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IMPLEMENTING A WORLD-CLASS SOURCING PROCESS
AT ESKOM WITH SPECIFIC REFERENCE TO THE
SUPPLIER SELECTION PROCESS FOR
LARGE TRANSFORMERS

by

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ABSTRACT

The research aims to identify ways to enhance the supplier selection process for large transformers at Eskom. The research was based on the hypothesis that there are significant opportunities to increase the effectiveness and efficiency of transformer purchases at Eskom.

Large transformers are a strategic commodity for Eskom, due to the criticality and impact of the commodity on Eskom's business. Eskom plans to spend R2.2 billion on transformers over the next five years. This indicates a substantial financial spend on the commodity. The opportunities that could be derived from transformer purchases are not only quantitative but also qualitative. The commodity, therefore, requires strategic effort in order to maximise the opportunities.

The key findings of the research were as follows:

- Transformer purchases and the organisational entity is complex, as it entails numerous stakeholders, complex systems, people and processes.
- Eskom has not progressed from 'procurement management' to 'supply management'.
- Eskom has a decentralised approach to transformer procurement, despite the strategic nature of the commodity and the fact that it purchases across the three main Eskom Divisions. Procurement requirements are not consolidated.
- There is a lack of communication and collaboration across and within Divisions.
- There are no purchasing strategies, methodologies or tools to enhance the procurement process.
- Procurement Officers lack knowledge on many well known methodologies, commodity knowledge, market knowledge, and supplier knowledge.
- There is no focus on supplier relationship management.
- Suppliers have indicated substantial opportunities for transformer procurement at Eskom.

The key recommendations based on the findings of the research are as follows:

- Supply management personnel should be trained in world-class methodologies like total cost of ownership (TCO), strategic sourcing, supplier economics, supplier analysis, market research, etc.
- A centralised approach to the procurement of strategic items must be instituted. This should result in a single person being responsible and accountable for Eskom's Supply management.
- A collaborative approach must be encouraged by means of cross-functional teams.
- Opportunities identified in the research must be implemented by a cross-functional team whom should be responsible and accountable for the implementation of the opportunities identified.
- Supplier relationships must be initiated and effectively managed by the cross-functional team leaders.
- The implementation must be monitored and tracked by the project sponsor.

If the above recommendations are implemented Eskom would realise significant opportunities in large transformer purchases at Eskom. Should the recommendations be implemented on other commodities Eskom would achieve quantum leap improvements to Supply Management.

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GLOSSARY OF TERMS

BEE	Black Economic Empowerment. For the purpose of this analysis the term BEE refers to the wider Black Economic Empowerment initiative. This includes BEE, SMME and BWO suppliers
BWO	Black Women Owned Organisations
CAPS	Centre for Advanced Purchasing Studies
Compensation Event	An event that occurs that is neither the fault of the supplier or Eskom. If it is contractually agreed, the affected party is compensated.
Contracts	Contracts are term agreements with suppliers.
ERP	Enterprise Resource Planning.
Framework Agreement	A framework agreement is a long-term agreement between Eskom and supplier. The agreement establishes the terms and conditions that will govern orders or sub-orders that will be awarded during the term of the agreement.
Handbook	An Eskom Handbook that provides guidelines on a specific process.
IEC	International Electro-technical Commission
Mechanical/ Proactive Focus	Implies that something is fixed and static and implies that the actions of the people are actually reactions to goals and decisions made by management.
Operational	Implies that people do not act proactively, but merely follow orders.
Policy	A document governing a process in Eskom.
Procurement Officer	A person responsible for the procurement of goods and services in Eskom. Also referred to as a Buyer.
Procurement Practitioner	Person involved in the procurement profession but is not necessarily a Procurement Officer.
Purchase Orders	Purchase orders are once-off purchase agreements with suppliers.
SAP	Eskom's ERP System.
Senior Procurement Officer	Senior Level Procurement Officer in Eskom
SMME	Small, medium, micro-enterprise.
Squad Check	A squad check is a check by the entire team (the squad) involved in drawing up the enquiry, or in evaluating the tenders.
Supply Chain	Includes Procurement, Logistics, Materials Management, Stores, Warehouse, Transport, and Operations.

Tender Committee	A committee that is appointed by the Eskom Board. The members are given authority to approve the purchase or sale of Eskom requirements.
Tender Enquiry	Request for a tender issued to suppliers.
Total Cost of Ownership (TCO)	Refers to the total life cycle cost for a particular purchase.
Total Cost of Ownership Reduction (TCOR)	Refers to the reduction of the total cost of ownership.
World Class Supply Chain Management	Reflects those practices that are in line with world class practice.
Worldview	Worldviews involves deeper-seated views, based on an individual's value system.

1 INTRODUCTION

1.1 Practitioner Researcher Perspective

The researcher has been employed in Eskom's procurement environment for the past eleven years. The researcher's career commenced as a Procurement Officer in Eskom's Generation Procurement Department. After a few years the researcher worked as an Advisor at Eskom's Corporate Division and more recently managed the Corporate Procurement Division. The researcher is still employed at the Corporate Division, as a Supply Chain Specialist.

During this time at Eskom, the researcher has made several observations about the procurement profession at Eskom. Firstly, procurement is viewed as a support function in the organisation and not as a core competency. This is noticeably visible in the organisational structure of Eskom where the Supply Chain Department resides within the Finance Department of the various Eskom Divisions. Clearly, procurement is not viewed as a function that directly impacts the bottom line. The result of this view impacts practitioner behaviour within the procurement environment. The researcher's worldview is that recognition, or the lack thereof directly impacts behaviour and attitude. This lack of status given to the procurement department is observed by practitioners, who in turn feel that their jobs lack importance.

Secondly, while some procurement practitioners are adequately or appropriately qualified or skilled, most practitioners are not. This is due to common practice in Eskom where individuals are placed in the procurement division irrespective of their skills-set. Very often procurement is described as a dumping ground within the organisation.

Thirdly, the researcher's perspective is that different procurement officers have different objectives. Some procurement officers procure with the object of customer satisfaction in mind while others procure with the object of completing the task at hand. Rarely or perhaps never do procurement officers procure with the objective of maximizing efficiency. If procurement officers did procure with the objective of

maximizing efficiencies, they would be practicing world-class methodologies, engaging in various research and analyses, enhancing relations, working collaboratively and significantly reducing costs. This however, does not happen.

According to the researcher's perspective all of the above factors are due to the culture of the organisation - the culture being, that mediocre performance is acceptable, people do not question, nor attempt to gain a better understanding of their task e.g. a procurement officer would rarely attempt to get an excellent understanding of their supplier or the commodity they are purchasing. They do not attempt to enhance relations, delve deeper into problems/issues, work collaboratively or enhance current methods. Instead they work in a mechanistic manner. This culture is learnt by new employees because it is constantly reinforced by older employees. The result is transactional procurement rather than strategic procurement.

Due to the researcher's perspective of the current situation of the procurement function, the dissertation topic was selected with the aim of addressing the above problems. The focus of the dissertation is only a part of the procurement process, i.e. the supplier selection process. However, the researcher believes that this minor enhancement to the process can influence a mindset change in the organisation and thus change the current culture.

All of the above is based on the researcher's perspective. This dissertation will ascertain a fact-based analysis of the current situation with the aim of improving and enhancing the current processes where possible.

1.2 Background to the Study

According to (www.eskom.co.za)³, due to a tremendous increase in the market demand for electricity, Eskom has embarked on a major capital expansion programme in order to meet this increased customer need and other stakeholder requirements. To match the anticipated increase in demand, Eskom will be required to spend billions of Rands a year. Eskom has a planned spend in excess of R84 billion over the next five years on the Capital Expansion programme. This enormous spend will have a major effect on Eskom's Supply Chain.

Eskom therefore needs to demonstrate to its stakeholders that its cost structure, productivity and supply chain processes compare favourably with the best in the world. Eskom further needs to demonstrate that imminent capital expenditure will be funded from self-generated savings in addition to price increases and borrowings. As a result, a study was completed at Eskom recently to determine if Eskom's Supply Chain was in line with world-class practice. The focus of the study was to get a better understanding of the nature of Eskom's supply chain, its impact on the business, and the identification of supply chain initiatives to improve supply chain performance and raise the profile of supply chain management within Eskom. The findings of this study illustrated that Eskom's Supply Chain Management is not in line with world-class practice (a Progression Road Map questionnaire adapted from Burt, Dobler and Starling's Four - Stage Model of World Class Supply Chain Management, *(Burt, Dobler & Starling 2003)* was utilised.

Eskom then needed to ensure that the results of the findings in the above study are addressed, resulting in a supply chain management function at Eskom that is in line with world-class practice. Eskom therefore, appointed a supply chain consulting company (McKinsey and Company in partnership with Letsema Blueshift) to evaluate and benchmark Eskom's supply chain processes and practices and to assist in taking Eskom's supply chain function to world-class status. The appointment of the consulting company launched a Supply Chain Management project in Eskom where a group of Supply Chain professionals as well the consultancy company worked together to achieve a number of objectives namely:

- Save at least R1billion on the operating expenditure;
- Save a further 10 percent on capital expenditure; and
- Ensure the transfer of skill and methodologies to Eskom Supply Chain practitioners.

The above process reviewed every aspect in Eskom's supply chain. Two commodities were selected for the exercise. For the purpose of this dissertation, only large transformer purchases will be discussed.

The purchase and total life cycle of large transformers were reviewed using historical purchases. This process resulted in a total cost of ownership exercise. Detailed diagnostic as well as benchmarking exercises were done on the refurbishment, maintenance, purchase price, spares, specifications, and transportation. A total cost of ownership baseline was thus developed. A baseline based on operational and capital expenditure was also developed for transformer purchases and savings targets were set against it. Various ideas/levers were brainstormed in collaboration with the key stakeholders and these ideas/levers were then quantified against the baseline resulting in targets set for cost savings. Further details will be discussed later in this dissertation.

In order to implement these savings, Eskom needs to implement an effective sourcing strategy. The purpose of this dissertation is to identify ways to enhance the supplier selection process in order to capture/maximise value in the purchase of these transformers.

1.3 The Aim of this Research

Eskom needs to capture maximum value and optimise all opportunities from its future major spend. The best way to optimise this spend is to enhance Eskom's supply management. Supply management directly affects the bottom line and world-class supply management enables us to maximise our bottom line in an ethical manner; *Burt et al (2003: p10)*.

The aim of this dissertation is to develop a sourcing strategy for transformer purchases in line with world-class supply management. This will therefore impact Eskom's bottom line. The objectives of the dissertation are:

- Analyse and evaluate current supplier selection practices in Eskom;
- Analyse the current supplier strategies for transformers purchases;
- Analyse and evaluate current transformer supplier relationships;
- Identify best practice/world-class practice for sourcing/supplier selection;
- Analyse the transformer supplier market;
- Develop a sourcing and procurement strategy for transformer purchases in the Eskom context; and
- The ability to utilise the sourcing strategy for other major commodities in Eskom.

The dissertation will therefore research and analyse the following areas:

- Opportunities for Eskom transformer purchases;
- Organisational structure;
- Purchasing strategy;
- Sourcing methods;
- Supplier identification;
- Supplier selection;
- Supplier relations;
- Supplier market analysis;
- Tender evaluation methods;
- Cross-functional teams; and
- Contract strategy.

1.4 The Motivation for this Research

The motivation for this research stems from the following:

- Supplier selection constitutes an important part of the purchasing function; *Fearon & Leenders (1993: p81)*;
- Eskom has recognised the need to enhance its supply chain management organisation and has therefore initiated a move towards world-class supply management. The dissertation is in support of this move towards world-class supply management as effective supplier selection is an essential component of strategic supply management;
- Eskom plans to spend R10 billion per year over the next five years. This spend will have a significant impact on the supply chain function and supply chain in turn can use this opportunity to impact this spend. The need to find ways to enhance the effectiveness of the supply function needs no further elaboration;
- The unquestionable need to enhance the profile of the supply chain function in Eskom and to align practices with world-class practice;
- Eskom has embarked on a cost savings drive as part of its drive to align supply chain practices in line with world-class practice. The outcome of this dissertation will support this drive. A large percentage of the cost savings can be derived from effective supplier selection. Effective supplier selection will also improve quality, service and supplier relationships which will aid the cost reduction initiative.

The motivation for selecting transformers as a specific commodity stems from the following:

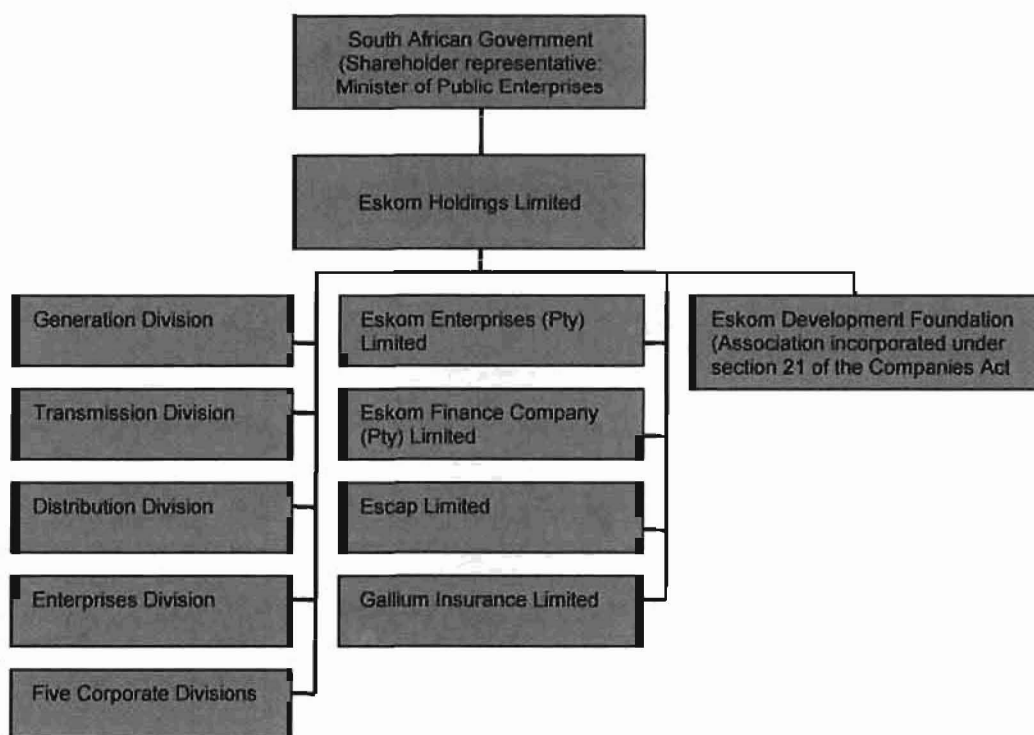
- Due to an increase in the demand for electricity Eskom has initiated a capital expansion programme. This expansion programme will lead to an increase in demand for various commodities and services. One such commodity that will be impacted is the purchase of large transformers;
- Transformers were also selected as it is a critical commodity to Eskom. Eskom plans to spend R2.2 billion on transformer purchases over the next five years;

- Another reason for selecting Transformers is that it has an impact across the three major Eskom Divisions i.e. Generation, Transmission, and Distribution. Large Transformers have huge cost saving opportunities;
- A project in Eskom is currently investigating ways to enhance the purchase of large transformer purchases. This dissertation will support the project.

1.5 Overview of Eskom

Figure 1: Eskom's Organisational Structure.

Eskom Annual Report (2005)



Eskom is a power utility located in South Africa. *Figure 1* above depicts the organisational structure of Eskom Holdings Limited (Eskom). According to the figure the ownership of Eskom vests in the South African Government, which is the sole shareholder of Eskom. The shareholder representative is the Minister of Public

Enterprises. Eskom's core markets are in order of priority, South Africa, the Southern African Development Community and the rest of Africa.

"South Africa is one of the lowest-cost power producers in the world. State company Eskom ranks in the top 10 electricity suppliers internationally in terms of size and sales, supplying around 95 percent of South Africa's energy requirements and two-thirds of Africa's. Eskom's network is made up of more than 300 000 kilometres of power lines, 27 000 kilometers of which constitute South Africa's national transmission grid. The main generating stations are located in Mpumalanga, where there are vast coal reserves. The energy sector contributes about 15 percent to South Africa's gross domestic product (GDP)." (*www.southafrica.info*).

