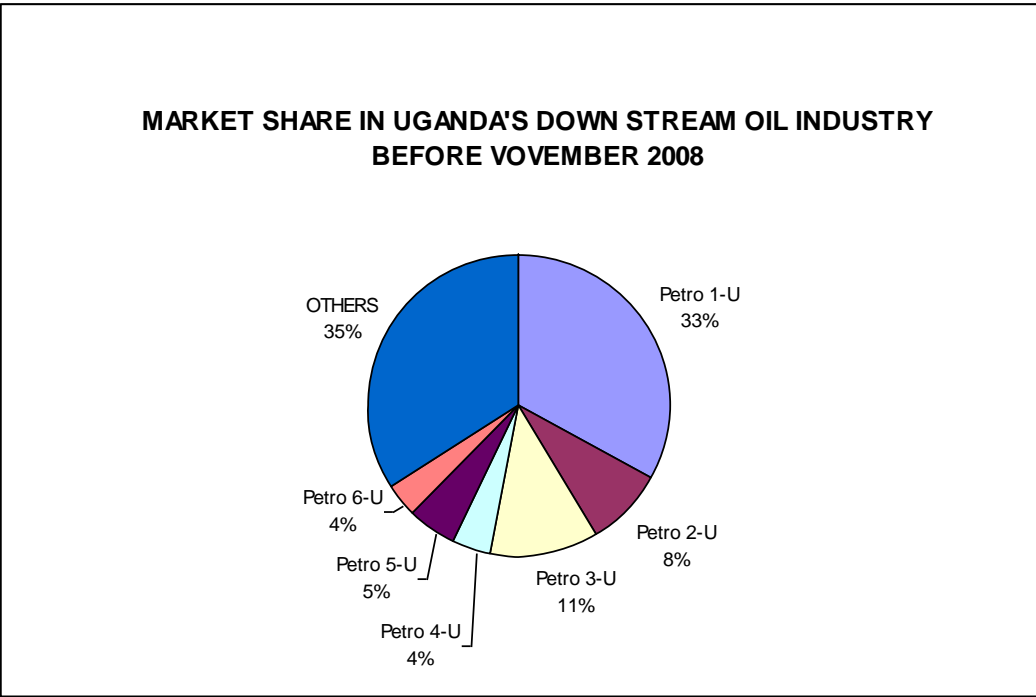


Figure 4.1: Market share for Uganda’s downstream oil industry before November 2008

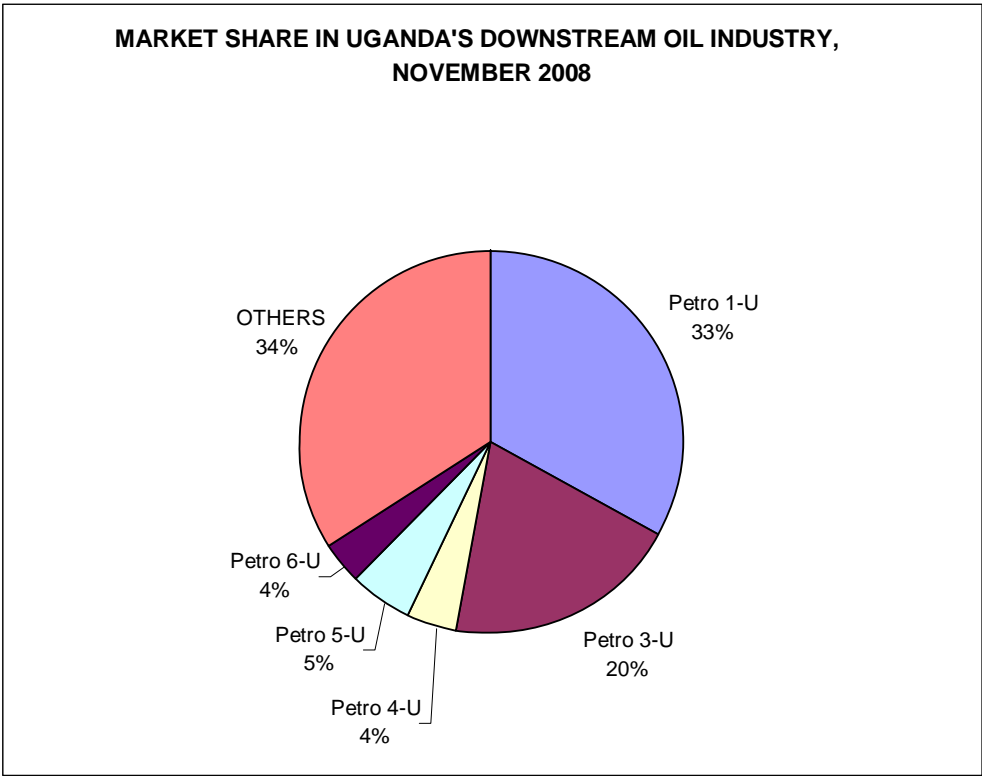


Figure 4.2: Market share in Uganda’s downstream oil industry in November 2008

4.1.2 Maintenance outsourcing trend in Uganda’s DSOI.

Maintenance outsourcing in Uganda’s DSOI was first embraced in 1992 when Petro1-U decided to outsource maintenance in order to concentrate its limited resources to its core business activity,

marketing and retailing of its products, and free up capital for more profit generating activities. By 2008, all the five multinational oil companies were outsourcing all or part of their maintenance activities. All the five oil companies were using the services of two maintenance service providers. In order to honour the contacts' request for anonymity, the two supplier firms have been referred to as supplier A and supplier B. Supplier A is a Ugandan company that was established in 1992 with the support of Petro 1-U for the sole purpose of maintaining Petro 1-U's equipment at all its petroleum products sale sites. Supplier B is a Kenyan company that first operated in Uganda in 2003 after signing a contract that required them to service equipment for Petro1 in the eastern part of Africa. It has since expanded the scope of its operations to include maintenance of equipment for Petro 2-U, and Petro 3-U in 2004 and 2005 respectively. Table 4.1 summarises the outsourcing arrangements for the five oil companies that had outsourced maintenance at the time of the study and their suppliers.

4.1.3 Equipment ownership and operation.

The equipment at retail and commercial sites is often owned by the oil companies but sales and other operations at these sites are managed by individuals or organisations independent from the oil company. These independent individuals or organisations referred to as 'Dealers' are responsible for hiring and training equipment operators who are then responsible for handling and operating the equipment for dispensing fuel, and servicing cars maintained at petroleum retail site garages. But, it is the responsibility of the oil company to maintain the equipment on site.

4.2 Case description: Petro1-U

Introduction

Petro1-U is an asset intensive multinational oil company that has been operating in Uganda for almost half a decade. Over the years, it has expanded its operation both through the construction of new retail sites and acquisition of two other multinational oil companies that used to operate in Uganda. It currently enjoys more than 30% of Uganda's down stream oil market share. Petro1-U operates over 200 petroleum products retail and commercial sites in Uganda. Retail sites are the sites which any consumer can access while consumer sites are found at the premises of specific organisations and can only be accessed by members of those organisations. Retail sites in remote areas have an average of three dispensing pumps for the dispensing of petrol, diesel and kerosene while retail sites in the urban centres have an average of about five dispensing pumps.

Table 4.1 : Maintenance service provision for five downstream oil organisations

Years	Supplier A (SA)			Supplier B (SB)			Comments
1992	Petro I-U						Petro 1-U developed SA
1999	Petro I-U		Petro 4-U				SA takes on Petro 4-U maintenance for a few sites.
2001	Petro I-U		Petro 4-U				
	Petro I-U		Petro 4-U				Formal 3 year contract signed between Petro 1-U and SA due to Petro1-U's increased maintenance works
2002	Petro I-U		Petro 4-U				
	Petro I-U	Petro 2-U	Petro 4-U				SA takes on third client Petro 2-U
2003	Petro I-U	Petro 2-U	Petro 4-U	Petro I-U			Petro 1-U and SA contract prematurely terminated Petro 1-U and SB sign 2 year contract (SB from Kenya, a neighbouring country)
		Petro 2-U	Petro 4-U	Petro I-U			
2004		Petro 2-U	Petro 4-U	Petro I-U	Petro 3-U		
		Petro 2-U	Petro 4-U	Petro I-U	Petro 3-U		SB takes on a second client, Petro 3-U. 2 year contract signed
2005		Petro 2-U	Petro 4-U	Petro I-U	Petro 3-U	Petro 2-U	Petro 2-U changes from SA to SB (SA remains with one client, Petro4-U) Petro 2-U signs 3y contract with SB. (SB takes on 3 rd client)
			Petro 4-U	Petro I-U	Petro 3-U	Petro 2-U	
2006	Petro I-U		Petro 4-U		Petro 3-U	Petro 2-U	
	Petro I-U		Petro 4-U		Petro 3-U	Petro 2-U	Petro1-U switches from SB to SA Petro 1-UA-SA sign 1yr contract
2007	Petro I-U		Petro 4-U		Petro 3-U	Petro 2-U	
	Petro I-U		Petro 4-U		Petro 3-U	Petro 2-U	Petro1-U -SA 1yr contract ends Petro1U renews SA contract (supplier development approach) Petro3-U-SB contract ends. SB still serving Petro3-U on terms of previous contract.
2008	Petro I-U		Petro 4-U		Petro 3-U	Petro 2-U	Petro 5-U Petro2-U Contract with SB ends in July.

Along with the dispensing pumps are support equipment such as compressors, generators and lube equipment for the motor vehicle service bays located at the retail sites. All equipment at these retail sites and their spare parts are manufactured in either Europe and Asia. Only a few small components like lock pins are some times fabricated in Uganda

Petro1-U first outsourced maintenance in 1992. At the time, there was no independent maintenance service provider for the down stream oil industry. After the decision to externalise the maintenance function had been made, in the absence of an independent maintenance service provider it became necessary for Petro1-U to develop a maintenance service provider. Due to the nature of products handled by the Petro1-U, it was necessary to use individuals who were already well acquainted with the safety requirements of the fuel industry. Engineers who had worked for a lengthy period in the organisation were invited to bid for the job. The intention of the Petro1-U was to chose the best and support him to achieve state of the art performance in the field. An engineer who had worked for the organisation in various positions for almost 20 years was chosen to start an independent maintenance firm for the sole purpose of serving Petro1-U. This maintenance firm is Supplier A. Petro1-U supported supplier A by providing offices, some vehicles as well as transferring willing members of their internal maintenance team to Supplier A. Petro1-U also contributed to the development of policies and practices that we to govern the operations of supplier A.

When requested to describe the operating relationship between Petro1-U and supplier A at that time, one of the managers in supplier A, described it as a as a “green field” for Supplier A . There was not much emphasis put on the formal contract and there was no specified duration for the contract.

4.2.1 Equipment and maintenance characteristics

Major maintenance sourcing decisions in Petro 1-U have to do with what is termed as “Pump maintenance”. Under this category is maintenance of fuel dispensing pumps, air compressors and grease pumps. Among these equipment are various makes and models. For example with regard to fuel dispensing pumps, there are both ‘mechanical pumps’ and ‘electronic pumps’ the major difference being mainly in the metering sections of the pumps. The equipment are from a number of manufacturers and varying years of manufacture. In some instances, there is as much as a 15 year gap in manufacturing years. Although not always, it is common to find, say four dispensing pumps at one petroleum products retail site from three different manufactures. Some parts are interchangeable while others are not. There are mainly two different categories of maintenance: periodic preventive and reactive maintenance.

4.2.1.1 Preventive maintenance

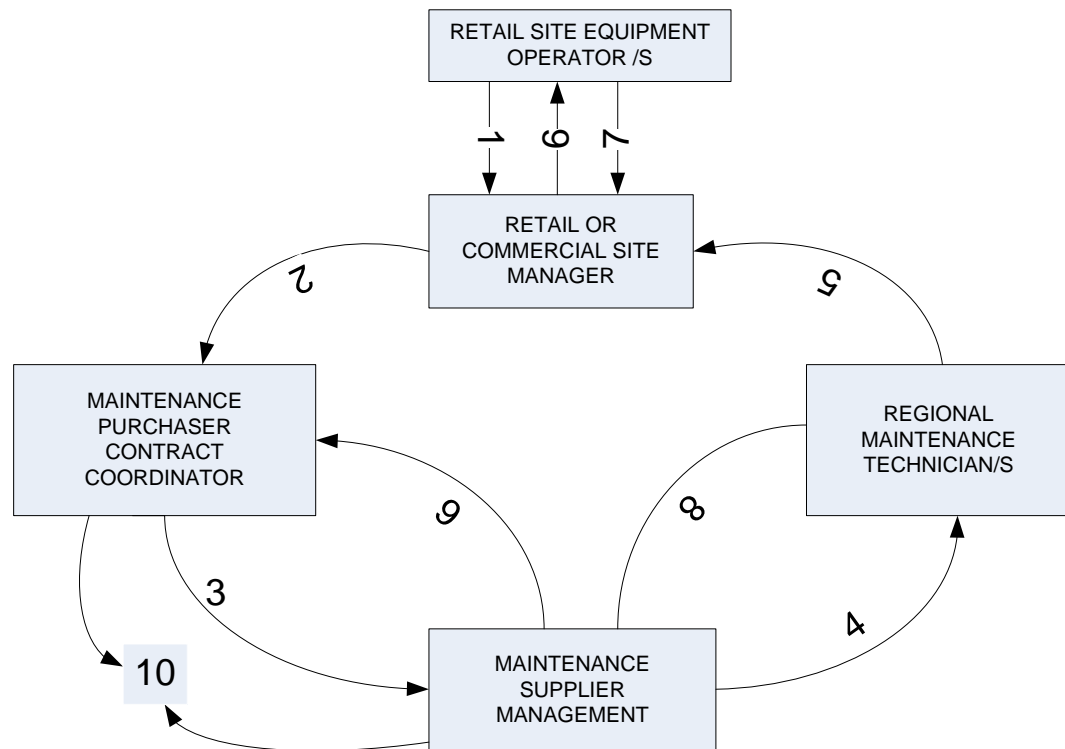
There is a bi-annual preventive maintenance schedule for the equipment. This is done by the maintenance supplier on a schedule designed by him but approved by the maintenance purchaser. The criteria is that each piece of equipment is supposed to undergo preventive maintenance once every six months for the entire contract duration. This is planned for in advance. The supplier states the month when each site is supposed to be handled but not dates. Every time preventive maintenance is completed, the technical team of the supplier's firm that carried out the job, fills in a standard preventive maintenance checklist designed by the purchaser. It includes what was done and when and is signed by a site manager who is an employee of the dealer. At the end of every month, the maintenance supplier provides a report indicating number of scheduled sites actually covered, what was not covered and reasons for not conforming to the schedule.

There was no evidence to show the relationship between equipment availability and preventive maintenance or how the preventive maintenance information is used in re-sourcing decisions. The only evaluation that was apparent in the research data was preventive maintenance conformity which is a measure of how many sites scheduled for preventive maintenance in a month were actually maintained. It was observed that although the preventive maintenance checklist filled by the technicians doing the preventive maintenance work is signed by the site manager, the site manager hardly supervises or monitors the supplier's technician especially since he is responsible for supervising the work of equipment operators to ensure accuracy in sales, and good customer service. Therefore, the accuracy of the information presented in the checklist depends on the integrity of the supplier's team.

4.2.1.2 Reactive maintenance

Most of the maintenance work at the retail sites is reactive in nature. When equipment at a site breaks down, the independent site manager reports the breakdown to the oil company's department in charge of receiving breakdown calls. This department then logs in the breakdown call, recording the site name, equipment and details of the breakdown and time when breakdown information is forwarded to the supplier. This is either sent by fax or email to the maintenance suppliers. The maintenance supplier records the details of the breakdown call and the time it was received. In some incidences the breakdown is reported directly to the supplier by the maintenance contract manager. This is especially, during the contract manager's visit to the equipment sites. The supplier prepares and executes maintenance and reports back to the purchaser using email. The purchaser then closes the breakdown call. The jobs' summary is provided, daily, weekly and monthly. The report from the supplier has details of when he arrived on site and when he finished job as well and spares used if applicable. The repair form, filled by the supplier's technician/s bears the signature of the site manager as a means of verifying the

authenticity of the supplier's report. At the end of the month, a monthly maintenance records report accompanied by all repair forms compiled in a month is sent to the purchaser for evaluation. Figure 4.3 shows information flow from the time equipment at any particular site breaks down, (1), to the time the maintenance call is finally closed at the oil company's fault logging system and subsequent evaluation,(10).



- Key**
- 1- Equipment failure report
 - 2- site to purchaser failure report
 - 3- purchaser to supplier failure report
 - 4- supplier requests regional team to execute maintenance
 - 5- technician reports to site management
 - 6- technician executes maintenance
 - 7- technician reports to site management. Management verifies repairs and signs
 - 8- technician reports to supplier management
 - 9- supplier management reports to maintenance contract coordinator
 - 10 purchaser closes call and evaluates maintenance performance

Figure 4.3 Maintenance reporting process between equipment operating personnel, petro1-U and the maintenance supplier.

4.2.2 Significance of retail site equipment maintenance for Petro1-U

All informants in Petro1-U agreed that irrespective of the size of the organisation, an oil company's revenue is highly dependent on the availability of their dispensing equipment. There was a consensus that despite other inputs into marketing such as location of site, advertising, effective transport system and good customer service, the higher the percentage of their

equipment available for distributing products to their customers, the higher the possibility of good sales. They argued that concept of percentage is of greater significance because if an organisation is interested in output compared to input then size of the organisation might be of less relevance with regard to expected profits compared to the number of an organisation's equipment in good working condition.

There was consensus among interviewees from Petro1-U's, that equipment maintenance plays a critical role in ensuring that the organisation executes its core activities effectively. An informant in Petro1-U concluded his discussion about maintenance's contribution to the overall achievement of the company objectives with the following statement

"...Equipment at retail sites are right at the end of the sales process. So you can imagine therefore how important they are. They are the units that finally bring back money to the table."

Another informant put it this way,

"How much we sell depends greatly on how available our equipment are. So maintenance is very critical to our organisation."

The importance attached to maintenance means that it has to be effectively executed if the organisation is to compete favourably in the industry.

4.2.3 Reason for outsourcing maintenance

Information from key informants in Petro1-U revealed that equipment maintenance outsourcing is a global policy for the multinational organisation Petro1. The global policy requirement is that the organisation should concentrate on its core activities and outsource all other activities. The core activity of Petro1 as defined by the informants is energy products development on a global scale while on a local scale it is developing and marketing of products. Main motivation for outsourcing maintenance is to concentrate organisational resources to their core activities and leave maintenance to those specialised in that particular area. Another important reason was to free up capital often tied up in spares inventory and maintenance support equipment for other core business operations. Other financial drivers included cost reduction, and the ability to deal with predictable costs

4.2.4 Outsourced maintenance performance evaluation

All maintenance requests are categorised according to the significance of the site where the equipment has failed, the distance from major service centres and the nature of the breakdown. Some sites are considered very critical in Petro1-U's operations. For example, maintenance calls for retail sites in the capital city and large towns are often urgent because of the competition that

they face or the sales volume which is an indication of the revenue they bring to the purchaser. When equipment at these sites fails, repair is very high priority because of either customer demand or fear of customers defecting to alternative sites which are often those of their competitors. Similarly, breakdowns that can lead to a compromise on health, safety and environmental standards are often considered more urgent than others thereby by requiring speedy response. Delayed response and completion of works at these sites greatly impact how the maintenance purchaser perceives and evaluates a supplier's performance. Reactive maintenance performance is evaluated based on four key performance indicators (KPIs)

Response time: That is the time it takes the contractor to respond to an equipment failure report. It is operationalised as the time from when the fault is reported to the supplier by the purchaser to the time the supplier gets to site with the intention of correcting the problem not inspection. According to one of the interviewees, response time is a measure of the capacity of the maintenance supplier. Besides the interest in actual response time, a measure of how fast the supplier begins to work on restoring failed equipment, it is through analysing the supplier's response time that the purchaser gets to know whether the supplier firm has enough resources, people, vehicles and money to manage the purchaser's business

Fixing time: That is how long it takes the service provider to fix the problem. It is operationalised as the time from when the fault is reported to when the equipment becomes operational again. According to the purchaser, its is not enough for the supplier to respond in time only to fail to the job in time. All informants agreed that response and fixing time were most important KPIs. One manager summarises this by saying

“they should respond fast and do what needs to be done fast. The time mentioned above only accrues during the agreed service hours of the supplier.”

Most of the informants were quick to point out that all KPIs are evaluated within the boundaries of health, safety and environmental standards especially because of the nature of products being handled.

Response and fixing time are followed by mean time between failure (MTBF): that is the mean duration between consecutive failures of an equipment. This is important because as one of the managers highlighted,

“it is not good for a service provider to rush to the scene in time, do the work in time only to receive a similar call on the same equipment a few hours later.”

There is also first time fix ratio: this is the ratio between number of faults fixed during first time visits and within agreed service levels to total number of faults fixed in the agreed time.

Maintenance performance evaluation is often done at different levels. The lowest level is through day to day operations in which the supplier reports to the purchaser how many of the job requests accrued through the day and those pending from previous days have been attended to and completed by the end of a given day. There is continuous communication between the purchaser's contract manager and the supplier's coordinator to establish reasons as to why some jobs are pending.

The same reporting procedure is repeated on a weekly basis and finally on a higher level at the end of the month. At this point, the supplier compiles all the repair calls for the month, calculates all the response times and indicates all the repair calls that were completed within and outside the target response and fixing times. Response, and fixing time conformity percentages, preventive maintenance conformity, mean time between failure conformity are then calculated. These are sent together with the repair forms, specification and cost of spare parts used in the month and monthly invoice to the purchaser. The higher level evaluation is considered at this stage and is the basis on which monthly penalties or bonuses are awarded. At this level, the purchaser is interested in the overall picture of maintenance supplier's performance. Conformity values are average values per equipment type and there is therefore less detail for each individual equipment. Performance trend lines are developed based on the monthly reports. These trend lines are used to establish the degree of conformity of the suppliers actual performance to specified service levels over the contract period so far covered.

4. 3 Petro 1-U's maintenance re-sourcing decisions

4.3.1 Re-sourcing trend

There has been a varied approach to maintenance re-sourcing decisions for Petro1-U since maintenance was outsourced in 1992. These re-sourcing decisions are summarised in table 4.2

In 2001, After almost ten years since the initial outsourcing arrangement, Petro1-U decided to sign a formal three year contract with supplier A. The signing of this contract was triggered by the fact that Petro1-U had increased in size through the acquisition of one multinational oil company's retail sites and equipment in Uganda. Since 2002 to the time of the study reported in this thesis which was at the beginning of 2008, Petro1-U has had three maintenance re-sourcing decisions. One in 2003, another in 2006 and the most recent at the time of data collection was the one taken in 2007. The maintenance sourcing arrangements between Petro 1-U and its suppliers includes both preventive and reactive maintenance.

Table 4.2: Petro1-U's re-sourcing decision since 1992

Year of decision	Nature of re-sourcing decision	Incumbent supplier	Next supplier	Specified contract duration
2001	Taken in the middle of a non defined contract that had started in 1992 (Motivated by expansion of purchaser's equipment network)	Supplier A	Supplier A	3 years
2003	Premature termination of three year contract (motivated by a change in organisational policy)	Supplier A	Supplier B	3years
2006	End of three year contract	Supplier B	Supplier A	1 year
2007	End of one year contract	Supplier A	Supplier A	2years

In 2003, Petro1, the multinational organisation owning Petro1-U put in place a policy requiring the services of one maintenance supplier who could service equipment for Petro1 in eastern Africa. Petro1-U's maintenance contract with supplier A was prematurely terminated at 15 months to the end of a 3 year contract. Although supplier A was requested to put in a bid for the job, he was found to have less capacity than what was required to maintain Petro1's equipment in over five countries in eastern Africa. Supplier A's inadequacy was mainly in its inability to prove it had the potential to expand at the desired rate for covering more regions than what it was already covering, Uganda and Rwanda. Petro1-U then signed a three year contract with another supplier, supplier B who already had presence in two of Uganda's neighbouring countries, Kenya and Tanzania. Supplier A then remained with two clients, Petro2-U and Petro4-U. In 2004, a year after signing a 2 year contract with Petro1-U, Supplier B took on another client, Petro3-U. In the following year, 2005, which marked the end of Petro2-U's contract with supplier A, Petro2-U also switched to Supplier A. By the end of 2005, Petro1-U's maintenance service provider, Supplier B, was providing maintenance services for the three largest oil companies in Uganda and supplier A was maintaining only a few of petro4-U's equipment.

In 2006, Petro1-U's contract with supplier B ended, and Petro1-U invited a number of companies to consider bidding for the job. This was after the pre-qualification process. The online bidding method was used. In the bidding process, Petro1-U put a sealing on the maximum amount of the

fixed monthly contract fee. The fee would include maintenance of equipment at the specified fuel retail and commercial sites as well as the bi-annual verification of dispensing site equipment by the Uganda National Bureau of Standards (UNBS), the body responsible for maintaining quality standards in the country. According to an informant in supplier B, from their costing, they considered it impossible to handle what was included in the work specification document at a cost equal to or below Petro1-U's specified maximum. Supplier B, who was then Petro1-U's incumbent supplier pulled out of the bidding process. While, there is a consensus in Petro1-U, that Uganda has only two capable service providers, supplier A and supplier B with the capacity to handle the scope of their "Pump maintenance" works, a set of five suppliers participated in the online bidding process. Informants in Petro1-U argued that, since this was online bidding, and the suppliers were not sure of the entire set of who was participating, including many participants in the bidding process would create a competitive environment which would enable them get value for money. Supplier A was selected on the basis of presenting the lowest bid and awarded a one year contract in 2006.

There was a consensus from both informants from Petro1-U and those from Supplier A, that for the early part of the one year maintenance contract between these two parties, maintenance performance was very unsatisfactory. In the middle of the execution period, after observing continual decline in supplier A's maintenance performance levels, managers in Petro1-U determined that there was a need to review their supplier's operations. According to several of the informants from Petro1-U, they were facing a big challenge. At that time, it was obvious that although at the end of Petro1-U's maintenance outsourcing arrangement with supplier B, supplier B was performing below specified service levels, from the six month's evaluation of supplier A's work, there was evidence that their performance was even poorer than supplier B's performance at the end of their previous outsourcing relationship. Nevertheless, Petro1-U decided to continue with their services after considering the cost and time required for searching and effecting a change to another maintenance supplier or change in maintenance scope. One of the reasons cited for not changing was the lengthy process of switching service providers and the resultant disruptions to Petro1-U's operations once the switching process begun. Informants argued that they had just gone through the switching process and were still suffering from the effects of it and to them it was going to be more costly to switch.

Some informants from Petro1-U argued that even if they made a decision to go back to the previous supplier, they would be overloading the company since it was already serving two other large oil companies who were also complaining about their services. It was also mentioned that some of the employees of supplier B had already switched and become part of supplier A's team or had left the company to serve other clients in the industry. All this implied that if they

switched back to supplier B, the resulting increased maintenance work on supplier B's capacity would result in further deterioration of maintenance quality. Additionally, supplier B's previous withdrawal due to failed negotiations meant that switching back to them was a sign of Petro1-U's reduced power, a situation that was not likely to favour them in the future

In order to try and solve the poor maintenance performance problem, decision making unit (DMU) members in Petro1-U decided to investigate the operations of supplier A to establish what was hindering excellent maintenance results. Results from interview inquiries about the discoveries yielded mixed results. While some of the informants in Petro1-U, stated that it was at this point that they discovered there was a huge financial problem in their supplier's firm, there was also evidence to indicate that some of the people in Petro1-U who had frequent contact with the supplier A seemed to have been aware of Supplier A's prevailing financial problems before awarding them the one year contract but were more concerned about the willingness of supplier A to work together with them. It would appear that to them it was an issue of commitment to collaborate and make the relationship yield positive results. For example, after the issue of poor financial health had been mentioned by several informants, the researcher enquired whether no one within the organisation was aware of Supplier A's financial problems. Some of the responses such as those quoted below were in support of ignorance.

"I must say, this was purely an oversight in our prequalification phase. Much as we do not expect the supplier to keep all the money they would ever need on their accounts, this issue of tax evasion really blew us away. These are issues that came up subsequently and we have dealt with them accordingly"

"These guys' problems were hidden. But I think someone in the other supplier company betrayed them and reported to tax authorities."

But comments from other informants seemed to portray a different picture. These two comments insinuate a knowledge of supplier A's financial position before the one year contract was awarded

We requested for bids and Supplier A was the lowest bidder. ...supplier A had issues. ...But although they were financially handicapped, they had the willingness to work. ...They had the experience in this area but at the time we awarded them the contract, they had no capacity..."

... we were aware that these people had no major contracts going for them at the moment. But they had the experience and the technical expertise.We knew there were going to be some challenges, we just did not think of that particular magnitude. But we are over that now. They have pulled through.

One supplier informant seemed to support the argument that some DMU members in Petro1-U were aware of Supplier A's financial problems through the following comment.

"I believe this one year contract to supplier A was awarded on a purely humanitarian ground. ...These guys (Petro1-U) have been in business for such a long time to have missed this(Supplier A's debt to Uganda revenue authority)."

Informants in petro1-U also argued that they could have contributed to Supplier A's financial problems by awarding a one year contract. While this was done to cushion themselves against any eventualities that would arise if Supplier A totally failed to meet their requirements, they concurred that it hampered supplier A's ability to get credit facilities, a much needed support for such operations requiring extensive capital investments. Awarding a one year contract was motivated by the fact that Supplier A had been out of big maintenance arrangements for sometime and Petro1-U was not very sure about the degree to which their current potential capability could be translated into actual maintenance service delivery for such a big network. The one year contract was to enable them leave as fast as possible in case it did not work out.

After establishing the major issues affecting Supplier A's performance, Petro1-U's effort was then placed of devising means of working together with supplier A to improve the quality of his work. At the end of Petro 1-U's one year contract with supplier A, traditional bidding was used and Petro 1-U decided to continue working together with supplier A to assist him develop the required capacity further. This according to most of the informants in Petro1-U, was influenced by the fact that since the time Petro1-U had decided to support Supplier A, Supplier A had shown tremendous improvement in the quality of their work especially with regard to response time and fixing time. Petro 1-U awarded a two year contract to supplier A with the possibility of a one year extension upon satisfactory performance. Petro1-U believed that a two year contract and the added possibility of extension would enable them obtain credit facilities and also result in the supplier's commitment to them expressed in terms of investments in resources that support maintenance works. At the time of the study, Supplier A was in the middle of their two year contract with Petro1-U.

4.3.2 Maintenance sourcing decision team

Procurement decisions in Petro1-U are handled at various levels depending on the annual contract sum for the activity under consideration. All decisions considering activities whose annual contract figures range from \$ 5,000 to \$300,000 are handled by the Uganda contracts board, those from \$ 300,000 to \$1,000,000 are finalised by regional contracts boards and those above \$1,000,000 are handled by a multi regional contracts board. Maintenance sourcing

decisions are handled at two levels because the annual cost of maintenance exceeds the specified threshold for the local board in Uganda. Who should sit on each of these two boards is clearly specified in the contracting procurement policy of the multi-national corporation, Petro1. The maintenance sourcing decision for Petro1-U is managed at two levels. The local board handles the preliminary activities and is therefore responsible for deciding the suppliers who should be contacted and evaluated and those who should eventually participate in the bidding process. But the final decision is made at the next level.

The positions of those who should sit on the local board including the chairperson are specified in the organisation's procurement policy. Whoever holds any of the specified offices at the time of re-negotiation of the maintenance management contract is a member of the local board. The local contract board comprises the Country Chairman, which is the highest position within Petro1-U, the finance manager and procurement manager as consistent members for procurement decisions of all outsourced activities. Other members are dictated by the department requiring the sourcing or re-sourcing of a particular service. For maintenance, the other two parties are the retail manager referred to as the maintenance contract owner and the retail maintenance engineer referred to as the maintenance contract holder or contract manager. The retail maintenance engineer responsible for ensuring that equipment are available for the retail department to sell petroleum products and reports to the retail manager. All procurement decisions are facilitated by the contract holder who in the case of "maintenance" is the retail maintenance engineer.

The maintenance contract manager along with his assistant are responsible for coordinating and evaluating the maintenance supplier's activities. He is also responsible for scanning the environment for alternative suppliers and making comparisons. He is responsible for transmitting information between Petro1-U and the supplier. He is also responsible for handling conflicts between the Petro1-U, suppliers and Petro1-U's customers

According to informants from supplier A and B, the contract manager is the most influential position in the re-sourcing decision process, followed by the procurement manager. This assertion was supported by informants from Petro1-U who although retracted from using the words 'most influential' concurred that these two positions were the biggest contributors to the most crucial stages of the re-sourcing decision, evaluation of and comparison between the incumbent supplier and prospective suppliers. Most Petro1-U informants argued that it is based on the information provided by the people in these two positions that the DMU depends to finally make their selections.

One informant in Petro1-U, differed in opinion concerning the influential positions. He argued that the retail manager, who is the person in charge of the department that maintenance personnel

in Petro1-U report to has a very significant contribution. He maintained that, it is the retail manger followed by the maintenance contract manager that influence the decision most. According to this informant, in the event that the two positions agree on the suitability of suppliers then the decision outcome may not reveal who is more influential. But where there is a disagreement, the retail manager is more influential because the maintenance contract manager reports to the retail manager and the purchaser's core business is driven by the retail department. Therefore, if the maintenance contract manager recommends a supplier who the retail manager believes will not give them value for money, then it is only logical to listen to the retail manager.

The two opinions about the most influential positions in the maintenance re-sourcing decision seemed to imply two forms of influence, one by virtue of the amount of information supplied by a particular sourcing decision team member and another by virtue of the position held by the member of the decision team. With regard to influence, by virtue of the amount and quality of information brought the decision process, the maintenance contract manager and procurement manager appear to be the most influential. By virtue of position held in the organisation, the retail manager to who the maintenance department reports appears to be the most influential. Where the two sets of influencing positions disagree, influence by position appeared to have a greater weight than influence by quantity and quality of information supporting the decision process.

4.3.3 Maintenance re-sourcing phases

According to the results from the study, the maintenance re-sourcing process consists of six major stages. Evaluation of the incumbent supplier's performance, selection and comparison of prequalified suppliers, tendering, choice of supplier, negotiation and contract signing, and, engagement. Informants argued that results from the evaluation of the incumbent supplier's performance greatly influences both whether any of the other stages will be executed and the intensity of the effort that will be put in at each stage. From the case study, four performance aspects are considered

- Degree of conformity to specified standards (service level agreements)
- Performance trend over the contract period
- Cost of maintaining maintenance supplier which is a combination of the cost of maintenance, cost of monitoring and control and cost of support
- Willingness to work and adapt to changing requirements.

Petro1-U informants revealed that the most challenging of the six re-sourcing stages is selection and comparison of supplier firms that should be invited to engage in the bidding process. This involves visiting supplier sites and their managers to have discussions, sending out requests for proposals (RFP) to prequalified suppliers and evaluating the responses to the RFPs. The information required includes; supplier's organisational structure, assets, financial back up

arrangements, number of employees, their qualifications and experience, experience of the organisation, current and previous purchasers, tax compliance, HSSE compliance, company policy and mission, recruitment and training policy, a list of creditors, spares sources, a list of referees etc. Further visits are made by the maintenance contract manager and the procurement team to establish whether what was included in the RFP response is true.

The information gathered is a combination of both objective and subjective data. It is the latter that most informants referred to as challenging to collect, review and disseminate. They argued that while it was easy to request, understand and verify objective data such as the value of hard assets, bank overdraft facilities, number of employees, qualification and years of service, it was not easy to measure experience, commitment to change, ability to sustain a relationship, degree of flexibility in case of changes and response to complaints.

There was a concern from some purchaser informants that even if the organisation is able to build a good relationship with the supplier's representatives there was no guarantee that these representatives would remain the same organisation long enough. There was an argument that sometimes it is not really the organisation that is doing a good job, but just a few people. In this case, although the current situation can have the evidence of a committed team of people from the supplier firm, the purchaser cannot guarantee that they will be there tomorrow. The purchaser informants supported this argument with reference to the fact that the very people who were working in the incumbent supplier firm had once been in the company they had left.

There was a consensus among all purchaser informants that the final selection process is the easiest. It is self explanatory. At the selection stage, usually the lowest bidder is selected. If the previous stages were well implemented, then, the price screening stage of bidding is not complex. The errors in the selection process are usually recognised after signing the contract.

Maintenance suppliers who have qualified for the bidding phase are invited to submit tenders. For this phase, the supplier is given a detailed document of all the equipment to be maintained, their location, equipment model and age, and, distance from major service centres. The supplier's major concern is costing the job. In some cases online bidding is used and in other cases, the traditional bidding process is used. With both online and traditional bidding, further weighting of the bid fee is carried out with what is known as a transformational factor and whoever has the lowest sum after multiplying with the "transformational factor" is chosen. Further negotiations follow after the supplier has been chosen, the contract is then signed. The maintenance outsourcing contract is a fixed price contract that attracts bonuses when the supplier exceeds the specified service target or penalties when the supplier is below a specific service level defined by the purchaser in the contract.

Petro1-U's contract is a standard document in terms of structure and clauses. The major change in the contracts is the service provider's name, duration of contract, and in some instances, a difference in maintenance scope due to construction of new sites, acquisition of other companies, and closure of some sites. All Petro1-U informants agreed that the document is drafted in such a way that the purchaser is well protected.

It is a requirement by the Petro1-U, that the incoming maintenance supplier take an inventory of all the equipment before signing the contract, make a report, and have the outgoing maintenance supplier handle all his maintenance work backlog before handing over all equipment. According to supplier informants, this is a very tedious and expensive process that is almost impossible to accomplish given the time and resource constraints. This is often handled hurriedly and they face the repercussions after acquiring the contract.

Signing of the contract is followed by the engagement phase. At this stage, if the maintenance contract has been renewed with the same service provider, there is little observable change. In the event that there is a switch of service providers, the previous service provider hands over equipment to the incoming service provider. In the two re-sourcing decision points where the Petro1-U changed service providers, the process of switching was phased. Petro1-U's retail and commercial network is divided into four regions; central, eastern, western and northern Uganda. When there is a change in suppliers, maintenance work is transferred region by region. The intention of a phased approach is to facilitate progressive capacity growth for the new supplier and therefore avoid excessive disruptions to the purchaser's business by allowing for gradual supplier growth.

Chapter summary

This chapter has presented a brief background on Uganda's DSOI and an elaborate description of Petro1-U. The description has covered maintenance in Petro1-U, reasons for outsourcing maintenance, and Petro1-U's maintenance re-sourcing decisions since maintenance was outsourced.

The next chapter presents the findings from the study in relation to the first objective especially in relation to the factors that play a significant role in influencing management of maintenance re-sourcing decisions in asset intensive downstream oil organisations.

CHAPTER 5:

RESEARCH FINDINGS ON FACTORS INFLUENCING MAINTENANCE RE-SOURCING DECISIONS

Introduction

In this chapter, the research findings in relation to the first objective are presented. The first part of the chapter is dedicated to providing a summary of how the data was analysed in order to arrive at the findings presented. This is then followed with a presentation of research findings on factors that influence the maintenance re-sourcing decision process under the three categories of purchasing organisation structural elements, external structural elements and boundary spanning elements. Finally, a critical discussion of findings is presented.

5.1 Data analysis

A literature analysis on outsourcing in general had led to a proposition that the management of maintenance re-sourcing decisions is influenced by factors that could be placed into three categories; the transaction characteristics, the transaction parties, and the transaction environment. Therefore the initial focus of the data analysis process was to establish what within these three categories influenced the re-sourcing decision.

The author begun by familiarising one self with the interviewees' responses to the question,

“Could you please describe how you manage the maintenance sourcing process when an outsourcing arrangement with a particular supplier is about to end ?”

From the responses given, the author was able to trace out the stages of the re-sourcing decision. The issues raised in relation to the stages of the re-sourcing process were given a code, maintenance re-sourcing process. By analysing the issues that had been raised under the maintenance re-sourcing process code, the author was able to identify that the most critical stages were present supplier performance evaluation and, capability assessment and comparison of all the suitable suppliers. Issues under present performance evaluation were coded, performance evaluation, and those under assessing capability of suppliers were coded, capability assessment. The interview data also revealed that in choosing from among several alternatives, the purchasers aimed at achieving a set of goals. Issues relating to the former were given a code, sourcing alternatives, and those relating to the latter were coded as, goals. The data also revealed that

although the re-sourcing decision outcome was the result of the organisation's goals and the alternatives available, the goals and alternatives were in effect determined by the characteristics of the outsourced activity which were coded, sourced activity, the characteristics of the organisation which were coded, organisational characteristics, and the characteristics of the external environment which were coded, the external environment. Although it is from the re-sourcing decision alternative that the purchaser gets a re-sourcing decision outcome, re-sourcing decision outcome was in the beginning given a different code, re-sourcing decision outcome. Another code, termination was attached to issues related to the re-sourcing decision outcome involving termination of an outsourcing arrangement

Further analysis also revealed that a particular maintenance re-sourcing decision outcome was the result of the organisation's overall maintenance outsourcing experience. The overall experience included both current and historical maintenance outsourcing arrangements and re-sourcing decisions. The issues related to the maintenance outsourcing experience were coded, maintenance outsourcing experience. In talking about the maintenance outsourcing experience and the re-sourcing decision process, the costs associated with the re-sourcing decision process and outcome were also raised. These were given the code, costs/resources.

Further familiarisation with the interview data also revealed that current and historical relationships both during outsourcing implementation and the re-sourcing decision process were also affecting how the re-sourcing decision process evolved. Issues related to relationships were coded interorganisational relationships/relationships during the re-sourcing decision process. Other codes were developed in a similar manner.

The next step was to establish what the data was saying about the issues under the various categories. From this analysis initial themes regarding the issues raised in each category were developed. This was followed by evaluating whether the categories and the themes that appeared to be important could meaningfully be placed under the three categories that had been proposed at the end of the literature analysis. That is, the transaction characteristics, characteristics of the transaction parties and the characteristics of the external environment. While some categories like sourced activity and external environment could comfortably be placed under transaction characteristics and characteristics of the external environment respectively, others like organisational goals and the purchaser's maintenance outsourcing experience did not fit well in any of the three categories.