"Eskom is a vertically integrated operation that generates, transmits and distributes electricity and is located in South Africa." (*www.eskom.co.za*)¹. The Generation Division is thus responsible for the generation of electricity. Eskom's Generation Division operates 24 power stations throughout South Africa with an installed capacity of 40 585 Megawatts. Generation's Power stations compete against each other in groups or clusters. (*www.intranet.eskom.co.za*). Eskom's Transmission Division is responsible for the transmission of electricity from Eskom's Generation Division to Eskom's Distribution Division. Eskom's Distribution Division is responsible for distributing electricity to the customer. The Distribution Division has over 3 million customers.

Eskom Enterprises is a wholly-owned subsidiary of Eskom and serves as a means by which all the non-regulated activities of Eskom, both inside and outside South Africa, are carried out. Eskom Enterprises' core lines of business are infrastructure development, enhancing business operations, specialised energy services and the pursuit of opportunities in related strategic businesses, such as information technology and telecommunications (*2005: Eskom Annual Report*).

1.6 Procurement Organisation at Eskom

“As an organ of State, Eskom subscribes to the principles of openness, integrity and accountability and attempts to implement the best procedures and practices found in the developed world, adapted to South African circumstances. Eskom attempts to make its business available to as many potential suppliers as possible. Eskom’s procurement is not done by one department, in one place. In fact, it has a number of procurement offices in a number of main centres.” (www.eskom.co.za)²

Eskom’s supply chain function is largely decentralised. Eskom is divided into various Divisions, as depicted in *Figure 1*. Most of these Divisions have their own supply chain departments/offices. Eskom’s procurement is done in line with various procurement policies and directives, which to a large extent are based on the Framework for Supply Management, which is published by State Treasury. These policies and directives are developed, implemented and monitored centrally by the Supply Chain Head Office, which is located in the Corporate Division (depicted in *Figure 1*). Eskom currently employs approximately 350 procurement officers.

1.7 Transformers

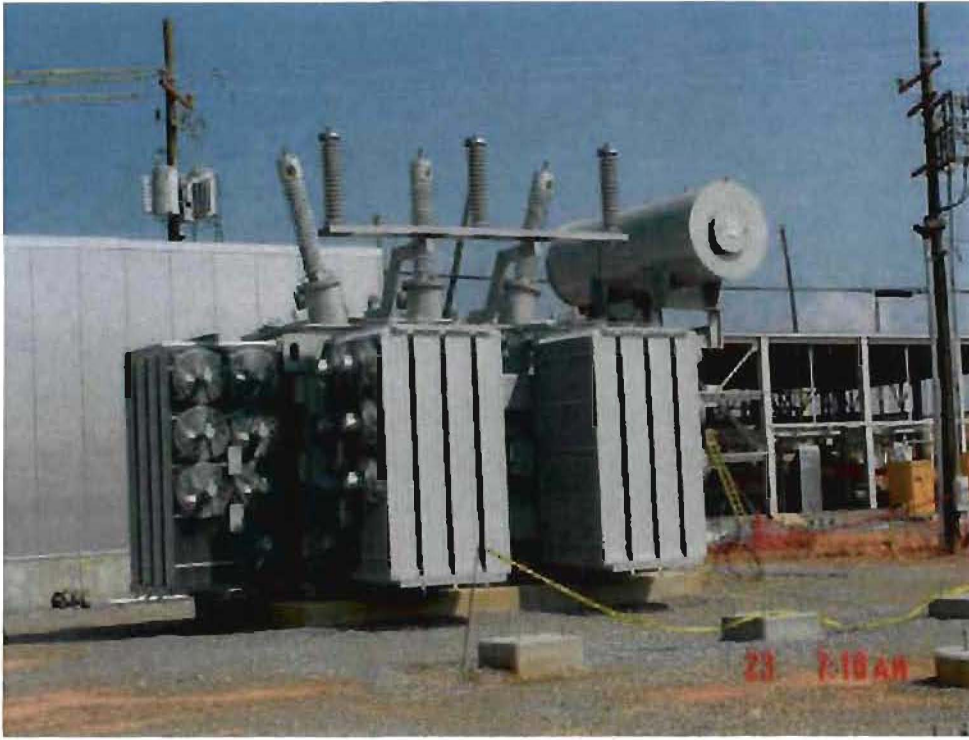
According to (www.en.wikipedia.org), “A transformer is an electrical device that transfers energy from one electrical circuit to another by magnetic coupling but without moving any parts. It is often used to convert between high and low voltages and between low and high impedances.”

Transformers are used to increase or decrease voltages and currents in circuits. The operation of transformers is based on the principal of mutual inductance. A transformer usually consists of two coils of wire wound on the same core. The primary coil is the input coil of the transformer and the secondary coil is the output coil. Mutual induction causes voltage to be induced in the secondary coil. (<http://micro.magnet.fsu.edu/electromag/java/transformer>).

Below is a Transformer.

Figure 2. Large Transformer.

www.wikipedia.org



1.8 Conclusion

This first chapter to the dissertation has given an overview of Eskom and an introduction to the problem to be researched.

The chapters to follow will be structured as follows:

- Chapter 2 will give an overview of the literature review of the subject.
- Chapter 3 will discuss the research methodology. The research will be based on a qualitative approach and will consist of questionnaires and interviews.
- Chapter 4 will discuss the detailed findings of the research.
- Chapter 5 will conclude this dissertation together with recommendations.

2 LITERATURE REVIEW

2.1 Introduction

This dissertation is written from a practitioner researcher perspective. The literature review attempts to fulfil the aim and hypothesis of the research. According to the researcher, many aspects of Eskom's procurement process require quantum leap improvements. The researcher attempts to resolve inefficiencies in the Eskom procurement process by ascertaining what the characteristics of a world class sourcing process are and what the best practice is. This chapter therefore reviews literature on sourcing and procurement with the aim of evaluating Eskom's current practice against it. This chapter reviews pertinent aspects of the sourcing process.

2.2 Supply Management

The procurement of goods and services is being termed "supply management" in recent literature. The term has conspicuously replaced the term "purchasing management" in recent literature. Various literature on the subject has however, referred to both these concepts. What is the difference between these two concepts and what is the reason for this change?

Understanding the definitions of the various concepts is vital for any supply management practitioner. This is supported by *Handfield, Monczka and Trent (2005: p6)*, who emphasises the need to recognise the differences between purchasing and supply management. By gaining an understanding of the definition, one can gain a better understanding of the details required to perform the various activities of the profession.

What is supply management? *Handfield et al (2005: p7)* state that supply management is a much broader concept than procurement and that supply management is characterised by the following qualities:

- Supply management is a progressive approach to managing the supply base that differs from a traditional arm's length or adversarial approach with sellers. It requires purchasing professionals to work directly with those suppliers who are capable of providing world-class performance.
- Supply Management often takes a process approach to obtaining required goods and services. Supply management can be described as a process of identifying, evaluating, selecting, managing, and developing suppliers to realise supply chain performance that is better than that of competitors.
- Supply management is cross-functional. This means that it involves purchasing, engineering, supplier quality assistance, the supplier, and other related functions working together as one team, at the outset to further mutual goals. Instead of adversarial relationships, which characterise traditional purchasing, supply management features a long-term, win-win relationship between a procurement organisation and specially selected suppliers.

Burt et al (2003: p6) describe world class supply management as that which involves purchasing, but is far more strategic. A world-class supply manager is not departmentally focused, but concentrates on proactively improving processes with the long-term goal of upgrading the competitive capability of the organisation and the organisation's supply chain.

Literature reveals that Purchasing has now evolved into Supply Management. The concept "Supply Management" embraces far more than the traditional concept of Purchasing Management. It goes beyond purchasing, in that it now looks at purchasing in a more holistic manner, as it now acknowledges all stakeholders and all interdependent activities as critical components of the function. What emerges from these authors, is that Purchasing is a functional area in an organisation, while supply management is a collaborative process, involving all stakeholders and all activities.

2.3 Characteristics of Strategic and Transactional Procurement

A study was recently conducted in Eskom. The objective of the study was to gain a better understanding of Eskom's supply chain function and determine whether Eskom's supply chain was in line with world-class practice, (*Hegarty, Khomo, Langenhoven, McCurrach & Mungroo, 2004*). The study revealed that Eskom's supply chain function is mechanical to transactional focused in relation to world-class practice. In order for Eskom's supply management function to be in line with world-class practice, it needs to move towards strategic procurement. Understanding what the differences are between transactional and strategic procurement, will assist one in the journey towards strategic procurement. Enhancing those key aspects of a purchasing organisation can initiate movement to a supply organisation.

The characteristics of transactional and strategic procurement are clearly defined by many authors. If asked, most procurement practitioners will probably insist that they procure strategically, despite the fact that the recent study, (*Hegarty et al 2004*) has shown that Eskom supply function is transactional. They believe they procure strategically, because they do not know what strategic procurement is.

Table 2 below, distinguishes between strategic and transactional procurement.

Table 1: Characteristics of Transactional and Strategic Procurement.

Adapted from Ball (2005: p6).

	Strategic Procurement	Transactional Procurement
Objective	Establish and maintain long-term relationships between procurement officers and sellers.	Process transactions according to pre-established contracts.
Essential Activity	Supplier Selection and contract negotiation.	Place orders with contracted sellers. Little or no shopping among sellers involved.
Impact	Helps to reduce the cost of goods sold.	Helps to reduce the paperwork processing cost
Skills Required	Data analysis, contract negotiation, and relationship building.	Virtually none. Anyone who can shop can do transactional procurement.
Nature	Work that involves various brainstorming techniques.	Routine work.
Risks	Risks are identified early in the process and are effectively managed.	Risks are not identified or are identified when it is too late
Supplier Relationships	Collaborative to alliance. Long terms relationships	Transactional, short term relationships
Focus	Total cost of ownership Long term	Purchase Price Short term
Deliverables	Adds value by reducing the total cost of ownership	Expedites
Key Internal Business Areas	Work together in cross-functional teams	Provides input where required
Responsibility	Lies with cross-functional teams	Lies with procurement
Information	Sharing information within the organisation and with suppliers	No sharing

The above table clarifies the difference between transactional and strategic procurement. Strategic procurement epitomises strategic sourcing, total cost of ownership, collaborative relationships, cross-functional teams, long term contracts,

and risk management. Transactional procurement focuses on the transaction at hand with no focus on long term relationships.

Why should purchasing shift from a transactional approach to a strategic approach? Purchasing is an extremely critical function to all organisations due to the major impact on an organisation's bottom-line. *Burt et al (2003: pxiiv)* emphasises supply management's impact on the organisation's bottom line. "It can facilitate or destroy marketing's effort to increase sales," he states. *Gordan and Hughes* accentuate this view by stating that many manufacturing companies spend up to 70 percent of sales revenue on procurement. *Handfield et al (2005: p5)* support this view by confirming that manufacturers spend an average of 55 cents out of every dollar of revenue on goods and services; purchases are clearly a major area for cost savings. Purchasing has a major impact on product and service quality and many organisations are turning their focus to purchasing and supply management, *Handfield et al (2005: p5)*. The impact of purchasing on the organisation is therefore, not only quantitative, but also qualitative.

Surely the importance of the procurement function described above justifies a robust movement towards strategic procurement.

2.4 Objective of Procurement

What should procurement practitioners focus on in their day to day activities? Should their objective be the lowest cost to the organisation, or the best quality, or a balance between the two? Can a balance between cost and quality be defined as best value? *Cavinato (1984: p6)*, state that the overall objective of procurement is to obtain maximum value in goods and services for the organisation.

2.5 Organisational Structure

(Burt, Dobler and Lee (1990: p33)) state that centralisation of purchasing is concerned solely with the placement of purchasing authority. It has nothing to do with the location of the procurement personnel. Centralisation exists when the entire purchasing function is made the responsibility of a single person.

Careful consideration must be employed before opting to decentralise the procurement function in an organisation. According to *Burt et al (1990: p33)*, “To decentralise the purchasing function needlessly is to deny an organisation some of its potential profit. Centralisation of the purchasing function is essential for the attainment of both optimum operating efficiency and maximum profit.”

The choice of centralisation or decentralisation will often depend on various considerations. Most companies do, however prefer a mix of centralisation and decentralisation. *Farmer and Weele (1995: p64)* support this view by stating that in most companies a combination approach is favoured.

2.6 Sourcing

Sourcing is a fundamental aspect of the procurement function and is done regularly by most procurement officers. *Eskom's Draft Procurement Policy (2005)*, refers to sourcing as “Deciding on the supplier/s that will be approached to supply.” *Eskom's Purchasing Pact (2004: p5)*, dictates a hierarchy of supplier selection as follows:

- From an existing framework agreement/contract.
- From a contract in terms of an outsourcing agreement with an ex-employee, within the terms of the contract only, until the contract expires.
- From Eskom regulated businesses.
- From within the procurement officer's own division.
- From within another division within Eskom.
- From Eskom unregulated businesses.
- From Eskom-owned businesses outside regulated divisions.
- From partly-owned businesses outside regulated divisions.
- From a Black Empowerment Enterprise (BEE), in the following order
 - Black Women-Owned (BWO) businesses and businesses owned by Black disabled persons or groups from within the procurement officer's own division.
 - Small Black Businesses.
 - Large Black-Owned Businesses.

- Large Black Empowering Businesses.
- From a South African based manufacturer or service provider.
- From a South African distributor.
- From a foreign supplier, directly imported by Eskom.
- From a value adding agency.

The implication of the above hierarchy is that procurement officers have to ensure that preference is given to the suppliers as dictated in the hierarchy. The above hierarchy for supplier selection has to be complied with by all other Eskom employees as well when procuring goods and services.

Most literature refers to sourcing as a supplier selection process. However, in order to be a strategic function, sourcing has to be more than just supplier selection. *Zeng (2000: p219-216)* confirms this by defining sourcing as, “The strategic philosophy of selecting vendors in a manner that makes them an integral part of the procurement organisation for a particular component or part they are to supply..... in other words sourcing no longer simply refers to getting the materials at desired prices, rather, the decision should be incorporated into the procurement organisations’ operating strategies to support or even to improve the organisation’s competitive advantage.”

2.7 Strategic Sourcing

Strategic Sourcing is a fundamental requirement in the move towards World Class Supply Management. Strategic Sourcing is a widely acclaimed concept and is fast becoming an important and integral part of many organisations. It is acclaimed world-wide by many authors. There are many varying definitions of strategic sourcing.

2.7.1 Definitions

Burt et al (2003: p32) explains strategic sourcing by citing definitions by Jon Ricker (1997), *Nancy Rorkowski (quoted in Ricker)*, and *Thomas Ray (quoted in Ricker)*. These definitions are discussed below.

Jon Ricker focuses his definition around a company's business objectives and business strategy. He explains that, "Strategic sourcing is a systematic process that directs supply managers to plan, manage, and develop the supply base in line with a organisation's strategic objectives. Strategic sourcing, seen another way, is the application of current best practices to achieve the full potential of integrating supply into the long-term business process. To understand its relationship to supply chain management, most advocates of strategic sourcing explain it as a core process within the larger function of supply chain management"

Nancy Rorkowski however, focuses her definition around suppliers, enhancement of supplier relationships, and a strong understanding of the supplier market. She says that, "Strategic sourcing is understanding the markets you're purchasing from inside and out and learning from your own organisation and your suppliers' organisational processes, working as a mediator between suppliers and your organisation, and capturing information and using it to improve relationships. Strategic sourcing requires two-way continuous improvement process work from each organisation."

Thomas Ray supports her focus in his definition as he also focuses on suppliers, enhancing supplier relationships and an understanding of the supplier market. He says that, "Strategic sourcing is a disciplined approach that improves the value we receive from suppliers. There are four principles that set it apart from traditional or tactical purchasing:

- define the total value of the relationship between purchaser and supplier;
- develop solutions based on deep understanding of the supplier's economics and business dynamics;
- use differentiated purchasing tactics in order to optimise the economic relationship for both purchaser and suppliers; and
- embed the required changes in the organisation so the purchaser not only achieves a near-term measurable performance improvement but also the ability to continually improve."

Some of the key concepts that emerge from these definitions of strategic sourcing are that:

Strategic sourcing is essentially a process used to understand an organisation's spend and commodities in order to develop a supply base in line with strategic objectives. An exhaustive understanding of the supplier market and the suppliers are essential. The development of supplier relationships is a fundamental component.

These key concepts are supported by *Julie Roberts (2002: p33)* where she presents a combination of all the above viewpoints in her definition of strategic sourcing. She defines it as a process driven by an identified goal or need and consists of:

- Evaluating current and potential sourcing opportunities and relationships.
- Assessing their value and relevance according to long-term goals and overall business and supply management objectives.
- Formulating and applying action plans and processes for critical commodities or supply networks.

She further states that, “ultimately, strategic sourcing is knowing what kind of relationships to develop based on market knowledge, the commodity, and the long-term business objectives. Key to the strategic sourcing philosophy is the idea that each potential inbound should be analysed using strategic data such as financial, market analysis data, and the sourcing process best suited for the commodity and overall objectives should be selected and executed.”

2.7.2 Implementing Strategic Sourcing

Selecting a strategy for each commodity/product seems like a long drawn and complex process and therefore brings many questions to the fore. Should all purchases be done strategically? In order to successfully implement strategic sourcing, a simple method needs to be used. Is there a simple method?

The essence of strategy is knowing what to devote strategic effort to and that each commodity should be considered for its ideal supplier relationship, be it strategic or transactional; *Roberts (2002: p33)*.

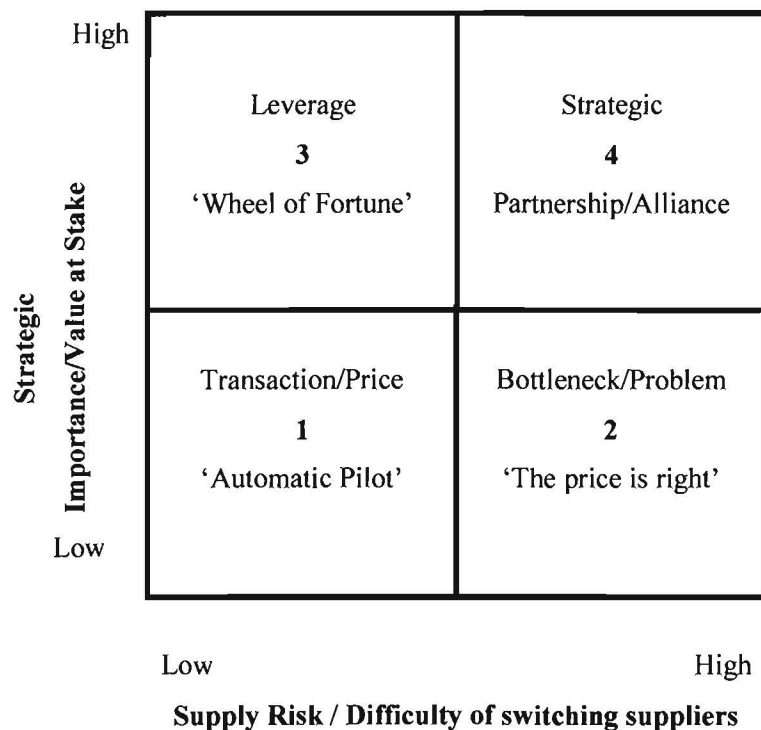
From the above, it is evident that not all commodities will require strategic effort. With certain commodities a transactional approach may be appropriate. How does

one decide what must be purchased strategically and what must be purchased transactionally?

To achieve strategic sourcing, companies have to understand what their most important goods and services are and the criticality to the day-to-day operations of the organisation; *Gattorna (1998: p286)*. This can be done via the strategic sourcing model shown below.

Figure 3: The Strategic Sourcing Model.

Adapted from *Gattorna (1998: p287)*, *Handfield et al (2005: p176)* and *Gordon and Hughes*



The strategic sourcing model depicted in *Figure 3* above is an ideal framework for adopting strategic sourcing and implementing a purchasing strategy in any organisation. The strategic sourcing model is a segmentation tool that is utilised by most organisations. According to *Handfield et al (2005: p178)*, "This segmentation tool is known as portfolio analysis. The premise of this portfolio analysis is that every purchase can be classified into one of four categories or quadrants i.e. quadrants 1 to 4. Items and services are plotted on this matrix based on their strategic importance/criticality and the supply risk to the organisation.

Determining Strategic Importance

How is strategic importance of a particular commodity determined? *Gattorna (1998: p287)* states that, "The strategic importance of a product or service is determined by whether it has an impact on the company's core business and future competitiveness. Needs of low strategic importance are not instrumental to the running of the company. They may be necessary but they provide no competitive advantage in the marketplace and may have very little to do with the company's goal or mission..... On the other hand, needs of high strategic importance are likely to affect a company's position in the market. These sourcing requirements are often directly related to the company's core products or services and as such are an important part of the company's critical business function."

Assessing Financial Impact

Financial impact is relatively easy to determine. *Gattorna (1998: p288)* states that low financial impact items are mostly once off/ad-hoc purchase items. High financial impact items are normally recurring items or high value items.

Assessing Supply Risk

Supply risk is determined, based on the ease of replacing the supplier or switching between suppliers.

2.7.3 The Sourcing Model Explained

The various explanations on the four quadrants by *Gattorna (1998: p287)*, *Handfield et al (2005: p179)* and *Gordon and Hughes* have been incorporated below.

Quadrant 1 - Transaction/Price/Automatic Pilot quadrant – this quadrant represents items of low strategic importance and low financial impact. The switching costs of moving from one supplier to another, is very low. The aim in this quadrant is to spend as little time as possible on the purchasing processes, allowing time to be spent up-front to set up an automatic order and replenishment programme. With replenishment programmes, once initial inventory needs are established and the programme is underway, orders will be automatically generated to replenish supplies

or the inventory will be vendor-managed. This system frees the procurement officer or purchasing agent to spend more time on strategic purchasing needs.

Quadrant 2 - The Price is Right/Bottleneck – this quadrant is used to describe needs that are of low strategic importance but have a high supply risk. Here the switching costs of moving from one supplier to another are high, or sometimes impossible. Suppliers in this quadrant may be sole sources, and specifications are required with no substitutes. These needs are best addressed by conducting a competitive bidding process (where there is more than one supplier is available) to achieve the lowest-cost contract. The lower strategic significance means that price can be the factor that drives the decision.

Quadrant 3 – Leverage/The Wheel of Fortune – this quadrant represents items of high strategic importance, high financial impact, and have a large number of suppliers available. The procurement process needs to be more involved and supplier screening is extremely important. This type of need is well suited to a blanket order contract, which establishes an arrangement for the supplier to furnish a specific number of goods or services over a specific period. Blanket contracts allow for the necessary screening up-front to assure proper management, but then allows for flexibility and reduced involvement over the duration of the contract. Once the contract is negotiated, requirements are then ordered using release orders via a purchase order system.

Quadrant 4 – Strategic/Partnership/Alliance – this quadrant addresses needs that are both of high strategic importance and have significant financial implications and a high supply risk. These needs should consume the majority of time, in order to address the importance of all of the considerations. This situation is best addressed by forming partnerships or alliances. Both parties will work together in a formal partnership towards the same goal.

2.7.4 The Strategic Sourcing Process

The strategic sourcing process consists of various steps. Most authors have identified similar steps to the strategic sourcing process. *Handfield et al (2005: p177)*, has developed a seven step strategic sourcing process as follows:

- Define the internal business requirements. Here broad level goals should be identified first, thereafter detailed strategies developed in line with the broad level goals.
- Define the strategic importance of the purchase requirement. This is done by means of a portfolio analysis. A portfolio analysis is the positioning of the commodity in *Figure 3*. This process was discussed in detail above.
- Determine business and purchase requirements and conduct supply market research. This step entails a spend analysis. The objective here is to have as much detailed information on how much is being spent and with whom. Perform supplier analyses, market analyses, gather benchmarking information etc.
- Set goals and conduct gap analysis. In this step of the process, specific targets for evaluating progress of strategy are set. The goals must be set based on the data that has been gathered in the three steps above.
- Develop sourcing strategy and objectives. Recommendations must be made regarding the suppliers available, selection of suppliers, contract durations, relationships etc. All recommendations are made in line with the strategies and information above.
- Execute the strategy. This is done by means of a competitive bid process or negotiations.
- Monitor and review performance. Performance of the progress of the strategic sourcing process must be monitored and tracked. This is done in relation to the goals set above.

All the above steps seem to be generic in most strategic sourcing processes and have been incorporated into recommendations by other authors. Authors have recommended anything from a five to an eight step process. The essence between the various recommended processes are in line with the above process as described by Handfield, Monzcka and Trent.

2.7.5 The Benefits of Strategic Sourcing

Why should any organisation consider implementing a strategic sourcing initiative? Can it really impact an organisation's bottom line? The benefits of strategic sourcing are quite substantial.

The benefits of strategic procurement were discussed in detail earlier in this chapter. Strategic sourcing is a quantum leap towards strategic procurement. This view is supported by *Roger Ball (2005: p8)*: "Strategic sourcing is not the purchase of materials and services on as-needed, day-to day, hand-to-mouth basis. This is largely transactional buying."

Strategic Sourcing is known to have a high impact on many organisations. Many companies have claimed how strategic sourcing has impacted their bottom line. Sasol has recently embarked on a strategic sourcing programme and has dramatically reduced costs on their purchases by employing strategic sourcing methodologies; (*Creamer 2003: p40*).

Strategic sourcing enhances an organisation's strategic objectives and it ensures that purchasing aligns itself with the organisation's goals. This view is confirmed by *Gattorna (1998: p285)* where he states that, "In strategic sourcing all purchasing activities are assessed for their impact on the company and the company's goals. Businesses wishing to source strategically will identify the most appropriate purchasing relationship with their suppliers, according to the vital needs of their core business functions. Significant benefit can be gained from developing meaningful, often long-term relationships with suppliers that provide the most important goods and services."

Strategic sourcing impacts the bottom line, by reducing the total cost of goods and services procured and concentrating on strategic purchases. Supplier base reduction is a key element to strategic sourcing. This in turn assists in forming appropriate supplier relationships. *Gattorna (1998: p286)* confirms this when he states, "The aim is to focus the most time and effort on strategic purchases that can provide advantages in quality, speed or cost effectiveness. The following advantages can be gained:

- The total cost of goods and services procured can be reduced by more than fifteen percent, which adds tremendous impact to the net income and market value.
- The transformation from a traditional purchasing function to a strategic sourcing focus often reduces the size of the supplier base, which creates economies of scale and long-standing relationships with suppliers.
- Advantages are achieved for the supplier and the purchaser: they can both leverage their core competencies to focus on increasing market share and improving market position.”

Smock (2004: p17) has stated that, “Strategic sourcing has soared in recent years because purchasing has changed so dramatically.” The table below reflects the primary benefits to strategic sourcing.

Table 2: Primary Benefits of Strategic Sourcing.

Smock (2004: p15)

	% reduction
Reduce costs	33
Standardisation	19
Avoid reinventing the wheel with each negotiation	27
Capture intelligence about markets and suppliers	11
Reduce cycle times	9
Greater use of cross-functional teams	9
Improve compliance with supplier agreements	4
Other	1

The benefits of strategic sourcing are not only quantitative but also qualitative. This is supported by *Engel (2004: p6)* who has summarised the benefits of strategic sourcing as follows:

- Organises our thinking about an approach to leveraging spend.
- Forces us to operate collaboratively across the business units.
- Encourages us to think creatively about supplier relationships.

- Provides a focus on opportunities to generate savings in targeted spend or process areas.
- Requires us to develop new thinking about performance metrics.
- Will lead to better quality improvement issues.
- Improves internal teamwork and communications.
- Will result in streamlined business processes.
- Will produce innovation from the supplier base.

2.7.6 Barriers to Strategic Sourcing

Smock (2004: p15) has revealed: “Ironically the most difficult aspect of launching a strategic sourcing program isn’t getting CEO support, battling internal resistance or finding adequate resources, such as time and money. It’s understanding what you spend: how much, what for and with which suppliers.”

Julie Roberts (2002: p33) identified the barriers to strategic sourcing as follows:

- The lack of time to engage in strategic sourcing.
- Little senior management support.
- The organisation’s view of supply management.
- The organisation’s perception of strategic sourcing.

Julie Roberts (2002: p33) suggested the following ways for overcoming barriers:

- Mind set change from transactional to a strategic approach, when each purchase must not be considered as just a transaction, but an opportunity to be strategic.
- Starting and building on early success – one might begin a large scale strategic sourcing process by working with a small commodity and expanding the process.
- Supply managers must be proactive about looking for creative solutions to their organisation’s barriers.
- Supply managers must view strategic sourcing as an ongoing process.

2.7.7 Moving Towards Strategic Sourcing Excellence

Strategic sourcing can be implemented and not be as efficient as it can be. Understanding the organisation's level of maturity in strategic sourcing will facilitate enhancement of the process. The table below displays the varying level of maturity in strategic sourcing.

Table 3: Varying Levels of Maturity in Strategic Sourcing.

Adapted from Roberts (2002: p33)

	Innocent	Understanding	Excellence
Financial analysis	<ul style="list-style-type: none"> Limited awareness of the total procurement spend Limited categorisation of spend 	<ul style="list-style-type: none"> Good understanding of spend by supplier, often limited to the portion managed by central procurement Spend categorised by business unit and commodity, though ad-hoc 	<ul style="list-style-type: none"> Knowledge of cost elements within categories Robust TCO model Knowledge of supply performance against contract terms
Market analysis	<ul style="list-style-type: none"> Limited understanding of the supply market beyond the current and past suppliers 	<ul style="list-style-type: none"> Knowledge of suppliers capabilities and weaknesses Understanding of the level of supplier power in the market 	<ul style="list-style-type: none"> Knowledge of supply market drivers, and its direction Competitive analysis of the supplier Visibility beyond industry verticals
Strategy development	<ul style="list-style-type: none"> Formal supply strategy is absent Low price is the sole goal 	<ul style="list-style-type: none"> Formal strategy exists for items, but not for the commodity groups Needs of the end users are a big input Goals revised at the time when contracts are up for renewal 	<ul style="list-style-type: none"> Commodity groups have documented strategy, managed -continually End-user representatives play an integral role Supply strategies are fully integrated with the corporate goals Strategies have a clearly identified link to value creation
Procurement contracts	<ul style="list-style-type: none"> “Beat ‘em down” philosophy; no documented negotiation strategy Ad-hoc contracts; the terms and conditions heavily favour the supplier; suppliers assume the most risk No performance measures 	<ul style="list-style-type: none"> “Win-win” philosophy, negotiated strategy defined and documented Some contract guidelines, thought not related to sourcing strategies Unfocused performance measures 	<ul style="list-style-type: none"> Strategies linked to sourcing strategies Clear understanding of the benefits from the agreement; evidence trackers Risk and reward elements for both procurement officer and supplier Structure of contracts facilitates additions improvements.
Supplier relationships	<ul style="list-style-type: none"> Focus on transactional relationships. Short term, arms length relationship 	<ul style="list-style-type: none"> Long term contracts are in place, and relationship is co-operative Supplier performance is managed 	<ul style="list-style-type: none"> Relationship is linked to the sourcing strategy and is beneficial to both parties Both parties work together to achieve maximum value
Monitoring and tracking progress	<ul style="list-style-type: none"> Tracking is absent 	<ul style="list-style-type: none"> Some progress is tracked, while some progress is lost 	<ul style="list-style-type: none"> Robust tracking methodology

2.8 Total Cost of Ownership

Total cost of ownership is an integral part of supplier selection. *Fearon and Leenders (1993: p298)* state that the purchaser should estimate the total cost of ownership before selecting a supplier. Hence, a sourcing process will be incomplete without considering the total cost of ownership. Total cost of ownership is an extremely important concept for every supply management professional. According to *Burt et al (2003: p 160)*, “Total cost of ownership should be a permanent concept in every supply management professional’s mind, whether in a service, retail, or manufacturing firm.” *Burt et al (2003: p161)* further states that total cost of ownership is relevant not only for the organisation that wants to reduce its cost of doing business, but also for the organisation that aims to design products or services that provide the lowest total cost of ownership for the end customers.

What is total cost of ownership? According to *Handfield et al (2005: p364)*, “Total cost of ownership requires a purchaser to identify and measure costs beyond the standard unit price, transportation, and tooling when evaluating purchase proposals or supplier performance. Formally, total cost of ownership is defined as the present value of all costs associated with a product, service, or capital equipment that are incurred over its expected life.”

Purchase price is only a portion of total lifecycle costs for the commodity. This is substantiated by *Burt et al (2003: p160)*, “Purchase price is only one of the many components of the cost of purchasing material, a product, or a service.” The commodity incurs numerous costs during its life cycle. These additional costs incurred over the lifecycle of a product, service, or capital equipment can be broken down into three categories:

- External costs – external costs includes costs such as purchase price, packaging, transport, etc. Purchase price will include cost components i.e. materials, labour, overheads, etc.
- Internal costs – internal costs include cost such as maintenance, support, internal logistics, administration, purchasing costs, warehousing, etc.