The analysis was then taken from a more specific to again a more general level with the question, "From the re-sourcing decision participants perspective, what do they consider as the factors influencing the re-sourcing decision?"

The interview data from purchaser respondents revealed that, when undertaking a re-sourcing decision, the decision makers first of all look at what their organisation brings to the decision table in terms of the organisational goals, outsourcing policies, importance of the maintenance activity, the organisation's past maintenance re-sourcing experience, the decision structure, and, the decision makers themselves. These factors do fall either under the transaction characteristics category or the transaction party category of the proposed framework. It became apparent during the data analysis process that while these factors might not always be constant, the purchasing organisation had a significant level of control as to their state both before and during the re-sourcing decision process.

During the re-sourcing decision, the purchasing organisation with these internally controlled factors in place, are then confronted with what the environment external to the purchasing organisation presents to them. What the external environment presents includes; the performance of their current supplier, state of the supplier market, and the existing country's infrastructure and institutional constraints. Data analysis revealed that while the maintenance purchasing organisation had an influence on some of the factors in the external environment such as the incumbent supplier's performance, the level of control that the purchasing organisation could impose on these factors was limited.

At this stage the author observed two sets of information feeding the re-sourcing decision process. One set of information was about factors within the purchasing organisation. Factors for which the purchasing organisation could exercise a high level of control and for which information was readily available. Another set of information was about factors external to the purchasing organisation whose state the purchasing organisation had limited control over. However, these were stand alone sets of factors which assumed importance only when analysed in relation to each other.

The next step was to analyse how information about the two sets of factors influences the re-sourcing decision process and outcome. Data was analysed to establish the factors which purchaser informants considered responsible for a good re-sourcing decision outcome and those they had considered responsible for a poor re-sourcing decision outcome. The case study data attributed failure and success to the level of effectiveness in information gathering about factors in the external environment and, the relationships that existed between the purchasing organisation and the suppliers in the market. From this analysis the author realised that another set of factors belonged at the interface between the purchasing organisation and its environment. The interorganisational relationships/ relationships during re-sourcing decision process code reflected issues at the interface.

In subsequent data analysis stages, the focus was moved to determine what factors under the three new categories; factors that were part of the organisation, factors that were external to the organisation and factors at the boundary influenced the maintenance re-sourcing decision process. Factors that were part of the maintenance purchasing organisation and for which the purchasing organisation had the highest level of control were classified as purchasing organisation structural elements. Factors that belonged to the purchasing organisation's external environment and for which the purchasing organisation had the least control over were classified as external structural elements. Factors which appeared to be the result of the interaction between the purchasing organisation and the purchaser's environment were classified as boundary spanning elements.

The author went back to the issues and themes that had been developed under the codes presented in appendix H. The issues and themes were analysed again together with the data from new interviews and conversations and assigned a place under each new major category. During the analysis, the author was continually seeking answers to the question, what is it about these factors that determines how the maintenance re-sourcing decision progresses and the final outcome? Themes related to the factors under each main category were identified and the summaries of the themes for each of the three main categories purchasing organisation structural elements, external structural elements and boundary spanning elements are shown in figure 5.1, 5.2 and 5.3 respectively. The themes and the issues they address have been expounded in subsequent sections of this chapter.

5.2 Purchasing organisation structural elements.

The issues presented under this category are the factors inherent within an organisation or determined by the organisation and which provide the internal environment under which re-sourcing decisions are undertaken. Factors presented under this section include; initial motives for outsourcing the maintenance activity, organisational policies, nature of organisation, current organisational goals, characteristics of maintenance, and characteristics of current contract and outsourcing arrangement. While some issues discussed under this section might be influenced by factors outside the purchasing organisation, they are primarily dictated by the current state of the purchaser, the and the position it is striving to achieve in the market place.

5.2.1 Initial motives for outsourcing the maintenance activity.

Previous research in outsourcing has shown that when an activity such as maintenance has been outsourced, subsequent sourcing decision teams review and choose one or more of three major options. Purchasers either choose to remain with the incumbent service provider, switch service

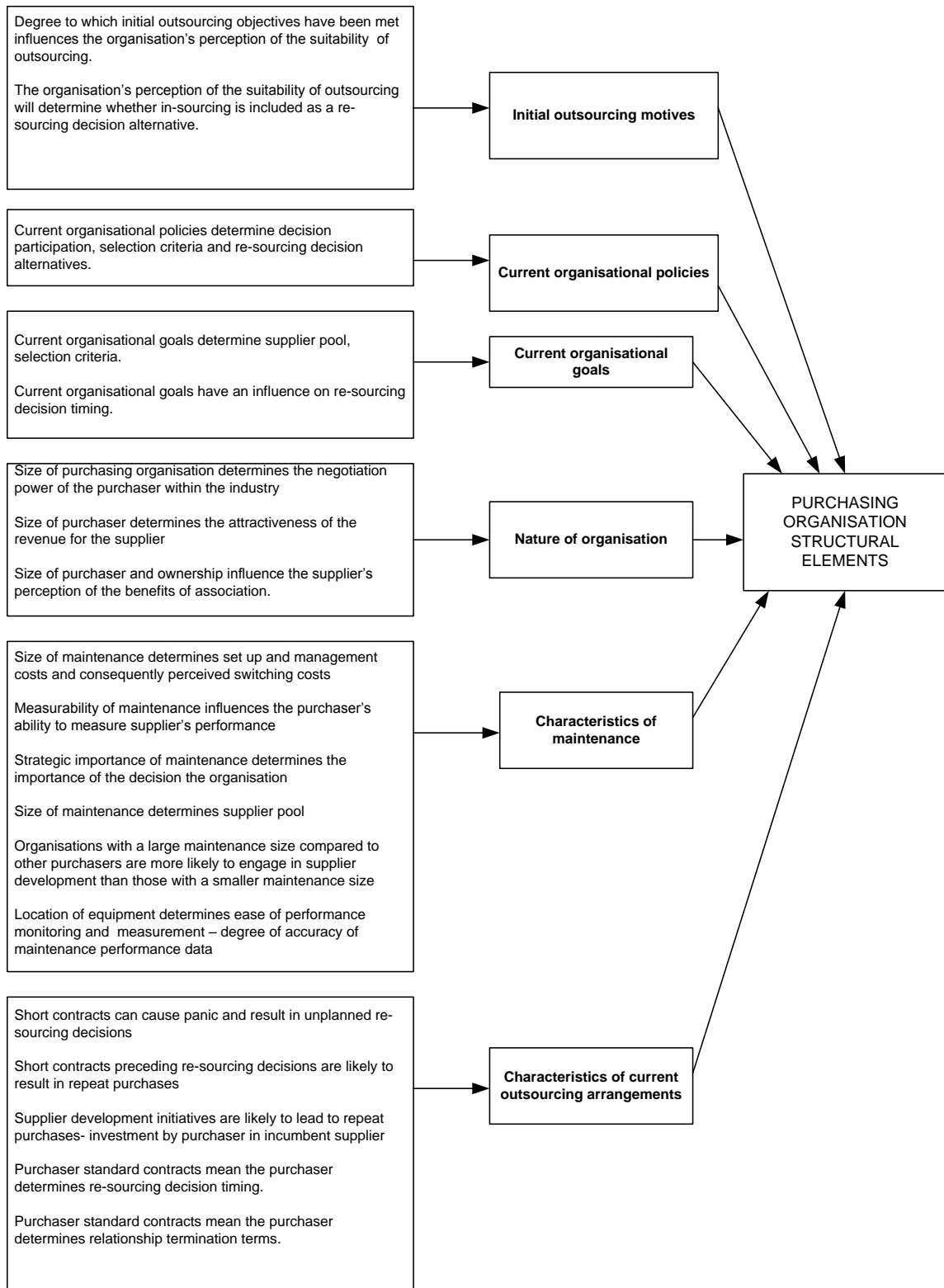


Figure 5.1 Purchasing organisation structural elements category factors

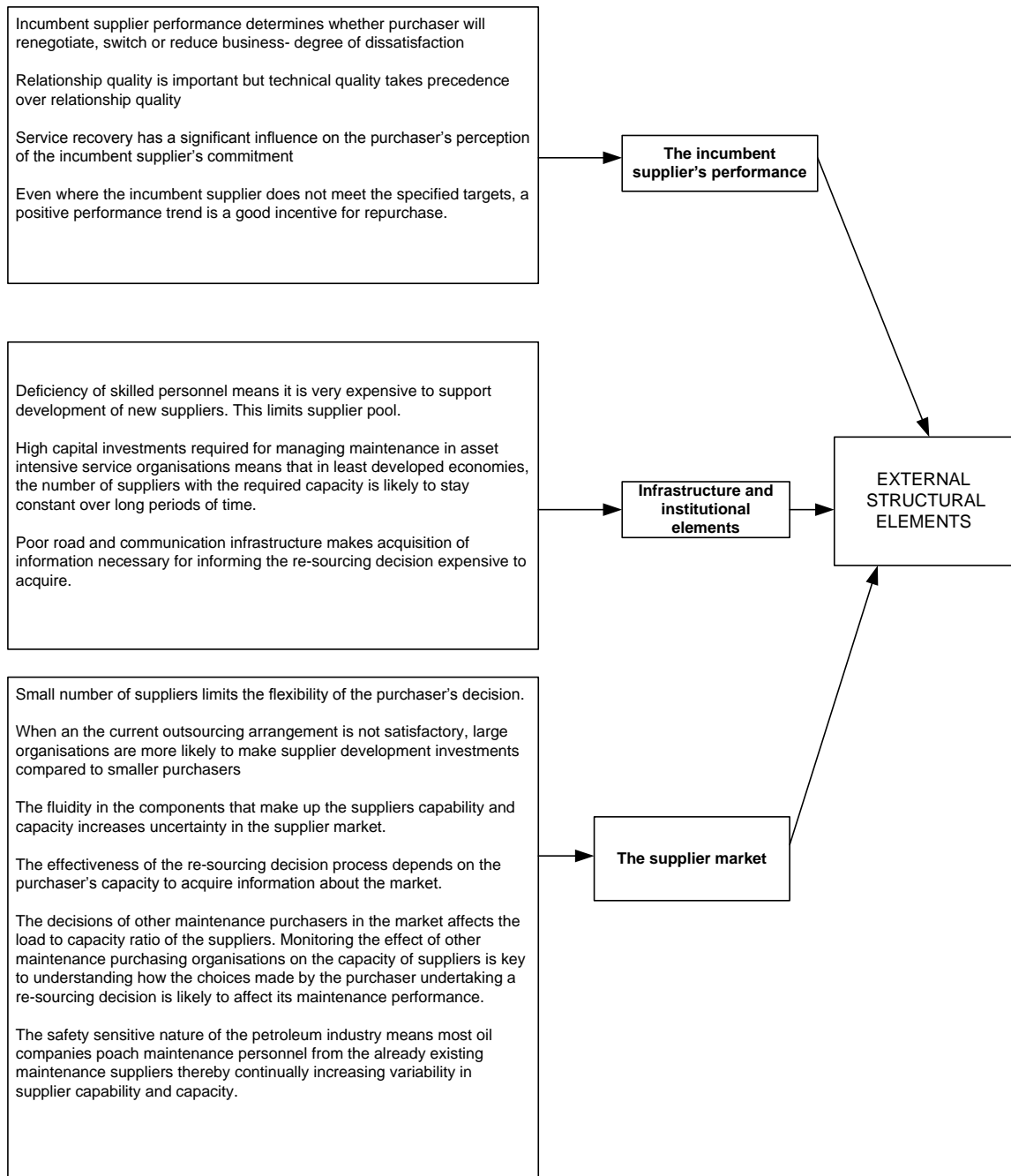


Figure 5.2 External structural elements category factors.

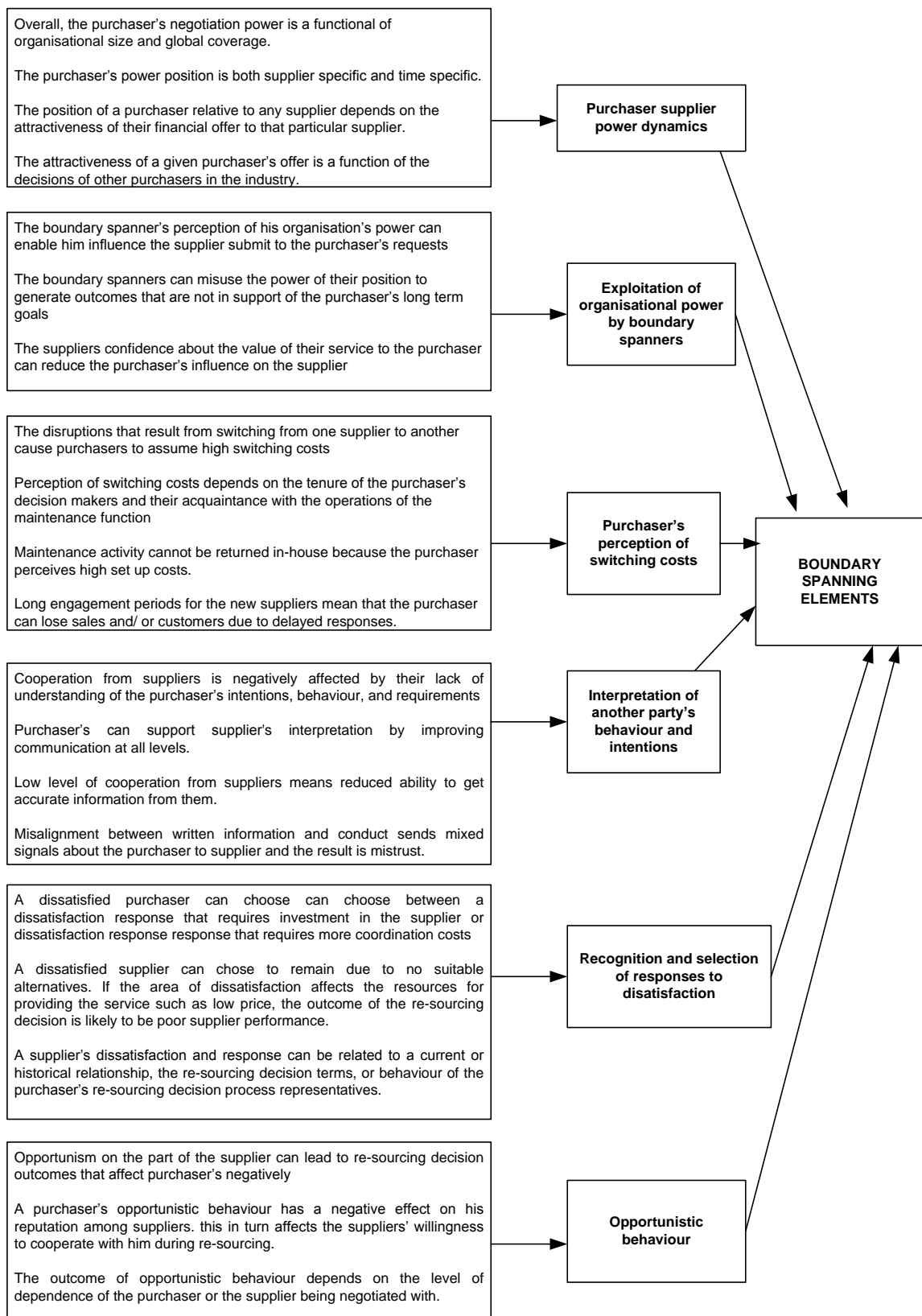


Figure 5.3 Boundary spanning elements category factors.

providers, return the activity in house or change scope by using a combination of the above three options(Whitten & Leidner 2006; Marshall et al. 2007). But the present research shows that, returning the maintenance activity in-house had never been considered as an option by the purchaser's DMU. Since the outsourcing of maintenance, to the time of data collection, Petro1-U had undertaken four re-sourcing decisions. Out of the three re-sourcing options mentioned above, only two, remaining with incumbent service provider, and switching service providers or a combination of these two have been considered for evaluation at the re-sourcing stage. Returning the maintenance activity in-house even in situations of very poor supplier performance or a market of suppliers with inadequate capacity was not supported by any of the informants.

Research findings revealed that the options available to maintenance purchasers during re-sourcing decisions and the approaches that they take in securing maintenance services for subsequent periods are greatly influenced by the overriding motivations for choosing to outsource maintenance in the first place and the degree to which those objectives have been achieved at the time the re-sourcing decision is being made. According to the informants in Petro1-U, the reasons for outsourcing maintenance included, to focus organisational resources to its core activities, reduce costs, redirect inventory holding costs to more profitable activities and make maintenance costs more predictable. These reasons were similar to those mentioned in outsourcing literature with the exception of improving maintenance quality which was not mentioned by any of the informants. While one of the challenges the maintenance purchaser faces is unsatisfactory maintenance results from the service providers an issue related to the hardly mentioned aspect of service quality, all informants in Petro1-U agreed that they had achieved some of the maintenance outsourcing objectives to their satisfaction.

There was consensus on the fact that Petro 1-U had achieved high levels of satisfaction regarding focusing organisational resources on more core activities and freeing up capital especially that associated with inventory holding costs. It would therefore seem that, when the maintenance purchaser compares these two benefits of outsourcing maintenance to those associated with re-building and maintaining a competent internal maintenance team, the former outweighs the latter making returning the maintenance activity in-house a non attractive venture.

In addition to the actual cost of carrying out the maintenance activity, maintenance management in asset intensive service industries requires large amounts of inventory holding costs for which if the activity is outsourced, the organisation can be able to access acceptable levels of maintenance at a reasonable cost while at the same time enjoying the benefits of investing the freed capital in more profitable ventures. For example, when asked about why Petro1-U had not considered the option of returning maintenance in-house even after realising very unsatisfactory results, some informants gave the following comments

“... do you know how much money we had sleeping in the stores in the name of spares?”

“re-building an internal maintenance team is very hard... the cost of maintaining and supervising the team plus the cost of buying and maintaining spares... its not worth it.”

Some informants argued that rather than in-house, it was easier to develop the poor incumbent service provider or develop a new supplier. Despite the purchaser's ability to take on the present suppliers' employees and even pay them better, the purchaser still considered it a very costly option. Purchaser informants revealed that once the initial primary motives of outsourcing have been achieved, then purchasers would not be willing to divert from strategies that brought about that achievement, in this case outsourcing and return maintenance in-house for the sake of maintenance performance. For asset intensive service organisations, the idea of returning maintenance in-house would mean losing the benefits of freed capital, predictable maintenance costs and focusing on the organisational core competence in order to improve overall business performance. Since the primary motives had been achieved, the purchaser found that the cost of improving a supplier's performance was less than what they would lose if they returned the activity in-house.

5.2.2 Purchasing organisational policies

This factor was found to have both a direct and an indirect bearing on how re-sourcing decisions are managed. Firstly, just like the impact of initial motives, analysis of results revealed that the purchaser's sourcing policies provide a limit on the type of sourcing alternatives available to the organisation during re-sourcing. If the purchaser's policy is in favour of concentrating on core activities and outsourcing all other activities, then, even at re-sourcing stages, there is likely to be no possibility of returning the activity in-house despite the results obtained from the incumbent supplier and evaluations of alternatives in the market. Since most of the downstream oil organisations that have outsourced maintenance in Uganda are multinationals, these organisations seem to be following or implementing well established global policies for which management of organisations in individual nations have little authority to change. For example, the following comment made by one of the informants in Petro1-U supports this finding

“Some of these are international policies we cannot change. What ever it takes we always have to find some one else to provide the service.”

The impact of organisational policies on re-sourcing options could also be drawn from the observation that there was no independent service provider capable of handling Petro1-U's maintenance activity at the time when maintenance was first outsourced. But in order to support

the policy that had been instituted, Petro1-U initiated and supported the development of their first maintenance service provider. Given that precedence, the chances of returning the maintenance activity would then be considered minimal as long as the policy that motivated initial outsourcing and subsequent supplier development was still valid. This policy set in motion a sourcing approach that limited the sourcing alternatives for subsequent sourcing decisions to external service providers. Therefore, global policies limit or provide boundaries within which local organisations DMUs operate thereby creating environments of higher situational strength. In this particular case, alternatives regarding maintenance service sources is limited to providers from outside the organisation to an extent that even in circumstances where external service providers deliver maintenance services below desired levels the option of developing an internal maintenance team is out of reach.

Secondly, research results showed that organisational policies have the potential to standardise the structure, participation and choice criteria for companies like multinationals thereby limiting the innovativeness of local decision makers on one hand while offering some level of coherence across multinational organisations in various locations. For example Petro1-U follows policies governing contracts and procurement procedures and participation that have been established to govern entire continents specifying the procedures that should be followed and which people should sit on the local and multi-national board. Similarly, there are two levels at which maintenance outsourcing decisions are made. The local and Africa contract boards. Decisions regarding who sits on these boards and the criteria used to determine at which level contract decisions should be made is stipulated in what is referred to as 'contracting procurement policy'.

However, the standardisation that such policies bring to the re-sourcing decision process simply determines DMU composition and procedures and not necessarily its effectiveness or perceptions that the individuals bring to the decision. There is limited flexibility on choice of DMU members, implying that there could be a varied level of experience, competence, and commitment between DMU members for a particular re-sourcing decision and those engaged in subsequent ones. If there was no limit placed by these policies then purchasers would be at liberty to select DMU members according to their own judgement regarding competence, experience and relevant knowledge possessed by individuals at the time of re-sourcing.

5.2.3 Nature of purchasing organisation

This factor refers to the characteristics by which the purchasing organisation is recognised and categorised. It includes, global coverage of organisation and ownership; that is whether it is a local or multinational organisation, local size of the organisation measured in terms of regional coverage and market share, characteristics of the product delivered to the final customer and

environmental requirements. From the evidence that all the organisations currently outsourcing their maintenance functions are multinational corporations and enjoy the largest market shares in Uganda's DSOI, there is reason to believe that elements like ownership and size of the organisation have a role to play in determining the possible alternatives to select from during re-sourcing decisions as well as the structures that will support the decision process and the subsequent approach that will be taken.

Organisational size was found to have a significant influence on the level of proactiveness displayed by the purchaser during re-sourcing. The research established that at the time of re-sourcing for maintenance, it is easier for a maintenance purchaser to take on the services of a supplier who is already serving a purchaser with a larger maintenance size as opposed to one serving a purchaser with a smaller network. Similarly, there is a high possibility for a purchaser to develop a supplier if their maintenance requirements are greater than that of any of their competitors. This proposition was based on the observation that at the time of the research, Petro1-U had the largest market share and therefore the largest in the region. It developed a service provider whose services were in subsequent years taken on by a smaller multinational, Petro2-U. Petro1-U switched to another service provider whose service were later on utilised by first another smaller maintenance purchaser, Petro3-U followed Petro2-U. Petro1-U, observing an over load on their incumbent supplier's capacity, again switched to the previous service provider. Observing inadequacy in the capacity of their new service provider, rather than return to the previous one, they decided to develop their incumbent supplier. In a statement made by an informant in Petro1-U,

“when it comes to our sourcing decisions, this being the biggest company in the industry we always find ourselves being the ones to make adjustments in the industry. We can hardly move to a supplier who is serving our competitors.... adding our maintenance load to theirs would certainly create an imbalance... There are pros and cons of being the big one. Supporting the supplier market always seems to be our burden.”

This statement found support from an informant in another oil company. When prompted to discuss how their organisation pursues re-sourcing decisions, his response suggested that once a supplier is working for a bigger company than theirs, then they automatically consider them capable. In that case the smaller purchaser is more worried about subjective factors such as how they relate to people within and outside their organisation that the core maintenance service.

The other aspect related to the nature of an organisation besides its influence on perception of situational strength is its role on supplier's perception of the purchaser's image. In this study, organisational image has been taken as “the general impression or opinion that members outside

the organisation have about the organisation.” According to Hatch and Schultz’s (1997) definition, organisational image is a holistic and vivid impression held by an individual or a particular group towards an organisation and is as a result of sense making by the individual or group and communication by the organisation of a fabricated or projected picture of itself. Therefore, in this study, ‘purchaser image’ has been taken as the impression that the maintenance supplier has about the purchaser.

Many local organisations would like to be associated with multinationals. This is both because of the amount of revenue or profit generated from the association and the benefit of recognition. There was consensus among all informants from both purchaser and suppliers about the general belief that if a local organisation can work for an organisation with a multinational presence then it must be delivering high quality services and that becomes a gateway into other businesses. Therefore, the characteristics of the purchaser determines the supplier’s perception of it and consequently his behaviour during participation in the re-sourcing decision process. Further still, the nature of the organisation, especially with regard to market share gives a general impression of how much revenue can be accrued from the supplier’s association with the purchaser in the outsourcing relationship. All these together influence the supplier’s desire to have an outsourcing relationship with the purchaser. This serves first of all to raise or lower the power position of the purchaser relative to the suppliers. Then also, a supplier’s desire to associate with a particular purchaser influences his approach when dissatisfied with a relationship or decision process and outcome. If the supplier considers the purchaser and having a considerable amount of beneficial resources for his company, he is likely to consider their present relationship as one worth maintaining. Similarly, for the supplier wishing to gain entry into the purchaser’s business, they can be coerced into accepting unfavourable terms.

5.2.4 Current organisational goals

The present study revealed that, although the incumbent supplier’s performance is evaluated in light of the service level agreements specified in the contract, changing business requirements and policies often necessitate additional evaluation of the incumbent supplier’s capability and capacity in relation to the purchaser’s present needs. A supplier might be meeting the purchaser’s present needs satisfactorily but considered incapable of meeting its future requirements. The change could be related to the size of business, introduction of new technology or change in policy. In order to remain competitive in the industry, or to gain entry into new markets, the purchaser might have to reconsider its present interorganisational relationships, a situation that can result in unforeseen premature termination of maintenance contracts, change from single to multiple contractors and vice-versa. For example, when acquisitions take place, the maintenance work increases, forcing the purchaser to reevaluate his current maintenance sourcing approach.

Therefore, even where organisations would have preferred renegotiation with the incumbent supplier, changing business requirements might mean they have to consider switching to a supplier with a higher capacity than the present resulting in unilateral termination. They might even chose to remain with the incumbent supplier but incur supplier development costs to help the incumbent supplier build the required capacity fast enough.

5.2.5 Characteristics of maintenance

Characteristics of maintenance encompasses elements such as, the size of the maintenance budget in relation to the overall operational budget of the purchaser, how critical equipment maintenance is to the overall attainment of organisational objectives or in relation to the organisations ability to compete effectively, the location of the equipment, maintenance concept being followed, as well as who operates the equipment. Elements such as the maintenance budget and maintenance's role in achieving organisational objectives was found to influence both the level of importance given to re-sourcing decisions as well as the DMU members perception of switching costs. The multisite location of equipment, determines the weighting approach taken when evaluating various elements of maintenance supplier capability and capacity. It also affects the effectiveness of the purchaser's evaluation of the incumbent supplier and consequently the accuracy of information used in comparing the incumbent supplier with alternatives.

5.2.6 Characteristics of current contract and outsourcing arrangement

Research findings suggested, that the terms and conditions of the contract preceding a re-sourcing decision as well as the duration of the contract play a significant role in directing the progression of a re-sourcing decision. For example, if there is a termination agreement in the contract, then there will always be reference made to the terms and conditions under which the maintenance outsourcing arrangement can be terminated and the steps that shall be followed in either renewing the contract, switching service providers or a combination of the two. The contract can also specify the contract duration, the knowledge of which gives the purchaser a sense of re-sourcing decision timing.

Most of the informants argued that, if a contract preceding a resourcing decision is characterised as medium or long term, then uncertainty in the current relationship can be reduced to a remarkable degree since the purchaser can tell with better precision whether its worth building the relationship further or not. It was also mentioned that, with a long term contract, the time for evaluation and assessment of both current maintenance supplier and prospective suppliers is long enough for the purchaser's DMU to involve as many participants as possible, get as much information from various resources and engage in negotiations. On the other hand if the outsourcing arrangement preceding the maintenance re-sourcing decision is short-term, there is

hardly anytime for evaluating the current maintenance service provider later on time for fairly and comprehensively evaluating others. There was also consensus among the informants that there is a greater possibility for renewing the maintenance contract with the current supplier if the current contract duration is short due to lack of time and the costly experience of supplier search, evaluation and choice.

The other issue that became very prominent under this sub category was the characteristics of the soon ending outsourcing arrangement. Research findings indicated that the amount of investment that the purchaser had injected into the soon ending outsourcing arrangement acted as an incentive for the purchaser to consider continuing in the present relationship before considering other options. In support of this argument reference was made to the amount of resources or effort committed to supplier development initiatives. Informants argued that, there was more inertia on their organisation's part to consider renegotiations with a supplier who they have just developed compared to one where they had no or little input to the supplier's current state of competence. Unless the supplier's performance is very bad, the purchaser would be more committed to improving the supplier further than switching before realising significant benefits from their supplier development efforts. Again this was tied to time of the time duration of the soon ending contract. Findings indicated that for a poorly performing supplier, the purchaser was more likely to remain if the time from the supplier development initiative to the end of the contract is short than when it is long. This was attributed to the fact that, when the period is short, there is still room to expect improvement compared to when the time lapse is long. If the supplier has not shown improvement in a long period of time, then this gives impetus to alternative supplier search and possible negotiations.

5.3 External structural elements

The second set of factors influencing re-sourcing decisions was found to be related to the external environment in which the purchaser operates. This category consists of ; the incumbent supplier's performance, the number of suppliers, their capability and capacity, and infrastructure and institutional elements.

5.3.1 The incumbent supplier's performance

The incumbent suppliers performance was cited by all purchaser informants as the backbone of the re-sourcing decision. When asked to describe the events that take place during a maintenance re-sourcing decision, there was consistent reference to evaluation of the incumbent supplier's performance as the starting point. Results indicated that the purchaser's perception of the incumbent supplier's performance determined whether the re-sourcing process duration would be

long or short, whether the purchaser would consider renegotiations only or bidding, and whether they would consider injecting re-resources into search and evaluation of alternative suppliers.

Evaluation of the incumbent supplier was based on post contractual performance and focused on three main elements. The degree to which the supplier met specified service level standards with reference to specified KPIs, the trend of performance from the beginning of the contract to the end, and the costs incurred in ensuring the supplier meets the terms and conditions of the outsourcing arrangement.

Most of the purchaser informants pointed to the importance of meeting specified level performance agreements because of the role equipment availability plays in supporting their competitiveness in the oil market. They argued that if the supplier provides a satisfactory level of performance on this component then they might not consider engaging in the bidding process. In contrast, if the service level agreements have not been met by the incumbent supplier, then this works as a motivation to evaluate alternative suppliers and compare capabilities and capacity to establish if there are alternative suppliers that are capable of providing a better service. If the margin between the incumbent supplier's capacity and that of identified alternative suppliers is small or non-existent, then further attention will be given to renegotiating with the incumbent supplier if the performance trend was that of continuous improvement.

According to purchaser informants, the fact that one cannot predict accurately what any supplier, and especially the non-incumbent is likely to do in the future beyond the decision time often works in favour of the incumbent supplier. This makes post performance results for the incumbent supplier more reliable than the 'performance potential' predictions for alternative suppliers. Findings indicated that this scenario compels maintenance purchasers to put more effort in analysing the post performance of the incumbent and their suitability for future outsourcing arrangements before focusing on engaging other suppliers in their re-sourcing decision processes.

Although the cost of managing the purchaser's outsourcing arrangement was cited as an incumbent supplier performance measure, there was no evidence of a tangible way in which this was measured. The evaluation was mainly based on subjective measures. Purchaser informants used statements like, "you have to run after them", "you need to call them several times before they can attend to a call" to indicate how much work is put in coordinating the arrangement or statements like "at least we can now breathe", "the contract manager can now afford a leave" to highlight situations when the coordination requirements had lessened. However, in general, the coordination costs were perceived to be high at the beginning of the contract or when the supplier was serving more than one client. In the latter situation, the purchaser's perceived coordination

costs were continuously high because the purchaser was striving to put pressure on the supplier to consider their own maintenance requirements as priority.

Overall, the purchaser was more likely to renegotiate with the incumbent supplier if performance was at an acceptable level. However, the meaning of acceptable was also not well defined and seemed to change depending on other factors such as overall price, and the availability of an attractive alternative at the time of re-sourcing.

5.3.2 Number of suppliers, their capability and capacity

Along with the element of the incumbent supplier's performance, informants mentioned number of suppliers in the market and their corresponding capabilities and capacity as another important factor. Purchaser informants identified the limited number of capable suppliers with the required capacity as a big limitation to the flexibility of their decisions. They also argued that the suppliers' capabilities and capacity are so dynamic that DMU members can hardly predict what the capacity would be a few months from when the contract is signed that it is hard to guarantee sustainable operations.

According purchaser informants, the low predictability level of this factor stems from the extreme fluidity of the resources from which the capability and capacity of suppliers is derived and evaluated, and the unpredictable approach that the purchaser's competitors will take in making their own maintenance sourcing decisions. While the number of suppliers in the region and number of competitors can be known well in advance before a re-sourcing decision is due, the capacity of the suppliers is often continuously changing due to a number of reasons.

Firstly, any decision that a competing purchaser makes regarding maintenance sourcing, serves to either sustain or alter one or more suppliers' capability and capacity. For example, another purchaser's decision to switch service providers reduces incoming revenue to the incumbent, and might reduce employees' willingness to continue working with or joining a supplier who has lost a maintenance contract consequently lowering the incumbents capacity to handle large maintenance contracts. Similarly, due to the relatively high implicit knowledge involved in managing maintenance management contracts, when another purchaser chooses to renegotiate a maintenance contract with the incumbent supplier, this often serves to reduce further the capability of other existing suppliers in the market. Purchaser and supplier informants argued that renegotiating contracts with the incumbent supplier can work to deter the much needed revenue required for establishing and developing capacity from trickling down to those who would be interested in joining the supplier market. This increases the power of the much used supplier, it increases their influence in the market and eventually lower the negotiation power of the purchasers.

Secondly, the capability and capacity of suppliers was also found to be affected by the dynamics in the industry as whole. For example, an increase in the number of downstream oil companies has resulted into an increased demand for equipment maintenance personnel. The downstream oil industry being a safety sensitive industry, organisations operating in it often require maintenance personnel with a reasonable experience in the industry. Small oil companies without the capacity to outsource maintenance to independent service suppliers often recruit technicians from these very independent maintenance service companies. The result is a continuous exodus of technical personnel which alters the capacity of independent supplier firms.

Another force altering the supplier's capability and capacity is the ever changing foreign exchange rates, an important factor in an industry whose major supply of spares is outside the borders of the nation. This greatly affects the capacity of the incumbent often measured in relation to maintenance performance. According to the supplier informants, increasing spares' prices especially for fixed cost maintenance contracts can result in delayed salaries, delayed spares' purchases and consequently reduced maintenance quality and employee motivation. Where the supplier's employees are not well motivated, the turnover is high. All this impacts supplier capacity.

Results showed that unless the incumbent supplier is not willing to continue serving the purchaser, a significant capacity difference between the incumbent supplier and alternative supplier is necessary before any considerations to switch can be looked into. Purchaser informants argued that if the alternative supplier's capability and capacity is better than that of the incumbent suppliers but by a smaller difference, then they would be more inclined to remain with the incumbent supplier unless the relationship between them in the soon ending contract was not favourable for future commitment.

All the findings discussed under section 5.2.2 serve to increase uncertainty regarding the capability and capacity of both the incumbent and alternative suppliers. When an informant in Ptero1-U was asked what would happen when other purchasers take on the services of a supplier they have struggled to develop, his response revealed that the purchaser is aware of the industry dynamics and makes reactions based on the impact their competitors have had on the maintenance supplier market at the time of re-sourcing

“These are market forces and these we cannot do away with. Right now the approach we chose to use is working. What we are looking at is what meets our need now.”

This means that purchasers have to continuously monitor the market to develop maintenance sourcing strategies that will sustain their organisations.

5.3.3 Infrastructure and institutional elements

Although this element was cited by very few informants, it highlighted the challenges that purchasers face when trying to collect the information required for their maintenance re-sourcing decision analyses. Among the concerns mentioned under this sub-category were poor telecommunication and road infrastructure. The high telephone charges, very poor reception from most of the mobile and fixed line network providers in the country make day to day communication regarding the incumbent suppliers performance very challenging. Additionally, the retail sites are distributed over a very wide geographical region. Most of the roads to these sites are not good and are often mapped with several potholes. This makes supervision and monitoring of the incumbent supplier's performance a very expensive undertaking. Quite often the purchaser has to depend on the information given by the supplier's team to evaluate his services. This would have been made easier if there were direct emails from the equipment operators to the purchaser evaluation team to cross check with the information provided by the supplier. However, other means of communication such as use of emails and faxes have not yet been accessed by all retail station operators because it is an extra cost. Therefore having them for maintenance facilitation activities only is not an incentive for making such connections.

These two infrastructure aspects make access to accurate and detailed information about incumbent supplier's operations and maintenance performance challenging. Poor communication and transport infrastructure also make acquisition of information about alternative suppliers very complex. Purchasers often find themselves depending on self appraisal reports from the suppliers themselves and their self selected references for alternative supplier performance history and capability analyses.

The research findings also indicated that poor transport infrastructure also makes transport and service centre requirements higher than if the roads were better. This is because in order to meet the delivery targets such as response time, the supplier operating in an environment of poor roads has to have more vehicles and establish more service centres within the country. In such environments, the number of individuals and organisations capable and willing to make such investments remain few further limiting the number of alternatives the purchaser can choose from at the re-sourcing stage.

Another external environment element under this subcategory is the influence of education institutions. Informants argued that within the current education framework, the cost of developing entirely new sets of maintenance suppliers is very high. Unlike their other periphery maintenance activities such as generator maintenance for which several technical institutions have generator maintenance and repair as part of their curriculum, skills on petroleum equipment maintenance are often acquired on the job. Therefore even when the purchaser is willing to

support the development of another supplier besides those in the market, the pool from which to get qualified technical personnel is limited. This increases their dependence on already existing suppliers.

5.4 Boundary spanning elements

The third category of factors influencing the management of re-sourcing decisions is what the author has termed boundary spanning elements. The elements under this group are the results of the interaction between the purchasers and the environment especially the suppliers in the market both before and during re-sourcing. The factors under this category include: power dynamics, exploitation of organisational power by the purchaser's boundary spanners, opportunism, recognition and selection of responses to dissatisfaction, and the supplier's interpretation of purchaser's behaviour. Research findings indicated a manifestation some of these elements at two different levels. One at macro or inter-organisational level and another at a micro level focusing primarily on individuals operating at the interface of purchasers and suppliers. In the paragraphs that follow, each of these elements will be presented and discussed.

5.4.1 Power dynamics

The element of power appeared to be a significant contributor to the way a number of aspects are handled by decision makers in the purchaser as well as the responses they received from the suppliers. In the research results, the expression of the role of power in the re-sourcing decision was more pronounced in responses given by supplier informants than purchaser informants. Further still, while there was reference to the role of power both at organisational and individual level, the later was also more pronounced in information provided by supplier informants than purchaser informants.

Reference to the element of power from the informants in PetroI-U was made only in relation to the organisational level. In response to an inquiry made about the bargaining position of the organisation in the re-sourcing decision, purchaser informants argued that as a multinational organisation, there is always the assumption that they have a higher bargaining power than all the suppliers in the market. With specific reference to PetroI-U, purchaser informants argued that being one of the large downstream oil company in the country, so many suppliers wanted to be associated with it because of their maintenance budget size compared to other downstream oil companies in the country.

However, the purchaser was aware that although they were powerful in the industry, their ability to use this power depended on the responses made by the supplier during the re-sourcing decision process. For example the quote presented below showed that the purchaser was not always able to influence the supplier to do what the purchaser desired.

Although our size seems like it dictates that, (the purchaser being the dominant party in re-sourcing decisions) ...You can only know you have power when you get what you want. We haven't been able to achieve that always."

Two purchaser informants outside the case study also, also referred to multinational organisations in the DSOI as powerful by virtue of their size and global standards. They argued that the mere fact that most companies want to work for such multinationals always gives them a higher bargaining power compared to the suppliers in the field.

According to informants from Petro1-U, during a re-sourcing decision, the members of the re-sourcing team seek to negotiate for an arrangement with their suppliers in which there is mutual benefit. This is supported by statement given by one of Petro1-U informants

"... you know this is a win- win arrangement. We look at both our interests and the interests of our service provider. ... we try to arrive at something that will be beneficial to both sides "

and a statement in the contract

"... the two organisations shall endeavour to operate in good faith"

that informants from Petro1-U often referred to in order to clarify their inclination towards a collaborative approach rather than adversarial. Such statements give an indication that during negotiations, there is a level of interdependence between the purchaser and the supplier firms. According to Petro1-U, although there is inherent bargaining power by virtue of their multinational presence and size of the organisations in the country, they hardly imposed this power on their suppliers. This predisposition was attributed to the fact that they desired to operate in what they termed as "good faith" and also because they could not tell well in advance how their suppliers were going to react.

However, responses from supplier informants indicated continuous use of power by the purchaser. When requested to comment on their bargaining position in re-sourcing decisions, informants from the supplier firm had this to say,

"In these negotiations, we are always the beggars. We need these contracts to keep in business even when we cannot have our way"

"These multinationals just dictate what they want. They give you one thing in a clause and take it away in another clause... The contractor has no input in that document, the contract is their

document.... They give you the job and if you do not want, you leave it. And its true for all these multinationals”

When defending their opinions, multiple references were made by supplier informants to the standard nature of the contract. They argued that the bargaining position of their clients was always higher than theirs and that the terms in the contract were evidence of that. The author established that terms and conditions in contract documents belonging to different oil companies were similar in many aspects, except with regard scope of work. Which explained why the supplier considered the contract as the purchaser’s document rather than for a given relationship. In supporting their argument that the purchaser was always more powerful, specific reference was made to particular terms of the contract such as

“The purchaser shall have the right to request the contractor to carry out certain works or services which are outside of this contract, and the contractor shall put themselves at the purchasers disposal, provided the works and services required are within their professional competence.”