- Joint Costs – quality control, research and development, etc.

The varied costs described above emphasises the importance of basing tender evaluations on the total cost of ownership rather than purchase price alone. A tender awarded based on lowest purchase price would be an unjust award. *Fearon & Leenders (1993: p574)* state, “Since the low bid would favour a low initial machine cost, an unfair advantage may accrue to the supplier with possibly the highest life-cycle cost equipment.”

Developing appropriate supplier relations is critical to total cost of ownership reduction. Joint costs can only be reduced when relationships with a supplier are strong. Both parties have to work together to reduce the joint costs.

2.9 Supplier Relationship Management

Supplier relationship is an important aspect in the journey towards world-class supply management. *Burt et al (2003: p79)* state, “The transformation from reactive and mechanical purchasing to proactive procurement and on to world-class supply management parallels a similar transformation in relationships between procurement officers and suppliers.”

Supplier Relationship Management is an essential element of any cost reduction strategy, including strategic sourcing, because supplier relationship management impacts the bottom line. This view is supported by *Roberta Duffy (1998: p33)*, by stating that teaming effectively with suppliers is one of the key ways to improving financial performance and customer satisfaction.

Organisations are moving away from the traditional transactional approach to supplier relationship towards a partnering approach. *Fearon and Leenders (1993: p278)*, confirms this by stating that a large number of organisations have started to create partnerships with their suppliers. “Partnership arrangements are characterised by a sense of teamwork, cooperation, and a shared goal of continuous improvement,” *Schorr (1993: p119)*.

2.9.1 Transactional Relationships

Burt et al (2003: p81) describe transactional relationships as the most basic type of buyer-supplier relationships. This type of relationship is neither good nor bad and is simply an arms length relationship wherein neither party is especially concerned with the well-being of the other. Virtually all procurement organisations will have transactional relations, while most will have collaborative and some will have strategic alliances. For certain types of commodities, transactional supplier relations are most appropriate. For example if there are many relatively undifferentiated suppliers providing what amounts to interchangeable commodities then a transactional relationship would be appropriate.

2.9.2 Collaborative Relationships

To understand the nature of collaborative relationships, the term “collaboration” must first be defined. *Handfield et al (2005: p103)* quotes the definition of Spekman for collaboration as, “The process by which two or more parties adopt a high level of cooperation to maintain a trading relationship over time. The relationship is bi-lateral: both parties have the power to shape its nature and future direction over time. Mutual commitment to the future and a balanced power relationship are essential to the process.” In essence, collaborative supplier relations, embraces co-operative long term relations.

Burt et al (2003: p83) state that “An awareness of the interdependence and necessity of cooperation is the key difference between collaborative relationships and a transactional one. Recognition of interdependency and the need for cooperation provides many benefits to both parties to the relationship. Both parties are aware that money enters their supply chain (or supply network) only if the chain’s end products are competitive. Recognising the need for interdependence cooperation, the customer’s organisation enjoys the benefits of early supplier involvement. Improvements in cost, quality, time to market, and the leveraging of supplier technology result.”

Organisations are realising the value that can be derived from collaborative relationships and are moving towards this type of relationship. This is confirmed by

Gordan and Hughes, where they state, “To achieve greater profitability, many more companies are partnering with their suppliers.”

As with transactional relationships, collaborative relationships are appropriate for certain types of commodities. According to *Burt et al (2003: p86)*, a collaborative relationship is appropriate when:

- The potential supplier possesses economic power which it is willing to employ over its customers.
- If there is recognition by both parties of the potential benefits of an alliance, but adequate qualified human resources are not available at one or both organisations, a collaborative relationship is usually appropriate.

2.9.3 Alliance Relationships

An alliance relationship is very similar to a collaborative type of relationship with the exception that it is formalised. *Burt et al (2003: p84)* state that the fundamental difference between collaborative relationships and supplier alliances is the presence of institutional trust in alliances. In fact, a strategic alliance is initiated by collaboration. *Burt et al (2003: p87)* support this view by stating that a collaborative relationship frequently is the first step on the road to a strategic alliance.

If a strategic alliance is so similar to collaborative relationship, then why make the change to a strategic alliance? How is the decision to switch over to a strategic alliance made? According to *Burt et al (2003: p87)*, if the answers to the following questions are in the affirmative, then an alliance relationship is appropriate:

- Is the supplier head and shoulder above the rest in terms of the value it provides including price, innovation, ability to adapt to changing situations, capacity to work with your team, task joint risks, etc?
- Is the supplier “strategic” to your organisation? Do they have a major impact on your competitive advantage in the marketplace? Are you highly reliant on them to provide a unique product?

- Would your organisation benefit greatly if the supplier were more “integrally connected” with your company, perhaps with their engineers working side by side with yours.
- Do your customers require a high degree of flexibility and speed of responsiveness, causing you to demand the same performance from your suppliers?

2.9.4 Strategic Sourcing and Supplier Relationships

According to *Gordon and Hughes*, organisations are now segmenting their suppliers in line with the strategic sourcing model (*Figure 3*). This segmentation is based on variables such as cost or difficulty of switching suppliers, total spend with a particular supplier, strategic importance of the commodity, complexity of requirements, complexity of supplier relationships and the number of business units or internal customers served by the supplier. Supplier relationships are selected based on where they lie in the strategic sourcing model depicted in *Figure 3*. When commodities or services are plotted in the strategic category, then strategic relationships, i.e. alliances are recommended, while those commodities or services that are plotted in the transactional category will require arms length relationships.

Gattorna (1998: p294) has indicated that a partnership can be advantageous for goods and services that have a high strategic importance and a substantially high financial impact to the organisation. A partnership can be advantageous to both suppliers and purchasers when a ‘win-win’ approach is adopted. Joint development of products and continuous improvement programmes can improve products while reducing their total cost, with both partners benefiting through a system of dividing the earnings.

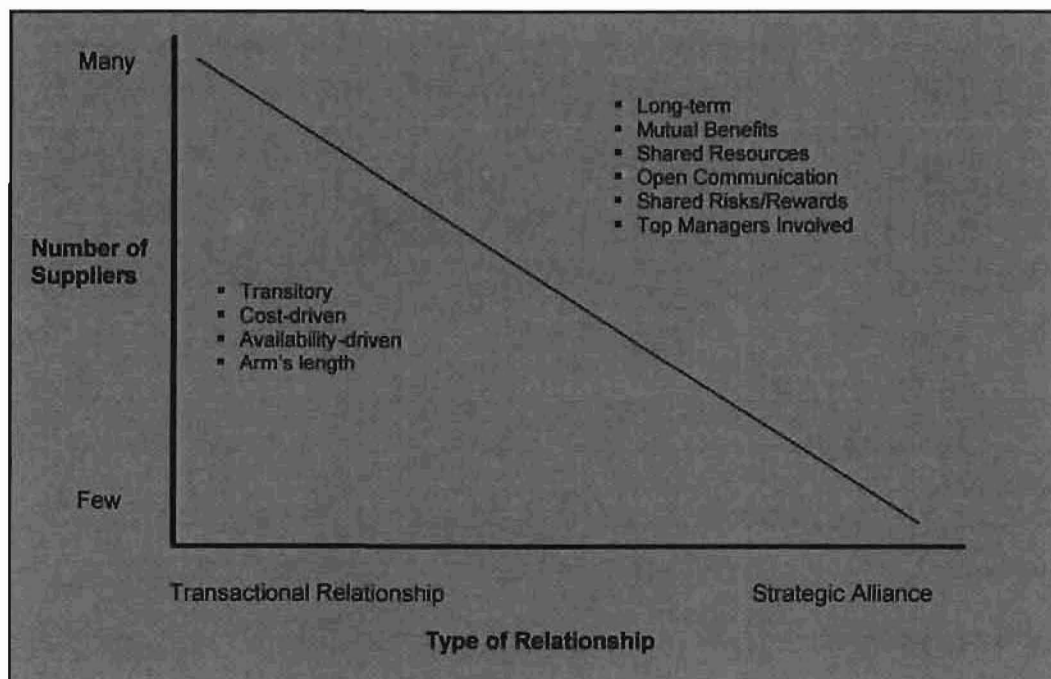
2.9.5 Supply Base Reduction

A reduction in the supply base is a sure way of reducing costs. *Farmer and Weele (1995: p272)* supports the statement that organisations which purchase from large numbers of suppliers are incurring unnecessary costs, both administrative and in terms of missed opportunities to standardise on products purchased.

A focus on the enhancement of supplier relationships will lead to a supply base reduction and thus enhance the sourcing strategy by moving away from short-term transactional relationships where the focus is on price and delivery to long term strategic partnerships and alliances where the focus is on total cost of ownership. This is supported by *Ogden and McCarter (2004: p1)*, where they have demonstrated how a supplier reduced its total number of suppliers by 88 percent, enabling the supplier to partner with select suppliers to ensure low prices, high quality, timely delivery, strong customer support, and constant technological and innovative improvements. This is depicted in *Figure 4* below.

Figure 4: Impact of Reducing the Supply Base.

Ogden & McCarter (2004: p2)



2.10 Cross-Functional Sourcing Teams

To ensure successful strategic sourcing in an organisation, cross-functional sourcing teams are essential. Many supply organisations are realising this importance and have moved towards the use of cross-functional sourcing teams. This movement towards cross-functional sourcing teams is emphasised by *Engel (2004: p3)*, in his statement that over the past several decades, the supply chain profession has transformed from the “purchasing agent” mentality where staying in silos was the norm, to evolving into the “supply chain management” atmosphere where working with cross-functional and cross-locational teams is vital to success.

A cross-functional approach is a sure way of meeting the objectives of procurement. *Farmer and Weele (1993: p63)* support this in their statement that most procurement objectives (if not all) can only be achieved in collaboration with other functions.

Strategic sourcing is implemented mostly through cross-functional teams. *Handfield (2005: p106)* explains that, “cross-functional sourcing teams consist of personnel from different functions and, increasingly suppliers are been included. These functions are brought together to achieve purchasing or supply chain-related tasks which include specific tasks such as product design or supplier selection.” The inclusion of suppliers to the cross-functional sourcing teams should be considered, as it will enhance the outcome. *Fearon and Leenders (1993: p299)* in support of the above statement, state that, “Early supplier involvement is essential to ensure cost effectiveness.”

Cross-functional teams are extremely critical for a total cost of ownership approach. According to *Fearon and Leenders (1993: p 299)*, “A total cost approach requires the co-operation of engineering, quality assurance, manufacturing, and purchasing to co-ordinate requirements such as specifications and tolerance which affects the purchasing function.”

2.10.1 Benefits of Cross-Functional Sourcing Team Approach

Handfield (2005: p108) has indicated that the benefit of a cross-functional sourcing team approach is the reduced time to complete a task. However (*Monzcka and Trent (1993: p3)*) have rated the same as the lowest rated benefit. Their finding was that, interaction may not be the most efficient approach to decision making, however they have indicated that a trade-off must occur between the additional time often required for team efficiency and ability to reach higher quality and executable effectiveness through team interaction and consensus decision making. The other benefit of cross-functional sourcing teams is the ability to bring greater knowledge and skill together at one time. The limitations of cross-functional sourcing teams include the following:

- A Lack of authority or power to make decisions.
- Managers outside the team attempt to control activities or influence team decisions.
- Certain members dominate team meetings or control team activities.

2.11 Surrogate Sourcing

A concept that seems to be ignored in South Africa and most large organisations is Surrogate Sourcing. Not much information is available on this very exciting and fairly new movement.

Jerry Marstall (1999: p1) points out that this concept should not be confused with outsourcing. He states that, "Surrogate Sourcing allows an outside organisation to do your sourcing for you. The significant difference between Surrogate Sourcing and outsourcing is that when you employ outsourcing, you lose total control of the process and become a consumer instead of the provider. Outsourcing reduces the domain and influence of purchasing while Surrogate Sourcing converts supply management from an overhead organisation to a profit centre, thereby increasing the influence and ensuring the future of the in-house supply management organisation. Outsourcing has been seen as an undermining of the influence and power of supply

management organisations. Surrogate sourcing on the other hand resuscitates the influence and power of supply management by providing tools that allow supply management to become the largest contributor to corporate profits of the organisation within a company. Surrogate sourcing, in the time frame of weeks versus months and years, can contribute more to corporate profits than any other business approach, including outsourcing.”

Jerry Marstall (1999: p1) writes of an example where a manufacturer won a contract to produce a component for a new product. Throughout the prototyping stage, one strategic material was being purchased from a single supplier. As the manufacturer was nearing production, he learned that the price for that strategic material was going to be much higher than anticipated, precluding the manufacturer from being able to meet the price requirement for the end product and also realise the desired profit. After an exhaustive process, a “Surrogate Sourcer” was asked to assist them in locating a cost-effective supplier. Ideally, one supplier was sought that could produce at a lower cost and also produce at higher yield level thereby reducing production rejects. The supplier needed to be local because of the high transportation costs associated with the bulk of one item, however many known local suppliers were already evaluated and rejected by the manufacturer. The Surrogate Sourcer identified companies that had not previously produced such an item, but were capable of doing so and three companies surfaced. One supplier ultimately met the specification requirements and became the selected supplier.

The Surrogate Sourcer not only located a capable domestic supplier but one that could produce at 51 percent savings. This success was achieved because of the Surrogate Sourcer’s available time for sourcing and the utilisation of the “Buyers’ Shield.” The manufacturer had not only exhausted all sourcing avenues but also did not have the time to dedicate to unconventional sourcing solutions. Furthermore, the Surrogate Sourcer kept the manufacturer’s identity concealed until pricing had been established. The Manufacturer was exploited because of the assumed wealth of the company with an internationally recognised name.

This concept is very appropriate in the Eskom context, as Eskom is known for its wealth and its ability and willingness to pay. Employing this method could impact

on savings for the organisation. However, this process is not in line with Eskom's policies of transparency. According to *Eskom's Purchasing Pact (2004: p5)*, "Whenever Eskom wants to procure products, services and works it indicates the terms and conditions under which tenders will be considered, and contracts awarded."

2.12 Conclusion

This concludes the literature review. Chapter 3 will discuss the research methodology.

3 RESEARCH DESIGN AND METHODOLOGY

3.1 Working Hypothesis for the Research Problem

The dissertation studies the current status of the sourcing process at Eskom in order to gain a better understanding of the process and use the emerging opportunities to improve Eskom's sourcing process with specific reference to large transformers.

The following hypothesis has been established for this dissertation:

A significant opportunity exists to improve the sourcing process at Eskom, thus enhancing the effectiveness and efficiency of supply management in Eskom.

3.2 Definition of the Research Problem

The research will be appropriate to the Eskom context with specific reference to the supplier selection process for large transformers. It should be possible to apply the outcomes of this research to other similar purchases at Eskom.

The purpose of this research is three-fold:

- To describe supply management best practice;
- To perform a gap analysis of Eskom's supply management process;
- To develop a sourcing process for Eskom in line with best practice.

This stage of the research considers best practice as those learnings which come out of the research. The purpose of the learnings will be to enhance current practices in Eskom, in order to make the supplier selection process more effective and efficient.

3.3 The Research Process

This qualitative research was made possible largely through the researcher's participation in the Eskom Transformer Project. The role in the project allowed the researcher to engage with various key stakeholders in Eskom's transformer purchases. The research was conducted using the following approaches:

- Systems Thinking
- Questionnaires
- Interviews
- Data Collection

3.3.1 Systems Analysis using "Systems Thinking"

Systems thinking, (*University of Natal, (2005: p15)*), is a problem solving approach, using a holistic approach rather than a purely reductionist approach. Systems thinking is useful for investigating complex situations. The method will be used where appropriate. This process will be executed using maps and diagrams.

Systems analysis will be completed by taking the current Eskom situation into consideration as well as the literature review. The objective of the systems analysis would be:

- To gain a better understanding of Eskom's environment.
- To gain a better understanding of the key stakeholders involved in the purchase of large transformers.
- Understand the current practices of the procurement function.

3.3.2 Questionnaire for Procurement Officers

Literature review indicates the difference between a Purchasing and a Supply Organisation. It further demonstrates the characteristics of transactional and strategic procurement. The importance in understanding the differences were also revealed. It therefore has to be determined if Eskom is a Supply Organisation or a Purchasing Organisation, and where the organisation lies in respect of the two types of procurement. Once this is determined and the gaps identified, it would then be known what needs to change in order to make recommendations and implement changes to move towards strategic procurement.

A questionnaire (*Appendix A*) was chosen as it allowed structured questions to be posed to respondents. This ensured focus to the answers, and it required less time from the respondents. The questionnaire provided qualitative information regarding Eskom's Supply Management current practice.

A test questionnaire was sent out to two transformer procurement officers. The answers were subsequently discussed with a supply chain expert, Denis Hegarty, Senior Manager at Eskom Transmission Division. Some of the questions were misunderstood e.g. the test question was "Do you work in cross-functional teams." The "test procurement officers" indicated that they utilised cross-functional teams. Mr Hegarty however explained that procurement officers met with the technical experts in what Eskom terms "Squad Check Meetings" where various issues were discussed regarding the tender that was going to be issued. He revealed that for a contract, there will be at most five meetings. The meeting are at most two hours each. On most occasions the commercial meeting will be separated from the technical meeting. The questions were then rephrased and distributed.

The procurement officer questionnaire was sent out to ten Eskom procurement officers. These procurement officers were selected on the basis that they were the only known transformer procurement officers within the organisation. The intention was to obtain a perspective from all transformer procurement officers across all Eskom divisions. Nine procurement officers responded to the questionnaire.

The objectives of the questionnaire were to:

- Determine current perspectives of supply management in Eskom.
- Determine the extent to which the purchases are transactional or strategic.
- Determine where Eskom's current sourcing process is positioned in relation to best practice.
- Determine the current supplier relationships with transformer suppliers.
- Determine and analyse the current process, methodologies and processes.

The results of the questions were more than 80 percent consistent (*Appendix G*) across the various procurement officers. Those responses that were varied were noted and discussed during the interview process.

The results of the questionnaires are depicted in graphs in *Appendix G*.

3.4 Interviews

Interviews were conducted with the following groups of people:

- Senior procurement officers - Interviews with senior procurement officers provided qualitative information. The information was in respect of their perspectives on the matter of supply management key concepts, perspectives on Eskom suppliers and problems with transformer purchases.
- Suppliers – suppliers provided quantitative as well as qualitative information. The information was based on their organisation as well as their relationship with Eskom. They also provided perspectives on cost savings ideas for Eskom.

3.4.1 Interviews with Procurement Officers

Interviews with procurement officers were done with the purpose of obtaining more detailed information, which was not possible to obtain by means of a questionnaire. It was also used as a follow-up on the questionnaire. Respondents to the questionnaire were interviewed telephonically due to geographical location. Interviews were conducted by the researchers with the exception of one interview,

which was conducted by another member of the organisation, Mr H Langenhoven, Manager, Transmission Division. The reason for selecting another interviewer was due to the respondent's resistance to the project at Eskom. This could result in an unclear response. The respondent's perspective was important to the research process. The purpose of the interviews was to clarify answers and to obtain detailed perspectives on the various processes. Interview results were more than 80 percent consistent across the various procurement officers. Variances in the responses were however noted. The interview questionnaire is attached as *Appendix B*.

3.4.2 Interviews with Transformer Suppliers

The interviews with the various suppliers (*Appendix C*) were done as part of a research exercise for a major Eskom Transformer Enquiry to be issued towards the end of the year. The interviews were conducted by the researcher assisted by personnel from the Eskom Transformer Team. Research was conducted with the various transformer suppliers. The objective was to determine what opportunities exist to enhance Eskom transformer purchases and to gain a better understanding of the transformer suppliers and the transformer supplier market. This information can be used to facilitate an effective tender process. This interview process should normally be conducted with all possible suppliers. This interview process was however limited to suppliers who are available locally. The information is also essential in order to prepare and strategise for negotiations with suppliers.

The purpose of the interviews was to:

- Gain an overview of the supplier's organisation.
- Initiate a relationship with the supplier.
- Gather and share information about Eskom Transformers.
- Request cost saving ideas from the suppliers.
- Understand their future strategy in terms of Africa or globally.
- Determine if Eskom could enhance the way it procures transformers.
- Gain a better understanding of the suppliers' relationships with Eskom.
- Determine what problems suppliers are currently experiencing in their relationships with Eskom.

- Obtain transformer information i.e. cost components of transformers, the suppliers production capacity, future production capacity, global and local supplier strategy, and market share.
- Provide the suppliers with an opportunity to review Eskom's transformer specifications, in order to save costs for both parties. This had to be done without negatively impacting the quality of the transformers.
- Inform suppliers that Eskom is looking at enhancing its transformer purchases by consolidation of Eskom purchases and increasing competition in the transformer market.

All local transformer suppliers and international suppliers with local agents, who were willing to participate in the interviews, were interviewed. The suppliers interviewed were:

- ABB Powertech
- Alstom/Areva
- Siemens
- Desta Power Matla
- Sumitomo Corporation

3.4.3 Supplier Market Research

Literature review indicates the importance of understanding the supplier and doing market research on the supplier as part of the strategic sourcing process. This was done by means of the interview process as well as other research.

3.4.4 Spend Analysis

A spend analysis is also crucial to the strategic sourcing process. Details of the spend analysis have been completed for transformers at Eskom. Historical transformer spend details were obtained from Eskom's ERP system. Future spend data were obtained from Divisional capital expenditure (CAPEX) and operating expenditure (OPEX) plans. Data analysis was completed by the Eskom transformer team. The researcher was an integral part of the Eskom Transformer Team.

4 FINDINGS

4.1 Introduction

This chapter encompasses the details and the analysis of the data gathered through the interview process, the questionnaires, and the research process.

The research and data analysis was conducted in line with the hypothesis established:

A significant opportunity exists to improve the sourcing process at Eskom, thus enhancing the effectiveness and efficiency of supply management in Eskom. The research and analysis is also based on the literature review discussed in Chapter 2.

The research carried out in this dissertation aims to obtain a better understanding of Eskom's supplier selection process with specific reference to large transformers. This information will then be utilised to determine the gaps for Eskom to implement a world-class supplier selection process at Eskom. The research was conducted on Eskom transformer purchases only. The questionnaire sent to the procurement officers and the interviews with the procurement officers were therefore restricted to Eskom Transformer Procurement Officers (all ten of them) only.

Supplier market research was conducted with all known local suppliers. Supplier interviews were not restricted to Eskom suppliers only as this could have led to limited information. The objective of the supplier market research was to obtain as much supplier information as possible and to determine what opportunities exist to enhance Eskom's transformer purchases.

This chapter outlines the cognitive results of the various research methods.

4.2 Transformer Purchases at Eskom

At the outset of the research, an analysis was completed to gain a better understanding of transformer purchases at Eskom. This was done by means of a spray diagram (*Appendix F*). The spray diagram depicts the various issues in Eskom regarding transformer purchases. The information was obtained from the various interviews and questionnaire processes.

The spray diagram lays out the foundation of the findings. It reflects the various areas/components of transformer purchases that will be addressed in the findings of the research. The main theme that emerges from the spray diagram is the complexity of transformer purchases in Eskom. It reflects the interaction and impact of people, process and systems in the purchase of transformers. It is a complex system due to the following factors:

- People – The people involved in the transformer procurement are the various role players in the transformer procurement. These role players have a stake in the transformer purchases and are therefore stakeholders to the process. Government lays down legislation that has to be adhered to for transformer purchases. The technical experts are the key role players and offer much resistance to changes made to the processes. The culture of Eskom is driven by technical experts due to the nature of Eskom's business. They are key players in the transformer purchases and are required in the cross-functional teams. They have authority and expert power and will utilise it. Procurement officers normally lead the process but are overpowered by the technical experts since they do not have much authority. Suppliers are valuable to the process for the knowledge and their commitment to the Eskom can improve current purchases. Suppliers are not always willing to share information as they do not know if their information will be used against them due to the current buyer-seller relationship between Eskom and them.
- Processes – The current processes in Eskom are driven by policy and culture to a large extent. The focus on process is operational and very little effort is placed on a strategic focus. Policies lay the foundation for the purchases and most

procurement officers focus on adhering to these processes and therefore do not focus on optimising value for Eskom. This leads to many lost opportunities.

- Systems – The decentralised approach to supply management has led to the systems (e.g. SAP) being decentralised. This in turn leads to a lack of collaboration across Eskom and therefore impacts the value derived from the purchases. Practitioners rely on the system for information; however, the system only provides limited information.

All the above factors add to the complexity of transformer procurement, at the same time brings about various opportunities to enhance the procurement of transformers.

4.3 Transactional Versus Strategic Procurement

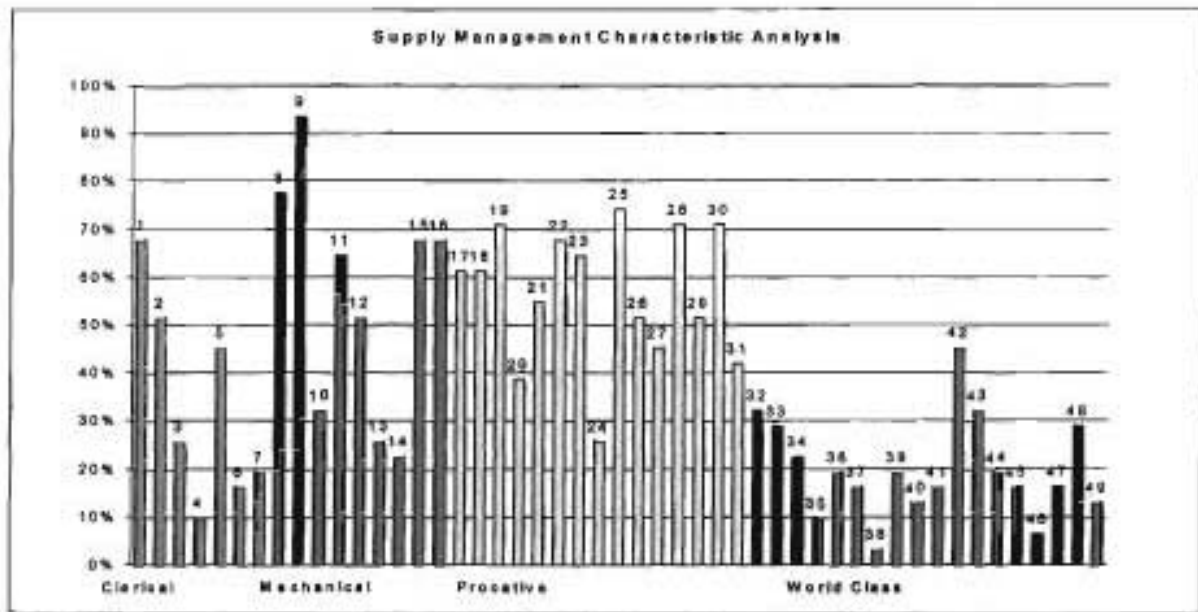
4.3.1 Organisational Perspective

A recent study was completed (*Hegarty et al, 2004*) at Eskom to determine if Eskom's Supply Chain Management was in line with world-class practice. A Progression Road Map Questionnaire: adapted from (*Burt et al 2003*), Burt, Dobler and Starling's Four – Stage Model of World Class Supply Chain Management (*Appendix D*). The questionnaire was sent out to 65 supply chain practitioners throughout the various Eskom Divisions. The response to the Supply Management Questionnaire was as follows:

- 31 responses were received as detailed on the graph below.
- There is a concentration of responses around the mechanical to proactive practice. The majority of the respondents view Eskom's supply management as having a mechanical to proactive focus.
- Most people found that the organisation was transactional focused (bar 8 on the graph) and the organisation was reactive with respect to purchase requisitions (bar 9 on graph).

The bars on the graph are numbered to match the roadmap questionnaire, attached as *Appendix D, Supply Management Questionnaire*.

Graph 1: Supply Management Progression Road Map. (Hegarty et al 2004)



4.3.2 Procurement Officer Perspective

A recent survey by the Eskom supply chain project team revealed that procurement officers felt that their focus was very operational. There are no strategies in place and procurement officers are not involved in any strategic activities.

The interviews for this research have further indicated the following:

- Sometimes procurement officers are involved in routine work. This is dependent on the type of commodity they are purchasing.
- Data is not freely available to the procurement officers. This includes transformer purchase/contract information across divisions, including recent information as well as historical information. Procurement officers also do not have their own required data available e.g. supplier's production capacity, their spend data etc.
- Procurement officers are not knowledgeable regarding transformer purchases, supplier information, commodity details, contractual information etc.
- Procurement officers are not involved in the strategies for the purchase of the transformers; therefore their task is highly operational.

- Eskom does not focus on supplier relations and does not realise the interdependency of the buyer-seller relationship.
- Technical experts play a large role in the commercial aspects of transformer purchases. They often exclude the procurement officer from supplier interactions.

All of the above findings reflect a transactional approach to procurement. Literature review has indicated various strategic characteristics of procurement, none of which are prevalent. Eskom has not progressed towards supply management characteristics and is therefore not considered a supply management organisation.

4.4 Organisational Structure

Almost every division in Eskom has their own supply chain structure. The supply chain structure of the four main divisions (Generation Division, Distribution Division, Transmission Division, and Corporate Division) is shown in *Appendix E*. This structure clearly indicates a decentralised approach to supply management. There is no common reporting structure for the supply chain function. The supply chain organisational structure is thus highly fragmented. This results in a fragmented supply chain with only a few contracts purchased cross-divisionally. Eskom's transformer purchases as well as other purchases of other commodities are thus not consolidated across the divisions. Centralisation sometimes occurs within Divisions, but not across the organisation. Eskom therefore does not leverage opportunities on consolidated purchases.

This largely decentralised organisational structure impacts the purchases of large transformers. While transformers are purchased across Eskom's three main divisions (Generation, Transmission, and Distribution) these purchases are not consolidated. What is the impact of this fragmented approach on the organisation as a whole?

4.4.1 Procurement Officer Perspective

Procurement officers are unaware of the transformer purchases or transformer requirements across the Eskom divisions. There is also a high level of decentralisation within some of the divisions, which results in a communication gap within the divisions as well. Procurement officers have indicated that they are sometimes aware of transformer purchases outside their respective Divisions. This is because they sometimes require information to perform cost comparisons on their transformers. They would then attempt to find information on their ERP system and contact the respective procurement officer. However, the information shared between them pertains to the purchase price only. The reason for the lack of communication is attributed to Eskom's SAP system which has independent sections which are referred to as "boxes" for each division. Procurement officers from one division do not have access to another division's box. The system provides information such as supplier name; supplier details; value spent and sometimes a small amount of information on the products. However, the information provided by the SAP system is insufficient for other divisions to derive maximum value.

4.4.2 Supplier Perspective

Comments from suppliers revealed the extent to which the consolidation of transformer volumes across the Eskom Divisions would benefit Eskom were as follows:

- Siemens indicated that volume bundling would definitely realise cost savings because this would impact on reduced design and overhead costs. Eskom would therefore only pay for the design of the first unit. Siemens further indicated design comprised approximately seventeen percent of the purchase price of a transformer. This indicates the substantial savings on transformer purchases because Eskom purchases many similar types of transformers within and across divisions.

- Working together across the Eskom divisions could result in streamlining Eskom's technical transformer specifications. Siemens confirmed during the interview that there is potential to streamline technical specifications. An example of this is Eskom's Generation Division which currently requires robust transformers with large safety margins. This definitely adds to the cost of the transformer. ABB further indicated that it is possible to streamline Eskom's technical specification. Furthermore, they indicated that there are three different specifications for the three Eskom Divisions. Should Eskom decide to standardise the paint processes, for example, this would result in substantial savings to Eskom and the supplier. Eskom has different paint specifications for different regions.