“The contractor agrees that the purchaser shall have the right to extend the duration of the contract for one year, period commencing on the expiry of the initial period upon the same terms and conditions as set out in this contract, provided that the purchaser gives the contractor written notice of such extension at any time prior to the expiry of the initial period.”

What is laid out in the contract is the purchaser’s expectation of the maintenance supplier. Although it is a standard document, it is part of, and a product of the re-sourcing decision process and has a role to play in determining the environment under which negotiations take place. Overall, there was evidence from both purchaser and supplier informants to show that the purchaser had more influence in the re-sourcing decision process than the supplier. This meant that there was a higher probability for the purchaser to persuade the attractive supplier to meet their terms than the reverse.

However, for any re-sourcing decision, the purchaser’s ability to influence any particular supplier during the re-sourcing decision was found to be dependent on the supplier’s perception of the degree to which the new outsourcing arrangement would meet its present and future needs. For example, in the re-sourcing decision that took place in 2006, Petro1-U received two different responses from supplier A and supplier B. While supplier A accepted Petro 1-U’s terms and conditions, Petro1-U was unable to influence supplier B to accept the same terms and conditions. Supplier B’s withdrawal from the maintenance re-sourcing selection stage reduced the available alternatives for the purchaser and also greatly influenced which approach they would take in

making their next sourcing decision. For example, were the purchaser was not planning to spend resources on searching and evaluating other suppliers, they were now forced to undertake that process in order to choose another supplier.

Under this scenario, it was observed that the purchaser's size and capitalisation together with organisational policy and the decision structure remained constant in relation to both supplier firms. The major difference between these two organisations were their revenue needs at the time of the Petro1-U's 2006 maintenance re-sourcing decision. While at that time supplier B was providing maintenance services for the three biggest oil companies in Uganda, Supplier A was only maintaining equipment for a few sites of an oil company whose size was less than the smallest of the companies supplier B was serving. The overwhelming revenue needs of supplier A outweighed the profit needs and were therefore willing to sacrifice profits for revenue. In this case the supplier is not necessarily comfortable with the approach the purchaser has taken but is willing to settle for as little returns as possible as long as there is a consistent stream of revenue coming into his organisation. In any case, there are not so many purchasers to serve and even if they were available, there is no guarantee that they will be offered the job.

The following quote made by one of the informants in supplier A shows that their positive response to the purchaser's terms was the result of their very high revenue requirements.

"we took on the contract because we were desperate. At least now we know there is a fixed income. We can try and get profits from elsewhere."

On the other hand, during Petro1-U's 2006 maintenance re-sourcing decision, supplier B's profit needs outweighed their revenue needs and were therefore willing to sacrifice revenue if it did not have any profits with it.

The research results proved that, for any re-sourcing decision, the attractiveness of the purchaser's offer to the supplier, has a greater impact on determining the power position of the purchaser than factors such as number of suppliers and purchasers in the market. The concept of attractiveness of an offer means that, in order to make appropriate re-sourcing decision approaches and choices, power positions cannot be looked at in terms of the entire industry. Power positions are only meaningful when the purchaser relates himself to one particular supplier at a time. That is because what is attractive to one supplier might not be attractive to another. Even though there is one purchaser and two suppliers under consideration the purchaser takes on different power positions depending on which supplier-purchaser relationship is being analysed. Consequently, this will lead to a different approach in negotiations.

Similarly, research results also revealed that since the attractiveness of the purchaser's offer can change, the power position of the purchaser in relation to any given supplier is also time dependent. For example while Supplier B withdrew from negotiations and bidding in Petro1-U's 2006 maintenance re-sourcing decision, it was one of the suppliers that bided for the same job in 2007. Therefore, while Petro1-u's offer might not have been attractive to Supplier B in 2006, Supplier B's participation in the 2007 re-sourcing decision is evidence that it was beginning to find Petro1-U's business attractive again.

The supplier specific and time specific purchaser power position means that the purchaser has to continuously monitor those elements within the environment that affect the kind of response they can receive from the suppliers in order to be prepared with a suitable approach at the time of re-sourcing.

5.4.2 Exploitation of organisational power by boundary spanners.

Another aspect of power that was prevalent during the interviews was knowledge and exploitation of organisational power by individuals holding boundary spanning positions. It was observed that power inherent within an organisation can either remain potential and therefore passive or can be translated from potential to functional power by those taking on boundary spanning roles. During the course of data collection and analysis, it was revealed that individuals holding boundary spanning positions in both the purchaser and supplier firms had a great role to play in directing the course of re-sourcing decisions.

While all purchaser informants shunned the possibility of having a more influential individual or individuals among the members of the DMU, there was consensus among informants from the supplier firm that the most influential positions on the DMU were the maintenance contract manager and the procurement manager. According to informants from supplier firms, the maintenance contract manager, is in charge of coordinating the operations of the maintenance supplier and therefore responsible for reviewing and disseminating information regarding their operations to the other members of the purchaser's DMU. All supplier informants perceived maintaining a good relationship with the maintenance contract manager paramount if they were to go through the first level of evaluation at the re-sourcing stage.

Responses from supplier informants showed that the perception that the purchaser's boundary spanner had about his relationship with the boundary spanners in the supplier firm would in turn influence his perception of their performance as well as current and future capabilities. They argued that it is in the boundary spanner's power to provide a true picture of their capability and capacity by providing accurate information and making right judgements in the comparison process or to work in favour of or against them by withholding relevant information. According

the supplier, the boundary spanner has power to the degree that (1) he can stop damaging information about a supplier from reaching other members of the DMU, (2) avail the supplier with the relevant information to support him in preparing for the re-sourcing decision, (3) put in a good recommendation for the supplier. Supplier informants argued that, their best weapon besides meeting the requirements that can be measured objectively is to establish and maintain a good relationship with the boundary spanners because it is often their word against theirs when it comes to subjective elements of performance or capability measures.

When the boundary spanner from the purchasing organisation recognises that besides the power at the organisational level, there is power that can be utilised at the lower level, then this can be used to influence the supplier to meet the terms of the individual. However although the individual's terms might be beneficial to the purchaser they are representing this is not always the case.

While informants from Petro1-U recoiled from committing that any member of the DMU was more influential than another, their admission that the role that had the greatest contribution to the decision process were the maintenance contract manager and the procurement manager, supported the opinions of the supplier informants. Results from the study revealed that although the key decision makers are the members of the contracts board, the contributions made by the maintenance contract manager and the procurement manager had a significant impact on the way the re-sourcing decision evolved. For example when asked about the most influential positions on the maintenance sourcing DMU, one member of the contracts board who was not a boundary spanner had this to say about these two positions

“...If contribution is what is being considered as influence, then in that case, they (the maintenance contract manager and the procurement manager) have a significant influence. ... our evaluations are based on the information they provide us with ...at least to a great extent.”

Another purchaser informant who was a boundary spanner had this to say

It is not that anyone is more influential than the other. Its just that one might have more information on them to aid that particular decision than others... But even then, the information has to be clearly stated so that all members discuss it.

The influence that boundary spanners have on the resourcing decision's direction was further supported by supplier informants when they expressed mixed feelings on hearing about the resignation of two of Petro1-U's boundary spanning personnel related to maintenance. Their major concern was how the new boundary spanners would perceive their performance and capability in the upcoming re-sourcing decision. On one hand they were afraid that a break in the

long standing relationship with the outgoing boundary spanner would require them to put in extra effort to win the approval of the incoming boundary spanner in terms of conflict resolution and flexibility. But on the other had they were optimistic that having a new face in the boundary spanning position would erase the poor reputation they had build in previous years and allow a new interpersonal relationship void of the details of poor performance history. Informants from supplier A believed that they would now be judged based on their current performance, competence and capacity as opposed to if the previous boundary spanner, full of their relationship history had been around. According to them, rather than consider only present performance to judge suitability for subsequent service delivery requirements, the outgoing boundary spanner would often refer to their poor performance history in a bid to increase purchaser's negotiation power and his.

5.4.3 Purchasing organisation's perception of switching costs.

Research results also showed that, the purchaser's perception of switching costs had a significant influence on the re-sourcing approach taken and purchaser's final supplier choice. Overall, all purchaser informants perceived higher switching costs for returning the maintenance activity in-house that switching from one service provider to another. More specifically, research findings indicated that the size of the maintenance activity for asset intensive service industries made the 'set up' component of switching costs when returning an activity in-house so high. Therefore if the current outsourcing arrangement was not satisfactory, the purchaser preferred to switch service providers or reduce the size of the maintenance activity that their incumbent supplier is currently managing to returning the maintenance activity in-house.

Findings indicated that perception of switching costs by the purchaser is a function of both fixed and changing elements of both the DMU and DMU environment. Some of the elements that were found to affect the purchaser's perception of switching costs were criticality and size of the maintenance activity, number of capable suppliers, decisions made by other purchasers, and representation on DMU. Criticality and size of maintenance activity and number of capable suppliers are stable over time. The number of capable suppliers in the market was found to be relatively stable because of the high level of capital investments required to start and develop a capable maintenance supply firm. Others like decisions made by other suppliers and individuals on DMU are bound to change often. While representation in the decision making unit might remain the same, if there are any changes in the individuals making up the DMU there is likely to be a variation in their perception of the cost of switching especially if there is a change in the people carrying out the supplier evaluation activities.

Besides the high set up cost component of switching, the other switching cost was associated with lost sales that result from disruptions to customers during the engagement stage of

switching. At this point the outgoing supplier has lost morale yet the new supplier has not yet been able to integrate himself in the new clients business. The fear of losing customers due to delayed maintenance call responses influences the DMU members to perceive higher switching costs that causes them to consider finding solutions for the incumbent supplier's performance before switching.

5.4.4 Interpretation of another party's behaviour and intentions.

The case study indicated that a lack of understanding by the supplier of the purchaser's motivations for certain actions and terms in the contract and a lack of understanding by the purchaser of the supplier's interpretation of his actions played a significant role in shaping each party's perceptions about their relationships and development of strategies for subsequent decisions. While according to Petro1-U informants, the purchaser's intention was to work together with their supplier, develop them and create a collaborative environment, there was a clear indication from the supplier informants that this is not what the supplier perceived during the re-sourcing process. For example, it is stipulated within the contract that every month, the supplier should provide a summary of all the spares used and their associated costs. According to informants in Petro1-U, this was a step in the direction of collaboration with their supplier where there is need for openness and continuous improvement. But an informant in supplier A, made the following comment regarding this requirement.

"They want us to give them a report of how many spares we use a month and the associated costs. why would they want that except for judging how much profit we are making so they can keep us at a minimum...?"

Now while information sharing is often cited as one of the activities necessary for parties that are in the process of developing long term relationships, the supplier in this relationship has not perceived it that way.

Again, at the end of a one year maintenance contract, Petro1-U realised that although to some extent a one year contract was in favour of their organisation to guard against uncertainties in Supplier A's performance, the idea was totally not in favour of the suppliers. They could not make any long term commitments for the maintenance outsourcing relationship. And in the end, the purchaser also suffered. They then decided to make a longer term commitment of two years. According to Petro1-U, some incentives were put in place to enable the supplier deliver his services comfortably. These include a shift from paying them thirty days after delivery of invoice to fifteen days and facilitation to get low interest loans from some lending institutions. According to the purchaser, in doing this, they are working with the supplier to improve him, offering incentives in what they have termed as a win-win strategy and engaging in information sharing, a

common concept in trust based relationships and supplier development approaches. Unfortunately, although the supplier recognises some forms of support from the purchaser, he does not seem to interpret all actions identified by purchaser as help, supplier development, incentives or collaboration.

The results seemed to show that the purchaser thought it should be obvious for the supplier to understand that the purchaser desires and is working toward a higher level of cooperation with the supplier through these adjustments. However, to the supplier, this did not seem obvious. The lack of common understanding about the kind of relationship that the purchaser is seeking after during re-sourcing, influences the responses that they are able to get from their suppliers. There is a danger of allowing the supplier to interpret decisions and actions of the purchaser based on their ability to read and understand the terms and conditions of the contract without necessarily explaining to them the motivations behind those clauses. Findings indicated that, depending on the power position of the supplier he might chose to ask as a way of seeking for clarity or he may simply keep quiet just for the sake of him keeping a job or worse still to behave opportunistically as soon as a chance to do so presents itself. The results indicate that unless the purchaser takes the initiative to explain the supplier the reason for each specific requirement, he falls prey to being misinterpreted.

On the other hand, it might also be true that the interpretations made by the supplier are actually the true intention of the purchaser although not explicitly mentioned either formally by way of contract clauses and written notices or even by word of mouth. Using Christensen and Askegaard's(2001) dimensions of corporate image, that is the organisation's official self image and the general impression and estimation of the organisation among its various audiences which they termed as reputation, the desire of every organisation would be to have the later dimension as close as possible to what the organisation is trying to portray (self image), whether fabricated or not. Whatever the case therefore, it remains the purchaser's burden to explain to the suppliers, what he wants to be understood as in order to achieve cooperation from the supplier. That way, which ever way the supplier chooses to interpret the clauses and terms within the contract and actions by the purchaser's representatives will be entirely because he has desired to believe so and not because he was not given a chance to hear out the purchaser on his intentions.

5.4.5 Opportunistic behaviour

Another factor that emerged as influential in re-sourcing decisions was the presence of opportunistic tendencies. This self interestedness behaviour manifested in both the purchaser and also among its suppliers. For example in 2003, Petro1-U seemed to have behaved opportunistically when it terminated its contract with Supplier A.

In 2003, These people were quite unfair. We signed a three year contract, but they terminated it midway. We thought it was unfair but they referred us to the contract which specified terms for premature termination. They should have told us this was about to happen.They convinced us to buy a number of spares from their stores. Most of these spares were specific to their equipment. And we were stuck with them being able to sell only a few to our competitors...

... I think they were aware this was about to happen but just let us go ahead and make the purchase. We had just made new recruitments because of the expanded scope our services and we had to go through what everyone dislikes, tell some of our employees to leave us.

The purchaser's behaviour highlighted in the comment above is an indication of the presence of information asymmetry and its use to the advantage of one party at the expense of another.

The present study showed that besides factors such as number of suppliers and clients available in the market and industry respectively, behaviour of either party, purchaser or supplier during a decision making stage is capable of creating opportunistic tendencies or promoting opportunistic behaviour in the other party during contract execution or at the next sourcing decision. If the supplier interprets the purchaser's behaviour during the previous sourcing process and outsourcing arrangement as unfair, the supplier is tempted to plan revenge or an unfair move on the purchaser during the execution or contract renewal stage. The same is likely to happen in situations where goodwill was not demonstrated in previous relationships.

An example could be drawn from Petro1-U's premature termination of the maintenance contract with Supplier A. While there was a clause in the contract allowing any of the parties wishing to come out of the contract to do so after a three months advance notice, the termination decision was unilateral. Supplier A, believed that Petro1-U failed to demonstrate goodwill towards them. With this event in memory, there was evidence of hesitation on the part the unwilling party to invest heavily in resources required to better the relationship and technical performance. This is also likely to affect what strategy they take in case of dissatisfaction with that particular client.

In another instance, an informant in supplier A commented about a contract in which the terms were 'a two year contract subject to a one years extension upon satisfactory performance'. This is how it was stated in the contract

"The contractor agrees that the purchaser shall have the right to extend the duration of the contract for one year, period commencing on the expiry of the initial period upon the same terms and conditions as a set out in this contract, provided that the purchaser gives the contractor written notice of such extension at any time prior to the expiry of the initial period."

This statement has several implications. One, the purchaser seems to have been protecting himself in case he fails to get a better supplier but under the same terms and conditions. This is evidenced by a response from one of the purchaser informants when an inquiry is made about their response when after developing the supplier he takes on other purchasers

“We might not be able to do much, but we ensure we are well protected in the contract”

According to the supplier, the prices for the resources required for carrying out the activity keep increasing at a high rate. Research findings indicate that, aware of this trend and the desperate position of the supplier at the time of negotiating and signing the contract, the purchaser seems to have acted with self interest to bind the supplier to the relationship in that term of the contract. The only way the supplier can exit this contract in the three years is if the purchaser decides to let go of him. The purchaser has the right to decide when to provide the written notice even if that means the day before the end of the first phase of the contract (two years) which would be unfair for the supplier. According to the suppliers, the contract term means that whatever the purchaser does, it still remains that he will be behaving well within the limits of what has been written down in the contract even if notice for renewal or change of supplier came to the incumbent supplier a day before the end of the initial contract.

In fact, at the end of the two years, a one month extension was made. The reason given for this was to continue observing the supplier’s performance. The supplier considered this unfair and only creating uncertainty in their operations. They wondered why the purchaser could consider doing that, yet the purchaser was aware that if the same information was passed on to the supplier’s employees, they might not be able to save any. Such incidents, seemed to create a negative impression regarding the kind of relationship that exists between the purchaser and the supplier.

The research findings indicate that the purchaser’s behaviour can sometimes favour the breeding of opportunistic tendencies in suppliers that can eventually mature into opportunistic behaviour at the time of re-sourcing. Breeding of opportunistic tendencies, and facilitation of their translation into actual opportunistic behaviour, is well demonstrated by comments such as the one below, made by an informant from a maintenance supplier organisation which had one time experienced premature, unilateral termination of a contract.,

“The strategy now is to get all the contracts at whatever cost, leave our competitor with nothing and get him out of the market then we can play the game according to our rules. In any case these guys have ever stopped a contract prematurely so we cannot be sure of tomorrow.”

There is evidence, that the supplier's opportunistic tendencies have been enhanced by the purchaser's previous behaviour of unilateral premature contract termination. While becoming a monopoly makes business sense for the supplier, it has the potential to reduce the supplier's commitment to this one purchaser a situation that might force the purchaser who might have wished to simply renegotiate with the incumbent to have to look elsewhere.

5.4.6 Recognition and selection of responses to dissatisfaction

In analysing reactions to dissatisfactions, the author observed two dimensions of concern. One dimension has to do with dissatisfaction with the present outsourcing arrangement between the purchaser and the incumbent supplier. The other dimension has to do with dissatisfaction with the terms and conditions specified by either the purchaser or suppliers, incumbent and alternatives during re-sourcing decisions or negotiations. Both dissatisfaction dimensions and reactions by purchasers and suppliers were found to have a significant influence on how re-sourcing decisions proceed. Every party within a relationship or discussion is a candidate to perceptions of dissatisfaction. While the onus of deciding which supplier should provide services is on the purchaser, reactions made by dissatisfied suppliers within an ongoing relationship or re-sourcing discussion and the influence of these on available re-sourcing alternatives, approaches and final selections made cannot be overemphasised.

Embedded within this analysis was the observation that the response any party decides to take to dissatisfaction cannot be isolated from most of the factors already mentioned. For example, the power position each party perceives the other to occupy relative to itself influences each party's response to situations of dissatisfaction during re-sourcing decisions. When a supplier believes he is dependent on the purchaser to meet his resource needs, he is likely to perceive the purchaser as having a higher bargaining power than his. This results in the supplier firm agreeing to so many of the purchaser's unfavourable terms compared to the number of supplier's terms that the purchaser agrees to meet. Although the supplier will in this case agree to sign the contract, there is no equity in value appropriation. On the other hand, organisations in independent mode power positions, are more likely to give equal positive response to the other's demands resulting in a compromise, or none of the demands will be met resulting in exit. Since there would be no transaction for the purchaser if there was no willing supplier, how the current or prospective suppliers behaves during the re-sourcing decision process has a significant influence on the approach that the purchaser takes in eventually selecting the service provider for periods following the end of an outsourcing arrangement.

Based on Hirschman's work, 'voice' and 'exit' are the main alternatives that people or groups of people take when they fail to achieve satisfaction in their settings or structures (Hirschman 1970). If these two can't be achieved then it is assumed that the dissatisfied party will resort to either

loyalty(Hirschman 1970) or neglect. Under re-sourcing decisions, there are two scenarios under evaluation. One has to do with an ongoing relationship between a purchaser and an incumbent supplier. In this relationship, if either party is not satisfied with the negotiations, then their responses have to do with both the existing outsourcing relationship and the negotiations. The other scenario is that involving negotiations between a purchaser and alternative suppliers. In this case, responses to dissatisfaction are only associated with the re-sourcing decision events and requirements. In either scenario, research results revealed that, if there is a situation of purchaser dominance, there is likely to be less voice from the supplier since the purchaser is trying to use his power position to try and capture as much value as possible from the supplier. Further still, in conditions of purchaser dominance, it is also likely that there are fewer purchasers capable of meeting the resource requirements that the supplier needs for sustenance. Therefore, it is also unlikely that the exit option will be taken by a party considering another as the more dominant party.

Analysis of Petro1-U 2006 maintenance re-sourcing decision was made. During this re-sourcing decision, the incumbent supplier voiced his dissatisfaction regarding the terms and conditions that Petro1-U had set in order for them to renew the contract with them. Having failed to persuade Petro1-U's decision team to alter its terms, Petro1-U's incumbent supplier eventually took the exit option to the dissatisfaction in negotiations. The dissatisfaction in re-sourcing negotiations was supported by Petro1-U informants, Supplier B who was the incumbent then and Supplier A who Petro1-U switched to. In the same re-sourcing decision, supplier A was also not satisfied with the Petro1-U's terms. Even though supplier A was not in agreement with some of the contract clauses and the proposed handover process, they went ahead to sign the contract. According to responses from supplier A's informants, although they were aware that they could hardly sustain the organisation within the price ceiling set by Petro1-U, they considered Petro1-U's offer very crucial in meeting a very big portion of their resource requirements. Some of the comments from supplier A that support these assertions were

“we took on the contract because we were desperate. At least now we know there is a fixed income. We can try and get profits from elsewhere.”

“we had been out of job for major contracts for a long time and we needed to get ourselves on track irrespective of how much profit we were gaining out of it”

Had supplier A been in a situation where their profit requirements outweighed their revenue requirements, there was a possibility that they could also have chosen to take the exit option to the dissatisfaction in the negotiations, a response that would most likely have resulted in Petro1-

U seeking to renegotiate with their incumbent suppliers. Therefore, the responses taken by suppliers whether incumbent or alternative, influence the re-sourcing decision's direction.

5.5 Critical discussion of findings

The findings presented in sections 5.2, 5.3 and 5.4 indicate that in an asset intensive service organisation the progression of a maintenance re-sourcing decision and the final outcome is influenced by three categories of factors. That is purchasing organisation structural elements, external structural elements and boundary spanning elements. The main source of the evidence from which these findings were interpreted was interview data from informants that were well acquainted with the maintenance re-sourcing decision process of the purchasing organisation and personnel from the supplier firm who participated in the maintenance re-sourcing decision process. The inclusion of supplier informants made room for a varied perspective on the re-sourcing decision process. The informants selected were therefore the most appropriate for providing the details of the re-sourcing decision process and the factors that influence its management.

While both purchaser and supplier informants were very open about the factors that lie in the purchasing organisation structural elements and external structural elements categories, the two informant groups had differing levels of openness when it came to discussing some issues under the boundary spanning elements category. The evidence provided by informants from both groups regarding the influence that purchasing organisation structural elements and external structural elements appeared to be incontestable. However, except for the impact of overall purchasing power and purchasing organisation's perception of switching costs which both sets of informants relayed with ease during the interviews, it was the supplier informants that first brought issues regarding the influence of opportunism, interpretation of another party's behaviour and exploitation of organisational power by boundary spanners to the forefront. The difference in openness could have been engineered by the fact that the issues addressed under the boundary spanning elements category were much more a reflection of what the purchasing organisation's decision unit members do or how they behave during and before the re-sourcing decision process than characteristics of the organisations they represent. Since the study was seeking to gain a deeper understanding of the factors that influence the management of the re-sourcing decisions, it is these very individuals that were being interviewed in the maintenance purchasing organisation. It could be assumed that in a situation where a given informant believed that his behaviour has or had a negative influence on the effectiveness of the re-sourcing decision process they would be less likely to talk about it. On the other hand, since the suppliers are the interested observers of the purchasing organisation's decision unit members' behaviours and are often affected by the immediate outcomes of these behaviours they could have been more comfortable to talk about

these experiences and eager to express the issues under this category to any willing listener. There is therefore reason to suspect that boundary spanning elements have a greater influence on the progress of re-sourcing decision process and its outcome than what was revealed by the informants. This is especially if at the time of the interview, the interviewee believes that no other member of the team is aware of his behaviour. Although it has been acknowledged that these were the most well informed respondents regarding the maintenance re-sourcing decision, given the sensitive nature of the topic this could have affected the quality of information they provided.

Another reason that could have affected the quality of the results obtained from the purchaser respondents especially regarding the boundary spanning elements category is from the way the purchaser informants were first contacted. The purchaser informants' awareness that research on a sensitive activity like the re-sourcing decision process had been authorised by the country chairman could have led them to withhold information about the process especially what is not known to everybody. Secondly, the fact that the first communication sent by the research coordinator was sent to the initial list of would be informants as a group email could have constrained those interviewed from talking about how the behaviours of others on the team could have affected the re-sourcing decision process especially if the effect was negative. One way of dealing with this limitation would have been an analysis of the minutes of the meetings that took place during the maintenance re-sourcing decision time. These could have provided the researcher with the opportunity to identify the areas of agreement and issues of contention among the purchasing organisation decision unit members, acknowledgement of failure or misinformation in the various stages of the re-sourcing decision and reasons why particular choices have been made over various maintenance re-sourcing decisions. Minutes have the capacity to capture every decision maker's contribution in terms of required information, questions, arguments and resolution. However, access to the minutes was denied. Even in situations where suppliers participated in discussions with the purchasing organisation's decision making team, the suppliers did not have copies of the agenda. Therefore, an absence of evidence that could capture the proceedings of the purchaser's evaluations and recommendations as a team was a limitation that could mean there could be other factors that this research was unable to discover.

However, despite the possibility that some of the information could have been withheld, from the evidence that was gathered using all the data sources, there is reason to believe that each of the three categories has a different but significant influence on how the maintenance re-sourcing decision progresses. As introduced earlier in section 5.1, the purchasing organisation has varying levels of control over each of the three categories of influencing factors. With the highest level of control on purchasing organisational structural elements, followed by boundary spanning

elements and lastly the external structural elements. Nevertheless, for the two categories where the purchasing organisation has a relatively good level of control, that is purchasing organisational structural elements and boundary spanning elements, purchasing organisational structural elements can be assumed to be stable over a period of time for the organisation compared to factors under the boundary spanning elements. While previous research has emphasised the impact of factors under the purchasing organisation's structural elements and external structural elements categories such as number of suppliers in the market, the incumbent supplier's performance, and characteristics of outsourced activity, there is little room for the purchasing organisation to change the state of the characteristics or state of these factors compared to factors within the boundary spanning elements category. Although the findings presented in this research could not determine with certainty that boundary spanning elements have a greater influence on the management of re-sourcing decisions than the other two categories, it can be said with confidence that it is within the boundary spanning elements category that the purchasing organisation has a real chance to alter its influence on the re-sourcing decision process.

With regard to the significance of the study's findings to maintenance purchasing organisations, there is real value. It can be said that by understanding the factors that influence the management and progression of the maintenance re-sourcing decision, organisations can begin to factor in controls that will enable them manage these decisions right from the beginning of the outsourcing cycle.

While some of the research findings could apply to maintenance re-sourcing decisions in many asset intensive service industries, they find more application to maintenance re-sourcing decisions for organisations with assets that are not centralised. It is these organisations that have to heavily depend on the information provided by the boundary spanners like contract managers since many of the organisation's decision makers are not in position to have direct access to many of the sites where the equipment are located. The findings can therefore not be generalised for maintenance across all asset intensive service organisations in the least developed countries. However with the help of the case description provided in chapter 4, there is capacity to transfer some of the implications of the research findings to either maintenance re-sourcing decisions in other service industries or re-sourcing of critical activities especially where service delivery by the incumbent takes place in multiple site locations and where decisions have to depend on information provided by very few of its employees taking on boundary spanning roles.

Chapter summary

This chapter has presented three categories of factors that play a significant role in influencing the way maintenance re-sourcing decisions in Uganda's asset intensive downstream oil organisations are managed. The research findings presented in this chapter provided the foundation for developing the re-sourcing model presented in the next chapter. The proposed model was developed by integrating results from the research study interview questions aimed at mapping the maintenance re-sourcing process, the results about the factors influencing re-sourcing decisions and recommendations derived from literature on sourcing, decision making and maintenance management.

CHAPTER 6:

MAINTENANCE RE-SOURCING MODEL DEVELOPMENT

Introduction

This chapter is dedicated to meeting the second objective of the research. The chapter presents a detailed description of the process followed in developing the proposed methodology for guiding managers in formulating effective maintenance re-sourcing decisions. The methodology developed in this project focuses on re-sourcing decisions for maintenance activities of high strategic importance to the asset intensive service organisation (Kraljic 1983, Duarte 2004) and therefore critical for the continuity of core business operations. The results from analysis of literature on outsourcing, the descriptive data generated from mapping the re-sourcing process in the in-depth case study and the findings on the factors that influence re-sourcing decisions presented in the last three chapters were used for developing the prescriptive model presented in this chapter.

6.1 Characteristics of an effective maintenance re-sourcing decision

In order to develop a structured methodology for guiding maintenance re-sourcing decisions, it was necessary for the researcher to establish what these asset intensive service organisations describe as the characteristics of an effective maintenance re-sourcing decision. Re-sourcing decision effectiveness was conveyed to the researcher in terms of re-sourcing decision outcomes rather than re-sourcing decision process. The study established that an effective maintenance re-sourcing decision would have to score high on the following criteria,

- An approach that results into minimum disruptions to the operations of the purchaser that depend on maintenance
- Selection of a supplier or combination of suppliers that ensures high maintenance performance throughout the entire contract period and who understand the purchaser's business needs
- Selection of a supplier and/or an approach which will result in a relationship that requires low coordination resources
- Selection of a competent supplier that can offer a fair price and
- A re-sourcing decision outcome that supports a maintenance supply market that does not lower the purchaser's bargaining power.

6.2 Mapping the re-sourcing process

In order to develop the proposed re-sourcing model, the mapping process results generated from the case study were analysed to establish key descriptive elements of the maintenance re-sourcing process. According to McIvor, (2000), a management framework, a word sometimes used interchangeably with the word model, is concerned with making recommendations for what to do and what should be done. It is common for such frameworks to contain both prescriptive and explanatory elements. The explanatory elements focus on describing how things are in the world that is being perceived and constructed while prescriptive elements focus on making recommendations on what to do (McIvor 2000). In order to capture the explanatory elements of the model, the researcher analysed the purchasing organisation informants' responses to the generic question

“Could you please describe how you manage the maintenance sourcing process when an outsourcing arrangement with a particular supplier is about to end. ”

Most of the informants responded to this question with a combination of verbal explanations and diagrams. Recurrent words and themes were picked out of the responses. Using these together with the process diagrams that the informants had used to illustrate the process, the researcher reduced the process into a simple schema which was then used as a skeleton for developing a more comprehensive model.

For example, most informants mentioned thorough evaluation of their incumbent supplier as the first step in the process. They emphasised the fact that maintenance is a very critical activity and changes in suppliers even to better ones always causes disruptions to their business operations especially during engagement and would therefore prefer to change only when it is absolutely necessary. There was consensus among most of the informants that the core of the maintenance re-sourcing decision process is evaluation of supplier capability and capacity against the requirements of the purchasing organisation. For the incumbent supplier, this takes the form of post performance measurement and evaluation against set service level agreements especially, the KPIs mentioned in section 4.2.4, conformance to the purchaser's HSSE policies as well as the total cost of managing the arrangement. It also includes evaluation of the maintenance performance trend over the current outsourcing period. The following quotes, made in response to a question seeking for factors that would ensure satisfactory re-sourcing results ,support the importance of thoroughly analysing the incumbent before moving on to compare him with alternative suppliers.

“the incumbent should be analyzed fully before he's compared to the alternative”

“We have what we call key performance indicators which we use to judge our service provider’s performance. If they are below target then we begin to look else where.”

Most of the responses to the question about the stages of the re-sourcing process magnified the importance accorded to the process of evaluating the incumbent supplier’s performance. The results from this evaluation process were found critical in steering the purchasing organisation’s DMU to its next step.

The next step in the re-sourcing process was comparing the capability and capacity of the incumbent supplier with that of the alternative suppliers in the market. This was followed by a capacity- load ratio evaluation and comparison and lastly cost considerations. It was observed from the responses that while cost is very important, it comes at the end of the process. This is exemplified in the following supplier and purchaser statements respectively

“Our purchasers want an able supplier who can give them a fair price”

“Our starting point would be our requirements with a request for interested prequalified suppliers to demonstrate that they can deliver our requirements at a cost that is acceptable to us.”

The schema in Figure 6.1 is a summary of the maintenance re-sourcing process derived from responses such as those quoted above and diagrams provided by informants in the case study. Using Figure 6.1 as the model skeleton, informants responses were now analysed to establish specific issues that needed to be addressed at each stage. Responses from informants in Petro1-U had both descriptive elements detailing what actually takes place when they are handling a maintenance re-sourcing decision, the challenges and regrets as well as what they perceived as the critical elements of analysis or success factors. Responses from informants were combined with recommendations from outsourcing literature analysis results to develop a prescriptive model. For each stage of the model the author discusses the activities as well as factors that have a significant influence on the effectiveness of the decision at that stage. Subsequent sections of this chapter present a detailed description of how each stage within the schema was populated to facilitate effective maintenance re-sourcing decisions.

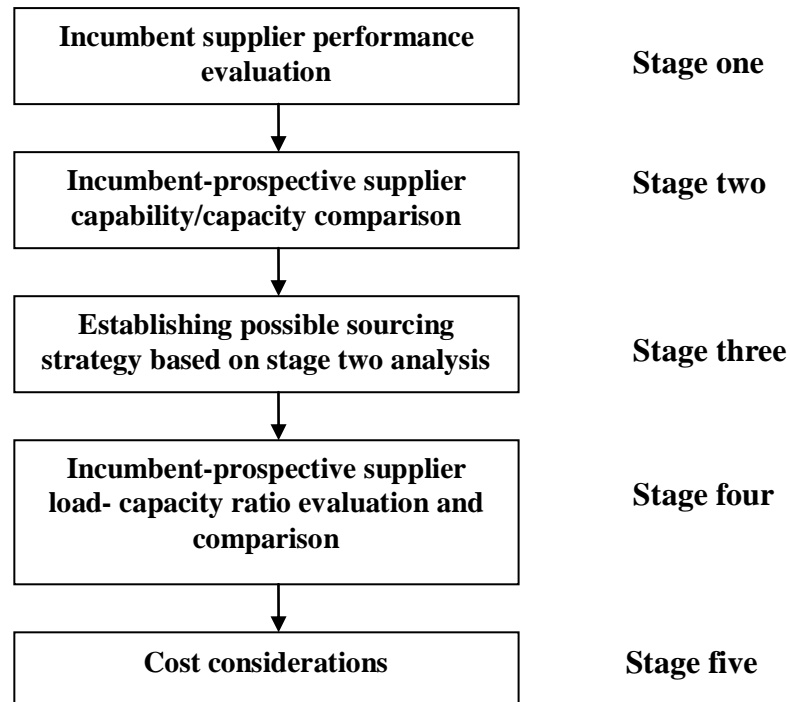


Figure 6.1: Maintenance re-sourcing decision process summary

6.3 Stage one : Incumbent supplier performance evaluation

The first stage of the model was developed based on the observation that with critical outsourcing (Duarte et al. 2004), a sourcing management strategy recommended for items of both high strategic importance and financial impact, purchasing organisations are not in a hurry to move from one supplier to another. Given that strategic items often characterised by a high supply risk caused by scarcity in supply, purchasing organisations are keen to maintain stable relationships with their suppliers and ensure continuous performance improvement. The first stage in their re-sourcing decision should be evaluation of their incumbent suppliers’ performance based on four dimensions, adherence to technical service level agreements (SLAs), performance trend, total cost of sourcing arrangement and relationship quality. There are two components in this evaluation data; the objective and subjective component. In the former, objective performance data collected over the entire contract period such as conformance to target response times, mean time between failure(MTBF), number of repeat jobs should be analysed and interpreted to establish the following;

Suppliers performance gap over the contract period,

This is determined by evaluating the difference between actual performance of the supplier and agreed service level targets. For example MTBF is defined as the duration between consecutive failures of an equipment unit under given conditions and is calculated using equation 6.1

$$MTBF = \frac{\sum_{i=1}^N T_i}{\sum_{i=1}^N F_i} \quad (6.1)$$

Where N is the number of equipment units in the measured class, T_i is periods for which equipment unit i was in operation during the measuring period and F_i is the number of failures on equipment unit during the measuring period. The target for the maintenance supplier as a percentage is 95. This was constant figure for all the contracts. Other KPIs presented in section 2.2.4 were also calculated for equipment units. For example, overall response time conformity for all fuel dispensing pumps rather than for each fuel dispensing pump in the Petro1-U's network

The most effective analysis would be one which considers each equipment in the service network on its own. But informants argued that given the asset intensive nature of their business, the number of equipment serviced by the supplier is large and therefore easier to evaluate the supplier based on average figures for equipment type. While this provides a general picture of the supplier's performance, in order to develop, and, accommodate within the system a spirit of continuous improvement, purchasers could consider gradually upgrading from average figures for equipment type to evaluating performance based on analysis of KPIs for individual items in their maintenance outsourcing arrangements. However, this would necessitate suppliers to upgrade their maintenance data management systems or the purchaser developing a maintenance management system to be used by the suppliers.

Incumbent supplier's performance trend

For each key performance indicator, the performance trend over the entire contract period is established with the help of performance graphs. While responding to the question regarding measurement and evaluation of incumbent supplier performance, some informants made use of sketches to show the various performance trends that are likely to emerge. One of these regarding response time conformance, has been adapted for use in this discussion and is presented in figure 6.2. It is a simple presentation of various incumbent supplier performance scenarios. According to Franceschini et al. 2003, performance trend diagrams like that in figure 6.2 which they refer to as efficiency curves are a great way of displaying the results from an outsourcing arrangement .

In terms of what the purchaser desires, case study results revealed that, performance trend A which shows the supplier constantly above target and C showing continuous improvement but very close to target are more desirable than B and E which although showing improvement for a bigger part of the contract are always below desired performance levels. Performance trends D and F are very undesirable. However, at the time of the study, trend line A had never been achieved by any of the purchaser's suppliers.

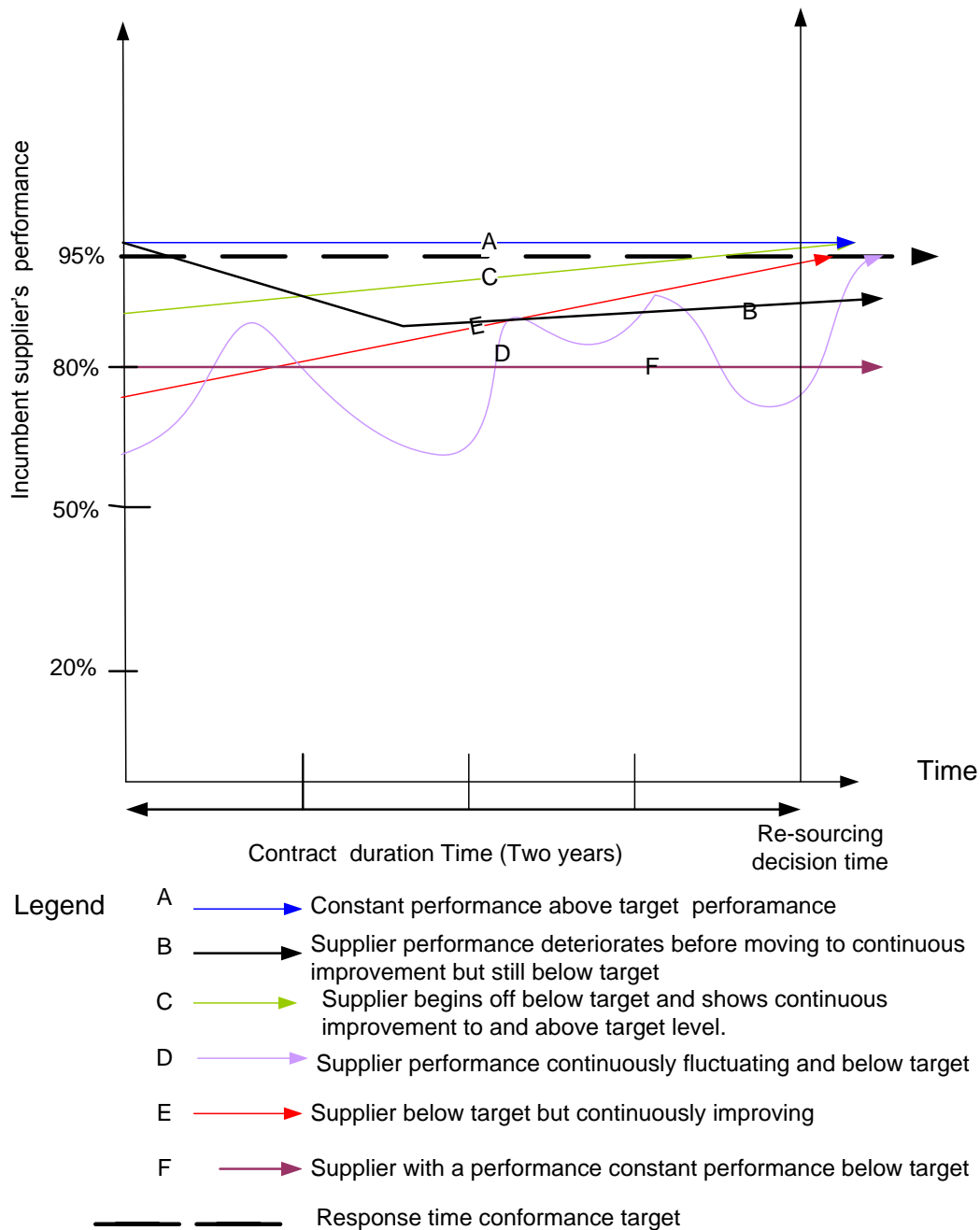


Figure 6.2. Incumbent supplier performance trends

Equipment availability being a significant input factor in asset intensive service sector organisations, the technical output (Gronroos 1984) aspect of supplier maintenance performance has a greater bearing on the success of the company's core activities. From the study, the distribution of equipment over a wide geographical region made it impossible for the purchaser to observe the functional quality dimension of their supplier's service offering. They were only able to have a general overview through analysis of the satisfaction index generated from their clients responses. They argued that the primary requirement from the supplier was high equipment availability and HSSE compliance. In agreement with prior arguments in literature, informants

argued that the technical quality dimension of the supplier's service could be easily measured objectively (Gronroos 1984) and therefore easily assessed.