4.4.3 Organisational Impact

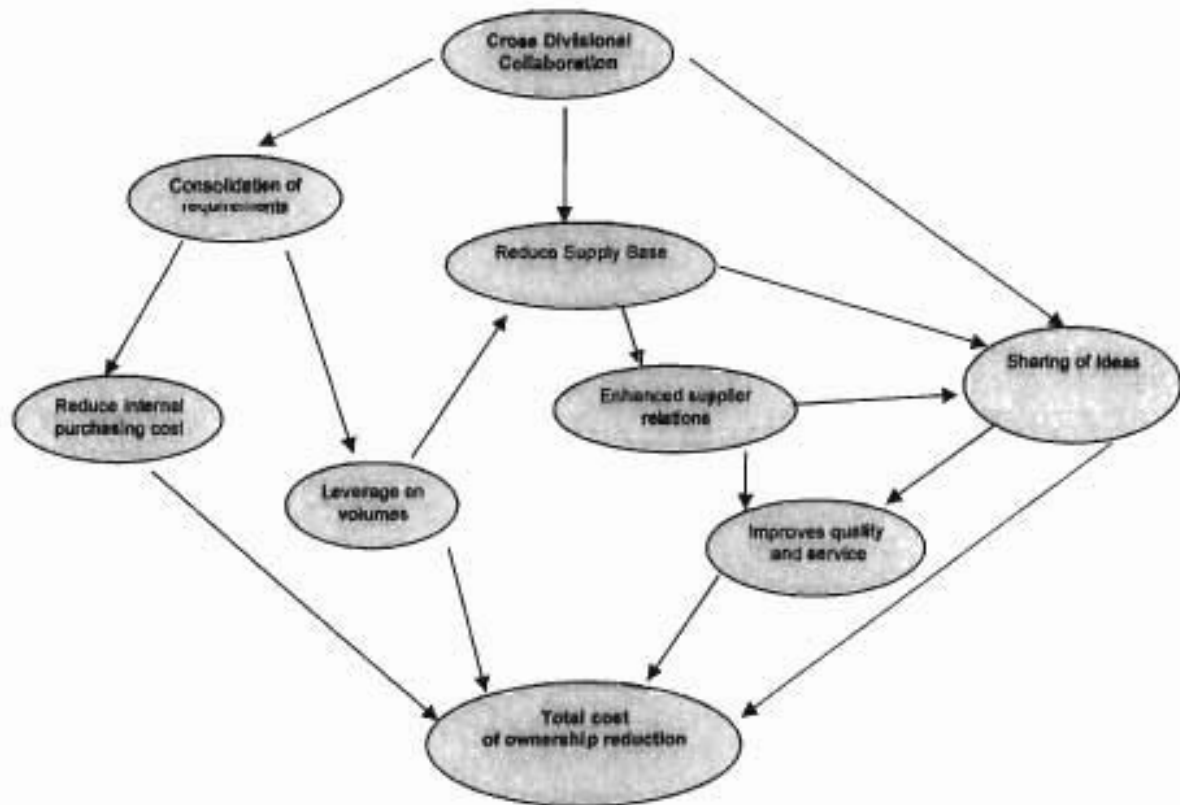
The lack of collaboration across the divisions is largely due to the fact that a centralised reporting structure or a central communication forum for supply management in Eskom is absent in the organisation. Thus, divisions do not enter into discussion regarding their major purchases or share ideas across the divisions.

Another reason for the lack of collaboration across the divisions is that practitioners do not have a probing mindset. This is largely due to the culture of the organisation. People are not very concerned about finding out more regarding the commodity or the supplier. As a result they do not delve deeper or make an attempt to find out more information despite the fact that the procurement officers have indicated how critical and important transformer purchases are to Eskom. The key objective among the procurement officers are complying with policies and achieving performance measure targets like Black Economic Empowerment and the time taken to create a contract (lead time). The philosophy of "what gets measured gets done" is practiced.

A systems thinking approach was used to analyse the impact of cross-divisional collaboration on the organisation. This was done by means of a multiple cause diagram shown in *Figure 5*.

Figure 5: Multiple Cause Diagram

The Impact of Cross-Divisional Collaboration on TCO



The diagram indicates the following findings:

- Cross-divisional collaboration has a direct impact on the consolidation of requirements. This in turn reduces the cost of purchasing and at the same time leverage on volumes (as explained above).
- Cross-divisional collaboration would also impact in reducing the supply base. The reason for this is that purchases would now be from a small number of suppliers. This will enhance relations and thus improve quality and service. Literature review has demonstrated how a supplier reduced its total number of suppliers by 88 percent, enabling the supplier to partner with select suppliers to ensure low prices, high quality, timely delivery, strong customer support, and constant technological and innovative improvements. This was depicted in *Figure 4*.

- Furthermore, cross-divisional collaboration will assist in the sharing of ideas across divisions. The sharing of ideas will improve the management of contracts and the management of quality and service due to the consolidation of skills and undivided attention on the specific contract.
- All of the above factors, i.e. improved service and quality; leverage of volumes; reduced purchase cost and the sharing of ideas with suppliers have a direct impact in reducing the total cost of ownership of transformers to Eskom.

The diagram shows how a minor adjustment to the organisational structure towards cross divisional collaboration could have a major impact on total cost of ownership reduction. Consolidation of other purchases across the Divisions will have extensive savings for Eskom. Eskom has a large planned future spend on transformers and changing the organisational structure could contribute to substantial savings.

4.5 Total Cost of Ownership

Most transformer purchases are done via a tendering/competitive bidding process at Eskom. Tenders are received, handled and evaluated in accordance with a documented process. This process is documented in a handbook entitled, “ESKAMAAD6: The Receipt, Handling, Assessment and Evaluation of Tenders”. This process is meticulously followed by procurement officers within the organisation. The successful supplier is selected to supply Eskom based on the results of the tender evaluation process. The evaluation process is usually completed by an evaluation panel. The panel bases the evaluation of the tenders on criteria that would normally be stipulated upfront in the tender enquiry documentation.

4.5.1 Procurement Officer Perspective

When evaluating tenders procurement officers consider quality and purchase price as the most important factor in determining the successful tenderer. Sometimes delivery date is used as the determining factor due to emergency requirements. When other factors are taken into consideration it is usually based on Black Economic Empowerment or Quality. Quality is determined by the technical team.

The role of the procurement officer is to ascertain if the commercial requirements are met in the tender. Financial experts evaluate the tender for exchange rate fluctuations and the financial stability of the company etc.

Total cost of ownership is not utilised in the tender evaluation process. Some aspects of the total cost of ownership are considered but not all aspects. The tenders are not evaluated based on the **total** cost of ownership principle. Transformer procurement officers do not have knowledge of the total cost of ownership concept. They also do not understand the value that could be derived from the use of the concept. Procurement officers have indicated that the decision regarding the said principle must be taken by technical experts.

4.5.2 Organisational Impact

Literature review indicates the importance of total cost of ownership. Despite the importance of total cost of ownership to any organisation, procurement officers who are key functionaries to issuing; evaluating and recommending of tenders are unaware of the concept.

Eskom Handbook (1997: p13) states, “When price will not be the sole criterion, the procurement officer ensures that the evaluation criteria are spelled out in the enquiry and tender documentation, indicating their relative weightings where possible.” The general evaluation criteria used are delivery, quality, experience, technical and commercial. The reason for the lack of use of total cost of ownership is largely attributed to the guidelines presented in the mentioned handbook. When new procurement officers are employed at Eskom they are required to attend two courses called “Purchasing in Eskom (PIE) 1 & 2”. The procurement officers are given an intensive one day (of the 5 day PIE 2 course) on the handbook alone. They are therefore taught to evaluate tenders based on the methods described in the handbook. Procurement officers meticulously follow the process learnt, in their daily procurement activities. As most procurement officers are not aware of the concept of total cost of ownership they do not compare this world-class concept with Eskom’s current practice. This is the reason that tenders are evaluated largely against purchase price.

Another aspect that supports the tender evaluation based on purchase price only, is the adjudication process at Eskom. The adjudication process at Eskom is conducted by tender committees. Various tender committees are appointed, to adjudicate the award of contracts. The members on the tender committees are unaware of the total cost of ownership principle and therefore, do not consider total cost of ownership prior to approving the award. The decision by the tender committees is largely based on purchase price.

The transformer team has identified the major cost components that need to be considered in the overall total cost of ownership of large transformers. The components were quantified as follows:

Table 4: Total Cost of Ownership Components Model.

Total Cost of Ownership Components	TCO %
Equipment Purchases	40
Maintenance/Services	26
Energy Losses	12
Downtime	10
Inventory	3
Insurance	7

The above model was completed taking into consideration Eskom's current fleets' historical spend over the past 25 years. The value was then annualised. It shows that purchase price is the largest component of the total cost of ownership for transformers. However, this makes up only 40 percent of the total cost of ownership. By basing tender evaluations on purchase price only, 60 percent of the cost of the transformer is ignored. This could not only lead to an unjust process but could also be an economic loss to Eskom. It is therefore imperative that other costs are included in the tender evaluation process, in order to maximise the value of the purchase.

4.6 Cross-Functional Sourcing Teams

Literature review indicated the importance of cross-functional sourcing teams in the strategic sourcing process. The objective of this phase of the research was to determine what Eskom's stance on the use of cross-functional sourcing teams is and what the procurement officer's perspective on cross-functional sourcing teams are. Cross-functional sourcing teams have been described as an essential component of the strategic sourcing process.

4.6.1 Procurement Officer Perspective

Procurement officers do not utilise cross-functional sourcing teams in the context described in the literature review. Procurement officers believe that the interactions with the key functionaries involved in the transformer purchases is actually a cross-functional team. This is done by what is termed a 'squad check meeting', which consists of people from the technical, commercial, and quality departments. This meeting is co-coordinated by the procurement officer and they typically meet as a team at a maximum of four times for a particular contract. The purpose of the meeting is to check the documentation or discuss and confirm certain issues. This is done by means of a technical discussion where the technical team may discuss final technical specifications and a commercial discussion where the commercial team may discuss how Black Economic Empowerment is going to be considered in the tender process. Most times the commercial and technical teams meet separately.

Since transformer procurement occurs independently within each division in Eskom, the squad-check meetings include members from within the respective Division only. Experts from other Divisions are not called in for comments or assistance in the process. Sometimes a financial expert from the Corporate Division may be called into the meeting. Information that is shared at these meetings is not shared across divisions. Other divisions are also not made aware of the tender that is being issued, or the squad-check meetings.

Procurement officers are not aware of the cross-functional team concept or the value that is derived thereof. After gaining an understanding of the concept procurement officers felt that the use of cross-functional teams would be a great idea for Eskom. They believe that this could have a positive impact on transformer purchases.

4.6.2 Squad Check Meetings

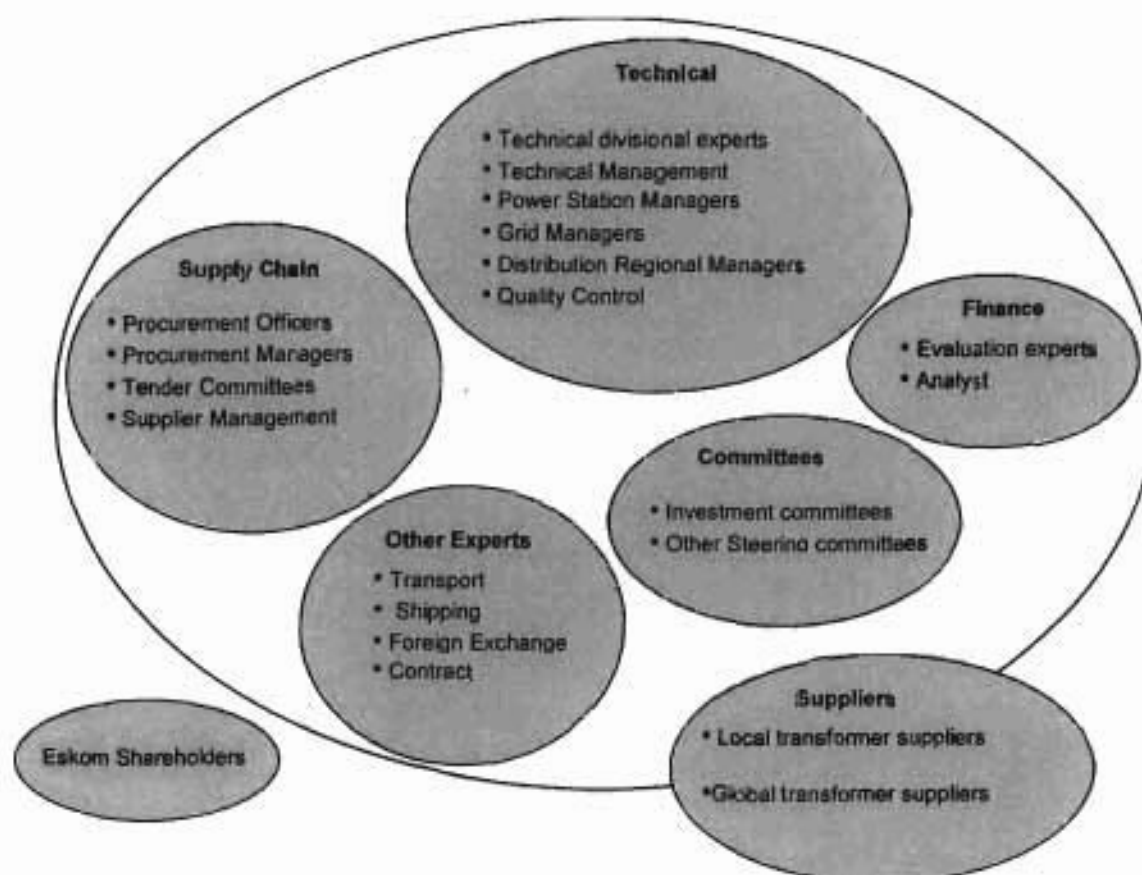
The concept “squad check meeting” was referred to frequently during the interviews with the procurement officers and in the findings for the research. Most procurement officers referred to squad check meetings as means of a cross-functional process. *Eskom Rev 0 (1999: p3)*, defines a squad check, as “a check by the entire team (the squad) involved in drawing up the enquiry or in evaluating the tenders.” It further states, “In order for the evaluation process to be meaningful, the enquiry and tender documentation sent to suppliers must reflect careful consideration of all supply aspects. Before it is issued, the enquiry and tender documentation should be subjected to a squad check, to ensure that it is complete and covers all Eskom’s requirements.” Based on this statement, the squad check process required is merely a process of checking and validating. It is not a method used to work together; share ideas; determine spend analysis; develop and implement strategies; or a means for collaboration.

4.6.3 Key Stakeholders for Eskom Transformer Purchases - A Systemic View

Literature review indicates that the use of cross-functional teams is vital for the successful implementation of a strategic sourcing process and cross-functional teams should be selected taking into consideration key personnel from various functions. A systems approach by means of a systems map was used to conduct an analysis of the stakeholders in the Eskom large transformer purchases.

The systems map is depicted below.

Figure 6: A Systems Map - Key Stakeholders for Transformer Purchases at Eskom.



Key stakeholders within the Eskom supply management system

The key stakeholders within the Eskom system are indicated within the boundary (indicated by a dark line) of the systems map depicted in *Figure 6*. The internal stakeholders and their current responsibilities are:

- **Divisional Technical Experts** – each Eskom Division has one or more technical expert/s. They have an in-depth knowledge of transformers, and the current condition, levels, health, etc of their fleet of transformers. They are responsible for the various policies for their transformers i.e. spares, inventory, and demand. They are also responsible for the specifications of their transformers, the

- ordering, delivery, repairs, and refurbishment. They usually perform the technical evaluation required on the transformer tenders.
- Distribution Regional Managers; Transmission Grid Managers; Generation Cluster Managers and Generation Power Station Managers – are responsible for their respective regions/clusters/grids/power stations etc. They often rely on the technical experts to oversee the tender process etc.
 - Quality Control – is responsible for various quality control standards. In terms of the tender process, they will review the supplier's quality standards.
 - Transformer Procurement Officers – will be responsible for the tender process for their respective Divisions. The responsibilities of the procurement officer are to compile tender documents; compile contract conditions and documentations; co-ordinate various meetings with the teams and suppliers; issue tenders; co-ordinate supplier queries; receive tenders; co-ordinate the evaluation process; prepare recommendations; submit reports to the various approval authorities within Eskom and award the contract.
 - Transformer Procurement Managers who normally oversee the procurement officer's responsibilities.
 - Tender Committees – who approves/reject recommendations for the award of contracts.
 - Investment Committees who approve/rejects the business case for the transformer purchases.
 - Financial experts and analysts are responsible for the financial evaluation of the tenders.

Key stakeholders outside Eskom supply management system

The key stakeholders outside the Eskom supply management system are located just on the boundary (indicated by a dark line) of the systems map. Literature review indicates that most organisations are rapidly moving towards including suppliers as part of the cross-functional teams. Although they lie outside the Eskom system they are key stakeholders and they can be included in the cross-functional team. The key stakeholders and their responsibilities are:

- Local transformer suppliers and global transformer suppliers – are likely to be invited to tender. They will provide a tender and may be awarded the tender and start a relationship with Eskom. They can assist in the cross-functional teams, by providing ideas to enhance the process and can work together with Eskom for the benefit of both parties in order to maximise the relationship.
- Eskom shareholders – they have a stake in Eskom. They cannot be included in the team; however their interests need to be taken into consideration.
- Government – processes have to support Governmental requirements, legislation etc.

Based on the above stakeholder analysis, the transformer cross-functional team must consist of the following role players:

- At least one technical expert per division.
- At least one commercial/supply chain expert.
- At least one procurement officer.
- A quality control expert.
- A financial expert.
- Suppliers being included on the cross-functional team are highly recommended.
- Other experts i.e. transport; shipping; foreign exchange; contract experts; etc.

In order to be most effective, the cross-functional sourcing team must work together on a full time basis. This must be done at the outset i.e. as soon as the need is identified to purchase transformers. The relationship must continue even after the award of the contract until such time the process is mature enough to be sustained. Thereafter they must meet on a regular basis to ensure effective management of the contract.

4.7 Strategic Sourcing

Literature review indicates the importance of knowing what commodity to devote strategic effort to. The strategic sourcing model (*Figure 3*) can be used to determine what commodities require strategic effort. Based on the outcome of the process the purchasing strategy should be developed. In order to plot the commodity onto the

strategic sourcing model, the commodity has to be evaluated to determine its strategic importance; the criticality; the financial impact; and the supply risk of the commodity. The questionnaire and interview process was utilised to ascertain how Eskom transformer purchases relate to those factors.

4.7.1 Procurement Officer Perspective

Procurement officers feel that the large transformer purchases are extremely critical and important to their Division. The procurement officers had no knowledge of the strategic sourcing methodology. Procurement officers were also unaware of their total spend per annum. They were not aware of their individual spend or divisional spend on large transformers nor their total spend or total divisional spend per annum. Procurement officers also did not have details on the available transformer suppliers available globally or who the major players on the global and local market were. However they indicated that they would be able to solicit the information if they were given some time.

Financial Impact of Transformers

Future spend analysis has indicated that the purchase of large transformers has a high financial impact on the organisation.

Transformer Spend Analysis

Generation, Transmission and Distribution Divisions procures Large Transformers. According to the Eskom transformer team's analysis the amount spent on transformers, historically (25 year period) annualised per division is as follows:

- Generation Division – R 65m
- Transmission Division – R189m
- Distribution Division – R277m

The divisions supply base includes the following suppliers:

- Generation – Smit Transformers, Siemens, VaTech
- Transmission – ABB
- Distribution – ABB, Desta, Alstom

Eskom's future transformer spend is based on Capex plans for the period 2006 – 2010 is reflected on the table below. Opex data is based on routine maintenance and refurbishments, based on the 2004 spend, as is it expected to recur over the next five years:

Table 5: Future Spend Analysis.

Division	Capex (Rm)	Opex (Rm)	Total (Rm)
Generation	704	368	1 072
Transmission	1 199	235	1 434
Distribution	300	1 140	1 440
Total	2 203	1 743	3 946

Future Spend on transformer purchases alone over the next five years accounts for more than R2 billion across the various divisions. Operational expenditure amounts to over R1.7 billion.

The financial impact of transformer purchases is relatively large, and normally makes the top 20 spend per Division.

Supply Risk

Market research indicates that there are many transformer suppliers available locally and abroad. However, due to the critical nature of transformers, it is important to have a supply base of reliable suppliers.

4.7.2 The Strategic Sourcing Model

Where should large transformers be positioned in the strategic sourcing model (*Figure 3*)? According to the above analysis large transformers are a critical commodity to Eskom; it is very important across all Eskom Divisions; and it has a major financial impact. The supply risk however, is not very high, as there are a relatively large number of suppliers, especially if international suppliers are considered. According to the above and the findings in Literature review, transformers should be positioned in the leverage quadrant, with a leaning towards the strategic quadrant (due to the strategic and critical nature of the commodity to Eskom).

The implications of this positioning on Eskom's purchasing strategy, is that Eskom should leverage on this commodity. This could be instituted by a highly competitive supplier selection process. The selection process should be completed with the aim of establishing long term contracts and thus long term relationships. The supplier relationship should be a robust one and must be effectively managed due to the critical nature of the product.

4.8 Purchasing Strategies

Currently all Eskom Divisions are not only purchasing transformers independently from the other divisions, but all the divisions have different purchasing strategies. The Generation Division purchases transformers in bulk every few years. They do not have a contract and therefore purchase on a once-off basis. Transmission Division purchases their transformers by means of a long term contract. Transmission currently has a three year contract. Distribution purchases transformers on an ad-hoc basis, and does not have any contracts in place.

4.8.1 Procurement Officer Perspective

Procurement officers do not normally select the purchasing strategy. This is done by technical experts. Procurement Managers do not often provide input. According to the procurement officers, the procurement managers provide support where there are major issues and are not involved in the decision making with regard to purchasing strategies.

The Distribution Division has an approved list of suppliers which they refer to as a 'supplier list'. The list restricts their purchases to these three suppliers only. The suppliers included on the list are ABB, Desta and Alstom. As Desta is now part of ABB, they only have 2 suppliers on the list. The reason for the creation of the 'supplier list' is for the support Black Economic Empowerment (BEE) Support. ABB and Desta are both approved BEE suppliers and they are therefore supported by the Distribution Division. Procurement officers have not challenged this process and abide by this rule.

The biggest problem that Distribution is having with their transformer contracts is poor delivery times. Suppliers are not meeting the delivery dates required and are late by many months with deliveries. Penalties as agreed contractually are implemented; however this penalty is so insignificant in that it does not compensate Eskom. It provides no incentive to meet Eskom's delivery requirements. Often, tenders are awarded based on the delivery over purchase price, due to the criticality of the need for the transformers. They continually accept this poor service because they are restricted to these three suppliers. There is therefore a need to increase competition and go global. This will ensure that delivery dates are met, and suppliers ensure a satisfactory service to Eskom.

Generation conducts their transformer purchase by means of a competitive tendering process. They invite all pre-qualified factories to tender which includes international suppliers. However, this is an initiative that commenced only recently. The prequalification process is a process conducted by the technical expert, who forms a team with other technical and quality experts. This team visits the various factories for this process which is called an accreditation process. They conduct the evaluation on a particular factory/plant and not the supplier. This is done in accordance with a standard set of accreditation criteria. This set of criteria is developed upfront by a team of experts. Generation's supply base recently consisted of three suppliers; Siemens, Smit Transformers and VATech. VATech is in the process of being taken over by Siemens. They therefore only have two suppliers. The reason for this is that they could only evaluate these three factories up to now. They are currently in the process of accrediting more factories: The Generation process of affording new suppliers the opportunity tender has made substantial savings for the Generation Division.

Transmission Division purchases their transformers from ABB only. The reason is that ABB is a BEE supplier and is the only local manufacturer that manufactures Transmission transformers. They set up a long term agreement (three year contract) with ABB, which is due to expire early next year. They have made substantial savings by entering into the three year agreement. Transmission is also experiencing problems with ABB's inability to meet delivery requirements. They do believe that they need to consider other suppliers internationally as this will result

in increased competition; better quality; technology advancement and increased capacity.

4.8.2 Supplier Perspective

Desta confirmed that currently Distribution purchases transformers on an ad-hoc basis. Desta has purchase orders with Eskom's Distribution Division only. It must be noted that they only have purchase orders (ad hoc) and no contracts with the Distribution Division. They have approximately forty orders with Eskom. Desta advised that Eskom should seriously consider entering in to long-term contracts, as this strategy, i.e. a three to five year contract could yield a saving of at least five percent per annum to Eskom.

Siemens also advised that long term contracts will also result in cost saving, because Siemens can tie down their material purchases in advance and both parties can benefit from this. This cost saving could not be quantified. Siemens also indicated that the consolidating the requirements across Eskom would result in savings for Eskom. The reason for this is that Eskom will not pay duplicate design costs, duplicate overhead cost; and margins would be significantly reduced.

4.8.3 Strategies Developed

As part of the recent supply chain initiative at Eskom the transformer team in collaboration with key stakeholders identified 8 ideas/levers that can be used to reduce the total cost of ownership and optimise transformer purchases. The ideas will be used as strategies for any future procurement of transformers. The ideas/levers were divided into three categories, i.e. demand; commercial and technical. The following ideas in developed:

- Optimise investment timelines by delaying purchase volumes of new transformers. This can be done by introducing an effective spares policy in the Generation Division to manage downtime risk. This idea/lever has to be validated by engaging a technical expert to develop an effective spares policy.
- Optimise inventory levels at the Transmission Division by revising volume estimates in the capital expenditure plan, which is based on optimal inventory

levels. This idea/lever will be validated by engaging a technical expert to develop an effective spares/inventory policy.

- Revise technical specifications by removing discretionary technical specifications without impeding performance of the transformer. This idea was validated by many suppliers during the supplier interview process:
 - ABB indicated that there is an opportunity to streamline Eskom's technical specification. There are three different specifications for the three Eskom divisions. Eskom should consider streamlining of these specifications and this would result in optimising design costs.
 - Desta Power Matla also validated the idea by indicating that there is an opportunity for Eskom to make substantial savings by not painting the non-coastal transformers to coastal specifications. On the smaller transformers Eskom can save a few hundreds on each transformer. Eskom can save between R20 000 to R30 000 on each power transformer and probably R70000 per large transformer.
 - Alstom informed Eskom that there is an opportunity to reduce costs by standardising the technical specification in line with IEC standards. This alone could yield a saving of approximately ten percent of the purchase price.
- Energy losses must be reduced by optimising specifications to reduce energy losses and extend the lifetime of the transformers.
- Lower the purchase price of transformers by bundling the purchase volumes across divisions. Leveraging volumes will reduce design and overhead and margin costs per unit. Suppliers have also validated this.
- Realise lower prices through increasing competition and standardising prices across the various Divisions. Purchasing from low cost plants/factories/countries must be considered.
- Negotiate lower prices on transformers by structuring long-term contracts with the suppliers.
- Optimise refurbishment costs through reduced prices and improved quality. This can be done by benchmarking and negotiating as the refurbishment is done internally by a subsidiary of Eskom. Suppliers have indicated that they could consider expanding their businesses to include transformer refurbishment. However, due to Eskom currently refurbishing the transformers themselves there

is no opportunity for refurbishment in South Africa at the moment. Analysis of the prices currently paid for refurbishment show that Eskom's cost of refurbishing their transformers is excessively high. There is an opportunity for Eskom to reduce this cost by effective purchasing in the refurbishment section.

4.9 Supplier and Market Analysis

Literature review indicates the importance of understanding your suppliers and the supplier market. For effective strategic sourcing organisations need to understand the supplier market and the suppliers better than the suppliers understand themselves and their own market. The analysis conducted on supplier relationships indicates that Eskom must have a collaborative to a strategic relationship with its transformer suppliers. With this in mind, Eskom must make an attempt to understand the supplier market and initiate a collaborative relationship.

Research was done on the various suppliers in order to gain a better understanding of the transformer suppliers and the transformer supplier market. This was done by means of supplier interviews. This information can be used to facilitate an effective tender process, and should normally be conducted with all possible suppliers. This was however limited to suppliers who are available locally. The information is also essential in order to prepare and strategise for negotiations with suppliers.

4.9.1 Procurement Officer Perspective

Procurement officers currently have very little information available regarding the current contracts. Information that is available is largely the contractual information/data. Sometimes additional information such as brochures is also available. Detailed cost breakdowns are not available. Information such as the supplier's production capacity, future production capacity, future strategies, revenues, etc. is not available.

Currently procurement officers use a schedule to obtain prices. This schedule was developed many years ago, it is called the PS5 (*Eskom Handbook, 1997*). All procurement officers use this schedule as a pricing mechanism for suppliers.

Suppliers therefore price their transformers accordingly. This schedule requires very little pricing information. The schedule is largely the reason for the lack of detailed pricing information and cost breakdown information from the suppliers.

4.9.2 Supplier Information

Table 6: Cost breakdown of Transformers (ABB)

Overhead and Labour	56%
Manufacturing Materials and Tests	26%
Materials	18%
Core Steel	9%
Mild Steel	4%
Copper	3%
Oil	2%

The graph below shows the cost breakdown of large transformers purchased at Eskom. The sizes are indicated on the x-axis, and the components are indicated on the y-axis. The cost components are relatively similar on the different sizes of transformers. This data compiled by the transformer team validates the information given by ABB.

Graph 2 Transformer Cost Breakdown

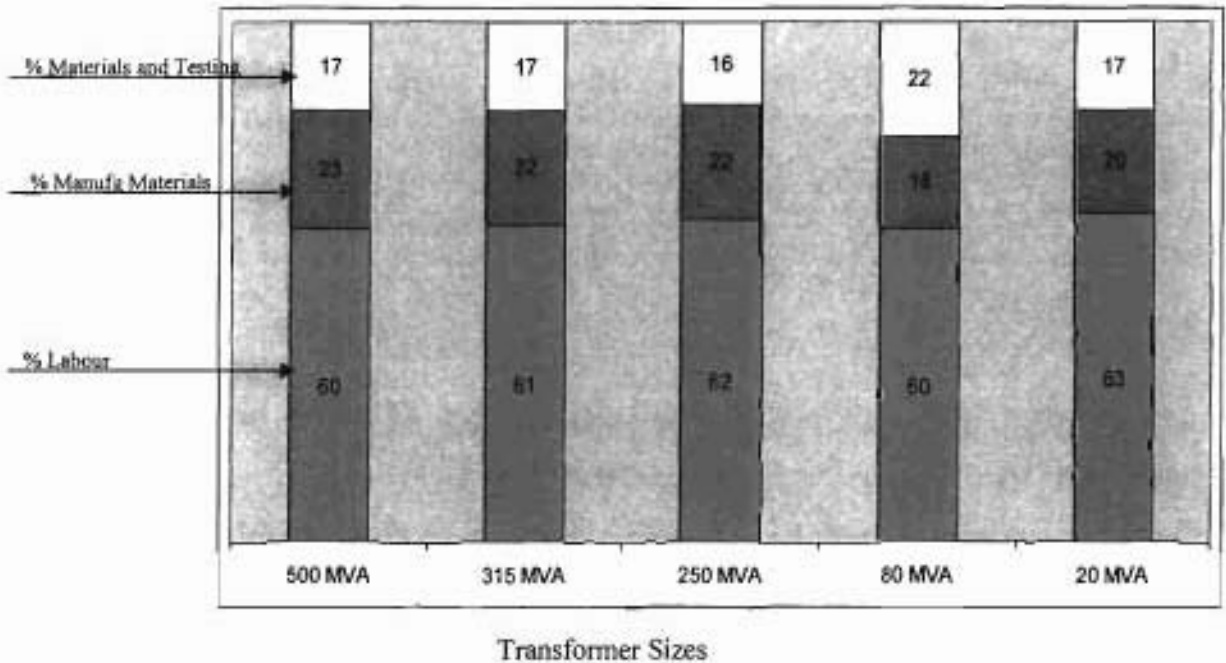


ABB PowerTech (ABB)

ABB is linked to ABB globally. It is the Power Transformer Division of ABB. ABB's plant is located in Pretoria West, South Africa.

Key information obtained at the interview:

- ABB was poorly prepared for the discussion with Eskom and did appear co-operative. They promised to provide information at a later stage, but they did not deliver. They were then called for a second interview. They arrived for the second interview without any additional information. ABB's senior management was contacted and we then received some co-operation.
- Over the last 6 years, the Eskom contribution to ABB's revenue fluctuated between 13 percent and 59 percent with an average of 30 percent. However, in terms of transformer purchases, Eskom contributes 60 percent of their revenue.
- They currently have a three year contract with the Transmission Division, which covers 100 percent of Transmission spend on power transformers. They receive various purchase orders from the Distribution Division and have approximately

30 percent of the Eskom Distribution Transformer market. The Generation Division has not placed any contracts with ABB.

- ABB source their steel and copper via an ABB global contract. Electrical steel; insulation material; tap-changers; bushings; and transposed conductors are imported materials which account for approximately 20 percent of the transformer value.
- In terms of their strategy for Africa, they aim to maintain and expand manufacturing facilities in South Africa and maintain market share in sub Sahara Africa.
- ABB has made the following suggestions to Eskom to reduce costs based on commercial conditions:
 - Buy locally.
 - Standardise products.
 - Involve engineering capacity of manufacturers so that prices are reduced.
 - Investigate areas where there is a duplication of insurance policies (by both Eskom and the supplier).
 - Investigate how transformers are financed.
- The expected lifetime of ABB's transformers is 35 years under normal operating conditions.
- The failure rate of transformers in service/factory failure rates is normally 1.5 percent, but was 13 percent in 2004. *(Eskom's quality department requires a factory failure rate of not more than 3 percent).*

Alstom

Alstom is a South African transformer supplier located in Johannesburg. It is a wholly owned company in South Africa with Black Economic Empowerment shareholding. They have 45000 employees across the six divisions globally. They have recently purchased Areva.