Consequently, while relationship performance and cost cannot be ignored, the incumbent supplier's compliance to specified technical performance targets and the performance trend over the entire contract period were observed to carry a greater weight in performance evaluation than relationship quality or cost. Relationship quality although significant to a purchaser's business, findings indicated the relationship quality influence to the purchaser's satisfaction is only secondary to technical quality. This result corresponds to extant literature which suggests that technical standards are generally the first decisive criteria set by purchasers for suppliers (Holmlund & Kock 1995) and that an acceptable technical quality is a prerequisite for a successful functional quality (Gronroos 1984). When it comes to cost, where the purchaser uses a fixed contract pricing method which was the case for Petro1-U, Petro2-U, and Petro3-U, the purchaser knows the cost in advance and is assessing whether he received value for money. For incumbent supplier evaluation, cost becomes of great concern mainly when the purchaser is dissatisfied. This is because, while they would be willing to get quality at a high cost, it would not be worth it continuing with an incumbent supplier at a high cost if they believe they are not getting value for money. The purchaser's evaluation of the additional coordination cost component was also determined by whether the purchaser was satisfied by the core service or not. Informants argued that while building a good relationship was desirable, it has no benefit if equipment availability is low and ability to compete severed.

While evaluation of the incumbent supplier based on technical performance gap and trend is highly objective, evaluation of the other two components, total cost of managing the sourcing arrangement and relationship quality have a high degree of subjectivity. Total cost of sourcing arrangement incorporates both the actual contract fee awarded for maintenance activities as well as the coordination and control costs that the purchasing organisation spends on ensuring the supplier is delivering satisfactory results. In the present study, the actual contract fee was a fixed monthly sum over the contract period and therefore had an objective value. But, the evaluation and or perception of additional monitoring costs as well as relationship quality was described by many informants as a highly subjective measure. For example, one way of analysing outsourcing arrangement costs above the contract costs would be to look at the telephone bill for the maintenance contract manager. But it is hard to establish whether the contract coordinator was communicating to the supplier only on issues regarding the contract or even other subjects. Another would be to look at lost sales as a result of delayed response to an equipment failure report. But again, sales could also have reduced due to poor customer service from the employees operating the retail site equipment.

The perception and evaluation of these extra costs and relationship quality are subject to many factors some of which could be even unconnected to the contract. One of these is the relationship that the maintenance contract manager responsible for monitoring the incumbents performance has with the management of the supplier firm. For example if there are personal benefits from the relationship, they are likely to perceive the relationship as good and the coordination costs low. If in any way, information about inconveniences caused to the representative by the supplier can be kept to only the boundary spanners without involving top management from the purchasing organisation, then this can still be a tool for increasing the representatives bargaining power for persuading suppliers to meet individual goals. If the suppliers comply, then the evaluation can be made in favour of the supplier. The reverse is also true, if particular incidents within the contract period resulted in poor evaluation of the representative by his employer, the purchaser is more likely to judge the monitoring and coordination costs as high and relationship poor because it also impacts evaluation of his own competence as a maintenance contract manager. One way of reducing the subjectivity of this measure is to use multiple evaluators. But this would result in additional costs.

Following evaluation of incumbents performance in stage one, stage two would depend on whether the incumbent supplier meets or is below the purchaser's set performance targets on technical quality and HSSE concerns, relationship quality and cost considerations. Stage two involves evaluating alternative suppliers and comparing them with the incumbent.

6.4 Stage two: Incumbent- alternative supplier capability and capacity comparison

It was established that in comparing the incumbent supplier with alternative maintenance suppliers, the purchaser uses the incumbent's post contract performance together with his capability and capacity and weighs them against alternative suppliers' capability and capacity. This suggests that although during re-sourcing, the purchaser gets the same set of information from the incumbent and alternative suppliers, the purchaser also takes the incumbent's post contract performance as a measure of his capability and capacity. According to the results, purchasers evaluate factors such as financial health, experience and qualification of employees, effectiveness of recruitment, training, and employee welfare management programmes, efficiency of spares management systems, efficiency and effectiveness of information capture and dissemination systems, committed and competent top management, health, safety, security and environmental management programmes, certification, capital investment as well as outstanding experience in the field to establish the capability of both the incumbent and alternative suppliers. According to purchaser informants, capacity was a measure of the extent of the capability present in the supplier organisation. So it had more to do with size. That is number

of qualified and experienced employees, level of capital investments, number of established service centres, number of vehicles, and size of available credit facilities, and spares inventory.

When it comes to the incumbent supplier, purchasers take special interest in the incumbents' actual performance. It is this performance that is compared to the capabilities of other prequalified suppliers in the field. The rationale is best represented by a quote from one of the informants when asked about how incumbent suppliers are compared with alternative suppliers.

“When it comes to comparing incumbent and prospective suppliers, we weigh the incumbent supplier’s actual performance against other suppliers’ capabilities...to us our current supplier’s performance is a measure of his ability to translate what ever else we are looking for in a supplier into actual tangible results.”

One purchaser informant argued that, while the incumbent supplier could be scoring well above the alternatives in terms of experience, geographical spread, capital investments and others, if they fail to demonstrate that they are capable of working on these inputs to produce results, then maybe these are not capabilities after all

The second stage of the model is therefore based on two dimensions; incumbent supplier performance and prospective supplier capability and capacity. The incumbent supplier’s maintenance performance is evaluated in light of the desired standards while the prospective supplier’s capability is evaluated relative to the incumbent supplier’s current performance. This comparison generates 9 scenarios as shown in figure 6.4. The population of the matrix is discussed in stage three

The location of alternative suppliers in the matrix would describe their capability both in relation to the incumbent supplier and the purchaser’s desired capability measures. Again, at this point in the re-sourcing decision, it is necessary for the purchaser to consider any variation in its maintenance work from the current scope so that the incumbent supplier’s capability to adapt to changes is also incorporated in the analysis

The result of activities in this stage is an establishment of where the purchasing organisation maintenance supply market lies on an incumbent-prospective supplier comparison matrix. For the purpose of establishing re-sourcing strategies, the nine scenarios in figure 6.3 have been compressed into five categories

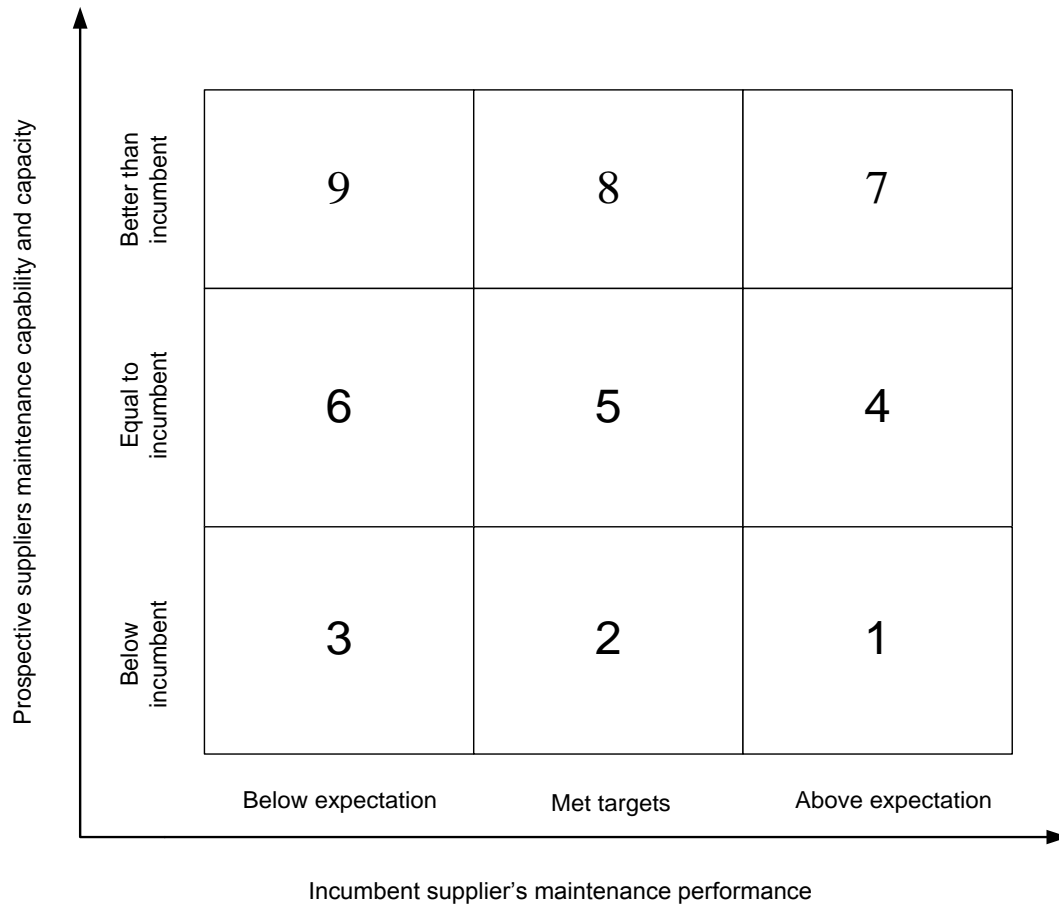


Figure 6.3. Incumbent-prospective supplier comparison matrix.

Category one

Scenarios 1 and 2 represent a situation in which the incumbent supplier meets the expectations of the purchasing organisation in a supplier market where the capability and capacity of alternative suppliers is below its own

Category two

Scenarios 4 and 5 represent a situation in which the incumbent supplier meets or exceeds the requirements of the purchasing organisation in a supplier market where the capability and capacity of alternative suppliers is equal to its own.

Category three

Scenarios 7 and 8 represent a situation in which the incumbent supplier meets or exceeds the requirements of the purchasing organisation in a supplier market where the capability and capacity of alternative suppliers is higher than its own.

Category four.

Scenario 9 represent a situation in which the incumbent supplier does not meet the expectations of the purchasing organisation in a supplier market where the capability and capacity of alternative suppliers better than its own.

Category five

Scenarios 3 and 6 represent a situation in which the incumbent supplier does not meet the expectations of the purchasing organisation in a supplier market where the capability and capacity of alternative suppliers is below of just equal to its own.

The effectiveness of the evaluation exercise for the incumbent supplier's performance and his comparison with alternative suppliers in the market hinges on a number of factors. One of the most significant inputs to the re-sourcing process is the information provided by what most informants referred to as the principal contributors to the re-sourcing decision. That is, the contract manager who is responsible for evaluating the incumbents performance as well as the prequalification team responsible for the task of evaluating and selecting suppliers who can demonstrate the ability to deliver the purchaser's maintenance requirements. What the informants in the case study referred to as contribution was assumed to represent influence. This is in agreement with McQuiston (1989) who defined influence as the extent to which communication offered by an individual for consideration is perceived to affect the actions of other participants in the decision making unit. There is usually a positive relationship between the amount of communication offered by a participant in a decision making process and their perceived influence (McQuiston 1989).

While a purchaser could have established policies and procedures regarding the incumbent supplier performance evaluation, the incumbent and alternative supplier capability and capacity analysis and comparison, the ability for participants to translate these into effective tools for supporting the decision process is another challenge. The data collected from the case study and literature analysis reveals that, issues such as competence of individuals on the evaluation team, their experience, personal goals, corporate goals, perception of personal power, level of risk aversion, relationship with service providers and the magnitude of subjective measures of performance evaluation, significantly influence not only the quantity and quality of information that will be collected and analysed, but also how much of that information, processed and unprocessed will be accurately disseminated to other members of the team.

Other factors affecting these three processes are the decision making team's perception of switching costs, their perception of the organisation's potential negotiation power and their ability to translate it into actual power for the organisation they represent, and the degree of responsiveness offered by the suppliers in the field. Additionally, the presence or absence of an

independent evaluation team to assess or corroborate the accuracy of its re-sourcing decision contributors' subjective measures of supplier performance and capability is responsible for determining the level of accuracy in information that the contributors will provide to the team making the final supplier selection.

In prescribing a solution to the flow of information across organisational boundaries, Brown (1966) proposed the creation of an information agency in organisations which would have as its primary responsibility, the integration, evaluation, and comparison of various kinds of information coming into the organisation. He suggested that, while processing the selected parts of the total information inputs, the agency would provide an anti-bias function by making adjustments in its evaluations based on the perceived distortions. This would enable the purchaser to have a group of people dedicated to keeping a continuous stream of incumbent and alternative supplier evaluations from information provided by boundary spanners throughout the entire contract period rather than make evaluations only at the re-sourcing stage where it is easier to receive a very poor representation of the capabilities and capacity of suppliers in general.

The importance of independent assessment was also raised by Dean and Kiu (2002). While reporting on performance monitoring and quality outcomes in contracted services, they observed that purchasers rely predominantly on their own personnel to perform inspections or some form of checklist and/or certification from the contractor. There was a relative lack of use of inspections by third parties or other means of independent assessment an approach that would have enhanced the integrity of the evaluation process. These recommendations and observations highlight the need to consider collection and assessment of information provided for re-sourcing decisions from either the purchaser's employees occupying non-boundary spanning roles or independent assessors that are not part of the organisation alongside information provided by boundary spanners. This approach is likely to result in improved integrity of the information feeding the re-sourcing process.

6.5 Stage three: Establishing a possible re-sourcing strategy

It is at this stage that the matrix arrived at in stage two is populated. The purchaser's DMU chooses a sourcing approach based on where results from the evaluation of their incumbent supplier's performance and that of their comparison with other prequalified suppliers in the market fall on the grid presented in figure 6.3.

Since according to most of the informants, the technical quality dimension of performance is given priority in incumbent supplier evaluation, first consideration was given to selecting a re-sourcing approach based on technical performance evaluation. Although cost and relationship performance are important evaluation parameters most informants indicated that they turn to

costs after they have established that the supplier is capable of meeting their technical requirements with regard to maintaining high equipment availability with processes that are HSSE regulations compliant.

The present study revealed that the importance of strategic activities in an organisation and the need to keep business operations as stable as possible necessitates business to business relationships that are developing towards long term arrangements. Consequently, purchasers would to a great extent consider limiting their resources on either renewing a contract or renegotiating a contract with the incumbent supplier if his current performance and projected ability to meet new requirements meets or exceeds their current or near future service level requirements. Therefore, the decision team first establishes if the evaluation in stage two yields results that fall under the six scenarios 1,2,4,5,7 and 8 where incumbent suppliers meet or exceed the expectations of the purchaser. That is categories one, two and three. If results fall under these three categories, then the decision team moves on to a financial health analysis, relationship analysis and evaluation of cost offering.

Integrating results from this case study with results and suggestions from Li et al (2006)'s research on antecedents for switching, Whitten and Leidner (2006) research on factors that influence why organisations choose to continue with a particular supplier, switch suppliers or backsource IT services, Kim et al. (2008) research on two sided sourcing involving the incumbent and alternative suppliers and Giller and Matear (2001) research on termination of interfirm relationships, figure 6.3 was populated.

6.5.1 Decision to in-source or continue outsourcing

Research results indicated that during a re-sourcing decision an organisation's consideration to return an activity in-house or continue outsourcing is much more dependent on the degree to which outsourcing as a strategy met their objectives for outsourcing or not as opposed to whether a particular outsourcing arrangement was successful or not. For example, it was apparent that if an organisation considered the maintenance activity, as a peripheral activity and the organisation's primary motives for outsourcing an activity were to enable the organisation focus its resources on its core activities and free up capital especially that tied in inventory and other maintenance supporting assets, then, it was unlikely that such organisations would consider returning such activities in-house. It would also be rational to assume that if the initial motives for outsourcing the activity in the first place were performance related, such as improve quality of maintenance performance or make use of state of the art suppliers which are some of the other motivating factors listed and discussed in literature, then the purchaser would under circumstances of unsatisfactory supplier performance consider returning the activity in-house in any one of their re-sourcing decisions.

The study findings support Whitten and Leidner (2006)'s argument that an organisation's decision to return an activity in-house or continue outsourcing (either continuing with the incumbent supplier or switching) depends on a firm's trust in the suitability of outsourcing rather than trust in a particular vendor. Whitten and Lidner (2006), also established that organisations that returned activities in-house perceived their "set up" component of switching costs to be lower than that of those who chose to switch. Given the size of asset intensive service organisations and the difficulty of putting together a competent maintenance team for organisations operating in capital constrained economies, there is reason to believe that set up costs for returning maintenance activities in-house would be enormous. Additionally, given the size of spares inventory and the resources required to supervise and monitor maintenance operations for such organisations, the cost of improving one or more of the already existing incompetent or low capacity suppliers whether incumbent or alternative would be far less than the cost of returning the activity in-house. This is especially true if the organisation is already enjoying the benefits of outsourcing related to freed capital, and focusing internal resources on a few core activities. Therefore it is unlikely that asset intensive service organisations that have already outsourced maintenance would consider returning the activity in-house irrespective of the performance of the incumbent supplier or prospective suppliers in the market. This eliminates returning the activity in-house from the alternatives for consideration when undertaking maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.

6.5.2 Satisfactory incumbent supplier performance preceding re-sourcing

This condition is represented by grid positions 1,2,4,5,7 and 8 in figure 6.3. These grid positions are characteristic of a situation where the incumbent supplier has been able to meet or exceed the expectations of the purchaser.

Category one

The incumbent supplier's performance meets or is above expectation and the perspective suppliers' capacity is below that of the incumbent supplier (grid positions 1 and 2 in Figure 6.3). According to Whitten and Leidner (2006), firms that are satisfied with the quality of their outsourcing relationship perceive greater switching costs than firms that are not satisfied. This study revealed that purchasers in outsourcing arrangements where their incumbent suppliers meet their performance requirements are more likely to consider renewing contracts with them before considering switching to alternative suppliers. This tendency is magnified in situations where the capability and capacity of the suitable alternatives is equal to or less than that of the incumbent supplier.

Therefore, for category one, since the incumbent supplier has no match among the alternatives, maintenance purchasers should consider renewing the contract if the incumbent supplier is willing to continue serving him, has a good financial health and cost offering is within the purchaser's maintenance budget limit. The present study's findings showed that willingness of the supplier to serve a particular purchaser cannot be over emphasized. Even if the incumbent or alternative supplier is better than others but is not willing to continue or engage with a particular purchaser, then, a different approach has to be taken. There was evidence from the case study that willingness on the side of the supplier is significantly influenced by their perception of the purchaser's reputation, the price the purchaser's is willing to accept and the portion of a supplier's needs, financial and other, that they perceive a continued or prospective outsourcing arrangement with a particular purchaser is likely to meet.

Category two

Under this category, the incumbent supplier's capability measured in terms of post performance meets the purchaser's required targets in a supplier market where alternative suppliers have capabilities that are equal their own(grid positions 4 and 5 in fig 6.3). Li et al (2006) observed that even if a prospective supplier was able to imitate the incumbent and was, therefore, not limited by an ability-based isolating mechanism, during re-sourcing decisions, purchasers demonstrate asymmetric evaluation toward the identical offerings of incumbent and prospective suppliers. Li et al (2006) argue that it is not enough for prospective suppliers seeking to get a share of a particular purchaser's market to provide the same or marginally better levels of service as the incumbent supplier. Prospective suppliers would only breakthrough if they develop different resources and capabilities from incumbents and offer a different bundle of attributes that provide a significantly higher level of value than the incumbent. This argument was supported by the present study results which indicated that if the alternative's offering is the same or slightly better than that of the incumbent supplier, the purchaser was more willing to stay with the incumbent supplier than switch service providers.

Therefore, if the evaluation results fall under category two, then the purchaser should consider further analysis and negotiations with the incumbent supplier as the first option before considering alternative suppliers. Results obtained from the case study, showed that changing maintenance suppliers for geographically distributed equipment requires lengthy engagement or transition periods that are often filled with a lot of disturbances. These disturbances occur due to a number of reasons. First, there is a need for the new supplier to adapt to the network operations and scheduling requirements. Second, increased maintenance work on the new supplier requires him to put in place strategies for increased capability and capacity and this requires some time. Finally, there is also a need for management in the purchaser's company to adapt to the new

relationship with regard to communication channels and language, processes that could have been already established with the incumbent supplier. Therefore, if the incumbent supplier is meeting the purchaser's targets a change to a prospective supplier with an equal or slightly better capacity might not be warranted because the disruptions that often occur when the purchaser switches service providers has the potential to erode the minimal benefits that switching could have generated.

Category two provides the purchaser with an opportunity to negotiate for reduced prices with the incumbent in the context of marginal competition that could be perceived within a supplier market where there are alternative suppliers with a capabilities that are equal or even better than those of the incumbent supplier. But given the switching costs involved, this should be done within the context of a collaborative environment rather than adversarial especially since the incumbent supplier is providing a satisfactory service in terms of technical quality. The purchaser should consider discussing with the supplier on how they can work together to reduce service delivery costs. This might include increasing openness in the relationship about costs and business goals.

Category three

In the event that the incumbent supplier's performance equals to or exceeds the purchaser's required performance levels, in a supplier market where alternative suppliers' capability is better than theirs, a situation represented as scenario 7 and 8 in figure 6.3, then consider remaining with incumbent supplier as the first option so that if possible search and evaluation costs can be avoided. Under this scenario, if the purchaser has no concerns for cost reduction then he can simply renew the contract with the incumbent supplier and propose new strategies for continuous improvement. If the purchaser has concerns for reducing total cost of outsourcing, then he can consider negotiating with the incumbent to lower prices before considering switching. But similar to category two, negotiating with the incumbent supplier to lower prices is best done by working together with the supplier to establish ways in which the supplier's maintenance service delivery and support costs could be lowered rather than reducing the supplier's profit margin.

However, if this approach fails to yield fruit or if the supplier demands for a price increase beyond what the purchaser considers reasonable, then the purchaser can allow the incumbent and alternative suppliers to compete and chose the one with their acceptable price. But, this scenario would also necessitate an evaluation of the imbalances that would be created, when the alternative supplier takes on the purchaser's maintenance work. While taking on extra work might result in the often desired economies of scale and consequently increased returns for the supplier, given the demands of activities falling under critical outsourcing, there is also a high

possibility that it will take the supplier substantial investment to build sufficient capacity to meet the technical and relationship needs of all the purchasers.

6.5.3 Unsatisfactory incumbent supplier performance preceding re-sourcing

Category four and five, depict situations in which the outsourcing arrangement between a purchaser and its incumbent supplier has not been satisfactory. Below is a discussion on the possible sourcing alternatives that can be explored by the maintenance purchaser when undertaking re-sourcing decisions.

Category four

If the evaluations at stage two place the supplier market under scenario 9 of figure 6.3, where the incumbent supplier's performance is below the requirements of the purchaser but in a market where alternative supplier capability and capacity is better than its own, then the purchaser should consider switching, or incumbent supplier maintenance work reduction based on further evaluation of load-capacity ratio and cost offering of the incumbent supplier and most promising alternative suppliers. Yanamandram and white (2006) established that supplier markets with few or no alternative providers coupled with perception of high switching costs are some of the reasons why dissatisfied activity purchasers stay with their incumbent service providers. But in situations where there are suppliers in the market with capabilities and capacities similar to or better than the incumbent supplier, carrying out an load-capacity ratio comparison between the incumbent and the best of the prospective suppliers would enable the organisation choose the better option between changing suppliers or reducing the business given to the incumbent.

According to Yanamandram and White (2006)'s findings, when dissatisfied with an incumbent service provider, sometimes rather than switch completely to another service provider, it would be better to reduce the amount of business the organisation provided to its incumbent service provider. There was support for this approach from the case study findings. In situations where the incumbent supplier was not meeting the purchaser's service targets, part of the maintenance work, especially for more standardised equipment maintenance like generator service and repair were transferred to smaller supplier firms specialising in generator maintenance. The removal of such components of the maintenance work were also due to the fact that equipment like generators were just supporting the operation of the core fuel dispensing equipment, and had fewer reactive maintenance requirements. Therefore, removing these from a poor performing incumbent supplier would enable them focus on a few equipment type and therefore improve performance.

Category five

Another situation arises if the incumbent supplier's performance does not meet the requirements of the purchaser in a supplier market where alternative suppliers' capability is equal to or less than that of the incumbent supplier. This is represented by grid position 3 and 6 in figure 6.3. Recommendations under this scenario suggest significant investments by the purchaser. If the analysis of the incumbent supplier's performance shows continuous improvement, then the purchaser should consider incumbent supplier development. If not, a load capacity ratio (L/C) analysis should be undertaken to establish whether the purchaser should reduce the incumbent supplier's business, engage in incumbent or alternative supplier development initiatives

Findings from the case study and support from literature analysis were integrated to propose possible strategies and these are summarised in figure 6.4.

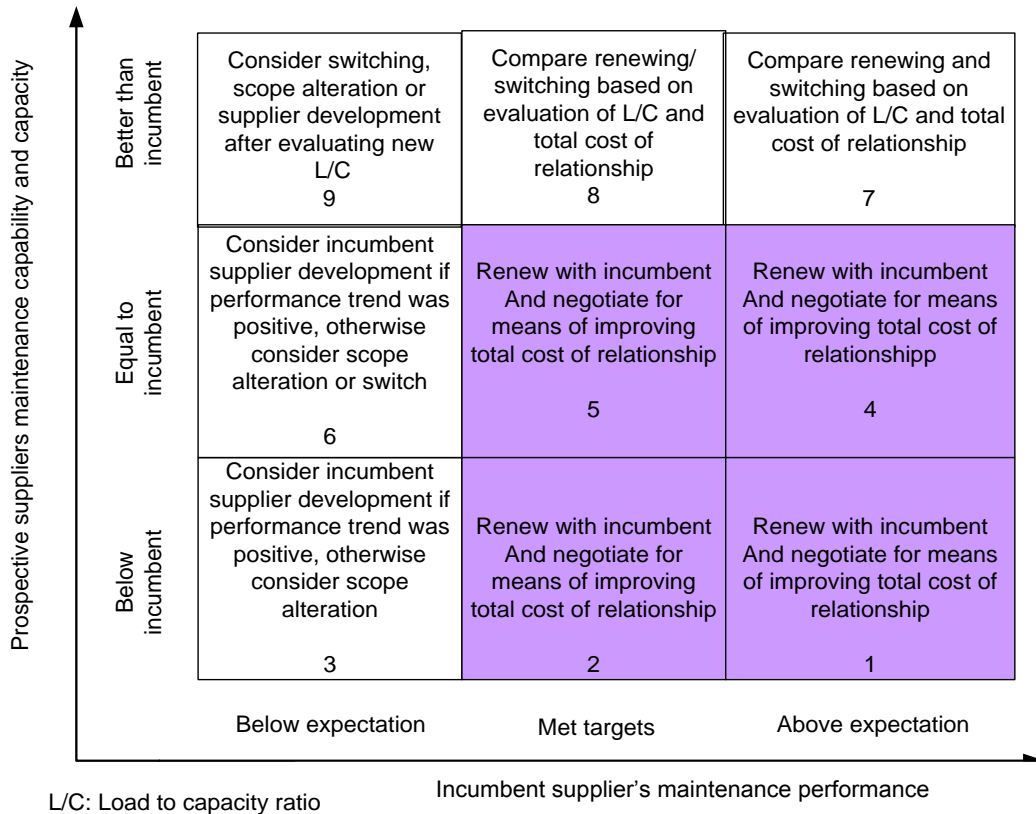


Figure 6.4 Proposed re-sourcing strategies.

6.6 Stage four: Evaluating and comparing load-capacity ratios

From stage three results summarised in figure 6.4, there were recommendations that required further analysis. In order to establish the impact of switching an entire maintenance activity from the incumbent supplier to a suitable alternative, the author recommends an evaluation of the

current load capacity ratio for both the incumbent and the suitable alternative suppliers before switching and what it will become after switching. Based on the results from this analysis, the purchaser can determine whether to remain with the incumbent supplier, switch or reduce the incumbent supplier's maintenance work. This activity would enable the purchaser to estimate the level of disruption to their operation that would accrue in case they choose to switch service providers. An appropriate strategy would then be selected depending on the results of the analysis. This analysis focuses on scenarios 3, 6, and 9.

Category four

If according to the results of the load-capacity ratio analysis, the best alternative supplier has a ratio that is less than that of the incumbent supplier at the time of evaluation and would still remain less than that of the incumbent supplier's current ratio after switching (grid A in figure 6.5) then the purchaser should consider switching.

If the best alternative supplier has a ratio that is less than that of the incumbent supplier at the time of evaluation and would become equal to or greater than that of the incumbent supplier's current ratio after switching (grid B and E in figure 6.5) then the purchaser should consider scope alteration by reducing business given to the incumbent supplier and giving the rest to a suitable alternative supplier.

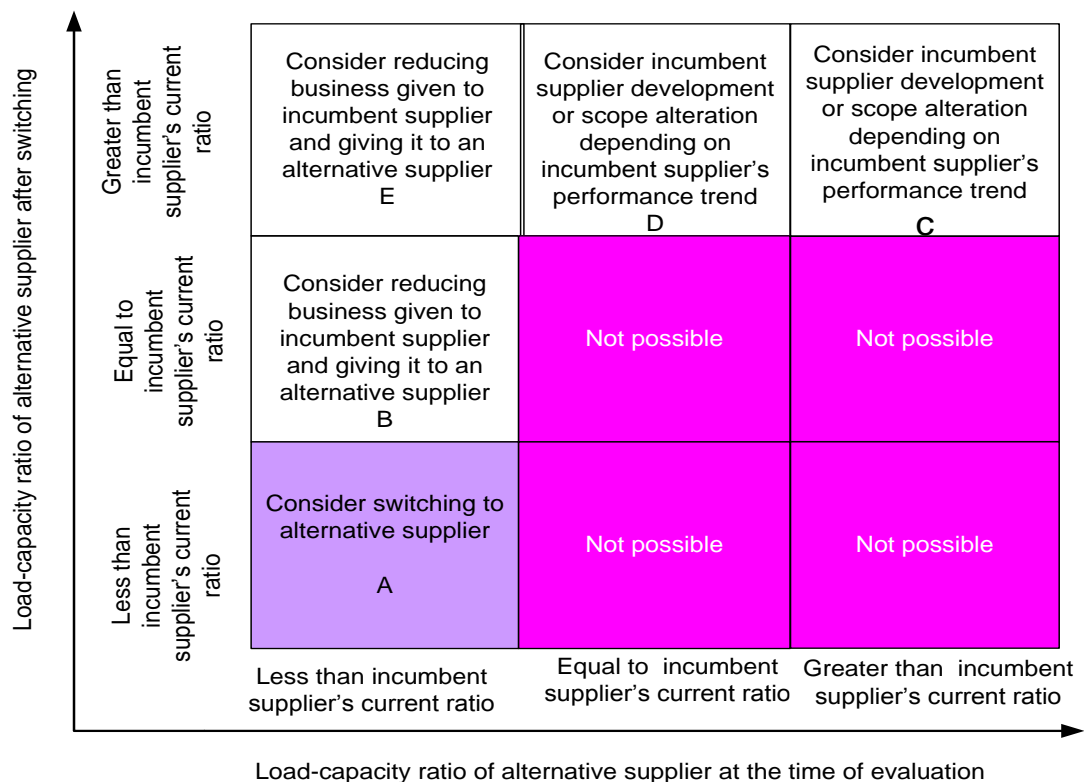


Figure 6.5. Proposed re-sourcing strategies based on Incumbent- prospective suppliers' maintenance load to capacity ratios.

If the best alternative suppliers have a ratio that is equal to or greater than that of the incumbent supplier at the time of evaluation it would mean that switching to that supplier would result in an additional maintenance load which would further increase the load capacity ratio. Under this scenario, positions C and D in figure 6.5, the purchaser should consider incumbent supplier development if the incumbent supplier's performance trend showed continuous improvement in the soon ending contract. Otherwise consider reducing current business with the incumbent supplier. Figure 6.5 summarises the results of load-capacity ratio analysis and subsequent recommendations for purchaser whose supplier market analysis fall under category four.

Category five

For category five, the incumbent supplier is operating in a supply market where its capability and capacity is better than or equal to that of alternative suppliers. Findings from the study revealed that, the re-sourcing decision would depend on the incumbent supplier's performance trend over the soon ending contract and results from load to capacity ratio comparisons before and after considering a switch.

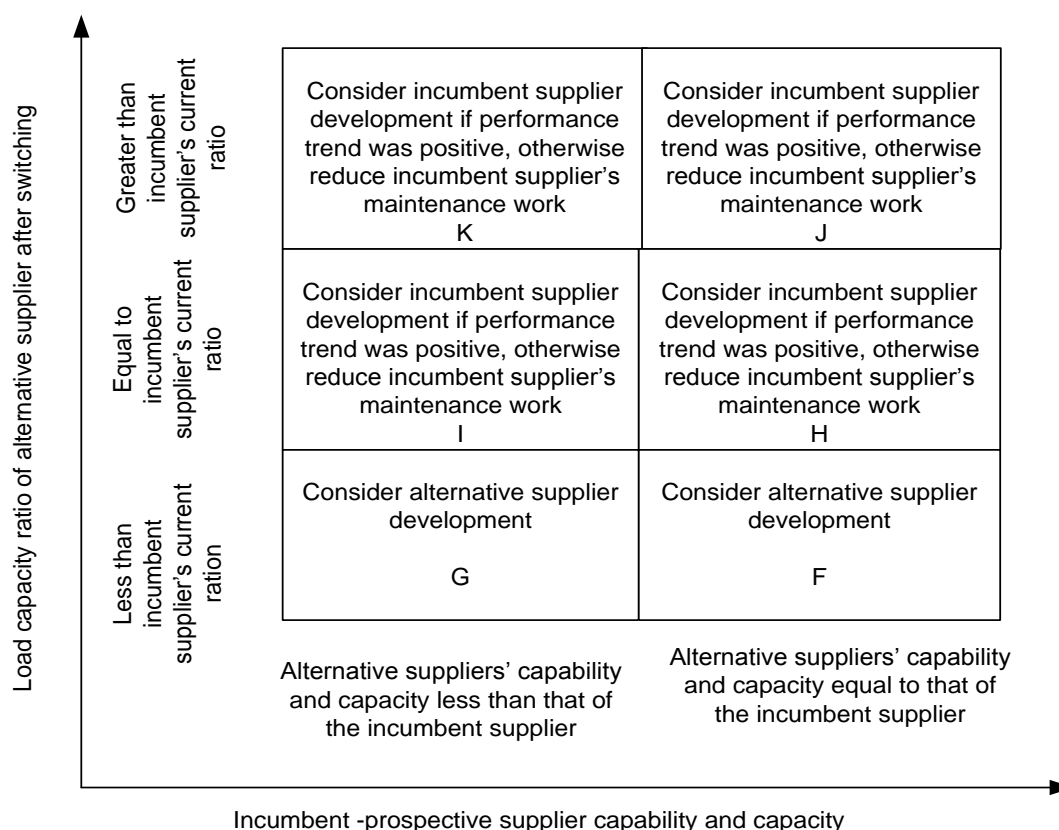


Figure 6.6: Proposed re-sourcing strategies based on suppliers' maintenance Load to capacity ratio evaluations

For a scenario where the capability and capacity of alternative suppliers is less than or equal to that of the incumbent supplier but where a switch in service providers would make the load-capacity ratio of alternative supplier/s equal to or greater than that of the incumbent supplier's current ratio (grid positions H, I, J and K in figure 6.6) then consider incumbent supplier development if performance trend is positive. Otherwise, reduce incumbent supplier's current maintenance work.

6.7 Stage five: Cost considerations

Cost efficiency often stands out as the primary explanation for the development of outsourcing (Fill Visser 2000, Franceschini et al. 2003). According to Franceschini et al (2003), outsourcing choices are essentially driven by economic factors. The case study findings also indicated that although the quality of the maintenance service especially, equipment availability and adherence to set HSSE standards is important, its not the only supplier quality dimension. Total cost considerations also play a vital role in determining future partners and outsourcing arrangements for their maintenance activities. Similar to cost analyses for establishing whether to retain an activity in-house or to outsource it (McIvor et al. 1997, McIvor 2000), a cost analysis in resourcing decisions involves attempting to measure all the important costs associated with the various alternatives including, renegotiation with the incumbent, switching, reducing the incumbents scope of work by engaging multiple contractors, and supplier development. TCE provides a good platform for analysing and comparing these sourcing costs. According to TCE, when approaching an outsourcing alternatives' evaluation, DMU members must consider both the cost of delivering the service often specified in the contract and the transaction costs associated with each alternative which include monitoring and switching costs (Fill & Visser 2000, Franceschini et al. 2003).

However, while the objective of the cost analysis is to select the alternative that yields the lowest cost, cost calculations in many cases do not produce a clear marginal decision on the best alternative (McIvor 2000). Therefore, the results from the cost analysis stage should never be used in isolation from strategic, technological (Fill & Visser 2000), performance, capability and relationship issues.

Although this cost analysis has been presented as the last stage of the model, many of its components are integral with other elements being analysed and therefore a part of the other four preceding stages. But unlike the preceding stages, the cost element especially where the fixed contract sum is concerned is more straight forward. Where the bidding approach is taken, the cost criteria is determined by the purchaser. Where the negotiation approach is taken with the incumbent supplier the difference between the new and the previous contract price might not be

so big. When there is a disagreement regarding cost with the best alternative from any of the four preceding stages, then the purchaser has to look out for the next viable suitable alternative.

6.8 Assumptions taken when developing the model.

The researcher was aware of the dynamic nature of many of the factors influencing re-sourcing decisions. Although re-sourcing is a multi-criteria decision process and therefore complex, the author found it necessary to propose a generic model by making the following assumptions

- That the incumbent suppliers were still interested and were therefore willing to continue serving the purchaser.
- That for an alternative supplier to be included, he must have shown interest to serve the purchaser after having been served with a request for interest or proposal.

Informants in Petro1-U stressed the fact that the re-sourcing decision process is more reactive than planned. While there are policies and procedures to guide the process, they often have to make a reaction based on the responses and outcomes of previous stages. Therefore, the author is aware that there is a possibility for the assumptions made not to stand. However, the assumptions were made to allow for the development of a more generic model.

6.9 Compressed maintenance re-sourcing decision process model

In order to allow for presentation and validation of the re-sourcing model, the five stages discussed in the preceding sections of this chapter were compressed into a process model shown in figure 6.7.

Chapter summary

The present chapter has discussed the re-sourcing model development process. Based on findings from the case study and recommendations from outsourcing literature, the author proposed a maintenance re-sourcing model for guiding maintenance re-sourcing decisions in asset intensive downstream oil organisations.

Having developed the re-sourcing model, it was necessary to take it through the validation process. The next chapter presents the details of the model validation process and the final version of the model.

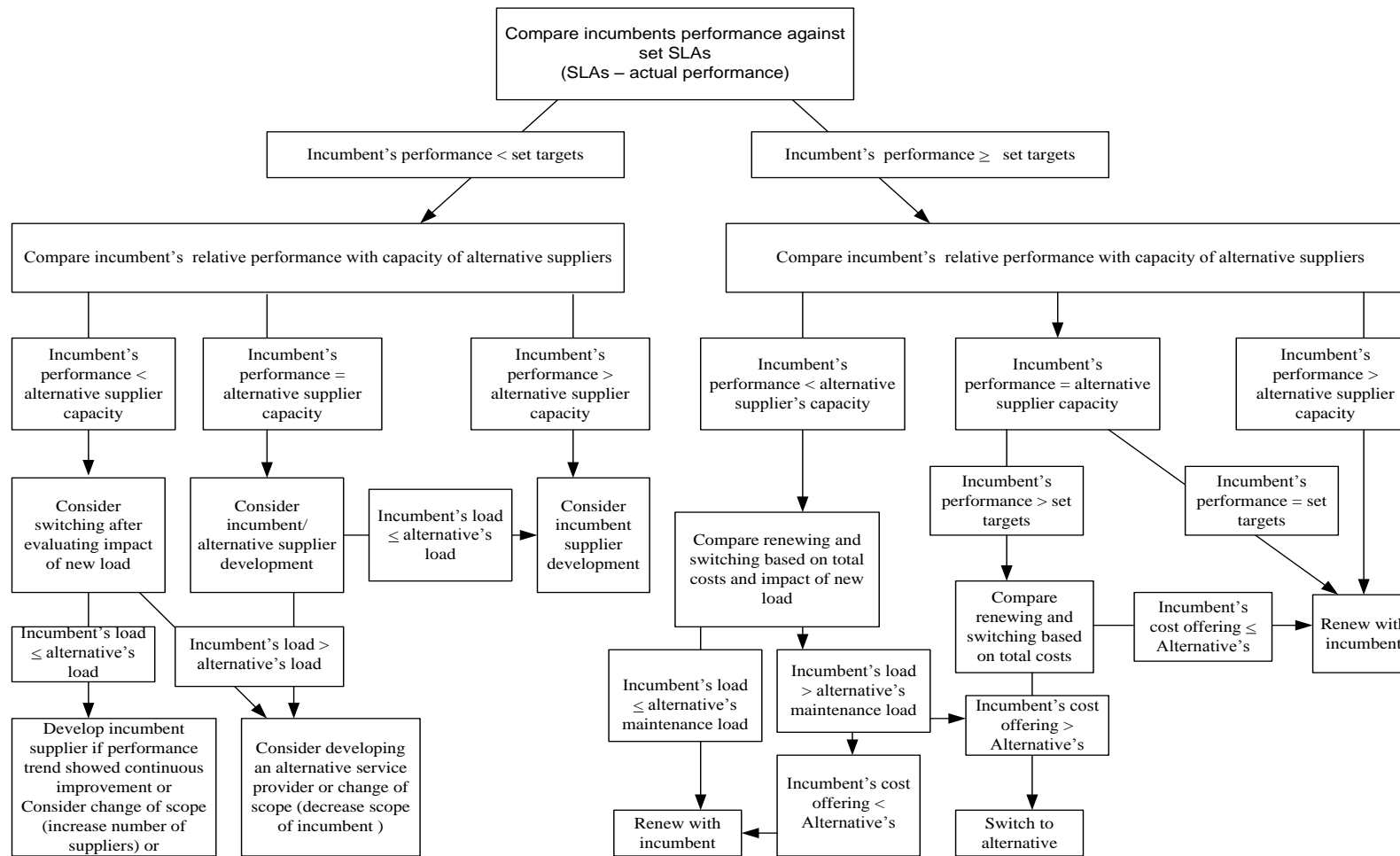


Figure 6.7 Maintenance re-sourcing decision model before validation

CHAPTER 7:

MAINTENANCE RE-SOURCING MODEL VALIDATION

Introduction

Having developed the re-sourcing model, it was necessary to validate it. The main purpose of the validation process in the research was to collect data that would enable the author to revise and improve the resourcing model and also test its applicability. At this stage, the author sought to establish whether there was a logical flow to the model, all the elements in the maintenance re-sourcing decision had been captured, and whether the model was a true representation of the re-sourcing process for maintenance in asset intensive downstream oil organisations. In instances where the comments from the validation process indicated an inconsistency between the model and what actually takes place or what they suggest is the best approach, necessary adjustments were made if possible or, the reasons for not adjusting presented. The chapter is organised as follows. First is the discussion of the model validation process. This is followed by the model validation results and discussion. Finally, the challenges and limitations of the validation process are presented.

7.1 Model validation process

The first step was to contact Petro1-U's country chairman to organise for an interview. The purpose for this interview was to establish the country chairman's opinion about the results from the case study and the re-sourcing model developed from case study results and literature analysis. The researcher also sought to use this interview to request for further permission to contact members of the maintenance sourcing team in the organisation to validate the re-sourcing model. The researcher contacted the country chairman by email to request for an interview. The details of what the interview would encompass were included in an attachment. The country chairman responded stating a convenient date and time for the interview.

During the interview, the researcher took time to recap what the research was about, the definition of re-sourcing in the research and the reason for the current interview. The researcher begun with questions relating to issues that had been discussed during the case study in order to get an opinion about the research results from the person holding the top most management position for the organisation in the country.

This was then followed by questions regarding the model. The generic questions of the model validation interview guide are presented in appendix K. The country chairman commented on the importance of the supplier evaluation and comparison process and the fact that the biggest contribution to the process came from the maintenance contract manager and the procurement team especially the procurement manager. He stressed the fact that final decision making unit which he is a part of only works on the recommendations of these two positions. He emphasised the significance of the presence or absence of suppliers collaboration and degree of shared values in the re-sourcing process. He was quick to recommend that the researcher would acquire more meaningful information from the people holding the three positions of maintenance contract manager, procurement manager and retail manager. The country chairman informed the researcher that the contract manager and the procurement team together with the retail manager forward their evaluations and recommendations to the contract board. They are responsible for supporting these recommendations. The contract board listens, questions, and evaluates the proposals. He argued that since the organisation's business is selling products, if the retail department is happy with the recommendations of the maintenance contract manager and the procurement team then the contract board moves to the price issue which often comes last.

From the answers that were provided by the country chairman, it was established that the most appropriate people to review and validate the model were the members of what the chairman had termed as the biggest contributors to the whole process. That is the procurement manager, maintenance contract manager, and retail manager. These will be referred as informant, A, B, and C respectively

The country chairman then led me to the person in charge of research in the organisation asking her to liaise with the three persons in order to schedule an interview with each of them. The nature of the validation necessitated the informants to go through the model and the questions before an interview could be organised. The researcher agreed with the research contact person in Petro1-U to send an email containing an introduction to the work, the model and the questions and to indicate the time that the researcher will be in the country. After receiving the documents, the contact person sent an email to each of the three informants informing them that the organisation had already granted me permission to carry out research in their organisation and requested each of them to read through the attachment and requested them to get back to the researcher with a convenient time for an interview. The researcher thought a minimum of two weeks was ample time for the three informants to go through the document and set the date for the interview.

The challenge so far was that, although at the time of the initial data collection, from which the research gathered information that facilitated model development, the retail and procurement

managers had each been a part of one or more maintenance re-sourcing decisions, at the model validation stage, the people who were holding these two positions had since left the organisation. While, the new retail and procurement managers had served in the organisation for a long time, they were new in these positions and the organisation had not undertaken a maintenance re-sourcing decision since the beginning of their tenure. The previous retail manager had been transferred to another country and the procurement manager had had to leave the organisation due to what was referred to as unethical behaviour. The current maintenance outsourcing arrangement was a two year contract subject to a one year extension. The two years were ending in a months time from the time of the interview with the country chairman and there was hope that the researcher could actually observe the process as well as gather information from participants on what they were doing as well as how they were doing it.

While waiting for responses from the three contacts in the case study company, the researcher contacted four other informants. Two were currently holding the position of maintenance contract manager in two different oil companies that had each outsourced maintenance. The other two had held similar positions in one of the oil companies but had since left and taken up employment in other organisations. The former will be referred to as informant D and E and the latter informant F and G. Each of the contacts was briefed about the research and why the researcher was interested in their contribution. Three of these D, E, and F agreed to organise for a face to face interview while informant G was now employed in another country and agreed to respond both through email and if that were not satisfactory by telephone interview. The three that had agreed to the face to face interview set the dates. Each of the interviews was on a different day. The researcher met with each of them in their offices. The model validation interview guide is presented in appendix K.

The first interview was with Informant D, a maintenance engineer and maintenance contract manager in Petro4-U. Informant D advised the researcher that he had to leave the country in a day's time from the set date of the interview and would be away for almost a month. Given the nature of his work, he only promised the researcher 30 minutes of his time although the actual interview lasted 45 minutes. There was therefore no opportunity for the informant to analyse the model before the interview.

The researcher began by thanking the informant for the time and support and then briefed the informant about the research and the reason for the interview. This lasted about 5 minutes. The researcher asked the informant to first

- Explain the maintenance re-sourcing process of their organisation
- Discuss his contribution to the process

- Discuss, the factors that he believed influenced the maintenance re-sourcing process and its effectiveness

Given the fact that this informant had not been part of the case study, these questions were used by the researcher to gauge both the level of the informants knowledge about the maintenance re-sourcing decision and to get a picture of the process as a whole. The later would then be compared with the informants evaluation of the model determine whether the informant is actually giving the right information or just wants to please the researcher. The researcher then handed over the model that had been developed for the informant to review: the generic model validation interview questions in appendix K were asked. The informants opinions about the model have been presented in the table that follows under informant D. Due to the limitation of time, the informant requested the researcher to email him the model and in case he has anything to add to his comments he would send them by email. The researcher then thanked the informant for his time and contributions.

The next appointment was with informant E. This was a maintenance engineer who played the role of maintenance contract manager in Petro3-U. At the time of model validation Petro3-U had just acquired another company (Petro2-U) six months back. And had just renewed its contract with its incumbent supplier. The researcher was asked to brief the informant about her research and how the informant would be of help. The researcher thanked the informant for his time and willingness to cooperate before the briefing. The informant was impressed, looked through the model, and the questions and said “this is quite interesting” and agreed to evaluate the model. The informant set an appointment for the coming Wednesday and requested the researcher call him Tuesday to confirm appointment. The informant was unable to set apart time for an interview and instead opted to use telephone and email. The results to the questions are presented in row E. The researcher then contacted informant G and he agreed to evaluate the model and send results via email and would be available for a telephone interview if there was a need for it. He later opted for an telephone interview. the results are presented in row G of table 7.2

The researcher contacted five other informants from supplier firms to also validate the model. These will be referred to as informant H, I,J, K, and L Four of these were willing to set apart time for an interview. The fifth asked the researcher to send an email. The model validation questions put forward to the informants in supplier firms were similar but were formulated in such a way as to solicit for observations they make of the purchaser decision process. The responses are presented under rows H,I,J,K, and L of table 7.2

After two weeks, there had been no response from informants A, B and C. Having met informant B during the case study, the researcher made a telephone call and the informant apologised that

he had been out of office for field work but would read through and respond soon. The researcher then sent an email to A and B To remind them. After a week, the researcher sent a reminder. Informant C responded two weeks later by email setting a date for an interview. The researcher had left the field and requested for either a telephone interview or response by email. Informant C responded using email and the summary of the responses is presented in row C of table 7.2. Table 7.1 is a summary of the informants that participated in the model validation exercise.

Table 7.1 Summary of informants that participated in the model validation exercise.

Informant	Petro1-U informants	Other purchaser Informants	Supplier informants
Number	2	4	5

The validation process was iterative in nature with the author frequently making changes and presenting two or more variations of the same model to previous informants for further review or subsequent informants for review and more suggestions or comments. Responses given by informants during the model validation process are summarised in the table 7.2. A number of issues were raised during the model validation process. Some were incorporated into the model at various stages during the validation process and those that were not included but considered very significant are discussed in section 7.2

Table 7.1 Re-sourcing model validation results

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
B	Maintenance contract engineer	Telephone interview	Model looks quite good but will provide finer details after I have made a thorough analysis	Left the organisation and never provided any more information	-
C	Retail manager (maintenance contract engineer reports to C)	Email	The model you present does not reflect what takes place in our organisation	<ul style="list-style-type: none"> •Our starting point would be our requirements with a request for prequalified suppliers to demonstrate that they can deliver our requirements at a cost that is acceptable to us. • Decisions of other oil companies do not affect our own organisation's decisions 	<ul style="list-style-type: none"> •advocate for the model to begin at prequalification stage •Cost is a major factor at every stage •Underrates the significance of the role of external factors on their re-sourcing decisions.
D	Maintenance manager	Face to face interview	You have presented quite a lot in this model	<ul style="list-style-type: none"> •But you have not considered decisions made by an organisation where their incumbent suppliers are many. It is possible that they might want to reduce the numbers in their subsequent decisions. That has not been captured well. •Again the size of purchasing company is critical. Purchasing companies smaller than other companies in the industry would have less problems locating suppliers with their desired capabilities and in the right capacity. In this instance our area of concern would be price offering. We would not consider supplier development. 	<ul style="list-style-type: none"> •Model has considered reducing scope but not increasing scope •Size seems to be acting as a mediating factor. If organisation is small, finding a suitable supplier is easy. No need to ever consider supplier development.

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
				<ul style="list-style-type: none"> •Prequalification procedures : there is what we call benchmarking. These are policies and procedures that have been proved to work elsewhere. Here we are just using them. You find that there is no reason for inventing ours. We just execute and use our judgements 	<ul style="list-style-type: none"> •Procedures duplicated since they have been proved to work elsewhere. •Judgement made by implementers of policy and procedures
E	Maintenance engineer	Email	Model is fair enough but lacks some elements	<ul style="list-style-type: none"> •The health, safety and environmental concerns have not been addressed at all by the model •No economic priority shall overrule considerations for Health and Safety and respect of the environment. •Cost is the most key element in re-sourcing but has not been addressed at some levels •Experience of key personnel during supplier evaluation •Supplier capitalisation 	<ul style="list-style-type: none"> •Health safety and environment concerns are significant factor in the capability evaluation of suppliers. •Cost should be a key factor at every level of analysis. •The people element is also very significant in the capability analysis. • Size of supplier is a key measure of supplier suitability
F	EX-Maintenance manager	Face to face interview	The model is a good representation of maintenance sourcing decisions that follow.	The model put a lot of emphasis on the size of the load rather than the load-capacity ratio of the supplier being evaluated. Any supplier may have a big load compared to all the rest but still have a capacity that will lead to a low load-capacity ratio and therefore still have an edge above the rest. I think you should model the re-sourcing decision process to reflect that.	<ul style="list-style-type: none"> •Load should only be analysed in relation to capacity. each analysed independently is not sufficient to highlight the true value that can be obtained from a given relationship with a supplier.

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
				<ul style="list-style-type: none"> •Another issue that is not captured is that of continuous improvement. Organisation's maintenance service quality requirements have been constant over the years and this is not right. So you need to factor in that as well. I think you should consider continuous improvement in costs as well 	<ul style="list-style-type: none"> •-Issue of continuous improvement should be factored into the model. Even where the incumbent supplier meets the purchaser's service level requirements, re-sourcing decisions should aim at either improving technical performance, cost or relationship.
G	Maintenance Engineer	Email+ telephone interview	Was quite confusing at first but after giving it sometime, it then made sense.	<ul style="list-style-type: none"> •Health safety and environmental aspect is key. It has not been given priority •Financial risk element- more to do with supplier who can bear the spares/stock burden •Supplier who can reduce supervision load •Your model considers absolute load rather than load-capacity ratio. Later capture workforce and assets relative to what is to be done. •Your model focused on technical performance and less on human relations. Performance has multiple ingredients and people handling is crucial to allow for stability. Need for balance 	<ul style="list-style-type: none"> •Suitability of supplier's health safety and environment management system and inventory management are key capability measures in the oil industry. •Model should also include evaluation of human relations in addition to technical performance •Structuring of prequalification document should also be given emphasis since it's content and quality determines how much information can be gathered from the suppliers.

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
				<ul style="list-style-type: none"> •Historical performance has a great influence •Prequalification and RFP document preparation are key re-sourcing decision process elements but are lacking in model. KPIs are static, they do not foster continuous improvement. Certification (process evaluation) •Purchasing teams awareness of their impact on supplier's business needs and their negotiation power. •Sometimes DMU is not aware of multinational's overall direction. Some decisions are reactive and not planned 	<ul style="list-style-type: none"> •Include an element of continuous improvement •Impact of power dynamics •Sometimes decisions are not based on performance evaluation. They are made based on current policies.
H	Informant did not want to be specified	Face to face interview	All factors have been captured in the model.	<ul style="list-style-type: none"> •-But it is the details within those broad factors that are not consistent. For example, one would expect that incumbents performance would be based on a particular contract and not history. But we find our clients continuously referring to our failure histories. Yes we were bad then, but someone has to acknowledge that there has been tremendous improvement. How can that be captured in the model. - The issue of bargaining power is the most important. It determines whether those steps good as they are followed or not. Our current contract clearly states that it is a two year contract subject to one year's extension on satisfactory performance- our contract has been extended for one month. These guys say they want to do away with uncertainty but they create it. 	<ul style="list-style-type: none"> •categories of technical performance (performance evaluation is transaction specific or cumulative) •Improvement •uncertainty •operationalisation of model affected by factors such as purchaser's power •Satisfaction depends on specific transaction and previous transactions- it is cumulative

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
I	Informant did not want to be specified	Face to face interview	There is a lot in there but some aspects have to be clarified	<ul style="list-style-type: none"> •When you talk about scope, that is very general. Scope varies. In this maintenance, there is regional cover and level of inclusion of equipment type- when the supplier is generally poor, then they think of switching or regional scope reduction. If they are not competent with respect to a particular equipment like say generators, they take these away from you. You need to specify which scope reduction you are recommending. •In fact you should also incorporate scope expansion, because it also happens. If a supplier's scope is decreasing, another supplier's must be increasing. 	<ul style="list-style-type: none"> •Two categories of scope mentioned •Type of scope alteration depends on supplier's area of competence •Consider the possibility of scope expansion.
J	Informant did not want to be specified	Face to face interview	<ul style="list-style-type: none"> •This has captured a good number of elements but sometimes all factors cannot be known •This is a good what or how to do, but how it is done varies from time to time. 	<ul style="list-style-type: none"> •For example we went through, prequalification for Petro2-U's maintenance job. We got to the level where we were assured the contract was ours only to be told the company had been sold. All I can say this is a wonderful presentation of what should be done but some time even decision makers in these multinationals are not sure about the future of the companies they work for or even their own positions. Why would any manager aware their company is about to go, waste time and human resource on prequalification, drafting requests for proposals and tenders- •The contract mentions good faith as the environment our clients seek to operate in but if they temporarily extend 	<ul style="list-style-type: none"> •-Process changes with every decision. Every, re-sourcing process is unique. •Decision makers simply follow rules. When policies change, decision strategies change. •Trust element is vital •What should be done and what is actually done influenced by different factors. Magnifies the importance of the people that actually do the work.

Informant	Position held	Method of response	Informants model Rating	Comment/ contribution	Issues identified by researcher's
				<p>your contract for a month, then you begin to wonder about the meaning of good faith</p> <ul style="list-style-type: none"> •Even when policies are the same, a change in the people involved determines the process and outcome 	
K	Informant did not want to be specified	•Face to face	•This is actually a good representation of what ought to be done both in step as well as expected output	<ul style="list-style-type: none"> •You have put less emphasis on cost in areas where the incumbent is performing well and the market has no better alternatives. But I want to assure you. Cost is still a major factor especially when you are dealing with powerful organisations like these. If you please them in one area, they look out for another one just to make you believe you have not satisfied them yet. •In this industry there is a lot of concern about Health and safety. Why do you think we have all these health and safety posters on our walls. 	<ul style="list-style-type: none"> •Varying requirements (technical quality and cost) •Has an element of continuous improvement •Dynamic purchasing organisation requirements •Importance of health, safety and environment management component of supplier capability heightened.
L	Informant did not want to be specified	Email and telephone discussion	According to the current process your have got all the steps in your model	<ul style="list-style-type: none"> •A lot of emphasis is placed on evaluating incumbent before he is compared to the alternatives. Change affects smooth running of operations and is usually considered when incumbent is totally performing below average. •Round table negotiation with incumbents is lacking •Though model has provided all options- choice is at the discretion of purchasing body 	<ul style="list-style-type: none"> •Switching has a negative impact on smooth running of business •Round table negotiation with incumbent missing •Emphasises small gap between incumbent and alternatives does not warrant change •There is a subjective element that sometimes goes beyond reason.

7.2 Analysis and discussion of model validation results.

Generally, the findings from the model validation interviews indicated that the stages presented in the proposed model were applicable to maintenance re-sourcing decisions for asset intensive downstream oil organisations operating in Uganda. Most of the informants' comments except one, indicated that the proposed model had been able to capture most of the elements of the re-sourcing decision process. There was a consensus that the most critical stages were the first two, that is incumbent supplier evaluation and comparison between the incumbent supplier and possible alternatives.

Some informants mentioned that although they supported the suitability of the application of the model for guiding maintenance re-sourcing decisions in Uganda's asset intensive downstream oil organisations, they thought that the effectiveness of the model's application would only be possible through thorough training and support of the people who participate in the most critical stages of the decision process.

Despite the general response about the applicability of the model, several informants provided comments and suggestions that they thought if taken into account, would improve its suitability. The sections that follow highlight the main concerns from the informants and how the author addressed them. Where these were not addressed in the model or included in the assumptions, the author has defended their exclusion.

7.2.1 Supplier's willingness to work with a particular purchasing organisation

There was an observation that the supplier's willingness to work with a given purchaser was not captured by the model. Rather than incorporate this as a separate element within the model and therefore crowding it further, the author has instead made room for the assumption that under stage one, the incumbent supplier's performance evaluation and relationship quality analysis as a component of the incumbent's performance would enable the purchaser to establish whether the incumbent supplier is willing to continue providing services for them. Similarly, under stage two, it would necessitate the purchaser to consider comparing willing incumbent suppliers with only alternative suppliers that are willing to engage in a sourcing relationship with them.

7.2.2 Purchasing team's awareness of their power position during the re-sourcing decision process.

The element of power dynamics has not been explicitly incorporated into the model because, further analysis of results revealed that these simply provided the environment under which the decisions would be made. The effectiveness of the phases outlined in the model, will depend on the power position each decision team will take during the negotiation process, and whether the

prequalification team of the purchaser has put personal interests before those of the organisation as whole or not. These factors simply provide the lens through which evaluations in the five stages are made. According to Cox (2004b), what is appropriate for a buyer to do, depends on the power and leverage circumstances that they find themselves in. The competence of the purchaser's sourcing team, requires a detailed knowledge and understanding of both the buyer and supplier exchange circumstances that can exist, as well as the relationship management choices available for purchasers to use when working with suppliers in any of these circumstances (Cox 2004b). Since these circumstances change, purchasers need to ensure they know their power position well in advance before engaging in any stage of the re-sourcing process.

7.2.3 Integrity of pre-qualification team.

The researcher recognises the impact that members of the prequalification team have on the integrity of the re-sourcing process. The element of the role that boundary spanners such as the contract manager and other members of the prequalification team play in re-sourcing decisions was presented in chapter five. Since the model focuses mainly on the re-sourcing process, the researcher can only make recommendations about increasing the effectiveness of the evaluation and comparison processes in the re-sourcing model. Some of the challenges and recommendations were presented in section 6.4 and are discussed again in the next chapter.

7.2.4 Meaning of scope alteration.

The findings indicated that the model was not clear on what scope alteration meant or take into consideration the two aspects of scope which are, equipment type scope and regional cover scope. The wording 'scope alteration' was changed to read 'scope reduction'. This term was used to mean a reduction in the business given to the incumbent supplier by the purchaser undertaking a re-sourcing decision.

It was observed that in maintenance there is the actual technical personnel in charge of equipment repair and then support for the activities of the technical personnel. The supplier firm could have technical capacity but lack logistical support capacity and each of these calls for a different scope reduction approach. It is therefore necessary to specify which dimension of maintenance scope was being recommended at the scope reduction stage. In order to establish which scope reduction approach to undertake, it is necessary for the purchaser to establish its incumbent supplier's area of weakness in the maintenance component of supportability (Smith & Knezevic 1996, Kumah et al. 2004,). According to Kumar et al (2004), a product's downtime is a function of how easy, safe and economic it is to perform maintenance, how effective the administrative routines are for scheduling, planning and executing maintenance as well as availability of spare parts, expert

assistance, repair tools and others (Kumah et al. 2004). But although equipment availability is a function of a systems reliability, maintainability and supportability characteristics (Kumah et al. 2004), the only element in which a maintenance supplier has a significant role to play and on which his capability, capacity and subsequent performance is measured is supportability.

The various components of maintenance quality measurement often highlighted by scores in several KPIs, report different areas of strength or weakness in the incumbent supplier's firm. For example poor response rate, while it might report a weakness in technical expertise, it arises more out of factors such poor financial health, poor management and information systems, poor spares management, and few technical personnel to handle maintenance which are more of logistical support rather than technical expertise. In this instance since equipment for asset intensive service organisation are often widely spread geographically, in order to improve response rate, it would be better to reduce the number of sites covered rather than the type of equipment serviced. Reducing the type of equipment serviced would mean the supplier has to retain the same number of service centres, and same number of service vehicles since the regional cover would not have changed. In the end, there might be no change in performance.

In contrast, if the incumbent supplier's performance is such that the time to repair KPI is poor, and the final analysis when following the model recommends scope reduction, it would be better for the purchaser to reduce the incumbent supplier's business by the type of equipment that the supplier is often out of target on the time to repair KPI.

7.2.5 Increasing maintenance scope of incumbent supplier.

This aspect was not included in the model because, it was believed that for every maintenance scope addition to an incumbent supplier, say A, there is another incumbent supplier, say B, whose maintenance scope has been reduced. In other words the purchaser is managing multiple maintenance service providers. It is therefore assumed that the purchaser is applying the model on B, and by carrying out performance and relationship analysis, capability, load-capacity ratio, and cost offering evaluation on B, with A as suitable alternative in the supply market, the results of the analysis were in favour of either switching from B to A or reducing the purchaser's business to B by the portion of maintenance transferred to A. Therefore increasing the scope of work for an incumbent supplier implies a reduction of maintenance work scope for another incumbent supplier..

7.2.6 The influence of the size of the purchasing organisation.

Size of the purchaser in terms of number of equipment to be serviced was observed to be a mediating factor. In the event of poor performance by the incumbent or unreasonable prices, it was easier for small maintenance purchasers in the industry to change scope than to develop a

supplier. To the small maintenance service purchasers, for as long as there is a larger maintenance purchaser in the industry, there will always be suppliers with a capacity that meets their requirements. They are therefore less likely to inject resources into developing a supplier compared to their larger counterparts. Size of purchaser has been taken care of in the capability, capacity, and load to capacity ratio analyses stages.

7.2.7 Continuous improvement

The model was also observed to be lacking in terms of building in mechanisms for continuous improvement suggested by advocates of total quality management (TQM) thinking. It was suggested that a cyclic component should be incorporated into the model with an approach of continuously shifting the service standards to higher levels every time set targets are reached and exceeded. Other informants discussed the fact that most of the service level agreements in the contracts and penalties are static and they do not actually reflect or are not linked at all to lost opportunity. They are non challenging to the supplier. There was a suggestion that on one hand, when a supplier meets the expectations of the purchaser, and the purchaser chooses to renegotiate a contract with the incumbent supplier, the two parties should engage in discussing and developing strategies for reducing cost without neglecting quality of performance. Additionally, although overall, the purchaser is satisfied with the performance of their supplier, they should work on designing strategies for improving the individual aspects of supplier performance. This strategy should also be adopted for unsatisfactory supplier's that the purchaser chooses to continue working with.

7.2.8 Health safety and environmental concerns.

Another major concern was that of health, safety and impact that supplier companies would have on the environment. It was argued that issues like number of accidents, no smoking policy, no drink- drive policies, and environmental protection policy sometimes override the cost aspect. The author believed the element of health, safety and environmental could be incorporated in the capability analysis of the supplier. Different asset intensive industries consider different dimensions of capability more important than others. For example the requirements of health, safety and environmental management capability dimension although significant in all asset intensive service industries, are more intense in the oil industry than in the telecommunications industry. In order to make the model more generic for asset intensive service organisations operating in capital constrained economies, the researcher has used the broad term 'capability' rather than itemise specific components of capability.

7.2.9 The interdependency between load and capacity.

This was incorporated in the modification.

7.2.10 The cost aspect

There was a concern that although cost had been included in the model, it had not been accorded the due emphasis. Based on comments from most of the informants, given the importance of equipment availability and as a consequence, the criticality of the maintenance activity in supporting the business operations of asset intensive service industries, performance aspects related to the quality of the maintenance service were more critical than the cost offering. They also argued that rarely is there a significant cost increase between their new outsourcing arrangement and the previous to warrant seeking for reduced prices by compromising maintenance quality. In view of this, the researcher took the cost aspect into consideration in the model, but only after, performance, capability, and load-capacity ratio evaluations..

7.3 Modification to the original model

After several discussions with the informants that took part in the model validation process, the original model presented in figure 6.7 took the form of the model presented in figure 7.1 shown next page. The following revisions were made.

In the original model, the proposal was to compare the incumbent supplier's performance with the capacity of alternative suppliers. During the model validation exercise it was revealed that, while the incumbent supplier's performance has a strong influence on the purchaser's perception of the incumbent supplier's suitability for contract renewal or renegotiation, comparison of the incumbent supplier with others in the supply market still compares the capability and capacity of the incumbent supplier to the capability and capacity of the alternative suppliers. While supplier capacity moulds the purchasers evaluation of how capability and capacity are eventually converted into service delivery, the incumbent supplier's performance cannot be directly compared with other suppliers capability and capacity. The best approach was considered to be one which compares the same measures of competence. Therefore, one of the major modifications made to the proposed model was a change from comparing the incumbent supplier's performance with the alternative supplier's capacity to comparing the incumbent supplier's capability and capacity to the alternative suppliers' capability and capacity

Secondly, in establishing whether the purchaser should switch service providers or change the scope of business given to the incumbent service provider, the original model proposed that the decision should be made after comparing the incumbent supplier's maintenance load with that of alternative suppliers in the market. However during the model validation process it was revealed that the original model put a lot of emphasis on the size of the maintenance load rather than the load to capacity ratio of the suppliers being evaluated. Informants argued that load to capacity ratio had a greater potential of capturing the ability of a supplier to service a given client than

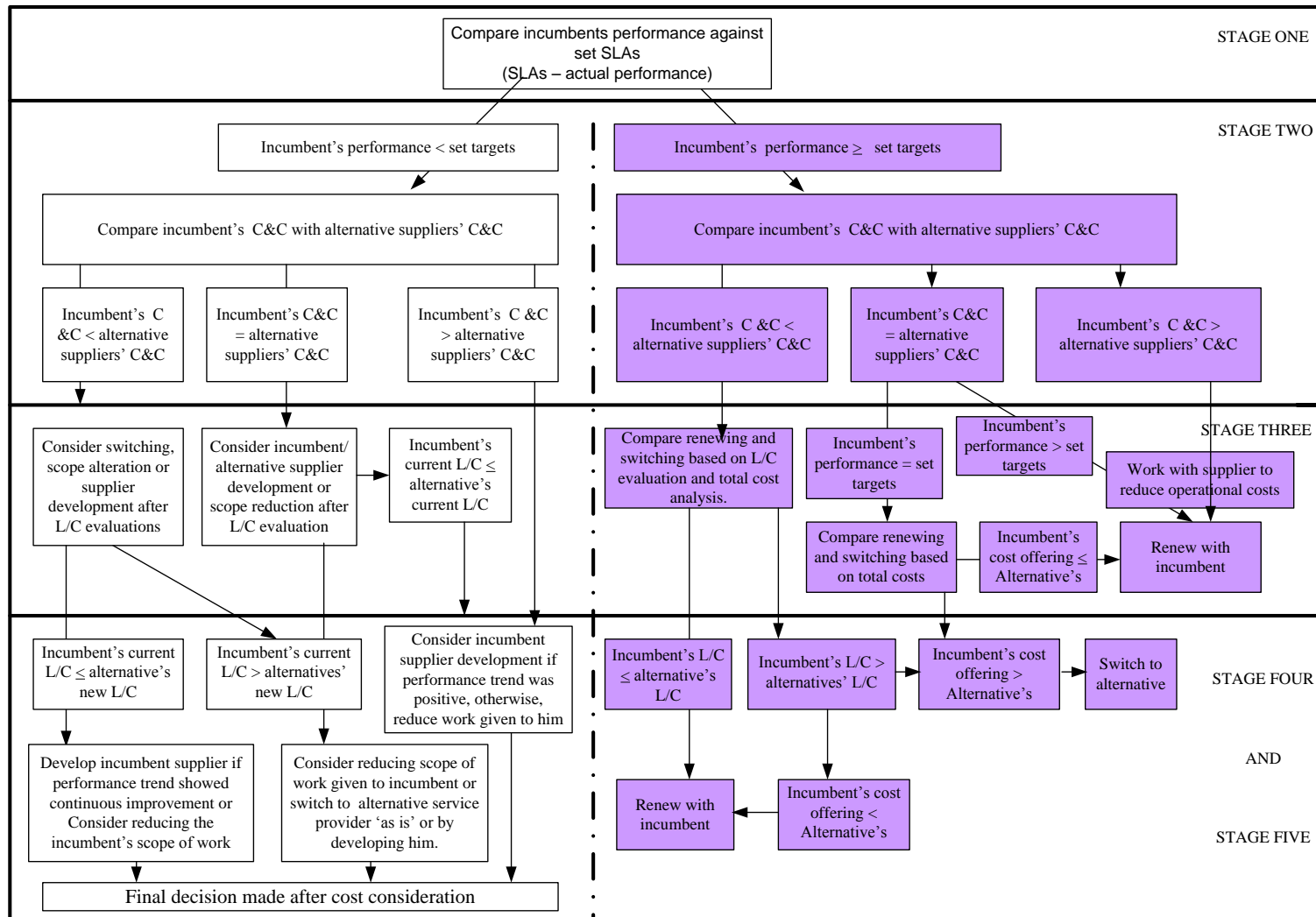


Figure 7.1 Maintenance re-sourcing model after validation

C&C– Capability and capacity, L/C – Maintenance load to capacity ratio, SLAs– Service level agreements

absolute load. Therefore, the model was modified to reflect this concern by replacing supplier load comparison with supplier load to capacity ratio comparison.

Thirdly, the original model proposed that if the capacity of suitable alternative suppliers in the market was similar to that of the incumbent supplier, then the purchaser should renew the contract with the incumbent supplier if the incumbent supplier's performance met set targets or decide whether to switch or remain with the incumbent based on comparison of cost offering if the incumbent supplier exceeded the purchaser's target. However, the model validation process revealed that, since equipment availability is critical to the success of the business, purchasers usually set very high service levels that the difference between a supplier who meets service level targets and one who exceeds them is very small. Therefore, in situations where the incumbent and alternative supplier's capacity are similar, whether the supplier simply meets the service levels or exceeds them, the purchaser should always consider cooperating with the incumbent supplier to find means of reducing service delivery costs while ensuring that the profits of the supplier are not diminished. The revised model incorporated the aspect of continuous improvement in service delivery costs by recommending that where purchasers are satisfied with the technical performance of their suppliers, they should work with them to find means of reducing operational costs.

Finally, in the original model, cost considerations had not been included for the scenarios beginning with the incumbent supplier not meeting the purchaser's service level requirements. The model validation exercise revealed that despite the fact that maintenance performance is critical for the continuity of their overall business, the supplier's price remained an important criteria for making the final choice among several viable alternatives. The final model incorporated the stage of making price evaluations after considering the suppliers' capacity to carry out a given scope of the maintenance work.

7.4 Challenges and limitations of the model validation process.

The researcher faced a number of challenges during the model validation process. Although most of the informants who accepted to have interviews made a considerable contribution towards model development and evaluation, they also acknowledged they had not set aside enough time to thoroughly analyse the model due to their busy schedules. They instead opted to go through the model with the interviewer. Although this gave the interviewer a chance to explain any part of the model that needed clarity, it could have affected the results since the interview time was limited. For those who preferred to respond by email, they were slow in responding and the researcher could not easily establish whether the model had been interpreted as expected. Other contacts did not respond at all even after two reminders. This could have been due to the nature

of offices that procurement and maintenance personnel in these contacts hold. For example, most of the time maintenance contract managers are in the field monitoring and evaluating maintenance works. Procurement personnel are often dealing with procurement decisions for various activities within the organisation whose timing differs from one activity to another

Chapter summary

In the present chapter the author has presented the details of the model validation process and its results. Overall, the validation process generated a set of important points that were either added to the model or model wording altered to accommodate them. Other issues were discarded after discussions with other informants. The author has also explained why some of the issues raised could not be incorporated in the model.

The next chapter discusses the significance of the findings of the present research within the context of the reviewed literature.

CHAPTER 8:

DISCUSSION OF RESEARCH FINDINGS

Introduction.

The present study sought to determine the factors that influence maintenance re-sourcing decisions in Uganda's downstream oil industry and to propose and validate a management model for guiding maintenance re-sourcing decisions for asset intensive service industries operating in capital constrained economies. In the current chapter, the findings presented in the last three chapters are discussed in light of findings and arguments presented in sourcing literature.. The first objective was

To determine which factors play a significant role in influencing management of maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.

8.1 Factors influencing maintenance re-sourcing decisions

Previous research has depended on theoretical frameworks such as TCE, RBV, and Agency theory to propose guidelines for what activities to outsource and what activities to retain in-house. Based on these theoretical frameworks and a few others such as SET, RDT ,and evolutionary theory, several authors have proposed what they believed were suitable approaches to managing the supplier selection process and developing the most appropriate interorganisational management control mechanisms. After the decision to outsource, most of the outsourcing literature has focused on how to select suppliers and develop interorganisational relationships that will enable purchasers to avoid losing control of the outsourced activity or the business during outsourcing implementation and subsequent sourcing stages.

Some of the main concerns raised in outsourcing literature were; the possibility of small numbers bargaining (Williamson 1985, Lonsdale 1999, Marshall et al. 2007), the presence of switching barriers such as switching costs, age of the relationship, interpersonal relationships and switching inertia (Whitten & Wakefield 2006, Whitten & Leidner 2006, Yanamandram & White 2006), the impact of service recovery, the possibility of the incumbent supplier becoming more powerful in the course of the relationship duration (Williamson 1985, Lonsdale1999, Cox et al. 2005) and opportunism (Williamson 1985, Marshall et al. 2007). Other issues raised in outsourcing literature in relation to re-sourcing decisions were the options available to purchasers in the event of an unsatisfactory outsourcing arrangement. These included, discussions on

selection of dissatisfaction strategies such as exit, voice, loyalty, and neglect (Ping, 1993, Humphrey & Ashforth 2000), and supplier development initiatives (Krause et al. 1998, Krause 1999).

Following the analysis of the present study's results, factors influencing re-sourcing decisions have been placed into three categories; the purchasing organisation's structural elements, the external structural elements, and the boundary spanning elements category. These categories and the factors they represent are summarised in Table 8.1

Table 8.1 Factors influencing maintenance re-sourcing decisions in asset intensive service organisations

Purchasing organisation structural elements	External structural elements	Boundary spanning elements
<ul style="list-style-type: none"> •The characteristics of the outsourced activity and initial outsourcing motives •The characteristics of the purchasing organisation and organisational policies •Characteristics of current contract and outsourcing arrangement 	<ul style="list-style-type: none"> •Incumbent supplier's performance •Number of suppliers, their capability and capacity •Infrastructure elements 	<ul style="list-style-type: none"> •Power dynamics (organisational- macro and individual-micro levels) •Purchaser's perception of switching costs •Supplier's interpretation of purchaser's behaviour

There is a similarity between these and the those identified by previous researchers when analysing and making recommendations for outsourcing relationships which is part of the implementation stage in the outsourcing cycle. Kern and Willcocks (2000) referred to outsourcing relationships as consisting of context, structural, interactions and behavioural aspects. Similarly, Van der Meer-Kooistra and Vosselman (2000) claimed that the characteristics of the transaction, the characteristics of the transaction parties, and the characteristics of the environment played a significant role in determining the most suitable management control pattern. The similarities between the three categories advanced in this thesis and those from previous research are not surprising because, although the focal phenomenon of concern in their research work was outsourcing relationships, outsourcing relationships and their outcome provide the foundation for analysing the suitability of outsourcing in general and re-sourcing decisions in

particular. But unlike outsourcing relationship management, where the main concern for the purchaser is sustaining the relationship and ensuring anticipated benefits from the specific relationship, results from this research have emphasised that re-sourcing decisions are more concerned with sustaining the business as a whole and therefore pursuing a sourcing strategy that meets this objective. While sustaining the relationship could be one way of achieving this, the present study's findings recognise that this is just one way.

In the sections that follow, the factors that were identified are discussed. While each was presented as a separate factor in chapter 5, some factors have been combined in the discussion because of the similarity in effect that they bring to the maintenance re-sourcing decision.

8.1.1 The characteristics of the outsourced activity and the initial outsourcing motives

Although results from this research confirm the presence of the different types of switching barriers that deter purchasers from switching suppliers, there is evidence to imply that the magnitude of the perceived 'set up cost' component of switching costs has a big role to play in dissuading re-sourcing decision participants in asset intensive service organisations from considering returning the maintenance activity in-house as a re-sourcing decision option. While other switching costs do exist and are a concern for the purchasing team, the high set up costs for maintenance activities in asset intensive service organisations like the downstream oil organisation mean that after these organisations have outsourced maintenance, they always have to strive to make outsourcing work. Similar results were reported by Whitten and Leidner (2006) in their study on IT. They observed that despite the fact that organisations that returned activities in-house and those that switched perceived roughly equivalent switching costs, the set up costs perceived by those that switched were considered higher than those perceived by purchasers that returned activities in-house.

In addition to set up costs, purchaser informants always emphasized the costs associated with managing the maintenance activity in-house as another hindrance to returning the activity in-house. The overriding concern for the maintenance purchaser was that maintenance is associated with excessive inventory holding costs and is not their core. It would seem that the size of the perceived switching costs, especially, the 'set up' costs component is enhanced by the actual cost of managing the maintenance activity in-house. These two factors; high set up costs, and high management costs associated with maintenance in asset intensive service organisations are an incentive for maintenance purchasers to consider only outsourcing in their re-sourcing decisions.

The current research study has also provided strong evidence to suggest that the options available to asset intensive maintenance purchasers during re-sourcing decisions and the approaches that

they take in securing maintenance services for subsequent periods are greatly influenced by the overriding motivations for choosing to outsource maintenance in the first place and the degree to which those objectives have been achieved at the time the re-sourcing decision is being made. The study revealed that even when a maintenance purchaser has not managed to get the desired service level from their outsourcing arrangements, they are not willing to lose the benefits so far attained from maintenance outsourcing itself. If one of the primary motives for choosing to outsource maintenance was to free up capital for other profit generating ventures, then, the high capital requirements for internal maintenance operations in asset intensive service organisations would discourage maintenance purchasers that have already tested the benefits of meeting this objective from considering in-sourcing as one of the re-sourcing decision options.

It has been said, that, outsourcing success refers to the overall advantage obtained from outsourcing (Lee 2001). Indeed this research has revealed that once a critical activity like maintenance in asset intensive service organisations has been outsourced, resourcing decision options, management and outcomes are the result of purchasers looking beyond current outsourcing relationship success or failure to whether the overall advantage obtained from outsourcing of an activity as an organisational strategy provides a strong incentive for continued outsourcing or not. The limits posed by primary outsourcing objectives on a purchaser's sourcing options during re-sourcing decisions is well supported by the evolutionary theory discussions presented by Argyres and Liebesking (1999), Bellon and Niosi (2001) and Mahnke (2001). They argue that a firm's governance choices regarding a particular transaction whose current modes are currently being debated significantly influence the range and type of governance modes that it can adopt in future periods. The author believes that given the high set up and operation costs of maintenance in asset intensive service organisations, asset intensive service organisations that have outsourced maintenance are not likely to have returning the maintenance activity in-house as a re-sourcing decision outcome.

8.1.2 Characteristics of the organisation and organisational policies

Similar to the characteristics of the outsourced activity and initial primary motives for outsourcing, the decision to include in-sourcing as a re-sourcing decision alternative is also governed much more by the purchaser's sourcing policies at the time of re-sourcing than either the success of the current outsourcing arrangement or alternative supplier market conditions. Where an organisation's sourcing policy recommends outsourcing of all support activities, then all re-sourcing decision alternatives have to be developed in line with the current organisational policy. Despite the fact that maintenance is a critical activity in asset intensive downstream oil organisations it is still a support activity which unless the sourcing policy is changed cannot be returned in-house even when all available suppliers are do not have suitable competence.

8.1.3 The characteristics of the current outsourcing arrangement

One significant aspect about terms and condition of the current outsourcing arrangement is the duration of the contract. There have been several references made to the impact of relationship tenure on relationship continuity or dissolution in previous literature (Anderson & Weitz 1989, Giller & Matear 2001). One prominent conclusion in most of this literature is that outsourcing relationships that have lasted a long time are more likely to continue than those that have lasted a short time. Some of the reasons cited for this continuity are; trust would have been built over the long term experience in the relationship, and, older established dyads are more communication efficient thereby reducing uncertainty. Findings from this research are only in partial agreement with these assertions.

Contract duration and information gathering

This study revealed that, older established dyads appeared to be, not necessarily communication efficient, but provided the purchaser with an opportunity to analyse the performance of the incumbent supplier over a long period of time. This enabled the purchaser to capture trends that improved their awareness regarding the capability of that particular supplier and therefore reduced uncertainty in relation to that supplier. The study revealed that for re-sourcing decisions preceded by unsatisfactory long term contracts, maintenance purchasers are less likely to expect an improvement in the incumbent supplier's performance. The purchaser, is in a state where they believe, they know everything there is to know about that particular supplier. If nothing has changed over the length of their relationship duration, nothing is likely to change in the future. For a poorly performing incumbent supplier, this knowledge from a long relationship duration gives impetus to alternative supplier search and a motive to switch.

On the other hand, when maintenance re-sourcing decisions are preceded by short outsourcing arrangements, the purchaser has a very limited time in which to evaluate and compare the incumbent supplier with alternatives. Maintenance in multi site asset intensive industries is characterised by lengthy engagement periods after the outsourcing contract has been negotiated. Therefore, if the current arrangement is short-term, it means the re-sourcing decision time is very close to the negotiation time. When the engagement period is subtracted from the total contract duration, there is hardly any time left for the purchaser to understand the suppliers full potential. According to the current study's findings, in such situations, the purchaser is more likely to extend a contract with the current supplier than switch to other suppliers.

Contract duration and possible business disruptions

Another important issue raised by this research in relation to current contract duration was the extent of disruptions in the operation that result from supplier switching. If the relationship duration for the outsourcing arrangement preceding a re-sourcing decision is short, say one year,

it implies that the purchaser is undertaking a re-sourcing decision less than a year from the last time they switched service providers. In a service organisation where new maintenance suppliers need an engagement period of about three months, undertaking a re-sourcing decision less than a year after switching would mean, its at a time when the purchaser has hardly come out of the effects of the disruptions caused by the last switch. By the time the re-sourcing decision is due, the memory of the previous disruptions is still fresh that the purchaser has little motivation to engage in intensive alternative supplier search or look forward to switching even in the face of a poorly performing current supplier. This forces the purchaser to continue with the incumbent supplier. This is in agreement with sourcing literature on switching barriers where it has been argued that sometimes a purchaser is forced to make a repeated purchase because of the disruptions that impact the purchaser's customers. In the event of a switch, the purchaser's core service is affected until the service provider gets acquainted with their client's business operations, and network (Yanamandram & White 2006).

The present research finding that short relationship durations preceding a re-sourcing decision, even when not satisfactory are more likely to favour relationship continuity than a relationship switch presents a slight deviation from extant literature where relationship duration is believed to be positively related to relationship continuity (Hoccut 1998, Giller & Matear 2001).

Contract duration and investments made by the purchaser

Another issue under the characteristics of soon ending outsourcing arrangement is the amount of resources that the purchaser has invested in the soon ending outsourcing arrangement. Maintenance re-sourcing decisions could be preceded by an outsourcing arrangement characterised by a self sufficient supplier throughout the entire contract period or one where there has been substantial investments by the purchaser in the capability development and operations of the supplier firm. Using the social exchange, resource dependency and transaction cost economics theories, several authors have asserted that a purchaser's decision to outsource is a function of the purchaser's investment size in the relationship (Hoccut 1998, Krause 1999, Giller & Matear 2001, Li et al. 2006). Krause (1999), discussing supplier development initiatives based on the TCE perspective, argued that, supplier development represents a transaction specific investment by the purchaser in a supplier that presents a risk to the purchaser. Krause(1999) emphasised that although over the long run, supplier development investments may reduce the purchaser's transaction costs, these investments are non transferrable and the benefits of supplier development initiatives cannot be attained if the purchaser terminates the relationship prematurely. The present study's findings support this argument and reveal that the risk is magnified when the supplier development investment was done in the context of a short term outsourcing relationship.

This research has shown that re-sourcing decisions preceded by short outsourcing relationships in which the purchaser undertook a sourcing development initiative, were likely to end in a repeat transaction with the incumbent supplier. Firstly, there is very little time for the purchaser to make a conclusive evaluation of the impact of their supplier development initiatives. Secondly, continuing with the supported incumbent supplier would seem the most reasonable way for purchaser to extract any return on their investment. These findings are supported by previous outsourcing literature (Pfeffer & Salancik 1978, Williamson 1985) which predicts that when organisations make transaction specific investments, they create a situation of dependence that makes it harder for them to switch suppliers. Based on this study's findings, the author believes that for re-sourcing decisions preceded by supplier development initiatives in which the incumbent supplier's performance is considered unsatisfactory at the re-sourcing decision stage, the tendency for purchasers to engage in supplier search and consequently switching is higher when the present relationship duration is long than when it is short.

Contract duration and timing of re-sourcing decisions

It was also observed that contract duration is a major influence on when the re-sourcing decision is likely to be undertaken. Panesar and Markset (2008) established that, long-term contracts provide enough opportunity for investments necessary for improvements and for the supplier to get to know the clients systems and culture. The present study established that, if a maintenance supplier is awarded a short-term contract, there is no incentive to invest heavily in the new clients business, a finding which is supported by earlier research findings (Mahnke 2001). Additionally, in view of the fact that the supplier is situated in capital constrained economy, the short contract does not provide sufficient evidence for financing bodies to provide credit facilities. The current findings indicate that the outcome of such short contracts is likely to be poor, unsatisfactory service delivery from the supplier. For critical maintenance activities, the instability that poor performance brings to the business operations can be a source of panic that forces the purchaser to either incur more ad hoc search and evaluation costs for better suppliers or to incur supplier development costs that it could have avoided with a long-term arrangement. Suppliers with long-term outsourcing arrangements are in a better position to get their own capability and capacity development resources from the assurance that a long-term contracts generate without making it the purchaser's burden.

8.1.3 The significance of the contract document.

With regard to an outsourcing arrangement, the contract specifies the terms and conditions of the arrangement. It specifies service level targets that the purchaser uses to evaluate the performance of the incumbent supplier, the responsibility of each party in the relationship and terms and conditions when a re-sourcing decision should take place.

In the present study, the contract was a standard document, whose drafting process and content seemed to be entirely the responsibility of the purchaser. Supplier informants argued that even when they desired to change some of the terms and conditions in the contract, they usually gave up because of the time it took for the purchaser to respond. Despite their grievances, they found themselves accepting and signing what they termed as the purchaser's document, because their financiers and organisations willing to extend credit facilities to them would only do so with the guarantee that the contract had been signed. The fact that the contract was the purchaser's document provided the purchaser with the opportunity to specify the terms and conditions for termination. This meant that the purchaser had the opportunity to protect themselves and define the steps for the re-sourcing process.

However, the suppliers' sense of lack of ownership on the maintenance contract document and its content influenced meant that they could hardly perceive the relationship as that of a cooperative nature. This was found to influence the degree of cooperation that the purchaser can get from the supplier and in turn, the level of accuracy with regard to performance, capability and capacity information that purchasers get from suppliers to support the re-sourcing decision.

8.1.4 The incumbent supplier's performance

Sourcing literature is replete with sourcing guiding frameworks that emphasise the need for organisations to start with analysing their current business performances before they can consider outsourcing any of their activities. For example (Cheon et al. 1995) discussing outsourcing based on the RBV, suggest that an organisation's decision to outsource is a function of the gap that exists between the desired capabilities and the actual capabilities it possesses. If there is a difference, then the organisation has to choose between a number of options. They could choose to close this gap by investing in developing the required capabilities, they could choose to obtain these capabilities through other means such as joint ventures or outsourcing.

When the decision to outsource an activity has been made, then, during re-sourcing, the decision to continue outsourcing with the incumbent supplier or not is also a function of the difference between the purchaser's desired capabilities and the incumbent supplier's current capabilities reflected in his performance during the current contract (Hoccut 1998, Colgate & Lang 2001, Giller & Matear 2001, Li et al. 2006, Yanamandram & White 2006). While the required capabilities might change, the present study showed that the lowest or initial evaluation of the supplier's performance during re-sourcing decisions is usually based on the requirements that were specified in the contract by way of SLAs and the performance trends over the entire contract period.

The findings of this study highlight the importance of supplier performance trends in shaping the purchaser's perception of the supplier's commitment to performance improvement. Although the importance of maintenance to the asset intensive downstream oil organisations' business means that the desired maintenance performance quality level is high, the present study showed that in situations where the incumbent suppliers performance is well below the desired level, positive performance trends can provide hope that the supplier was committed to doing whatever was possible within their power to provide their client with a better service. Despite the shortfall in relation to performance gap, and the presence of alternative suppliers in the market, positive performance trends provide an incentive for the purchaser to engage in supplier development initiatives because the performance trend is interpreted by the purchaser as supplier commitment.

A positive performance trend could be the result of; the supplier improving in the understanding of his clients business, network, routines, statistics of breakdowns and therefore better planning, a supplier's investment into capability and capacity building to meet the requirements of his client, or relationship building which in turn leads to improved communication and all other factors constant, better performance. Irrespective of the source of the positive trend, the present study showed that it can play the role of raising the switching barrier even when the performance gap is high. Its impact appears to be even bigger when a critical activity like maintenance where the magnitude of disruptions that can arise out of switching is high.

From the present study, the author believes that the purchaser considers positive performance trend as measure of the supplier's commitment to the relationship. Morgan and Hunt (1994) defined relationship commitment as an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum effort at maintaining it. There is a possibility that when the supplier's performance is continuously improving, the purchaser perception of the supplier is that he is putting in all that they can to make the relationship work. They therefore become more willing to continue with the supplier and/or engage in supplier development activities. This is also in line with Krause (1999)'s findings that a purchaser's perception of the supplier's commitment to the relationship is an important antecedent to further commitment on the part of the purchaser. Where positive performance trend is perceived by the purchaser as supplier commitment then the present study's findings support Morgan and Hunt (1994)'s and Krause (1999) findings that there is a negative relationship between the purchaser's perception of the supplier's commitment to the relationship and the purchaser's propensity to leave the relationship.

However, the element of positive performance trend in the face of an incumbent supplier whose actual performance did not meet the specified service levels, seemed to become more prominent

when analysed in relation to alternative suppliers in the market. This is discussed in the next section.

8.1.5 The maintenance supplier market

Besides the incumbent supplier's performance, there has been consistent reference to the role that the number of suitable alternative suppliers in the market plays in the purchaser's decision to continue with the incumbent supplier, switch service suppliers, return the activity in-house or choose a combination of any of the three (Hoccut 1998, Colgate & Lang 2001, Giller & Matear 2001, Li et al. 2006, Yanamandram & White 2006). It has been argued that issues such as a supplier increasing in power over the contract period and the resulting purchaser's increased dependence on a supplier are only possible in a market with few alternatives (Tsang 2002). Several authors have also pointed out that the possibility of a supplier behaving opportunistically is in addition to the number of current and possible clients in the industry also a function of the number of suitable alternative suppliers who are actually their competitors (Williamson 1985, Ramsay 1994, Lonsdale 1999). In the present study, the absence of small numbers bargaining and the impact of supplier capability and capacity will be discussed.

8.1.5.1 Small numbers bargaining

Some earlier works on outsourcing have warned against the problems of small numbers bargaining (Williamson 1985, Lonsdale 1999), a condition that arises when at a particular re-sourcing time, there is a small number of suppliers showing an interest in the purchaser's business than what the company enjoyed in its initial outsourcing decisions. It has been argued that while a firm might be able to precontractually choose from a competitive supply market, at the re-contracting stage, its capacity to do so again can be reduced, especially when substantial investments have been made during the current or soon ending outsourcing arrangement.

The present study's findings did not reveal evidence of the impact of small numbers bargaining. The initial decision to outsource was made in the absence of a single maintenance supplier for the industry. In the present case study, the purchaser developed their own initial service provider because none existed in the market. Therefore, the idea that many could eventually turn into few did not exist. In subsequent years, the market was joined with one major established service provider and several small ones that can only manage very small fractions of their maintenance requirements. The purchaser has found itself switching between these two and sharing them with other purchasers that share a significant portion of the downstream oil industry market. It would therefore appear that the issue of small numbers bargaining becomes of great concern in re-sourcing decision in situations where there originally existed a large number of suppliers in the market.

Much more than the number of suppliers in the market, purchaser re-sourcing decision teams are more concerned with the sourcing decisions that other purchasers are making. It is their decisions more than supplier numbers that affected the critical areas of analysis during re-sourcing such as the incumbent suppliers performance, and the alternative suppliers' capacities. This factor is discussed in the paragraphs that follow.

8.1.5. 2 The incumbent and alternative suppliers capability and capacity

There has been evidence in the current study to suggest that re-sourcing decisions are influenced much more by the decisions of other maintenance purchasers enjoying or seeking the services of the same suppliers than the number of suitable alternatives in itself. As revealed in the case study, the limited number of suitable alternative suppliers places a limitation on the flexibility of maintenance re-sourcing decisions. But this challenge was seen to be further magnified by the continuously changing capabilities and capacities of both the incumbent and alternative suppliers. In the present study, even when the suitable number of alternative suppliers remained the same over several re-sourcing decisions, different approaches were taken each time. Sometimes it was supplier selection and sometimes supplier development.

The decision to switch or remain with an incumbent supplier depended on the incumbent supplier's performance, and presence of a suitable alternative at the time of maintenance re-sourcing. The incumbent and alternative supplier capabilities and capacities were found to be very dynamic and therefore the capability and performance gap between the incumbent and alternative suppliers continually changing. This dynamism was the result of the increasing maintenance personnel needs of the industry and the maintenance sourcing decisions of other downstream oil organisations.

One of the common arguments in outsourcing literature is that many suppliers achieve economies of scale by aggregating the needs of different, and sometimes competing clients. But despite the benefits it can bring, such means of achieving economies of scale can also result in contention risks because suppliers do not have infinite capacity and resources to meet all the needs of the different clients (Sanders et al. 2007) most of the time. Such situations arise when in the effort by suppliers to benefit from the advantages of scale economies, they neglect the need to increase their capacity to meet the requirements of all their clients. The present study was in agreement with extant literature suggesting that sometimes purchasers are driven to change suppliers depending on their perception of the contention risk (Sanders et al. 2007).

Therefore, rather than look at the number of suitable alternative suppliers as a major input to the re-sourcing decision process, load to capacity ratio evaluations appeared to provide a more

accurate picture of the difference between the incumbent supplier and the suitable alternatives. It had the benefit of incorporating the effects of the sourcing choices of other maintenance purchasers and maintenance personnel decisions of other organisations. This result is consistent with Pfeffer and Salancik 1978's theoretical propositions on resource dependency. They argued that, interdependencies between different organisations in the environment can create problems of uncertainty or unpredictability. While an organisation facing uncertainty might on occasion attempt to deal with it through restructuring their exchange relationship, their solution has the potential to create new uncertainties for other organisations (Pfeffer & Salancik 1978). When a purchaser has excellent maintenance performance from their supplier, another maintenance purchaser's decision to switch to the same suppliers may result in the former purchaser to switch service providers or change from a single to multiple suppliers. Additionally, such a situation might mean an increase in the supplier's bargaining power in relation to the purchaser because the decisions of their new client might have pushed their former supplier out of business causing one supplier to enjoy a monopoly.

The present study also showed that unless the incumbent supplier is not willing to continue serving the purchaser, a significant capability and load to capacity ratio difference between the incumbent supplier and the alternative supplier is necessary before any considerations to switch were looked into. While maintenance is critical to the fulfilment of organisational objectives and maintenance performance is a key parameter in maintenance re-sourcing, the present research findings support Li et al (2006) finding that marginal increments in capability levels by prospective suppliers against the incumbents rarely encourage purchasers to change suppliers. It could be argued that when such differences are small, the sourcing decisions of other purchasers might erode the small benefits that could have been brought about by the switch.

8.1.6 Purchaser's perception of switching costs.

Similar to findings in extant literature, the present study's findings reveal that during maintenance re-sourcing decisions, decision makers in purchasing organisations do perceive switching costs (Whitten & Leidner 2006, Whitten & Wakefield 2006, Yanamandram & White 2006, Li et al. 2006,). However, there was no evidence that the purchaser had actually measured the switching costs. The present study's findings showed that the magnitude of the perceived switching cost depends on the size of the outsourced activity, the performance of the incumbent supplier, the maintenance load to capacity ratio of alternative suppliers in the market, and the maintenance contract manager's familiarity with the maintenance activity requirements. In agreement with Whitten and Leidner (2006), the research findings revealed that where the perceived set up cost component of switching is high, which is the case with maintenance in asset

intensive service organisations, purchasers in unsatisfactory current relationships are more likely to switch or renegotiate with the incumbent supplier than return the activity in-house.

Another significant switching cost was the cost lost sales that arise from the disruptions that take place when they change suppliers. The reactive nature of the maintenance practice means that the new suppliers response to the purchaser's maintenance requirements might be slower since the new supplier is trying to build capacity to cater for the increase in the maintenance works. The research finding corroborates, earlier research findings that sometimes purchasers hesitate to switch because of the concern that the new suppliers might take sometime before they have smooth running operations in which time the purchasers customers businesses will be negatively affected (Yanamandram & White 2006). In Uganda's increasingly competitive downstream oil industry market, this might mean lost sales or lost customers.

Besides the actual size of outsourced maintenance, the purchaser's perception of switching costs was associated to the size of the purchaser in relation to other maintenance purchasers in the industry. A purchaser with a bigger maintenance size relative to other purchasers in the industry perceived higher switching costs than those perceived by purchasers with a smaller maintenance size.

8.1.7 Supplier's interpretation of purchasing organisation's behaviour.

Literature on supplier dependency, switching barriers and relationship continuity have highlighted the impact that the purchasers reputation has on the organisation's sourcing decisions (Anderson & Weitz 1989, Mclvor 2000). A supplier's perception of the purchaser influences his response to a purchaser's expression of a wish to continue working with a given incumbent supplier or start relationship with another supplier. Some of the behaviours that have been presented as having a negative contribution to the reputation of purchasers have been, unilateral termination of outsourcing contracts, purchasers setting impossibly high standards for their suppliers (Anderson & Weitz 1989), and purchasers being insensitive to the supplier's needs to make money (Anderson & Weitz 1989, Mclvor 2000) especially in high risk projects (Mclvor 2000).

It has been pointed out that in some cases, suppliers may be reluctant to do business with another buyer if, in the past, there has been unreasonable demands being made by the purchaser to reduce costs(Mclvor 2000). Similar outcomes were registered in the present case study when an incumbent maintenance supplier withdrew from the negotiation process because of a price ceiling that had been set by the maintenance purchaser. The supplier considered it impossible to meet the demands of the purchaser within the set price limit, arguing that it was incapable of making any profits from the arrangement. Their withdrawal from the negotiations forced the purchaser to

consider switching to another supplier, a process they could have avoided if a compromise had been reached by the incumbent supplier and their client.

While the findings of the present study were in agreement with previous authors regarding the factors that affect a supplier's perception of a particular purchaser's reputation and therefore, the willingness of the supplier to do business with the purchaser, an additional factor was established by this study. That is the lack of coherence in the interpretation between the purchaser and supplier of the intention of a purchaser when they engage in a certain set of behaviours.

Literature on outsourcing has often emphasised the importance of engaging in collaborative relationships for the sustainability of business operations (Kim et al. 2008). Since this research identified the characteristics of the outsourcing arrangement preceding the re-sourcing decision as a significant factor in determining how the re-sourcing decisions unfold, interpretation of behaviour in these relationships is important. Literature on strategic outsourcing has pointed out that, when outsourcing involves a critical activity, both parties have to be highly committed to the relationship and willing to engage in joint actions to solve problems and to introduce improvements (Duarte et al. 2004, Kim et al. 2008). They have to work in an interconnected fashion, endeavouring to respond to all the other party's wants and needs. An arrangement where both firms work in cooperation to achieve the objectives of the outsourcing and then their own individual goals (Duarte et al. 2004) would be beneficial to both parties. What is hardly mentioned though, is whether the parties understanding of cooperative behaviour is the same or not.

In the present study, for example, only the purchaser informants referred to their relationship with the supplier as being of a cooperative nature. They made reference to statements in the contract and to some of the activities they engaged in as evidence of the cooperative nature of their relationship. But the very statements and activities they referred to, were interpreted as non-cooperative by the suppliers. One supplier informant when referring to contract document statements such as

“The parties expressly declare their intention to work together in good faith with mutual trust and fairness and cooperation”

chose to look at as the purchaser putting such statements just to keep their image 'pure'. Similarly, what the purchaser considers as favours and an indication of cooperative behaviour, the supplier interprets them as 'rights' in the relationship.

Behaviours such as the supplier sharing cost information with the purchasing organisation have been recognised in literature as inter-organisational cooperative behaviours (McIvor 2000,

Langerfield-Smith & Smith 2003). And indeed in this study, purchaser informants referred to acquisition of such information from their suppliers as a means of working together with their supplier for the benefit of both parties. This was believed to be a means of providing information that would assist the two organisations establish areas where cost improvements could be made to the benefit of both parties. On the other hand, to the supplier, the requirement to provide the purchaser with their actual maintenance cost figures was interpreted as unfair and judged to be a means of lowering any profits that could be raised from their efforts. Similar differences in interpretation were also observed when some of what the purchaser considered as supplier development initiatives were interpreted by the supplier as their rights in the relationship rather than additional efforts by the purchaser to make the relationship work.

Such differences in interpretation impact re-sourcing decisions in several ways. Firstly, they appeared to hamper the supplier's willingness to provide accurate information about the costs incurred while managing their client's activities. Since any improvement in the cost dimension of the outsourced activity would benefit from the supplier's presentation of accurate costs, this difference in interpretation and subsequent behaviour by the supplier would result in poorly informed re-sourcing decisions. Secondly, such misunderstandings of terms and conditions of the relationship influence the supplier's perception of the purchaser's reputation and the willingness of suppliers to continue working with or engage in outsourcing arrangements with them. This emphasises the fact that in order to have effective re-sourcing decisions, it is not enough to communicate. Effort should be placed on effective communication (Krause 1999), in outsourcing arrangements prior to an up coming resourcing decision as well as during the re-sourcing decision process. Purchasers should endeavour to communicate their business needs and plans to the suppliers, and, the reasons for the requests the purchaser is making as well as the benefit that the supplier is likely to gain from cooperating.

8.1.8 Power dynamics

Several authors have mentioned the possibility of a switch in power positions between the purchaser and the supplier during the course of the relationship (Williamson 1985, Lonsdale 1999, Cox et al. 2005), a situation which has been predicted to result in negotiation problems during re-sourcing. Some of the antecedents of this power switch and the possibility of opportunistic behaviour is investments made by the purchaser in the relationship, loss of control of the activity due to the absence of internal capabilities required to carry out the activity, and the presence of very few suppliers in the market.

The present study has revealed that the presence of power and its influence on resourcing decisions happens at two levels, a macro and micro level. At the macro level is the presence of inter-organisational power which is the result of global factors such as the characteristics of the

purchaser, the number, capability and capacity of maintenance suppliers in the market, and the number and size of maintenance purchasers competing for the services of the supplier. In contrast to power at the macro level, another aspect of power, which the author has termed micro, had to do with knowledge and exploitation of organisational power by individuals holding boundary spanning positions such as the maintenance contract manager, members of the purchasing team that have direct contact with the suppliers and the maintenance supplier decision making team.

8.1.8.1 Power at the macro level.

At the macro level, both purchaser and supplier informants agreed that Petro 1-U being a well known and respected multinational company was one of the purchasers that most suppliers wanted to work for. Association of suppliers with organisations like Petro1-U was believed to influence other purchasers' perception about the capability and capacity of the supplier. It was established that the high standards set by multinationals in areas such as Health, safety, security and environmental concerns, and quality assurance, had the capacity to support the marketing efforts of their suppliers to other purchasers. Additionally, the size of the maintenance purchaser and consequently the size of their maintenance works attracted maintenance suppliers because of the revenue associated with taking on such big contracts. Therefore, degree of multinational presence and organisational size bestow upon purchasers referent power that is likely to enhance a supplier's willingness to continue working or wish to work them. Similarly the location of the supplier firm and the number of countries it is currently operating in as well as its size had a role to play in the purchaser's perception of its attractiveness and suitability.

From the present study it could be said, that, characteristics such as multinational presence and size of the purchaser played a significant role in determining the net purchasing or selling power that parties involved in a re-sourcing decision held. With regard to power at a macro level, the findings of this study have a similarity with what other authors (Ramsay 1994, Cox 2004b) have identified as the attributes that determine the power positioning of purchaser and suppliers in the industry

Unlike Cox (2004b)'s work where both number of purchasers and number of suppliers had an impact on where the supplier and a purchaser are situated on the power portfolio matrix, the present study showed that the number of clients seemed to have a much greater influence on the supplier's perception of the purchaser's power than number of suppliers had on the purchaser's perception of the supplier's power. Given the presence of very few maintenance purchasers, supplier informants always considered the maintenance purchaser as the more powerful party in the re-sourcing decision. On the other hand, despite the presence of very few suppliers, the

purchaser still considered themselves as having more power in the relationship than their suppliers. Based on the above findings, it could be argued that the potential of number of purchasers and number of suppliers to influence the perception that one party has over the other, is dependent on other factors surrounding the re-sourcing decision.

One of the factors that appeared to possess a greater potential for determining the negotiation power was the present needs of the supplier firm and their perception of the degree to which a continued relationship with or entry into a purchaser's business would do to meet that present need. This is similar to what Cox (2004b) has termed supplier's dependence on buyer for revenue with few alternatives presented in the power portfolio matrix. The present study's findings showed that the power positioning between a purchaser and any given suppliers can change even when attributes such as the number of suppliers, maintenance purchaser's percentage of total market for the supplier remain constant between two sourcing decisions. What seemed more critical for the purchaser at the time of re-sourcing was the relationship between the present need of the supplier and what the purchaser was offering. For example, when the purchaser set a price ceiling for the interested suppliers, the purchaser seemed to have more bargaining power with the organisation that was more interested in revenue more than returns at the re-sourcing time. But at the same re-sourcing decision, the purchaser appeared to be in a position of either buyer interdependence or independent, when analysed in relation to a supplier firm who at the time had more need for returns than revenue. This supplier firm chose to withdraw from the negotiations and did not submit a bid, forcing the purchaser to abandon the idea of renegotiating with the incumbent supplier and to consider an alternative supplier from the market.

It could therefore be said that the primary attribute for positioning a purchaser against any given supplier during re-sourcing decisions is the degree to which a supplier believes the resulting outsourcing arrangement has the capacity to satisfy its present and future needs. This is in agreement with extant literature on power, that despite the amount of revenue that the purchaser promises to bring to the outsourcing arrangement, its significance in influencing the supplier's response is proportional to the supplier's perception of the degree to which the revenue meets its resource needs (Pfeffer & Salancik 1978, Ramsay 1994). While the revenue associated with the proposed relationship might be large, it is only valuable if judged as high by the supplier indicating the value of the proposed relationship during re-sourcing is not independent of the suppliers perception or judgement and the supplier's response is critical in determining what steps the purchaser can take or not.

8.1.8.2 Power on the micro level

Analysis of power at the micro level is related to the behaviour of the purchasers' and the suppliers' boundary spanning personnel. While maintenance purchasers might have potential power by virtue of their characteristics such as ownership, image and size, the study's findings revealed that this power can only be useful to the purchaser if the individuals representing it are well equipped to use it and bring about desired results. Although the decision making unit is made up several individuals, only a few of these are involved in carrying out the evaluation, visiting supplier sites and communicating to the suppliers before the final supplier selection stage takes place. In the case of petro1-U, The frequency of contact and communication between the purchaser's re-sourcing DMU and the suppliers was similar to the presentation in figure 8.1

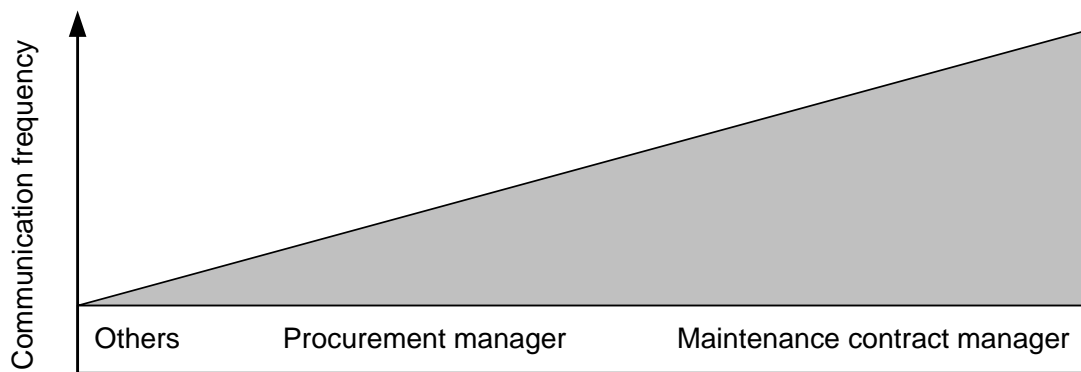


Figure 8.1 Frequency of communication between supplier and the purchasing organisation's DMU

The frequency of communication is in one way a measure of the amount of information that each of the purchaser's DMU members has about the supplier. Similarly the amount and kind of information that the supplier has about the purchaser's requirements and supplier evaluation results comes more from the maintenance contract manager than anybody else on the team. As mentioned earlier, other members of the DMU, include the country chairman, the finance manager and the contract owner who in the case of maintenance is the retail manager. A revised appearance of the organisational structure including only the five roles mentioned above would appear as shown in figure 8.2. The frequency of communication illustrated in figure 8.1 and the reporting structure shown in figure 8.2 suggest that the suppliers have limited access to the higher authorities in the organisations they are serving or wishing to serve. This arrangement seemed to provide the maintenance contract manager and procurement managers with the responsibility to utilise the purchaser's potential power to bring about desired results in the supplier organisations during re-sourcing. Although the purchaser would only be interested in results that are beneficial

to the organisation, some of their representatives' desired results may be related to individual needs and not those of the purchaser organisation.

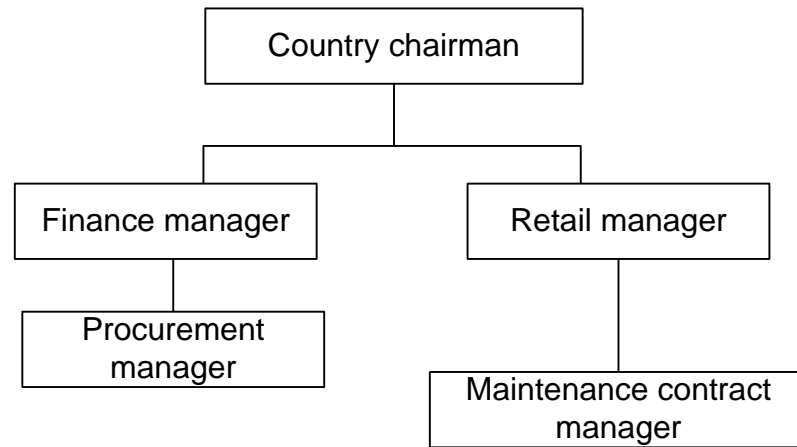


Figure 8.2: Reporting structure: an extract from Petro1-U's organisational structure

Power at the micro level can have the appearance of many forms. These are discussed in the paragraphs that follow.

Purchaser boundary spanners ability to limit information flow from the supply market to other members of the DMU.

From the results of the present study it was found that one way through which boundary spanners can gain power over the suppliers is through their ability to limit the type of information that gets to other members of the DMU. The high frequency of contact between the supplier firms and the maintenance contract manager has the potential to enable him get even the most concealed information about the supplier. It would seem logical to assume that what the suppliers usually conceal, is that information which when known would have a negative impact on the purchaser's judgment of their suitability. Access to this kind of information by the purchaser's representative such as the maintenance contract manager provides him with the potential to persuade the suppliers to meet the purchaser's demands. For example to reduce prices, which is one of the outcomes that the purchaser would desire. The same result has the possibility of influencing the purchaser's perception of the contract manager's commitment to the organisation. Unfortunately, when a price reduction is the result of the need to keep or gain the contract, rather than the elimination of processes and relationship elements that represent extravagance or waste, the purchaser is likely to enjoy the reduced cost benefit for only a short time. The negative effects of reduced cost such as poor equipment availability and consequently, lost sales and increased coordination costs have the capacity to erode the benefits.

In some situations it was found that crucial information is withheld in order to enable the purchaser's representatives negotiate for personal benefits. For example benefits of friendship, and the possibility of continuing or pursuing personal business with the supplier. In such situations, the representative recommends the supplier to the purchaser not necessarily based on merit but because of the additional benefits that such a relationship would bring.

The manipulation of information by the purchaser's representatives to the benefit of the organisation and/or their personal benefit supports earlier works on resource allocation and control (Pfeffer & Salancik 1978). It was argued that it is possible for an individual or groups of individuals to regulate access to resource without owning it. And as such, agents like purchaser's representatives who influence the allocation of an organisation's contract or contracts can develop personal power from their positions. When a purchaser's representative holding a boundary spanning position is not well acquainted with the supplier's businesses, then they may not be in position to have power over suppliers besides the power inherent in the organisation they are representing as a whole. That is why, for example the incumbent supplier would rejoice over the resignation of a boundary spanner who they thought had so much information about their poor historical performance and was likely to make them appear less powerful during re-sourcing.

Purchaser boundary spanners control of information flow from the purchaser to supply market

The preceding discussion was based on the purchaser's representatives manipulation of information about the supplier. The key to developing and utilising this power was the ability to stop some of the information from getting to other members of the DMU. A reverse process in information flow can also yield the same results. It was found that the purchaser has some capability and capacity standards. Some of these, the purchaser's can choose to reveal to the incumbent and alternative suppliers in official documents, while choosing to retain information about others. The communication frequency between the purchaser's representatives and the representatives of supplier firms provides an opportunity for the purchaser's representative to develop power based on his ability to pass on useful information to the supplier. This is both in terms of content and timing. For example, where the maintenance purchaser requires a service provider with a particular number of service centres to reduce response times, a supplier who gets to know this well in advance is likely to have an edge over the others. Since the same official documents are sent out to all the suppliers, the chance to get hold of any extra information that would assist any supplier appear to be more suitable than others is at the discretion of the boundary spanner. Although the opportunity to obtain this information may be the result of a good relationship with the purchaser's boundary spanners, it is also an indication of the power

that boundary spanners hold in re-sourcing decisions. The effectiveness of the re-sourcing decision will depend on how this power is utilised.

Suppliers' level of confidence about the value of their service and their market position

Despite the potential that the position and information that purchaser boundary spanners have to enable them produce or constrain supplier behaviour, it was observed that representatives of supplier organisations can also possess a similar dimension of power by virtue of what they believe their company is worth or is capable of achieving. Where boundary spanners in supplier organisations are aware of the value that the quality of their maintenance service brings to the relationship, they are likely to negotiate for better terms in the sourcing arrangement. If the supplier's boundary spanners lack confidence in the value of their service to the purchaser then they are likely to put more weight to the power that the purchaser's representatives bring to the negotiation table.

From the present study, it could be said that, this confidence has a positive relationship with the quality of information that the supplier's boundary spanners have about the requirements of the service and the other suppliers they are competing with. A supplier's extensive knowledge about the weaknesses of other suppliers in the field and means of fronting his strength to the purchaser is a powerful tool in increasing the confidence of the supplier. Age of the supplier's representatives was another factor that seemed to be related to the confidence of supplier's boundary spanners. From the view point of purchaser informants there seemed to be something about age that had the potential to draw the purchaser to a supplier.

"The negotiations are now very lively..... there is a brand of young blood in the organisation who know what business ought to be like."

"These young guys are really good. Very responsive and flexible...we are working with them...Although some areas are lacking, they are impressive. "

"That company had collapsed... these young boys in management have really turned things round. They assured us they would and we have not been disappointed."

One of the reasons for the relationship between age and confidence, age and flexibility, could be that, young people are still at the point when they still want to build their profiles. They are enthusiastic about creating an impression and are also still very vigilant about making profits. If the purchaser's input to the relationship, usually money, is not sufficient for them to deliver as promised, they will try to strive for more money by improving on their marketing.

8.2 Decision support frameworks vs. personnel contributions to the re-sourcing decision process

A lot of outsourcing literature has highlighted the impact of sourcing guiding frameworks on the success of outsourcing arrangements. It has been argued that many outsourcing relationships fail due to failure by organisations to follow well established sourcing methodologies to guide outsourcing decisions (Lonsdale 1999, McIvor 2000, Franceschini et al. 2003). For example, Lonsdale (1999) asserts that there is evidence that the poor results achieved by many organisations in their outsourcing arrangements has been due to a deficiency in management decision making and in particular adopting the outsourcing practice without any sort of guiding methodology. In several instances, after presenting the proposed structured methodologies, some authors have gone ahead to conclude with statements such as

“ By using this model firms will be more likely to avoid a majority of disappointing experiences that some of the managers have reported”(Lonsdale 1999)

“From the analysis of the case study, it is possible to assess the advantages that an organisation can achieve by applying a structured approach to outsourcing”(Franceschini et al. 2003).

While results from this study support and emphasise the use of sourcing frameworks for guiding sourcing decisions at all outsourcing stages, they provide evidence that, their application is effective only when used by competent individuals or groups of individuals. This view to re-sourcing decision success has been supported by earlier authors such as Cullen et al (2005) who after presenting an outsourcing life cycle model whose development was based on several experiences and recommending its use for successful sourcing evaluations were quick to point out that following the building block process in their model was not the sole determinant of successful sourcing outcomes. They highlighted managerial judgement, and replacement of top management and decision unit members as some of the other factors that influence effective application. Much more than these, this research has isolated the maintenance contract manager as a major maintenance re-sourcing decision effectiveness ingredient. Although lower in rank compared to other members of the re-sourcing decision unit, s/he is the greatest contributor to the decision process. In light of this, a lack of continuity in the collection and storage of information necessary for supporting maintenance re-sourcing decisions seems to presents a challenge. While literature outlines the possibility of prospective service providers providing inaccurate information about their capabilities and capacities (Jharkkaria & Shankar 2007), it is silent about the possibility of purchaser’s members responsible for gathering this data withholding part of the information gathered to their own advantage.

Having established the significance of the maintenance contract managers contribution to the maintenance re-sourcing decision means that the maintenance contract manager's competence, organisational commitment and integrity are paramount if the re-sourcing decision is to have any level of success. This places a demand on purchasers to extend their focus beyond using guiding frameworks to support sourcing decisions to emphasising the need to ensure that competent people are recruited into contract management positions, trained and provided with an enabling environment to encourage organisational attachment, competence and integrity.

Literature on organisational boundaries has revealed that it is possible for individuals to be both part of an organisation and part of its environment through different behaviours occurring at different times (Pfeffer & Salancik 1978). For example, at one point the maintenance contract manager can belong both to the purchaser employing him as well as belong to the supplier organisation at other times and for different reasons. In the current case study, the operations of the purchaser are such that they prefer to recruit maintenance contract managers that have a vast experience in the maintenance and health safety and environmental requirements of the oil industry. Almost all the maintenance contract managers were maintenance engineers in the supplier firms or other oil companies. Although by virtue of the employment contract such individuals belong to the purchaser, depending on the relationship between them and the supplier firm which they left or the current benefits that could arise from that relationship, there is also a possibility that they belong to the supplier's organisation as well. Depending on the prevailing circumstances and behavioural predisposition of the individual in the role of the maintenance contract manager, this could be advantageous as well as detrimental to the purchaser.

Informal discussions with supplier A informants as well as information obtained while at their site revealed the presence of a very close relationship between the management of supplier A and the maintenance contract manager of Petro 1-U who was once an employee of the same firm. In fact although most of the informants in the supplier firm knew that the final selection stage had more to do with their cost offering, they often referred to the importance of the maintenance contract manager's recommendation to the re-sourcing decision team. Therefore, while some of the re-sourcing decision unit members could have been aware of supplier A's poor financial position before awarding them a contract, the circumstances surrounding this decision would suggest that the contract manager might have been in the know. If this is right as implied by some of the informants during the research interviews, then it is important for purchaser to establish why such behaviour exists among its boundary spanning employees and how it can be restrained.

One basic finding from the research was that social interactions between maintenance contract managers and the suppliers, both historical and current can provide them with an opportunity to have some of their needs, met by one of the suppliers. Their behaviour is therefore the

consequence of their needs and which organisation meets which specific need at any given time. For example, the contract manager could choose to conceal some of the detrimental information about a supplier firm and recommend them to other members of the sourcing decision team for a particular sum of money in return. It could also be that if a particular supplier firm is selected, the contract manager stands to gain through an agreement to sell spares to this particular supplier. The effectiveness of the re-sourcing decision is likely to be negatively affected when a DMU member in a purchaser boundary spanning position has a great attachment or commitment to any of the supplier firms than the purchaser employing them.

The present study results seem to contradict the findings of Yanamandram and White (2006) on the role of interpersonal relationships in interorganisational switching behaviour. In their findings interpersonal relationships were not considered by purchasers as a primary reason not to switch. The reason for this contrast could be the difference in the research approach that was used. While the present study's findings were based on a dyadic approach, consisting of views from both the purchaser and the supplier, Yanamandram and white (2006)'s research findings were based on the purchaser's responses where it could have been unethical for inter-personal relationships to influence their evaluation of the supplier. Respondents who are part of the decision making unit, often speak about their contribution to the decision process. They may therefore not want to reveal the fact that their own interpersonal relationships influenced major organisational level decisions. The author believes that it is easier for business owners to own up to such relationship effects than DMU members.

In order to increase the effectiveness of the re-sourcing decision process, the present study supports the need to emphasise the use of the use of guiding methodologies and creating an environment that will motivate all members of the decision making unit to gather, and disseminate the information required for making effective decisions. The next section discusses the what needs to be addressed to enhance maintenance re-sourcing decision effectiveness.

8.3 Supporting maintenance re-sourcing decisions

In order to support re-sourcing decision, the present study has proposed a re-sourcing model to guide maintenance re-sourcing decisions in asset intensive service industries. Additionally, besides the need to use guiding methodologies, the study identified enhancing organisational commitment by boundary spanning personnel and supporting incumbent and alternative supplier comparison through improved information capture as key determinants of re-sourcing decision effectiveness. The section will present the discussion on commitment by boundary spanners and supporting supplier comparisons before discussing the outcome of the model validation process.

8.3.1 Enhancing organisational commitment by boundary spanning personnel

In order to enhance the effectiveness of the re-sourcing decision process, there is need to ensure that boundary spanners are committed to the organisations that employ them. According to Buchanan (1974), one basic component of commitment is the ability for an individual to identify with the organisation by adopting as one's own, the goals and values of the organisation. Indeed, if there is no organisational identification, it is likely that the individual's own goals and values will have a greater influence on his behaviour than those of the purchaser.

The study showed that the boundary spanning personnel level of commitment can be influenced by the purchaser's employee performance evaluation approach and the reward system. It appears that the performance of a maintenance contract manager is judged based on the performance of the supplier whose activities he coordinates. In this case the maintenance contract manager's performance is judged based on outsourced maintenance performance. However, outsourced maintenance performance is a function of much more than the maintenance contract manager's input. Besides contract management, it is a function of, contract specifications, choice of supplier, the capability and capacity of the supplier firm, the payment routine of the purchaser and other factors such as the industry trend and inflation. The maintenance contract manager therefore, has limited control over the supplier's performance. There appears to be a misalignment between the way a maintenance contract manager is evaluated and the contract manager's actual contribution to the purchaser's business. There is therefore little incentive for the maintenance contract manager to behave in a way that brings more returns to the organisation. This is well supported by performance measurement literature which suggests that dysfunctional behaviour displayed by organisational members may result from misalignment between organisational purpose, performance measures, reward systems and situational variables that do not reinforce each other (Hanna et al. 2000). Hanna et al(2000) established that correctly aligned targets, purpose and rewards had a major effect upon behaviour and strongly focused the direction and magnitude of that behaviour. If the only personalised benefit that a maintenance contract manager realises from his contribution to the purchaser is based on the supplier's performance, the contract manager is likely to achieve the desired benefits through other means that might not simultaneously support the purchasers goals especially in the long-term.

On the other hand, what appears as a misalignment between performance measures and reward systems may actually not be misalignment. If the maintenance contract manager is the greatest contributor to the re-sourcing decision process as pointed out by purchaser informants, and if his recommendation about a supplier to the maintenance re-sourcing decision team carries significant weight in the re-sourcing decision process, then, to judge his performance based on the performance of that supplier is a logical way to evaluate his contribution. In this case, what is

required therefore, would be for the purchaser to create and foster an environment that supports the contract manager so that he can capture and disseminate the right information for decision making. The other option would be setting in place a system that involves more boundary spanners during contract execution than waiting for the re-sourcing decision time.

8.3.2 Supporting current and alternative supplier comparisons

The process of mapping the maintenance re-sourcing decision in Petro1-U emphasised incumbent supplier performance evaluation and supplier comparison as the most critical stages of the maintenance re-sourcing decision. Unsatisfactory outsourcing arrangements were often traced back to a flawed supplier capability evaluation process that led to an oversight in the supplier evaluation and comparison process. One way of enhancing the effectiveness of the maintenance re-sourcing decision is to develop good information management systems.

8.3.2.1 Information management challenges.

In large organisations such as Petro1-U, procurement managers and their departments often have to bear the burden of engaging procurement decisions for several activities within the organisation. The re-sourcing time for each of these activities takes place at different times throughout the year. Therefore, there is likely to be maximum levels of attention to each activity only when the activity's re-sourcing decision is almost due as specified in the current contract. In other instances, attention to an activity as revealed by literature could attain its peak when a supplier's service offering is highly damaging to business performance, forcing the purchaser to take a reactive approach and seek for a solution before the end of a specified contract duration. This emphasises the importance of continuity in capturing supply market information.

Previous work in outsourcing has emphasized the importance of periodically evaluating the service of the incumbent supplier (Fitzsimmons et al. 1998) while neglecting the need to capture those elements of the suppliers both the incumbent and the alternative that enable him to deliver the service. Findings from this study underscore the need for the purchaser to capture as much information as possible about the incumbent and prospective suppliers to support effective evaluation of each supplier and comparison between them. While purchasers have often been able to measure and evaluate the incumbent supplier's performance, the challenges associated with obtaining information about the alternative supplier's performance mean that capturing those elements that the suppliers eventually translate into service delivery could provide a relatively good approximation to performance evaluation.

Although some authors have pointed out that purchasers should evaluate the providers based on what they have done and not by what they plan to do (Jharkharia & Shankar 2007), results revealed that this too can be very deceptive. The fluidity of the factors that make up a supplier's

capability and capacity suggest that what suppliers were capable of doing yesterday they might not be able to do today. Despite the experience that an organisation holds, issues such as a change in management, poor financial management and high turnover might make it unprofitable for organisations to simply depend on what suppliers have done before rather than what they can do now based on their current capability and capacity or capability and capacity trends.

Findings from earlier studies have pointed out that when it comes to supplier comparisons, the purchasers rarely have complete information about the prospective providers and they have to believe the information and/or assurances given by these suppliers which may not always be true (Jharkharia & Shankar 2007). Similar findings have been reported in this study. But while Jharkharia and Shankar (2007) warn purchasers against solely relying on information provided by prospective providers, one of the solutions they offer, evaluating providers on their site before final selection can hardly solve the problem. The present study showed that, when such visits are made during the re-sourcing decision stage, the suppliers are expecting those visits and are therefore prepared. Visits made at such times have little potential to uncover all that needs to be known to make an effective evaluation of the suppliers capability. The problem is that, while evaluation of suppliers by the purchaser just before the selection process is capable of enabling the purchaser observe some of the tangible things that the providers claimed to have (Jharkharia & Shankar 2007), it would only provide information for that particular season of the suppliers' lifetime. The limits of such visits is their inability to provide the purchaser with a picture of the preceding state of the alternative suppliers and consequently, no trend upon which a forecast of the future could be made.

The unevenness in data capture for a particular activity's requirements, means an information overload at the re-sourcing decision stage, making it easy to miss out on some of the crucial information that could have been obtained had incumbent and alternative supplier capabilities and capacity been captured, stored and trend lines established. If there is no provision for continuous data collection to trace trends in supplier capabilities and capacity both for the incumbent supplier and alternatives in the market, there is a danger that procurement managers and their decision processes will be fed with discrete information often capturing the capability and capacity situations of the suppliers at the time just before the re-sourcing decision is due. Such information can easily be doctored by suppliers to portray a picture of competent suppliers only for purchasers to find out later.

Additionally, such discrete information is likely to create a lack of uniformity in the information being used to evaluate and compare the incumbent suppliers with their alternative suppliers. This lack of uniformity can become an additional source of the much unwanted uncertainty that in the end might increase management's perceived switching costs. On the other hand, this lack of

uniformity in the information captured can also become a source of over confidence that can persuade managers to change suppliers from the incumbent whose performance has not been good enough or capability and capacity not suitable to meet the demands of the organisation's current activity or requirements.

8.3.2.2 Developing and maintaining information capturing systems

In order to support the supplier evaluation and comparison process, purchasers can improve information capture for the supplier market by putting in place systems and personnel for capturing both incumbent supplier performance, and, the capability and capacity trends for the incumbent and alternative supplier over the contract period preceding the re-sourcing decision stage. This could reduce the disparity between the information types used in evaluating and comparing incumbent suppliers and their competitors. Similar suggestions have been made in extant outsourcing literature (Humphrey et al. 2002, Kim et al. 2008) When looking to how they would enhance a make or buy model that they had proposed, Humphreys et al. (2002) suggested that one way to enhance the effectiveness of sourcing decision processes is to incorporate within the purchaser's organisation the capability to compare two or more suppliers performance measures over time. The purchaser needs to discover determinants of events and/or trends in supplier performance. It is from this analysis that they can assess whether the performance of each supplier is improving or declining (Humphrey et al. 2002). However, performance measurement, the process of quantifying the effectiveness of an action (Garengo et al. 2007), for suppliers who are not part of those currently serving them is a challenging task. The closest estimate to this would be capability and capacity evaluation, since these act as the inputs to the maintenance service provided by the suppliers.

However, in the context of misalignment in interpretation regarding the nature of the present relationship, search activities by the purchaser might further support the incumbent supplier's belief that the purchaser is not behaving in a cooperative manner. Given the significance of maintenance to the business of asset intensive service industries, the purchaser needs to strike a balance between getting good results from the incumbent supplier, while keeping abreast with the dynamics of the supplier market. The only way to achieve this is to periodically, capture supply market information while maintaining a cooperative behaviour with the incumbent supplier. Extant research on re-sourcing decisions has revealed that a combination of purchaser supplier search behaviour and collaboration with the incumbent supplier has the ability to increase incumbent supplier responsiveness to the purchaser's requests (Kim et al. 2008). The author believes, that this approach has the added advantage of keeping the purchaser ready for any eventualities can arise due to policy change, change in business size or requirements, and, poor response from the incumbent supplier. If supplier data is periodically collected from both the

incumbent and alternative suppliers, it is easier for the incumbent supplier not to interpret it as lack of cooperation as opposed to when the supplier data is collected only towards the end of the current outsourcing arrangement.

8.4 The maintenance re-sourcing model.

In order to support maintenance re-sourcing decisions for asset intensive service organisations operating in a capital constrained economy, the present study proposed and validated a maintenance re-sourcing model in order to meet the second and third objectives of the research study. Which were

To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.

To validate the re-sourcing model and make recommendations for use.

The proposed model was based on results from the re-sourcing decision mapping process in the case study. Its prescriptive ability draws from the recommendations from outsourcing literature and findings from case study informants. The proposed model was taken through a validation stage and the final version of the model was presented in Figure 7.1, at the end of chapter 7.

8.4.1 Model development

Since the second and third objective focused on proposing a model for the purpose of guiding re-sourcing decision managers, it was designed based on both explanatory and prescriptive elements (McIvor 2000).

In order to support the decision process, there was need to identify what practitioners perceived as an effective maintenance re-sourcing decision. In this way the re-sourcing model would act as a means to desired outcomes. The desired outcomes of maintenance re-sourcing decision were presented in section 6.1. These outcomes mirrored the concerns of previous literature when making recommendations for make or buy evaluations, supplier selection and interorganisational management control and in discussions about switching barriers and relationship continuity. For example, an outcome that results in minimum disruptions (Yanamandram & White 2006), selection of a supplier that will lead to low coordination resources (Williamson 1985, McIvor 2008), re-sourcing decisions that will not lower the power of the purchaser (Lonsdale, 1999), selection of a supplier that ensures high maintenance performance throughout the life of the contract (Lonsdale 1999, Kim et al. 2008). And finally, the issue of price which remains a prominent objective in outsourcing deliberations.

The maintenance re-sourcing decision mapping process, showed that the re-sourcing decision consists of five main stages; Incumbent supplier performance evaluation, incumbent – prospective supplier capability/ capacity comparisons, establishing a possible sourcing strategy, incumbent- prospective supplier load to capacity ratio evaluation and comparison, and cost consideration. The case study highlighted, the incumbent supplier performance evaluation and, incumbent supplier-alternative supplier comparison as the most critical stages of the re-sourcing decision process. This was in agreement with existing literature on relationship continuity or dissolution which has established incumbent supplier performance and attractiveness of alternatives in the market as important determinants to whether a purchaser will remain with the incumbent supplier or switch service providers (Krause 1999, Colgate & Lang 2001, Li et al. 2006, Whitten & Leidner 2006, Kim et al. 2008).

Since the supplier's price offer was at the last stage of the re-sourcing decision, the main focus of the model was on the most critical stages. That is incumbent supplier performance evaluation and supplier comparisons. The details were presented in section 6.2-6.5. However, despite the fact that cost appears as the last stage of re-sourcing model, the research findings were in agreement with Franceschini et al (2003) that sourcing choices are essentially driven by economic factors. Therefore, putting cost consideration as the last stage in the re-sourcing decision process was not intended to downplay the importance of cost considerations but to emphasise, that purchasers should compare prices for only suppliers who have demonstrated the capacity to deliver maintenance services that meet their present and future requirements within the anticipated relationship duration.

8.4.2 Model validation process

The model validation process included participants from both the case study organisations and other informants who were currently maintenance sourcing decision unit members or had in the recent past been part of such a team in a downstream oil organisation. Other informants were from supplier firms. In total there were 11 participants.

The applicability of the model

Generally, the findings from the model validation exercise indicated that the stages presented in the proposed model were applicable to maintenance re-sourcing decisions in Uganda's asset intensive downstream oil organisations. Some of the suggestions made by the informants were incorporated in the model to improve its applicability. However although the model was considered suitable for use in Uganda's asset intensive downstream industry, some challenges to its use were also raised.

- One of the main suggestions from the model validation exercise was that although the model had the potential to support maintenance re-sourcing decisions, its effectiveness would mainly depend on the purchasing organisation's commitment to information management. While some information such as that related to preventive maintenance did exist, purchasers had no evidence to prove its usefulness in supporting the organisation's business or re-sourcing decisions. It was mainly used to determine whether the incumbent supplier should be penalised or not. The emphasis on the importance of information, is well supported by extant strategic management literature. The evolutionary and core competence theories stress the fact that many organisations operate in ever changing internal and external environments that necessitate organisations to invest in both formal and informal information processing systems (Barney 1991, Bellon and Niosi 2001).
- Currently, downstream oil organisations outsourcing maintenance are multinational companies in which recommendations that necessitate investment in personnel and equipment need to be well supported by top management in the subsidiaries. Unless benefits outweigh investments, especially in the short-term, it would be very hard to convince them to make such investments. This argument was based on the fact that top management in the subsidiaries sometimes does not know the overall strategy of the multinational regarding continuity of business in the country or how long a particular management structure will hold. However, there was consensus that due to the upcoming upstream oil industry in Uganda, the downstream oil industry is growing and the model has the potential to assist the upcoming local organisations in their maintenance outsourcing deliberations.

8.5 The research methodology

Understanding the dynamics of the maintenance re-sourcing decision necessitated undertaking a research strategy that would enable the author to obtain the views of the people who participate in the maintenance re-sourcing decisions of asset intensive service organisations. The depth of knowledge required to answer the research question necessitated high level access to sources of information within both the maintenance purchasing asset intensive service organisations and their suppliers. After weighing the research design options that were available to the researcher, a single in-depth case study was carried out in one of Uganda's large downstream oil organisations. Final preparations in the data collection phase then focused on meeting the research objectives by specifically seeking answers to the research question.

“How can maintenance re-sourcing decisions for an asset intensive service organisation operating in Uganda's down stream oil industry be effectively managed? ”

The first stage of the research process was aimed at achieving the first objective and mapping Petro1-U's maintenance re-sourcing process. The research findings related to the first objective were presented in chapter 5 of this thesis and later discussed in section 8.1 and 8.2 of the present chapter. In the second stage of the research, findings from the first stage of the research process were combined with results from the literature analysis to develop a structured methodology for guiding maintenance re-sourcing decisions. The model development process was reported in chapter 6. Finally, the proposed model was subjected to a validation process in which the researcher solicited comments, opinions, and contributions from a number of informants involved in maintenance sourcing processes of some down stream oil companies in Uganda. The model validation process and results are presented and discussed in chapter 7.

8.5.1 The suitability of the research methodology

Based on the type of research question and research objectives, use of the case study research strategy was well supported (Meredith et al. 1989, Easterby-Smith et al. 2002, Yin 2003, Halinen & Tornroos 2005) as explained in section 3.3.1. The need to map the re-sourcing decision and to understand the factors that influence how it is managed, necessitated selection of information rich cases from which the author could learn a great deal about the maintenance re-sourcing decision. For this situation, using the purposive sampling technique was well supported by extant literature (Miles & Huberman 1994, Patton 2002, Cresswel &Plano Clark 2007) The author's first choice was the criterion sampling technique (Patton 2002). This technique had the advantage of enabling the researcher combine the benefits of knowledge depth associated with carrying out an in-depth study in a few information rich cases and the benefit of enhanced external validity that comes from being able to compare results from more than one case (Yin 2003,). This approach was aborted because, two of the three downstream oil organisations that had had met the first three criteria, failed on the criteria of access to relevant data sources. A single in-depth study approach was taken after a process of analysing its suitability presented in section 3.4.3

The dyadic approach to the research project in which data about the maintenance re-sourcing decision was obtained from both purchaser and supplier informants was very beneficial in exposing the dynamics surrounding the re-sourcing decision. Although both sets of informants were very open about the structure of the decision process, the researcher was able to get more enlightenment about the decision environment from the supplier informants. The information obtained from the suppliers was also very helpful in focusing the later part of the research interview process with the purchaser informants who are the initiators of the re-sourcing process. The dyadic approach was able to unearth the impact of factors such personal predisposition of purchaser representatives and interpersonal relationships on the outcomes of sourcing decision

process, a benefit that research obtaining information from only purchasers might not be able to achieve.

Despite the benefits that the dyadic approach brought the research outcome, the author acknowledges that, the purchaser's knowledge that suppliers were going to be part of the research project and vice versa could have in itself been a limitation. Informants may have restricted the information they gave or structured it for fear of the information being passed on to the other party. However, using data triangulation enabled the author to reduce the negative effects that this approach could have had on the research outcomes.

Generally, the research strategy generated results that were able to fulfil the objectives of the research.

8.5.2 Generalisability of results.

Although the qualitative research study approach has been criticised for its inability to support generalisability to larger populations (Atkins & Sampson 2002), statistical generalisation to a population is not the goal of case study research (Darke et al 1998, Yin 2003). However, while a single case may not provide sufficient evidence to make robust generalisations (Kelliher, 2005), in some situations it may be possible to transfer the conclusions of a study to other contexts (Walsham 1995, Atkins & Sampson 2002,)

The research was done bearing in mind the features of the in-depth case study organisation, and, Uganda's downstream oil industry settings and characteristics that were similar to other service organisations, and where the findings of this specific case study could be applied. Uganda is classified as a least developed economy. Therefore, the research findings can find application for maintenance re-sourcing decisions for asset intensive service organisations with maintenance characteristics similar to Uganda's downstream oil companies and operating in a least developed economy. The characteristics of Uganda's downstream oil organisation and its maintenance are;

- They are asset intensive service organisations
- They have geographically dispersed equipment
- Most of the equipment and spares is imported
- Maintenance effectiveness is critical to sustainability of the organisation.
- There is more access to independent maintenance suppliers than original equipment manufacturers
- The maintenance concept is largely reactive

In Uganda, industries with such characteristics to which the outcomes of the present study may be applicable include, the water and electricity utility organisations, and the telecommunications companies.

However, even within Uganda, the challenges in the re-sourcing decision process may be different for a multinational asset intensive service subsidiary compared to asset intensive local organisations. Irrespective of the size of the company, the degree of autonomy in decision making is likely to be higher for local organisations than it is for multinational subsidiaries operating in the same context as specified in the finding presented in section 5.1.2 and discussion in sections 8.1.2 and 8.4.2

Similarly, the author acknowledges, that, in the present study, only economic factors of the capital constrained economy context were taken into consideration. Other factors such as the cultural dimension might have also had an influence on the behaviour of purchasing organisations and the responses they received from suppliers during re-sourcing. Therefore, the present research findings may not be applicable to organisations in least developed economies which have a different cultural orientation to that in Uganda. For example, the relationship between the purchaser's approach to performance evaluation of the contract manager, his commitment to the organisation and subsequent quality of his contribution to re-sourcing decision may be more pronounced in a country like Uganda than in another least developed economy where organisational commitment is a virtue. Similarly in Uganda corruption is perceived as widespread and prevalent at almost all levels of society. While it is not acceptable it is a common practice that is not punished regularly. Therefore, it might be easier for organisations to be affected by their employees misbehaviour as compared to least developed countries where corruption is heavily punished.

Chapter Summary

In the present chapter, the findings of the present research regarding factors that influence maintenance re-sourcing decisions in asset intensive service organisations were discussed in relation to extant literature on outsourcing, decision making and maintenance. The proposed model and model validation results have been discussed in relation to the intended aim of supporting maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies. Lastly, the author has discussed the suitability of the research methodology in achieving the overall aim of the research. The next chapter concludes this thesis by putting together the findings of this research, making explicit the research's contribution to knowledge, stating the limitations of the research and making recommendations for future research.

CHAPTER 9:

RESEARCH CONCLUSIONS AND RECOMMENDATIONS

Introduction

The first two chapters provided a background to the research reported in this thesis and a review of outsourcing and maintenance literature that was concluded by identifying the research gap that this study sought to narrow. Chapter 3 was dedicated to describing the research methodology that was used to achieve the research objectives. In chapter 4 the author presented an introduction to Uganda's downstream oil industry and a description of the case in which the study phenomenon of interest was undertaken. In chapter 5, the research findings in relation to the first objective were presented. Chapters 6 and 7 were dedicated to describing and presenting results of the model development and model validation process. In chapter 8, the findings presented in the last four chapters together with the methodology that was used in the research are discussed in light of extant literature. In the present chapter, a summary of the research findings will be presented. This will be followed by the current research's contribution to the existing knowledge base and implications for practice and research. Finally, research limitations will then be acknowledged and recommendations for future study of re-sourcing decisions made.

9.1 Summary of research findings in relation to objective 1

The first objective was to determine the factors that play a significant role in influencing the management of maintenance re-sourcing decisions for asset intensive service organisations operating in capital constrained economies. The research established several factors that were placed in three categories; Purchasing organisation structural elements, external structural elements, and boundary spanning elements

9.1.1 Purchasing organisation structure elements:

These are the factors that make up the internal environment under which re-sourcing decisions are undertaken. They include;

- **The characteristics of the outsourced activity**

Maintenance in asset intensive service organisations is a capital intensive activity. The magnitude of the set up and management costs associated with returning the maintenance activity in-house acts as a disincentive for considering returning the maintenance activity in-house as a re-sourcing decision option. Therefore, asset intensive service organisations operating in capital constrained

economies are more likely to always continue outsourcing despite the quality outcomes of their specific outsourcing arrangements.

• **Initial outsourcing motives**

There are several outsourcing motives. An organisation's impetus to continue outsourcing an activity is also determined by the degree to which the purchasing organisation's primary objectives for outsourcing have been achieved. Where the maintenance purchaser has registered several outsourcing benefits in relation to its initial primary objectives, they are likely to do whatever it takes to make outsourcing work. Asset intensive service organisations that have outsourced maintenance to focus limited organisation resources to their core activities and to free up capital for more profit generating activities as their primary objectives achieve a high degree of success in regard to these two objectives. When such organisations achieve shortcomings related to the quality of their maintenance activity, they are more likely to switch service suppliers, invest in supplier development or incur the high coordination costs associated with using multiple contractors rather than return activities in-source.

• **Organisational policies**

Similar to the characteristics of maintenance and initial motives for outsourcing, a purchaser's liberty to consider in-sourcing as a re-sourcing decision alternative also depends on whether the sourcing policy that set in motion the purchaser's adoption of the maintenance outsourcing strategy is still valid or not. Where the organisation's sourcing policy is in favour of outsourcing all support functions, then, for as long as maintenance is still a support function and the policy hasn't changed, then the organisation will continue outsourcing it despite the level of perceived technical quality it receives from its suppliers.

Organisational policies also determine, how the decision is structured in terms of procedure and decision participation. The low level of flexibility that sometimes comes with these policies means that, management in organisations like subsidiaries are not always at liberty to decide what they believe is the best approach in a particular re-sourcing decision.

• **The characteristics of the purchasing organisation**

The most significant factors under this subcategory were size and ownership. The size of the maintenance purchaser in terms of market share and number of assets determines the supplier capacity required for their maintenance activity. Large asset intensive organisations are more likely to find trouble finding suitable alternatives suppliers than smaller asset intensive service organisations. In the event of poor supplier service delivery or increased size of a purchaser's maintenance job, larger organisations are more likely to invest in supplier development initiatives than smaller organisations.

However, the benefits that suppliers associate with working for large maintenance purchasers such as revenue and recognition means that large maintenance purchasers are likely to obtain quicker and positive responses from suppliers during re-sourcing than the smaller organisations. Therefore, larger maintenance purchasers are more likely to have a greater influence on suppliers in re-sourcing decisions than the smaller ones.

• **The characteristics of the current contract and outsourcing arrangement.**

Contract terms for the outsourcing arrangement preceding a re-sourcing decision, determine the timing for the re-sourcing decision and specify the terms, conditions, and procedure for, extension, renegotiation, and switching at the end of contract duration and for premature termination. Where termination agreements are well written, the re-sourcing decision can be non eventful as opposed to one where the terms are ambiguous.

The origin of the contract document also determines the level of protection that the purchaser can receive from a proposed arrangement. Standard contract documents originating from the purchaser mean that, one of the re-sourcing decision outcomes will be a relatively well protected purchaser in comparison to the supplier. Standard contracts in re-sourcing decisions confer more power to the purchaser than the supplier in the re-sourcing decision.

Unlike most of the extant literature which observed that outsourcing relationships that have lasted long are more likely to continue than those that have lasted a short time, the present study revealed that in the event of unsatisfactory relationship outcomes, re-sourcing decisions that are preceded by short-term outsourcing arrangements are more likely to end in a repeat purchase outcome than those preceded by long-term arrangements.

Besides conditions specified by a current contract regarding the timing for a re-sourcing decision, the negative relationship between contract duration and a supplier's investment into the outsourcing arrangement means that short-term contracts are more likely to lead to premature re-sourcing decision timing. When suppliers do not invest in a relationship, the maintenance performance is likely to be poor and damaging to the business, causing purchasers to reconsider their sourcing approaches well before the end of the present contract.

9.1.2 External structural elements:

This consists of factors within the purchasing organisation's external environment. This category's influence on the maintenance re-sourcing decision was mainly in availing the purchaser with the information to feed the re-sourcing decision process and alternatives to chose from.

• **The incumbent supplier's performance**

In agreement with extant literature (Giller & Matear 2001, Kim et al. 2008), evaluation of the incumbent suppliers performance and its outcome play a pivotal role in determining the effort if any that will be put in the other stages of the resourcing process. In view of the characteristics of maintenance in asset intensive service organisations, since maintenance is a critical activity and its output measurable, initial supplier evaluation was based on perceived technical quality. Unless, the organisation's sourcing policy or maintenance requirements change, when the incumbent supplier meets the required specifications, the purchaser prefers to avoid switching disruptions by extending the contract or renegotiating terms.

Where the incumbent supplier's performance is well below target service levels, performance trends are central to moulding an evaluator's perception about the supplier's overall performance. Where the incumbent supplier's performance trends show continuous improvement, the maintenance purchaser is more willing to consider extension and supplier development before committing to alternative supplier search or comparison. A positive performance trend was considered as a sign of commitment by the purchaser to technical outcome quality and an incentive for reciprocal commitment by the purchaser which dissuades purchasers from putting resources into alternative supplier search and comparison.

• **Number of suppliers, their capability and capacity**

The limited number of suppliers with the capacity to handle the size of the purchaser's maintenance requirements is a big limitation to the flexibility of their maintenance re-sourcing decisions.

The translation of potential ability into actual service delivery by the incumbent supplier creates an imbalance in the knowledge available to the purchaser's re-sourcing decision team making it impossible to use similar measures in evaluating and comparing the incumbent supplier with others in the market.

The suppliers' capability and capacity has a greater influence on the purchaser's maintenance re-sourcing decisions than supplier number. Due to the capital intensive nature of requirements for starting and developing a maintenance supplier company, the number of sizeable suppliers does not change much between maintenance sourcing decisions. However, the fluidity of the building blocks from which the alternative suppliers' capability and capacity are developed is what poses a greater challenge to the purchaser. The sourcing decisions of other maintenance purchasers, and organisations in the industry means that both the incumbent and alternative suppliers' maintenance work to capacity ratio keeps changing. It is the uncertainty created by maintenance

sourcing decisions of other organisations that has a bigger influence on the approach that a given purchaser takes in their re-sourcing decision than supplier or purchaser numbers.

The purchaser's focus on measuring and evaluating the incumbent suppliers performance throughout the current outsourcing arrangement while leaving capability and capacity analyses for the alternative suppliers to a few months before the re-sourcing decision results in using inadequate information during re-sourcing. The quality of information used in re-sourcing decisions can be enhanced if purchasers incorporate mechanisms that can capture the incumbent and alternative suppliers' capability and capacity trends over the current contract period. This is likely to provide a more accurate depiction of the alternative suppliers' capability, capacity and measure of stability which will in turn support a better interpretation of the alternative suppliers' suitability for the job. This approach to supplier evaluation will also provide enhanced uniformity in the measures used in evaluating and comparing the incumbent and alternatives in the market.

- **Infrastructure elements**

Since the equipment is located in several areas around the country, the poor information and transport infrastructure increases the supplier coordination and evaluation costs which in turn affect the accuracy of information used in re-sourcing decisions. Quite often the purchaser has to depend on the information provided by the supplier to evaluate his performance. These conditions also make acquisition of information about alternative suppliers very complex.

9.1.3 Boundary spanning elements

- **Purchasing organisation's perception of switching costs**

As discussed in section 8.1.6, the size of maintenance in asset intensive downstream oil organisations is associated with high set up costs and management costs that the re-sourcing decision team perceives high switching costs associated with returning the activity in-house. Therefore, organisations in such industries are likely to only consider outsourcing options in their maintenance re-sourcing decisions

The characteristics of maintenance in asset intensive service organisations that have geographically distributed equipment, is also associated with high switching costs associated with the disruptions to the purchaser's business that might arise between the time of switching and the time it takes for the new supply to build the required capacity and stabilise his operations. Maintenance purchasers in such industries are more likely to switch only if the purchaser's evaluation of the alternative supplier's maintenance to load to capacity ratio after switching is far less than the incumbent supplier's ratio.

•Power dynamics

The influence of differences in power between the purchaser and supplier manifests both at the macro and micro level. At the macro level, the negotiation power of the purchaser depends on the attractiveness of the revenues and recognition benefits that the purchaser brings to the negotiation table. Overall, due to the large size of the downstream oil companies currently outsourcing maintenance, the purchasers appear to have a higher potential negotiation power than suppliers. The sustainability of the maintenance supply organisation in the industry depends entirely on the business it can get from the few large maintenance purchasers. However, the needs of a particular supplier change from time to time due to the sourcing decisions of other purchasers a condition that results in variability of attractiveness of a particular purchaser offer from one re-sourcing decision to another. Therefore, where possible, the purchaser's needs to continuously take note of the changing resource needs of the suppliers in the market so as to know their power position in relation to every supplier at the re-sourcing decision stage.

At the micro level, despite the potential net power that size and ownership can bring to the purchaser, the exploitation of this power during re-sourcing depends on the ability of the boundary spanners to translate this into actual power and influence the responses of DMU members in supplier organisations. This ability is a function of the representatives' experience, knowledge about the supply market and especially the specific supplier that the purchaser is negotiating with, and the knowledge about the activity itself. A representative who is not well equipped with knowledge in these areas is likely to have less influence in the negotiations than one who is. Similarly, the confidence displayed by the supplier's negotiation team which is a function of their knowledge about the value they are able to bring to the relationship relative to other suppliers in the market, determines the degree to which they can be influenced by the purchaser. Where supplier representatives lack confidence and act as beggars during the negotiation, they are likely to be influenced more by the purchasers than if the confidence they have in the value of their service offering is high.

•Supplier's interpretation of purchaser's behaviour

Similar to extant literature, this study established that suppliers' responses during a purchaser's re-sourcing decision are influenced by the purchaser's reputation as perceived by the supplier. The present research was in agreement with extant literature that unilateral termination of outsourcing arrangements by purchasers and purchaser's being insensitive to the suppliers' need to make money influence the suppliers willingness to work with the purchaser. However, this research has also established that sometimes a negative reputation is the result of poor communication between the purchaser and suppliers. When the purchaser does not explain the reason for a particular behaviour or request to the supplier, they are in danger of building a negative reputation simply because the supplier interpretation of the purchaser's behaviour is not

in line with what the purchaser intended . While the purchaser cannot control what the supplier makes of his behaviour or requests, if he puts an effort in guiding the supplier's interpretation, the outcome might be more favourable to the purchaser than if there is no effort made.

9.2 Summary of research findings in relation to objectives 2 and 3

- To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To validate the re-sourcing model and make recommendations for use.

A structured approach for guiding management of maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies has been proposed. The model development process was guided by what the maintenance purchaser regarded as the desired outcome from the re-sourcing decision presented in section 6.1. The process was also supported by knowledge from extant literature on switching barriers and relationship termination processes (Giller & Matear 2001, Li et al. 2006, Whitten & Leidner 2006, Yanamandram & White 2006, Kim et al. 2008). The proposed model is a prescriptive one, taking into account the descriptive elements narrated by the informants, what the informants considered an effective maintenance re-sourcing decision, and, recommendations from literature to propose the best approach to maintenance re-sourcing decision processes. The model development process was reported in chapter 6 and the version taken for model validation presented in figure 6.6. The model underwent a qualitative oriented validation process reported in chapter 7 and the final version of the model is presented at the end of chapter 7 in figure 7.1.

The aim of developing the model was to guide maintenance purchasing organisations in their sourcing decisions. Although the model validation process revealed that stages presented in the proposed model were applicable to maintenance re-sourcing decisions in Uganda's asset intensive downstream oil organisations, some challenges to its application were also registered.

- Utilising the model to support maintenance re-sourcing decisions can only be effective if the purchasing organisation recognises the importance of supplier market information and is willing to commit resources to investing in an efficient information management system. Such systems require committed personnel and time that purchasers are willing to invest only if the perceived benefit outweighs the cost.
- Application of such a model would be easier in organisations where there is a higher level of autonomy in decision making, a condition that is sometimes lacking in organisations like subsidiaries of international organisations. Unlike local organisation where there is flexibility

regarding supporting tools and procedures for decision making, management in subsidiaries which at the time of research were the only ones which had engaged in maintenance re-sourcing decisions, are some times not aware of the overall direction and management strategies that the international organisation has for the subsidiaries. Therefore they might not be willing to invest in information gathering.

- The model validation process also revealed that, sometimes the outcome of the re-sourcing decision evaluation based on the proposed model might be in conflict with the existing organisational policy. Citing situations in which the multinationals sourcing policy is to have one supplier managing outsourcing contracts for maintenance activities in several countries. In such situations, despite the significance of the maintenance activity, the policy might favour the supplier with a higher maintenance load to capacity ratio as opposed to the model's proposed outcome.
- Despite the presence of structured methodologies, decision makers may simply choose not to utilise them because they believe, they have the relevant experience and knowledge to make the right decisions any time.

However, despite these challenges, the model validation process revealed that, if the quality and timing of information is good, and existing organisational sourcing policies reinforce the recommendations of the proposed model, it can be a good guideline for maintenance re-sourcing decision.

Through the development and progression of this research study, each of the three specific objectives has been achieved. By integrating the outcomes of the effort to meet each of the specific research objectives, the research study has been able to meet the research aim.

9.3 Research contribution to knowledge

Extant literature revealed that much as there was an awareness that outsourcing consists of several stages (Zhu et al. 2001, Marshall et al. 2005, Cullen et al. 2005) and that outsourcing would be more successful if viewed as a strategy with a life cycle (Cullen et al. 2005), extant literature has also revealed that there has been more research on outsourcing decision determinants and the outsourcing process compared to the re-sourcing decision (Kern & Wilcocks 2000) or outsourcing results (Jiang & Qureshi 2006). Studying the re-sourcing process is a means to understanding outsourcing results. Outsourcing literature has also reported a dearth of outsourcing knowledge on asset maintenance (Taracki et al. 2009), especially maintenance in the services sector. Therefore, the present research has extended the re-sourcing body of knowledge through the following contributions.

- The present research has in response to the need to engage in research that addresses all the stages of the outsourcing cycle (Cullen et al. 2005) and the re-sourcing stage in particular (Kern & Willcocks, 2000; Jiang & Quresh, 2006) expanded the scope of sourcing literature by determining the factors that influence maintenance re-sourcing decisions in asset intensive service organisations.
- This research extends knowledge that supports the need for purchasers that have outsourced critical activities to engage in continuous alternative supplier evaluation while maintaining a collaborative approach with their incumbent suppliers. The study findings have emphasised the need to extend information capturing strategies beyond incumbent supplier performance reports to include both the incumbent and alternative prequalified suppliers' capabilities over the entire contract period. This approach has the advantage of keeping the purchaser ready at all times for any eventualities that might lead to a re-sourcing decision and is a means of increasing uniformity in the measures used in supplier comparison during re-sourcing.
- Unlike previous research findings which established that the longer the interorganisational relationship, the lower the propensity for the purchasing organisation to leave in situations where the purchaser is dissatisfied with the current relationship, the present research has shown that under similar circumstances of dissatisfaction, re-sourcing decisions following short-term arrangements are more likely to end in repeat purchases compared to those following long-term arrangements. Long-term relationships preceding a re-sourcing decision afford the purchaser enough time to monitor the incumbent supplier's service offering and to evaluate the alternatives thereby reducing uncertainty, a benefit that is rarely enjoyed if the re-sourcing decision is preceded by a short-term contract.
- Most of the outsourcing research has been conducted in the context of developed nations. There has been limited outsourcing research conducted in a least developed country. The present research has expanded the scope of empirical sourcing literature to include maintenance re-sourcing decisions in the context of a least developed economy. This has provided an insight into the challenges faced by maintenance re-sourcing decision makers in asset intensive service organisations operating in such environments. Although existing literature has reported an advancement in technology that has advanced the use of predictive and condition based maintenance, maintenance in least developed economies like Uganda is still largely reactive. Evidence from this research suggests that, such operating environments put a limitation on the level of technological innovations and technical expertise that can be accessed and utilised, they also provide a different institutional framework that makes monitoring suppliers and gathering performance information costly. Asset intensive organisations in such economies still require

extensive human engagement in maintenance activity monitoring, a condition that still makes maintenance performance information capturing for re-sourcing decisions still very challenging.

- Although the importance of sourcing frameworks cannot be overstated, results from this research have presented a non contestable argument of the role that maintenance contract managers play in determining whether the re-sourcing frameworks or policies available to the purchasing organisations will be implemented effectively. While existing sourcing literature emphasises the contract manager's role as critical to the success of outsourcing arrangements involving strategic activities, the present research has revealed that, the importance of the contribution that contract managers offer to outsourcing arrangements stretch beyond the outsourcing implementation stage to the re-sourcing decision stage. This is because the contract manager's position offers the role holder the opportunity to engage with the supplier market on a more frequent basis compared to any other member of the re-sourcing decision team. The study results have highlighted the need for purchasing organisations to create enabling environments in which such boundary spanning individuals are, motivated to focus more on meeting the goals of the organisation as a whole rather than meeting personal goals. This can go a long way in ensuring the re-sourcing decision team gets the information required for making the right choices.
- Following the argument in outsourcing literature that attributes failure of some outsourcing strategies to a lack of clear guidelines for supporting sourcing decisions, the present thesis has proposed a maintenance re-sourcing model suitable for guiding maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies. Despite the challenges that are likely to influence its implementation stated in section 9.2, the validation process revealed that the proposed model and recommendations for its use provides a good guideline for maintenance re-sourcing decisions.
- Most of the previous research on the re-sourcing decisions in business to business contexts have explored the phenomenon based on contributions from a single perspective, either that of the purchaser or that of the supplier. This is one of the few studies that have taken a dyadic approach to the study of the re-sourcing decision employing contributions from both the purchaser and supplier to understanding the dynamics of the re-sourcing decision. The results of this research approach show that since a purchaser's re-sourcing decisions always involve one or more suppliers, the chances of understanding the re-sourcing decision are enhanced through the dyadic approach.

9.4 Research Limitations

While the research has addressed the concerns stipulated in the objectives of the study, the following limitations are acknowledged.

Firstly, the researcher acknowledges that the most ideal means of obtaining data regarding re-sourcing decisions should have been either the researcher acting as a participant or passive observer during the actual re-sourcing decision process. But due to time and resource constraints, and the limited chances of being taken on by any maintenance purchasing firm in these two roles, the researcher opted for the next most viable option of seeking for facts, perceptions and opinions from participants in the decision process. While the researcher endeavoured to deal with the possible presence and impact of biased and inaccurate information from informants through the use of data triangulation, there is still a possibility that these errors might not have been entirely eliminated.

Secondly, only one informant consented to the use of a tape recorder during the face to face interview. Also, only one telephone interview was recorded. Despite the effort made by the researcher to assure the informants of confidentiality regarding the information provided, an expression of fear and distrust seemed to appear on the faces of the informants when a request for permission to use a tape recorder was floated. While the research endeavoured to develop interview write ups as soon as the interviews were over, it is acknowledged that some of the interview data could have been lost due to the limited capacity of the researcher to write down all the words of the informants and while maintaining the “I am interested in what you are saying “ posture and eye contact necessary for obtaining as much information as possible.

Thirdly, while it is often desired and advisable for the researcher intending to carry out a study in an organisation obtain permission from the top most authority in that organisation before they proceed with the study, the initial response made by the country chairman in Petro1-U presented another challenge to the research process. In an effort to assist the researcher in obtaining the required data, there was an email sent to some of the key informants by the person in charge of research support informing them about this research study and the fact that the researcher had talked to the country chairman and had been given permission to proceed with the research. This is likely to have influenced the kind of data that the informants were willing to present. The result was that, at first, the informants initially contacted by the research support coordinator were more willing to provide more of ‘what should be done’ kind of information rather than what was or is actually done. This could have been the result of them thinking the researcher was spying on their operations. Although this behaviour from some of the informants posed a validity threat, its early discovery enabled the researcher to incorporate more informants than those that had initially been

contacted, to test the integrity of the information already provided and to generate more data. Further still, this behaviour by the initial informants acted as an eye opener by generating more questions regarding the contribution of those individuals to the decision making process. It has been said that false and misleading information can be valuable to the researcher when recognised as false (Marshall et al. 2005). According to Van Maanen, people lie most about the things that are important to them and therefore, if the researcher can uncover an inconsistency in an informant's information, then much is revealed about what is deemed crucial by the individual group or organisation. The researcher therefore used the knowledge about these inconsistencies to inform the research about the need to uncover why particular informants were more comfortable with providing presentational data rather than operational data (Van Maanen 1979).

Lastly, although research regarding re-sourcing decisions for asset intensive service organisations operating in capital constrained economies was a non explored area and a case study strategy considered the most appropriate for meeting the research objectives, the researcher acknowledges its limitation with regard to the element of generalisability. However, despite the fact that the research context was Uganda's downstream oil industry, the present study's findings can also have similar practical implications for asset intensive service organisations with characteristics similar to Uganda's DSOI and operating under the same economic context similar to that of Uganda. These would include, asset intensive multinational service organisations with multiple site, geographically distributed equipment mainly operating a reactive maintenance philosophy and operating in a capital constrained economy. It must be emphasised however, that in relation to a capital constrained economy, the researcher only took into consideration only economic factors. The findings and the proposed model may not be applicable to maintenance re-sourcing decisions for asset intensive service organisations operating in economies of a different national culture to that in Uganda.

9.5 Implications for practice and research.

From a managerial perspective, findings from this research raise several issues for maintenance purchasing asset intensive service organisations and their suppliers.

- First research results have emphasised the magnified role that contract managers play in informing the re-sourcing decision through monitoring, scanning and initial interpretation of the environment. One implication for managers in maintenance purchasing organisations is to think of contract manager recruitment and development as a very important responsibility that warrants dedicated re-resources if scanning and dissemination of information by this role is to support effective re-sourcing choices.

- The research also serves to note that purchasing organisations can determine before hand to support committed but below capacity incumbent suppliers that have demonstrated a continuous improvement over the contract period to meet specified target levels in order to avoid incurring costs in alternative suppliers search activities. Such an approach would save purchasers the cost of searching for alternatives and eliminate the much disliked disruptions in the organisation's operations that are an inevitable experience when purchasers opt to switch service providers.
- Since the incumbent supplier and alternative supplier evaluation and comparison stages are the most critical stages of the resourcing process, purchasing organisations will benefit from investing in information management systems that enable them to capture information related to both the incumbent and alternative suppliers' capability and capacity over the entire contract period preceding a re-sourcing decision. They will enable them become more responsive to changing internal business requirements and changes in both the industry and supplier market.
- The reduced search costs that may arise from having a satisfactory relationship with the incumbent supplier should encourage purchasers to create and develop environments or conditions that foster satisfactory and positive performance trends among their incumbent suppliers. One of the most cited impediment to good supplier performance in this research and literature is offering short contracts to suppliers. Since short contracts do not encourage suitable investment commitments from incumbent suppliers, thereby having a negative impact on performance, they should be avoided by purchasers outsourcing critical activities. Additionally, purchasers should also endeavour to cooperate with their suppliers to enhance information exchange, a necessary interaction if suppliers are to be supported for enhanced performance.
- Since the benefits of freeing up capital through outsourcing of maintenance activities in asset intensive industries discourage including the return in-house option at the re-sourcing stage, maintenance outsourcing organisations should ensure continuous support for maintaining a competent and committed set of suppliers in the market. This would facilitate superior performance in the purchasing organisation's operations that depend on maintenance. Additionally, with the added knowledge of the great impediment that the capital intensive nature of asset intensive service organisations maintenance places on returning activities in-house, maintenance purchasing organisations should make sourcing decisions that support sustainability of a supplier network that discourages supplier opportunistic behaviour.
- This study should also be of particular interest to maintenance service suppliers. Research results from this study indicate that besides building the required capability and capacity for maintaining any particular maintenance purchasing organisation's network of assets, current or prospective, managers in supplier firms can augment their technical and managerial capabilities

by acquainting themselves with the knowledge of the role and personal needs of boundary spanning personnel such as contract managers. These are the positions that carry the memory of the direct experiences of client-supplier relationships and are the conduits for most the information that re-sourcing DMU members of purchasing organisations depend on to make supplier and supplier relationship choices. As individuals, their positive relationship experience with the purchasing organisation's interfacing team is likely to buffer poor negative client-supplier organisational relationship experience, current or historical. This may be achieved through limiting the amount of negative performance and conflict experiences' information to the strategic decision makers or through presenting a positive report on the subjectively measured aspects of quality and capability measurements. Boundary spanners in supplier firms are therefore advised to establish sufficient dialogue and good working relations with the contract manager who in their position were found to be the most significant contributors to the re-sourcing decision process.

- Additionally, the knowledge that a positive performance trend even for suppliers whose overall performance is below specified service level targets is an encouragement for maintenance purchasing organisations to continue working with their incumbent suppliers rather than switch service providers should persuade suppliers whose performance is below targets to strive to maintain a positive performance trend. This has the possibility of improving their current client's perception of the supplier's commitment and effort to meeting the target requirements of their client.
- Overall, the reactive nature of stages within the re-sourcing process means that purchasing organisations have to put more emphasis on information systems that enable them keep up to date with the dynamics of the industry as a whole and how the continuously changing environment is likely to affect their sourcing strategies in the future. This implies that the evolutionary perspective, a perspective which emphasises the importance of continuous information capture and interpretation and which takes into consideration the changing nature of the internal and external environment and the dependencies created by history, has a good predictive ability for re-sourcing decisions and can act as an excellent framework for conducting re-sourcing research.

9.6 Research implications for Uganda.

Several organisations in Uganda's service sector have recently taken to maintenance outsourcing in an effort to focus their minimal resources to the core of their business activities. These include organisations in the oil industry, telecommunications and utilities. Although at the time of this research many of the organisations had not undertaken maintenance re-sourcing decisions, this is

an inevitable stage that has to be encountered some time within the organisation's outsourcing cycle. Therefore the results of this research, can provide these organisations with the knowledge required to design effective re-sourcing decisions. The proposed model can act as a tool that highlights the requirements of the re-sourcing decision process.

The upcoming upstream oil industry in Uganda means that unlike in the present where the only organisations outsourcing maintenance in the downstream oil industry are multinationals, local organisations are likely to expand and also begin to use maintenance outsourcing. Although the present research focus was on the maintenance re-sourcing decision, organisations that will adopt outsourcing in the future can use knowledge from this research to understand what takes place at the re-sourcing stage so that they can design outsourcing relationships, controls and information capturing systems that will facilitate smooth re-sourcing decision processes.

9.7 Recommendations for further research

Based on the current study's findings and the limitations presented in this thesis, some important issues warrant further research.

In view of the access and time limitations under which this research was undertaken, the author proposes that future research could consider undertaking a longitudinal case study approach to gain an experiential overview of the dynamics surrounding maintenance re-sourcing decisions as outsourcing arrangements progress from one re-sourcing decision to another. A researcher taking on the role of a participant observer or simply an observer would be able to acquire more operational data as opposed to the possibility of capturing presentational data from informants who might be concealing some of the information about what actually takes place during maintenance re-sourcing.

Based on the present findings, if maintenance contract managers play a major role in ensuring the effectiveness of the re-sourcing decision, then further research should consider establishing what factors within the organisation need to be developed, enhanced or eliminated to improve their performance. A step in this direction would be, to establish the relationship between how the maintenance contract manager is evaluated and his effectiveness especially in relation to information gathering and dissemination

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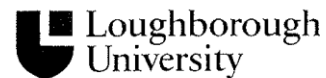
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APPENDICES

APPENDIX A

Introduction letters from Loughborough university

Wolfson School of Mechanical and Manufacturing Engineering
Loughborough University Leicestershire LE11 3TU UK
Switchboard: +44 (0)1509 263171



January 2008

TO WHOM IT MAY CONCERN

This is to introduce to you *Miss Betty Nabuuma*, a PhD research student at Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, UK. She is currently conducting fieldwork for her research, looking into management of maintenance outsourcing decisions in Uganda's service sector. For this research study, she is required to collect data and information from organisations that have had an experience with outsourcing their maintenance function to establish how the decision is managed and major influencing factors.

We would be extremely grateful if you co-operate with Betty and provide her with the necessary assistance she might need for her fieldwork. Your co-operation and assistance will be highly appreciated.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Neil Burns', written over a horizontal line.

Professor Neil Burns
Research Supervisor
Wolfson School of Mechanical and Manufacturing Engineering



APPENDIX B

Copy of the letter of request for permission to carry out research in the purchaser organisation

Betty Nabuuma
Wolfson School of Mechanical and
Manufacturing Engineering
Loughborough University
LE11 3TU, Leicestershire, Uk
Tel: 0777174795
Email: B.Nabuuma@lboro.ac.uk

06 February 2008

The Country chairman
PETRO 1-U

Dear Sir

Re: Request to conduct PhD research study in PETRO 1-U

My name is Betty Nabuuma. I am a full time PhD research student at Wolfson school of Mechanical and Manufacturing Engineering, Loughborough University, Uk. I am currently conducting fieldwork for my research, exploring maintenance sourcing decisions subsequent to maintenance outsourcing arrangements in Uganda's service sector.

The study seeks to explore maintenance sourcing decision approaches taken subsequent to a maintenance outsourcing arrangement in order to establish major influencing factors and thereafter develop a guide for decision makers in this area. I will be collecting data from organisations in the downstream oil industry that have outsourced maintenance. This I hope to achieve through interviews with members of the maintenance sourcing decision team. Typical issues to be explored although tentative will include, factors influencing the structure of the maintenance sourcing decision process, time frame, criteria, major challenges and degree of involvement by various stakeholders. PETRO 1-U having been a pioneer in maintenance outsourcing in the oil industry in Uganda with an experience of more than ten years in its application stands out as an exceptional 'case' for this study.

I therefore kindly request for permission to carry out research in your organisation. In case of any questions regarding this research, I would gladly welcome an opportunity to provide more information about the research and the data I intend to collect.

Your co-operation and assistance will be highly appreciated.

Yours sincerely

Betty Nabuuma

APPENDIX C

Copy of the letter briefing informants about the research

Betty Nabuuma
Wolfson School of Mechanical and
Manufacturing Engineering
Loughborough University
LE11 3TU, Leicestershire, Uk
Tel: 0777174795
Email: B.Nabuuma@lboro.ac.uk

A brief introduction on maintenance outsourcing research

My name is Betty Nabuuma. I am a full time PhD research student at Wolfson school of Mechanical and Manufacturing Engineering, Loughborough University, Uk. I am currently conducting fieldwork for my research, exploring maintenance sourcing decisions subsequent to maintenance outsourcing arrangements in Uganda's downstream oil industry

The study seeks to explore maintenance sourcing decision approaches taken subsequent to a maintenance outsourcing arrangement in order to establish major influencing factors and thereafter develop a guide for decision makers in this area. I will be collecting data from organisations in the service sector that have outsourced maintenance. This I hope to achieve through interviews with members of the maintenance sourcing decision team. Typical issues to be explored although tentative will include, factors influencing the structure of the maintenance sourcing decision process, time frame, criteria, major challenges and degree of involvement by various stakeholders. Petro1-U having been a pioneer in maintenance outsourcing in the oil industry in Uganda with an experience of more than ten years in its application stands out as an exceptional 'case' for this study.

I am aware of the impracticalities of observing this process in real time. This leaves me with mainly three methods of achieving the research objectives; that is, interviews, questionnaires and use of documents and archives. In an earlier communication with the country chairman, I was referred to you as one of the resourceful persons for this research project. It is because of this that I found necessary to brief you on what the research is all about and how I intend to proceed with the study.

I am therefore here to request for your time and cooperation, and where possible to set an initial appointments for the interviews

One other thing that is of utmost importance is the issue of confidentiality. With regard to this research, where necessary, I pledge to treat information given to me with utmost confidentiality.

If you have any questions regarding this research, please feel free to contact me on using the information above.

Your co-operation and assistance will be highly appreciated.

Yours sincerely

Betty Nabuuma

APPENDIX D

Case Study Research protocol

The specific objectives of the research

- To determine which factors play a significant role in influencing management of maintenance re-sourcing decisions in Uganda's downstream oil organisations.
- To propose a re-sourcing model that provides guidelines for managing maintenance re-sourcing decisions in asset intensive service organisations operating in capital constrained economies.
- To validate the re-sourcing model and make recommendations for use.

STEP 1

Develop a tentative interview guide

STEP 2

- Gather information about downstream oil organisations in Uganda- possible source, ministry of energy and mineral development or Uganda investment authority. (important information - Names, ownership and market share)
- Identify which of these organisations have outsourced maintenance. For those that have outsourced maintenance, establish when they first outsourced maintenance
- Establish how many of these have had maintenance re-sourcing decisions- (possible source, the oil organisations or suppliers)

STEP 3

Identify cases based on the following criteria

The maintenance purchaser

- The downstream oil organisation should have outsourced critical maintenance activities
- The organisation should have undertaken at least one maintenance re-sourcing decision
- The top management (managing director or country chairman) should provide generous access to sources of relevant information

The maintenance supplier

The supplier should have engaged in at least one maintenance re-sourcing decision of the chosen purchasing organisation.

STEP 4

Establish initial contact with the maintenance purchasing organisation

- Contact the highest authority in the organisation to request for permission to carry out research in the organisation
- Include letter of introduction from research office and supervisor
- Include a brief introduction of the research topic
- Include information of the time scope, the resources involved, documents required and possible informants you might be interested in interviewing
- Provide assurance for confidentiality both with case study organisation and participants

STEP 5

Formulate an interview strategy

- Complete interview guide
- Request for an appointment with identified informants. Introduce topic and requirements. Provide assurance for confidentiality.

During interview

- Introduce myself
- Introduce research topic and requirements from the interviewee
- Ask for permission to record.
- use interview guide to provide direction for interview.

Capture- specifically

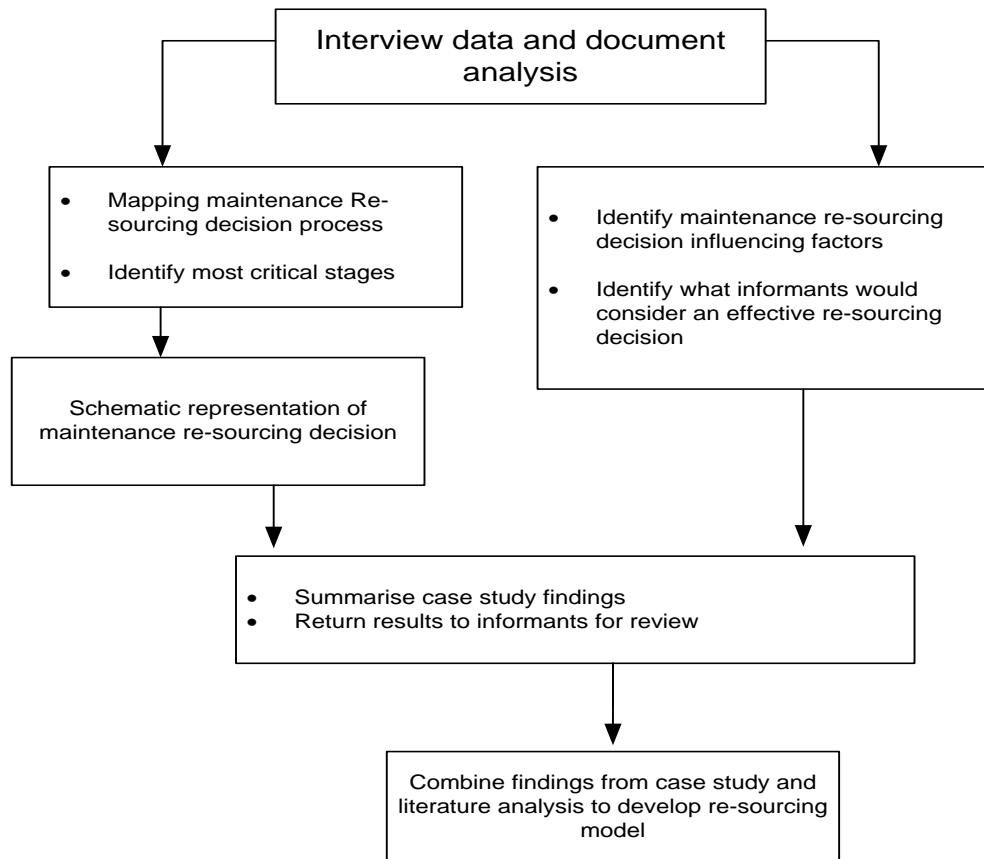
- What is done,
- Who does it
- Number of alternatives
- Choice criteria
- Evaluation
- Required resources
- The intended outcome form the re-sourcing decision process
- The interviewee's role/ contribution to process

Capture -Broadly

- Map re-sourcing process
- Identify re-sourcing decision influencing factors
- Establish informants perceptions of an effective re-sourcing decision process
- Appreciate informants and request for future support in refining model

Step 6

Analysis of interview and document data



Step 7

- Validate developed model

	Activity	Contact
1	Develop model validation questions	
2	<ul style="list-style-type: none"> •Request previous informants to validate model. Attach model when sending request •Request for an interview date •Apply model validation questions 	DMU members (Purchaser and supplier)
3	<ul style="list-style-type: none"> •Contact maintenance sourcing decision unit members outside case study •Apply model validation questions 	<ul style="list-style-type: none"> •Maintenance contract managers •Procurement managers
4	Make necessary adjustments to the model	

APPENDIX E

Research Interview Guide (Jan- July 2008).

A. Introduction / interview summary

1. Appreciation for time
2. Brief introduction on research
3. Request to use recorder
4. Pledge of confidentiality
5. Interview
6. Appreciation and request for further support in subsequent interviews.

B. Information about the interviewee

1. Tenure in organisation
2. Tenure in position
3. How many maintenance sourcing decisions he/she has been a part of
4. Role in the decision process.

C. Transaction characteristics

1. What type of maintenance is outsourced
2. Description of the role of the maintenance function in the organisation
 - Budget size
 - Rate of contribution to organisational success
 - Departments depending on maintenance

D. Maintenance outsourcing experience

1. How long maintenance has been outsourced
2. Reasons for outsourcing maintenance
3. Maintenance outsourcing experience
4. Compare current and previous outsourcing experiences
5. What is considered a successful outsourcing experience

E. Re-sourcing decisions

1. Mapping the maintenance re-sourcing process (description of the resourcing decision process.)
2. What is considered an effective re-sourcing decision
3. What factors influence the effectiveness of the decision process.
4. Who provides the information for the decision process.
5. Establish composition of re-sourcing decision team
6. Criteria for selecting approach
7. Criteria for selecting service provider
8. How the incumbent supplier is compared to prospective suppliers

9. The decision making unit members that are the most influential in the re-sourcing decision
10. Opinion on returning maintenance back in-house
11. Opinion on what would make the re-sourcing decision more effective.

Interview questions for interviewees from purchasing organisations.

1. How would you describe the role of the maintenance function in your organisation?
2. What motivated this organisation to outsource maintenance
3. What benefits has the organisation been able to achieve since maintenance was outsourced.
4. What would you consider a successful outsourcing arrangement
5. Could you please describe your organisation's outsourcing experience
6. Could you please describe how you manage the maintenance sourcing process when an outsourcing arrangement with a particular supplier is about to end?
7. What contribution does your position bring to the maintenance sourcing decision
8. How would you measure the effectiveness of a maintenance re-sourcing decision?
9. What factors influence the effectiveness of the maintenance re-sourcing process you have just described.
10. What impact do your competitors have on your decision process and output?
11. What would you consider as the major challenges in this process (maintenance re-sourcing decision making process)
12. What in your opinion differentiates a maintenance sourcing decision from a sourcing decision of any other service within your organisation? (this will depend on whether any other service is outsourced in the organisation)
13. How do you compare the incumbent supplier's capability with that of the prospective supplier?
14. What would you consider as the most influential positions in the maintenance re-sourcing decision process?
15. How do you think your participation in the decision making affected the decision output?

Interview questions for interviewees from supplier firms

1. How would you describe the maintenance sourcing decision process of (the name of the client organisation)?
2. What in your opinion influences how this decision process is structured?
3. How do you think your previous associations with (name of client organisation) affected the decision process
4. What kind of information is your organisation required to provide for this decision?
5. What challenges do you face when trying to renegotiate with the purchasing organisation?
6. Have you ever had a contract terminated prematurely?
7. Describe how this termination was managed by the purchasing organisation and you.
8. How would you describe your negotiation position during these re-sourcing decisions?
9. As a supplier what is the difference between a re-sourcing process when you are the incumbent supplier and when you are the prospective supplier.
10. How is your capability measured?
11. Which position in the purchasing organisation's maintenance re-sourcing team do you consider the most influential?
12. How would you describe your organisation's experience as a maintenance supplier for this oil company
13. What about your experience with other oil companies?

APPENDIX F

Contact summary

Visit : Interviewee1 Site: Petro1-U Contact date: 22/02/08 Today's date 22/02/08

Introduction : Brief on the research

Which research questions were answered

Rationale for Maintenance outsourcing	To concentrate on their core activity (product development and marketing)
Other activities outsourced	Maintenance not core activity of Shell Fuel transportation, depot works, cleaning
Structure of re-sourcing decision process	Either one or two levels depending on sum of contract over contract duration. (local& Africa board). maintenance Exceeds threshold figure.
Challenges	very few competent service providers Yet competitors have also outsourced maintenance. Suppliers have not developed capacity at pace of service market

Main issues raised by the contact

- Interviewee 1 sits on the maintenance outsourcing contract board. It seems he is very influential (has power to reject proposals for one year contracts)
- Short contracts are costly. There is little room to prepare(3months) engage, monitor and evaluate. Little assurance for supplier (assurance required for capacity building)
- Commitment of local organisation to global goals (core activity and policies)
- Purchaser has interest in supplier's interests (in obtaining financial help to support supplier)
- Process is reactive. Purchaser has plans but supplier response determines how it is implemented

Questions arising from this contact and others that were not answered

Previous contract (one yr), current contract (two yrs) ; reasons given for change. What was the reason for designing a one year contract?

- Which other persons sit on the local contract board? How does each influence the decision?
- Information required for evaluation, who provides it
- How does the local contract board influence the Africa board
- What is satisfactory performance? Is it quantified? If so how? Is the measure of satisfaction the same for every member of the purchaser's decision team

Any thing that struck you as salient or illuminating in this contact?

- Length of contract influences how the maintenance sourcing decision is approached. One year contract considered short, two years is long.
- Importance of an activity in comparison to other activities is a function of the total cost of managing it.
- Assurance of continuity provided by purchaser but dependant on suppliers performance
- Supplier evaluation and comparison most critical stages of process
- Contract holder (contract manger plays key role in providing information)

APPENDIX G

Contract document summary

Document: current contract
Site : Supplier A

Date of reading 01/03/08
Comment :can only be read at site

Significance of document

It is taken both as an output of the maintenance outsourcing decision process
Gives some detail on some of the steps taken prior to signing the agreement.

Summary of content

- Details legal obligations for both purchaser and supplier
- Details activities carried out by supplier before signing the contract
- Contains the termination agreement
- Termination notice for poor performance on the supplier's part is shorter (one month) than for other reasons (3 months)
- Details of persons who signed the agreement
- Details of equipment to be maintained and both total cost of maintenance for each equip. type and total for all equip.

Major points

- Parties expressed intention to work together in good faith, with mutual trust and fairness and cooperation
- Capacity of supplier measured in terms of technical knowledge, appropriate organisation and adequate financial means.
- Contractor willing to carry out maintenance services
- Response time, fixing time and MTBF are major KPIs for performance measurement.
- Extension of contract beyond the initial two years although it depends on satisfactory performance is offered at the discretion of the purchaser
- Supplier obliged to accept whatever choice purchaser makes
- Supplier obliged to extend arrangement as long as he is informed anytime before expiry of initial period

- Terms for continuation same as terms for initial two year period
- Purchaser is well protected
- Inappropriate use of power by purchaser.
- It seems contract was developed by purchaser
- Contradiction between contract document and contact person about financial position of supplier. (contract says, contractor declares- maybe they were looking at capacity to obtain relevant funds). It was poor but contract says contractor declares that he is financially able

Follow up questions from contacts

- Elaborate on the following: meaning of good faith, mutual trust, fairness and cooperation
- Who writes the contract?
- Any difference between this contract and previous ones
- Why contract terms seem to favour only the purchaser?
- What does the purchaser have to say about the maintenance outsourcing contract document

APPENDIX H

ANALYSIS OF RESULTS : IDENTIFYING THEMES

	Code	Issues	Themes identified
	Performance evaluation	Measurement Service levels KPIs Degree of satisfaction Post contract Service recovery Performance trend Performance gap Performance history Frequency of reports Relationship Personal level Organisational level Improving Response Willingness to change	<ul style="list-style-type: none"> ▪ Performance gap and performance trend are the main measures of technical performance ▪ Overall post contract performance is measured using KPIs and compared against SLAs to establish performance gap ▪ Performance measurement is a post contract activity that is best understood through experience with a particular supplier ▪ Performance history sometimes mars current efforts ▪ Performance trend impacts purchaser's perception of suppliers commitment to organisation and learning for positive change ▪ Positive response to supplier complaints influences performance trend ▪ A good performance trend is a sign of both capacity growth and willingness to change which encourage purchaser to commit to supplier development
	Capability assessment	Industry experience Management competence Core service delivery Organisational size Size/ spread/ location Personnel experience Personnel qualification Reputation Financial health Performance history HSSE Policies Certification Management turnover Employee turnover Recruitment and training policies Supportability Comparison Load-capacity ratio Organisational structure Supplier development	<ul style="list-style-type: none"> ▪ Capacity measure considers personnel and organisational competence independently. ▪ Industry of specialised nature and requires experienced organisations ▪ Main element of maintenance is supportability ▪ Supportability management requires good financial health and logistics management strategies ▪ Incumbents post performance influences perception of its capacity ▪ Comparison between incumbents performance and perspective's capability and capacity ▪
	Organisational characteristics	Size Ownership Policies Image Industry type Organisational structure Core business Capital investments Capitalisation Multinational policies Maintenance is a core activity Interdependencies	<ul style="list-style-type: none"> ▪ Ownership determines core business, policies and decision structure ▪ Size of organisation defines portrayed image, supplier size and capital investments required by supplier ▪ Policies that support outsourcing of support services discourage inclusion of insourcing alternative at re-sourcing ▪ Policies and organisational structure determine decision participation ▪ Organisational image influences willingness of suppliers to work with purchaser ▪ Interdependencies in organisation determine criticality of maintenance

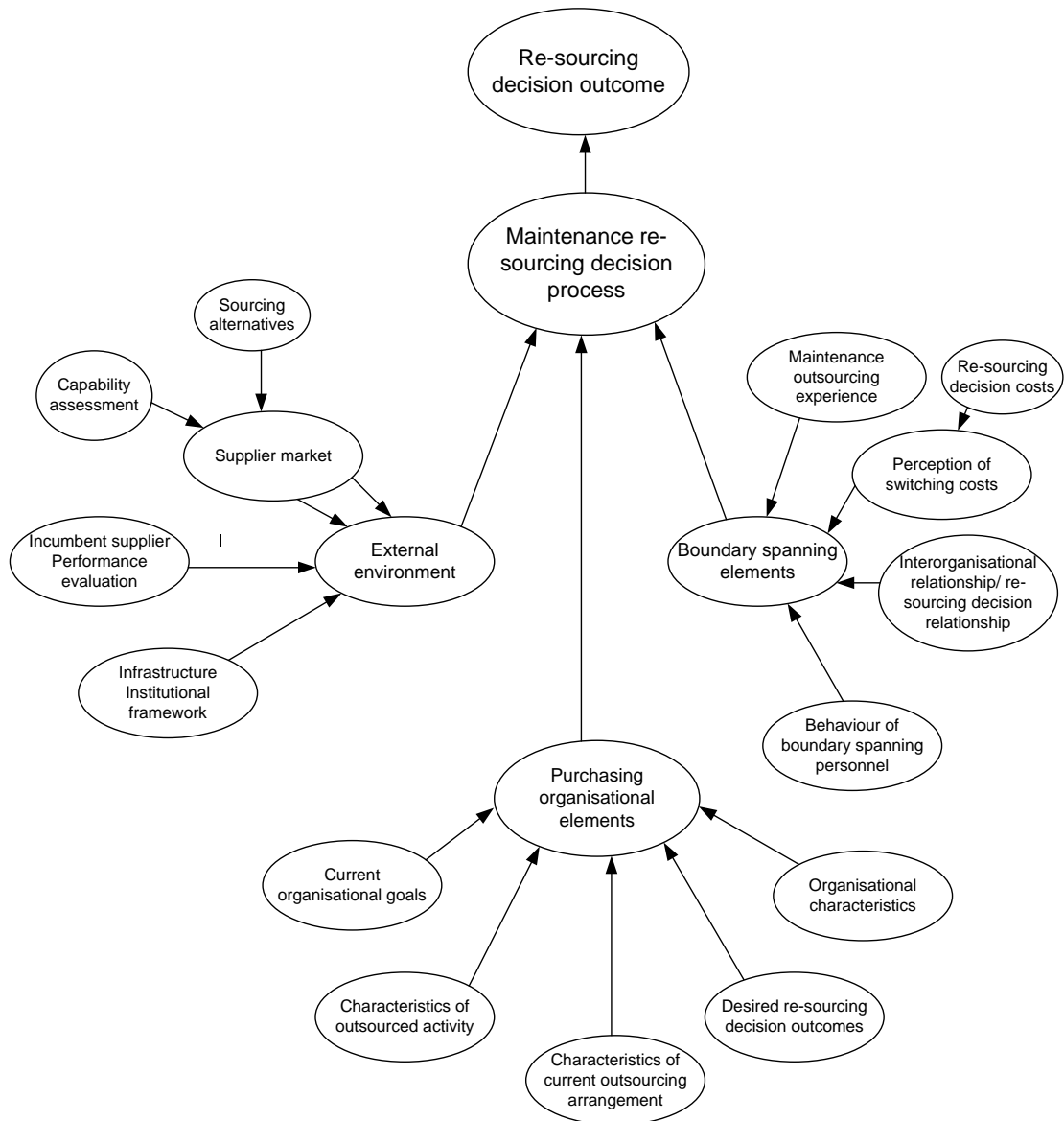
<p>Goals</p>	<p>Competent supplier Fair price Criteria Total business stability Value capture Goal congruence Low coordination costs/ reduced supervision Willing supplier Sustainability/ collaboration Equipment availability Organisational goals Personal goals Create competition/ minimise monopoly Lower risks HSSE- compliance Disruptions to operations</p>	<ul style="list-style-type: none"> ▪ Willing suppliers are perceived as capable of sustaining relationship ▪ Interested in able supplier who can enable them capture value by offering them a fair price and requires low coordination ▪ Economies of scale enable supplier offer a fair price ▪ HSSE concerns higher than all other goals ▪ Total business stability is at risk where there is a monopoly ▪ Selected option should result in minimal disruptions to operations depending on maintenance.
<p>Sourced activity</p>	<p>Strategic importance to business Criticality Budget allocation Risk Maintenance philosophy Variability in equipment type Size of maintenance activity Location of equipment Level of customisation Supportability Interdependencies</p>	<ul style="list-style-type: none"> ▪ Criticality of activity is a function of its role in meeting organisational objectives and consequently the risk created when activity does not meet standards. ▪ Major concern is supportability component of maintenance and specialised nature of products. ▪ Desired capacity for supportability is proportional to scope of work and influenced by type of maintenance and location of equipment ▪ The interdependencies that exist determine how much risk can be tolerated ▪ Annual maintenance budget determines the number of levels at which the re-sourcing decision is made
<p>Maintenance Re-sourcing process</p>	<p>Decision triggers Stages Evaluate incumbent Inc- SLAs comparison RFP preparation Preparation of RFP Prequalification Comparison of suppliers Run references Bidding Selection Contract duration Engagement Phasing engagement Disruption Intensity Importance Reactive process</p>	<ul style="list-style-type: none"> ▪ End of contact, poor performance or change in maintenance scope triggers the re-sourcing decision ▪ High performance gap and negative performance trend, triggers search for alternatives. ▪ Positive performance trend encourages supplier development ▪ Ongoing contract duration influences intensity of prequalification process ▪ Competence evaluation and comparison are the most important and tedious stages ▪ Final selection depends on price. ▪ During switching, engagement is phased to avoid excessive business disruptions ▪ Beginning of sourcing process depends on contract length and end of current contract ▪ It's a reactive decision process whose every stage depends on the responses from previous stages ▪ Prequalification not done very often because supplier market not very dynamic

Costs Resources	Prequalification Lost sales Engagement Contract sum Supervision costs Destabilisation Fair price Time People Information	<ul style="list-style-type: none"> ▪ SLAs not related to lost opportunity costs ▪ Prequalification cost so high ▪ Interested in supplier who reduces supervisory costs to a minimum ▪ Engagement often results in low equipment availability which results in lost sales
Maintenance outsourcing Experience	Challenges Learning process Complex Trend Changes Repercussions Regrets Performance Relationship Improvement Overload Improvement Contract duration	<ul style="list-style-type: none"> ▪ Maintenance re-sourcing is a challenging experience because of its complexity ▪ It's a learning experience filled with regrets, success and changes ▪ Maintenance overload on the supplier often results into poor performance necessitating change to generate an improvement trend ▪ Changes resulting from learning have improved performance ▪ Procurement policies and procedures used tested over a period by sister organisations elsewhere. ▪ Short contract duration limits supplier investment and increases coordination costs ▪ Short contract duration leads to ineffective supplier evaluation and comparison and often results in contract extensions
Performance drivers	Supplier capacity Contract duration Contract- security Financial health Management relationship Interpretation of RFP	<ul style="list-style-type: none"> ▪ Good financial health is an important measure of supplier capability ▪ Trust in relationship among contact persons influences relationship between supplier and purchasing firms ▪ Short contract duration do not support supplier commitment since they use contracts as security for financing investments
Sourcing alternatives	In-house Renegotiation Renewal Extension Alteration of scope Switching Changing Scarcity Supplier market Strategy	<ul style="list-style-type: none"> • There are four sourcing alternatives, contract extension, switching, supplier development or a combination of the three. • Organisational policies that support outsourcing of support activities means available options are variations of outsourcing • Change from current options is mostly driven by the incumbent supplier's performance
Termination	Predetermined Suddenly Changes in strategy Unfair Unilateral	<ul style="list-style-type: none"> • Re-sourcing decisions initiated by predetermined contract end, poor performance, change in business strategy • Unilateral termination considered unfair by the non initiating party
Re-sourcing decision outcome	Supplier selection Contract renewal Contract renegotiation Supplier development Switching Return activity in-house Reduce incumbent supplier's current scope Contract duration	Contracts can be renewed without much negotiation Activity can never be returned in-house because of resources required for management, set up costs and inventory costs The scope of the incumbents business can be changed depending on performance Switching is undesirable because of the disruptions to purchasers business.

<p>Interorganisational Relationships</p> <p>Relationships during re-sourcing decision process</p>	<p>Perception of supplier's commitment to relationship/ to change</p> <p>Perception of negotiation or interorganisational</p> <p>Utilisation of power</p> <p>Equity/ Win-win</p> <p>Incentives</p> <p>Perception-trust</p> <p>Perception- fairness</p> <p>Relationship history</p> <p>Willingness to work</p> <p>Flexibility</p> <p>Conflict resolution/Voicing concern</p> <p>Greed</p> <p>Opportunism</p> <p>Resource attractiveness/ dependence</p> <p>Communication frequency/ effectiveness</p> <p>Information capture and dissemination</p> <p>Information asymmetry</p> <p>Interpretation of behaviour</p> <p>Relationship levels</p> <p>Relationship between contact people</p> <p>Relationship continuity/ sustainability</p> <p>Perception of performance</p> <p>Perception of switching costs</p> <p>Integrity of boundary spanners</p> <p>Perception of risk</p> <p>Individual or organisational goals</p> <p>Supplier's perception of purchaser</p> <p>Performance measurement</p> <p>Capability/ capacity evaluation and comparison</p>	<ul style="list-style-type: none"> ▪ Positive relationship is exemplified in supplier's openness in communication regarding expenditures, willingness to work and flexibility ▪ Win-win relationship requires incentives for the supplier ▪ A supplier is greedy if he takes on more purchasers than he has capacity to handle ▪ Conflict resolution methods influence a party's perception of another's trust and fairness ▪ Relationship history and a party's perception of another's trust, fairness, power influences that parties tendency to opportunistic behaviour ▪ Opportunistic behaviour increases communication gap due to information asymmetry ▪ Power imbalance promotes opportunism and creates an atmosphere that inhibits discussions, restrains voicing concerns ▪ Goal congruence fosters commitment to relationship resulting in sustainable relationships
<p>External environment</p>	<p>Supplier market</p> <p>Service demand</p> <p>Supplier demand</p> <p>Institutional framework</p> <p>Infrastructure</p> <p>Industry trend</p> <p>Maintenance-Outsourcing trend</p> <p>Demand variability</p> <p>Other purchaser's decisions</p> <p>Uncertainty</p> <p>Supplier responses</p> <p>Dynamic</p> <p>Stable</p> <p>Incumbents performance</p> <p>Incumbents capacity</p> <p>Prospective supplier capacity</p> <p>Organisational ownership</p> <p>Current contract</p> <p>Incumbents performance</p> <p>Supplier's needs gap</p>	<ul style="list-style-type: none"> ▪ There are both dynamic and stable components of the external environment. ▪ Dynamic factors change over the contract period before the re-sourcing decision (incumbents performance, incumbent's and prospective's capacity and load, supplier responses, maintenance service demand) ▪ Re-sourcing approach is influenced more by the dynamic factors than by the stable factors

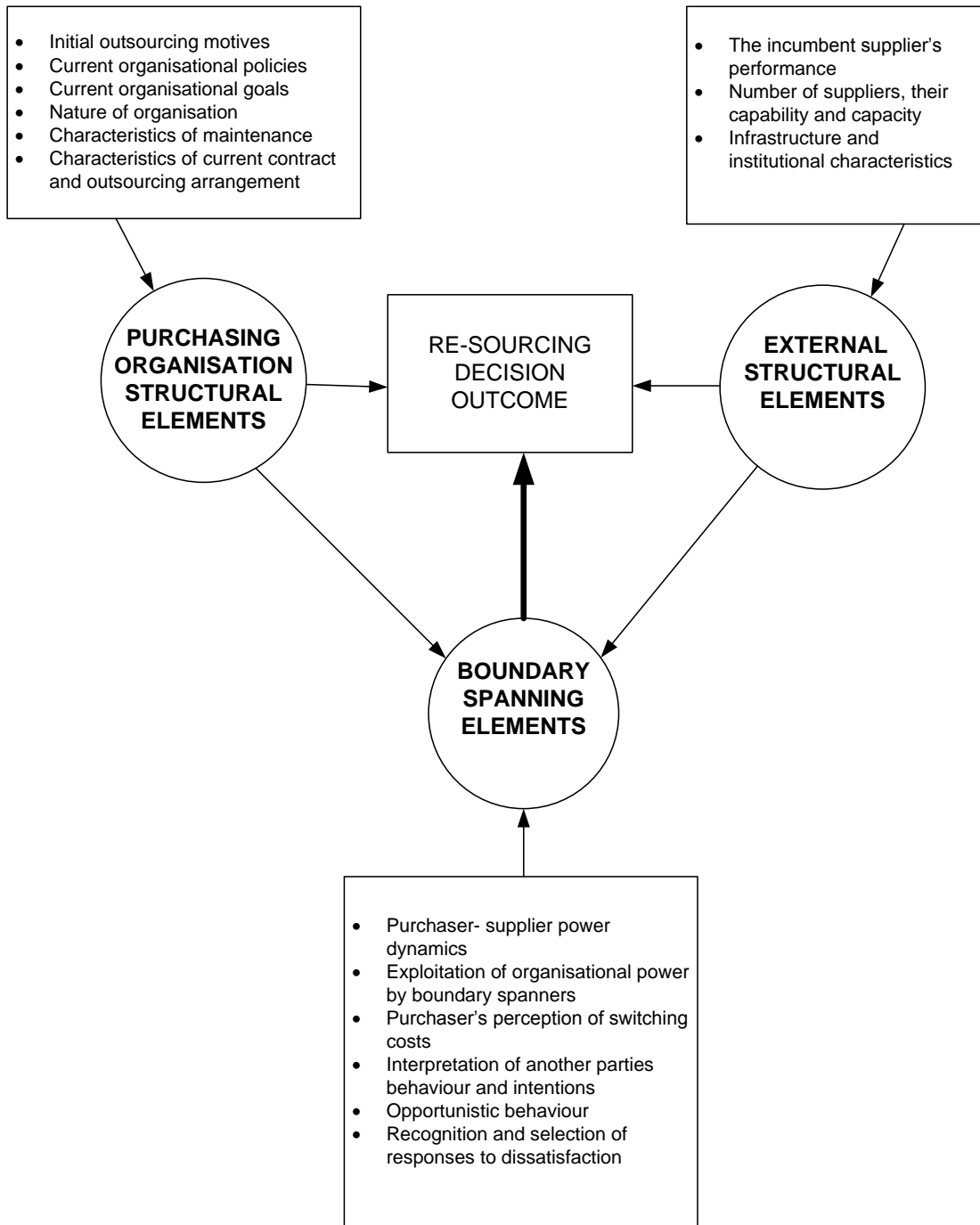
APPENDIX I

Relationship between categories



APPENDIX J

FACTORS INFLUENCING MAINTENANCE RE-SOURCING DECISIONS



APPENDIX K

Guide for validation of re-sourcing model (March-May 2009)

1. What is your opinion on the re-sourcing model presented in the attachment? I am interested in establishing the following

a) Does the model capture all the elements of your organisation's maintenance re-sourcing process

b) Would this model be a good representation of the stages that actually take place in your organisation's re-sourcing decision.

c) If not, what elements or stages are missing

d) What elements or stages do you consider as misplaced

e) What would you consider as the most important stage/ activity in your organisations maintenance re-sourcing process

- f) What in your opinion would ensure the effectiveness of how the activity you have mentioned in E is carried out
- g) What factors do you think affect how the maintenance sourcing decision is made but have not been reflected in this model?
- h) How would you rate this model as a guide for maintenance re-sourcing decisions for asset intensive service organisations?
- i) What do you propose should be done to it to enhance its applicability
- j) Please provide any other comments or concerns about this model.