- Alstom was very excited about the discussion and the future opportunities at Eskom.
- Eskom represents 30 percent of their revenues.
- Alstom had a contract with Eskom Distribution over the past 14 years.

- They source the core steel from Italy and Japan, while copper is purchased locally.
- In terms of cost savings ideas, they have indicated that Eskom could get substantial savings by taking out its own insurance on transportation and installation and by considering advance and progress payments.

Desta Power Matla

Desta Power Matla (Desta) was recently taken over by ABB. They are located in Booysens, Johannesburg and also have a facility in ABB in Pretoria West.

- Desta was excited about meeting with Eskom. However, they did not give the information that was promised. At the interview, they promised to send Eskom brochures, cost structures etc. After numerous reminders they did not deliver.
- Desta is heavily dependent on Eskom as Eskom takes approximately 80 percent of factory space. This includes the smaller distribution transformers and large power transformers.
- They have indicated that there is an opportunity to grow Eskom sales due to the fact that they have implemented a lean manufacturing system and are now only working on one shift, whereas they used to work on two shifts previously.
- Desta's current production capacity is:
 - 5MVA – 3 to 4 units per month
 - 10MVA – 2 to 3 per month
 - 20MVA – 2 units per month
- Long term agreements i.e. three to five year contracts could save Eskom approximately five percent per annum
- Lead times – there could be some benefit by having a 6 month lead time in terms of cash flow, etc. However, costs may be incurred as they would have to buy from Italy, etc.
- In terms of their transformer components material costs comprise approximately 80 percent of total price while design costs are approximately one to two percent of the purchase price.

Sumitomo Corporation (Sumitomo)

Sumitomo Corporation is a Japanese company with its main plant located in Japan, and an agent in South Africa. They have approximately 135 offices overseas. Their transformer market includes USA, Asia, and Africa.

- Sumitomo is currently considering a local plant or a joint venture with a South African company.
- Cost saving ideas for Eskom includes the following:
 - Advance payments and down payments can assist with a reduction in price.
 - Reserving factory capacity with Sumitomo will result in cost saving for Eskom.

Siemens Power Transmission (Siemens)

Siemens is located in Midrand in Johannesburg. They have taken over another transformer company called VA Tech. Some of their other factories are in Kuwait, Portugal, Germany, Nuremberg, India and China.

- Siemens transformer market share in South Africa is approximately 75 percent.
- City Power and Eskom are their only transformer customers in South Africa.
- They have one purchase order with Eskom's Generation Division which makes up 33 percent of Generation's transformer purchases and are currently engaging in negotiations with Eskom for a second purchase order.
- All transformer materials are sourced overseas.
- There is potential to streamline technical specifications, e.g. Eskom's Generation Division currently requires robust transformers with large safety margins. This adds to the cost.

4.10 Transformer Market Information

In order to gain a better understanding of the transformer market, information was obtained about global transformer suppliers; local transformer suppliers and other general market related issues.

Who are the top players in the transformer global market? This is shown in the table below.

Table 7: Top Transformer Suppliers in the Global Market.

Goulden Report, 2003

Supplier Name	% Share of the Global Market
ABB	21
Siemens (German)	8
Areva (France)	5
Schneider (France)	4
VA Tech (Austria)	4
Howard (US)	4
Pauwels (Belgium)	3
Cooper (US)	2
Boarding (China)	2

ABB is the leader in the global market. VA Tech has recently been acquired by Siemens and Pauwels by Crompton Greaves. Generation Division has recently decided to go out into the global market to increase competition. They have considered Siemens and VA Tech (acquired by Siemens) and Smit Transformers. It must be noted that Smit Transformers does not feature in this list.

The local players are reflected in the table below.

Table 8: Top transformer suppliers in the African market.

Goulden Report, 2003

Supplier Name	% Share of the Global Market
Alstom	16
VA Tech Schneider	10
ABB	10
Bharat Heavy Electrical	9
Siemens	6
Pauwels (Belguim)	5
Mitsubishi	4
Hitachi	2
GE	1

Although Eskom has relationships with some of these suppliers competition in the market is minimal.

4.11 SWOT Analysis

“A SWOT analysis is a well known technique that can help in the analysis on aspects of the environment and the organisation’s relationship to them, particularly if you are looking ahead at what might happen in the future,” (*University of Natal, (2005: p70)*). A SWOT analysis is used to understand the transformer market environment. The technique is an analysis of the Strengths, Weaknesses, Opportunities and Threats in the organisation and the environment. Opportunities and threats are those that impact on the environment while, strengths and weaknesses are those that impact on the organisation.

4.11.1 Strengths of Eskom

- Eskom's major strength is its large market share. This is a strength as it gives Eskom a large amount of leverage and market power.
- By consolidating Eskom's requirements Eskom can buy in large volumes and therefore gain leverage over the supplier.
- Eskom has the know-how in terms of transformers as it has many transformer experts.

4.11.2 Weaknesses of Eskom as an Organisation

- One of Eskom's weaknesses is the drive to support BEE companies. The drive gives the local transformer suppliers leverage over Eskom. The suppliers provide a poor service and believe that Eskom will support them as Eskom requires the BEE suppliers. According to the perspective of the procurement officers, Eskom has been supporting this drive over the past few years, despite the poor service from BEE suppliers.
- The same applies to Eskom's support of local suppliers. It may be more expensive to import due to the cost of the transportation of the transformers.
- The cost of importation of transformers is also impacted by custom and excise duties.

4.11.3 Opportunities

- The number of transformer suppliers available in the global transformer market is an opportunity for Eskom to leverage on this fairly large supply market. This would increase competition and thereby reduce the price that Eskom pays for transformers. This will also positively impact the service received from suppliers, and give Eskom an opportunity to form long-term supplier relationships.

4.11.4 Threats

- The threat in the supplier market is the general quality of the transformers. Should Eskom bring in new suppliers, there could be a risk of purchasing inferior quality. Eskom could not afford this risk because large transformers are critical to Eskom's business requirements.
- Eskom's increase in the demand for electricity has resulted in an increase in the demand for transformers. The capacity of the local transformer suppliers will not meet this demand.
- According the perspective of the suppliers, there is a shortage of steel in the transformer steel supplier market. Core steel is a large component of the transformer, and this could impact on the future transformer needs.

4.12 Supplier Relationships

Literature review has indicated the importance of forming appropriate supplier relationships. In order to determine what type of relationship Eskom has with its transformer suppliers; procurement officers were approached for their perspectives on transformer supplier relationships.

4.12.1 Procurement Officer Perspective on Transformer Supplier Relationships

The buyer-seller relationship between Eskom and its transformer suppliers are transactional to co-operative. While suppliers are co-operative they do not work together to resolve any issues in the buyer-seller relationship. Currently the service from the suppliers is very poor. Since some Divisions want to support BEE they are limited to certain suppliers, despite the poor service. There is a need to increase competition and initiate other supplier relationships.

4.12.2 Other Perspectives on Transformer Supplier Relationships

During supplier interviews the following observations were made regarding supplier relationships (detailed interview information was discussed earlier in this chapter):

- The suppliers were very surprised to be interviewed especially to make contact with procurement personnel.
- Many suppliers were un-cooperative as they were unwilling to share information despite the fact that they were given information regarding Eskom's future strategy as well as Eskom future forecasts.
- Suppliers were reluctant to share cost saving ideas, cost structures etc.
- Suppliers were unprepared; only two suppliers provided company brochures/pamphlets with company information, despite the fact that they were informed that Eskom will shortly be inviting them to tender for over 200 transformers. Some suppliers promised to send company brochures, but did not deliver on their promise.
- Suppliers were contacted on numerous occasions after the interview for outstanding information e.g. production capacity, product range, factory failure rates, comments on Eskom's specifications etc. Only a few suppliers provided us with the required information.

Most suppliers that were interviewed have a large market share with Eskom. However, their lack of co-operation during the interviews did not reflect their dependency on Eskom, or a need for future business from Eskom.

On the Transmission Division contract there have been 28 non-conformances issued since the inception of the three year contract. The non-conformances can be categorised in the following categories:

- Lack of discipline or attitude and attention to detail.
- Shortage of specialised skills.
- High workload.

This indicates the poor relationship with the supplier. This is despite the fact that Transmission Division spends 100 percent of their transformer spend on this suppliers.

Procurement officers from other divisions did not have a record of the non-conformances.

4.13 Negotiations

As most divisions utilise a competitive bidding process negotiations are not usually conducted with transformer suppliers. The Transmission Division is the only division that has entered into negotiations.

4.14 Contract Management

According to *Hegarty et al (2004: p21)*, contract manager's responsibilities are not assigned in writing with clear delegation of authority. The organisation's mechanistic approach leads to an inability to manage contracts which results in modifications for additional expenditure, additional quantities, 'compensation events' and extension of contracts. The tendering process for contract renewals is not timeously initiated.

A recent survey completed by the Eskom Supply Chain Project indicated that Eskom's contract management is reactive and there is no clear responsibility.

Eskom currently bases its contracts on the suite of New Engineering Contracts, which is a Thomas Telford Publication from the United Kingdom. The suite of contracts is based on the basic principles of project management. These are approved Eskom contract conditions. These contract conditions focus on a single person responsibility principle. This person is appointed as Eskom's representative for the contract and is solely responsible.

4.14.1 Procurement Officer Perspective

There is an inconsistency as to who is responsible for the management of the transformer contracts in Eskom. Contracts are sometimes managed by the procurement officer only, while at other times by the procurement officer together with the end-user.

Procurement officers are not always kept abreast of changes made to the transformer contract. In some cases procurement officers who are managing the contract, are not always informed of changes. Penalties for non-conformances are not always implemented and some penalties are insignificant in relation to the loss to Eskom.

Some divisions utilise the Engineering and Construction Contract while some divisions use the Eskom Supply Contract. The Engineering and Construction Contract is a published international contract, while the Supply Contract is an Eskom Contract based on the Engineering and Contract principles. The Engineering and Construction Contract is normally used for the provision of construction work while the Supply Contract is used for the supply of plant materials/goods/commodities.

4.15 Conclusion

This concludes the findings on the research. The next chapter will give an overview of the findings, recommendations and a way forward in line with the established hypothesis.

5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introductory Remarks

This chapter summarises the findings and outlines the researcher's conclusions and recommendations. The conclusions and recommendations are based on the literature review in chapter 2 and the findings in chapter 4.

The literature review and the analyses of the findings adequately justify the hypothesis established: A significant opportunity exists to improve the sourcing process at Eskom, thus enhancing the effectiveness and efficiency of the Supply Management Function in Eskom.

The literature review completed in chapter 2 has established clear guidelines for a world-class sourcing process. Literature review has also highlighted the following aspects:

- There is a clear distinction between Procurement Management and Supply Management, the latter being a dependable method to achieving a strategic focus.
- For an organisation that is looking to enhance its procurement methods and looking for ways to reduce costs, strategic sourcing is an undisputable approach to achieving success.
- The three main approaches/tools that support strategic sourcing in an organisation are: cross-functional sourcing teams, collaborative supplier relations, and a total cost of ownership approach.

The findings and analyses completed in chapter 4, indicate that there are significant opportunities for Eskom to enhance its supplier selection process. This chapter will give a summary of the findings as well as provide recommendations where appropriate. The findings and recommendations are applicable not only to transformer purchases, but other similar commodities procured in Eskom.

5.2 Supply Management Organisation

The research found that Eskom does not operate as a Supply Organisation. Procurement is done in a mechanistic mode, both for transformer procurement and other commodities or services. There is a lack of communication and collaboration across the divisions. Information regarding transformer purchases is not shared between procurement practitioners. There is no central forum in Eskom which enhances information sharing and collaboration across the various Divisions. Eskom's ERP system does not facilitate consolidation of purchases or sharing of information across divisions. The research has clearly demonstrated how cross divisional collaboration can facilitate in the consolidation of requirements; increase information sharing; reduce the supply base; leverage volumes; improve quality and reduce purchasing costs. All these factors can lead to the reduction in total cost of ownership.

The organisational structure does not complement a Supply Organisation and does not facilitate the optimisation of transformer procurement. Transformer procurement is done independently across the three main divisions of Eskom. There is no communication between the divisions. The current structure does not facilitate a single reporting structure, with single line responsibility and accountability. Hence, there is no single responsibility for transformer purchases across the organisation. Centralisation exists when the entire purchasing function is made the responsibility of a single person; *Burt, Dobler and Lee (1990: p33)*.

Burt et al (1990: p33) stated that to decentralise the purchasing function needlessly is to deny an organisation some of its potential profit. He further states that centralisation of the purchasing function is essential to the attainment of both optimum operating efficiency and maximum profit. The findings of this research have proven his point because many cost saving opportunities are lost as a result of the structure.

Recommendations:

Eskom needs to raise the profile of supply management in the organisation. This can be done by appointing a central authority for the procurement function. This authority should be responsible and accountable for all of Eskom's procurement. A central forum should be created. It should be used as a platform for procurement divisional representatives to share information.

Eskom's largely decentralised approach to procurement needs to be revised. A mixed approach is a more efficient approach to procurement. *Farmer and Weele (1995: p64)* pointed out that in most companies a combination approach is favoured. This mix of the centralisation and decentralisation will depend on the type of commodity that needs to be purchased. Large transformers are a strategic commodity to Eskom and will therefore require a strategic approach. A centralised structure supports the purchase of strategic commodities. Transformer purchases must therefore be consolidated across divisions. This consolidation will not only increase Eskom's buying power but will also enhance purchases and facilitate effective contract management and ultimately reduce the total cost of ownership for transformer purchases.

Opting for an alternative ERP system or making changes to Eskom's current ERP system would be a costly and time consuming process. To avoid this costly and time consuming process the current system can be managed. This can be done by controlling strategic contracts like transformer contracts (or any other type of contract that is purchased by more than one division) centrally.

Procurement management and procurement practitioners need to adapt their mindset to enhance their skill in line with strategic methodologies and tools. This is particularly relevant to those who are involved in strategic purchases. Once strategic qualities are displayed by senior procurement practitioners and managers, it will infiltrate to new procurement personnel and learners in the procurement environment. Thus a change in the organisational culture will automatically be initiated.

5.3 Total Cost of Ownership

Procurement officers have no knowledge of the total cost of ownership principle. There is a clear lack of knowledge of the principle by most Eskom purchasing personnel. There is also a degree of inconsistency between the various approaches and the various criteria used to evaluate tenders and supplier selection. The key selection and evaluation criteria used by procurement officers to evaluate and select transformer tenders are purchase price and quality. Where items are critically required, delivery date is used as the criteria. Only a few aspects of the total cost of ownership are considered when tenders are evaluated and selected. Studies have found that the purchase price make approximately forty percent of the total cost of ownership.

Eskom's guidelines and processes encourage supplier selection based on purchase price only. Moreover, Eskom's internal procurement training re-enforces these guidelines by using Eskom's handbook for evaluation of tenders as the basis for the training on the evaluation of tenders.

Recommendations:

The total cost of ownership methodology needs to be engrained into the procurement methods, policies, guidelines, documentation, training, etc. *Burt et al (2003: p160)* pointed out that total cost of ownership should be a permanent concept in every supply management professional's mind, whether in a service, retail, or manufacturing organisation. It is therefore recommended that intensive training programmes be implemented in Eskom on the total cost of ownership concept.

5.4 Cross-functional Sourcing Teams

Eskom does not utilise cross-functional teams in the sourcing process. Eskom currently uses a “squad check” process, which procurement officers believe, serves the purpose of cross-functional teams. The “squad check” process takes place by means of squad check meetings. The meetings are infrequent, and the entire team spends only a few hours together per contract and the function being a mere mechanical validation processes. These squad checks also occur independently within a division and do not occur cross-divisionally. Procurement officers are not aware of what cross-functional teams or the value derived thereof. Cross-functional sourcing teams aid in the early involvement of suppliers. Early involvement of suppliers is a highly effective approach for strategic purchases and for total cost of ownership reduction.

Recommendations:

Eskom’s processes and guidelines emphasises squad check meetings, which is a necessary process. However, emphasis should be placed on cross-functional sourcing teams, who will also play a validation role. This should be done on all strategic purchases. The process should be initiated on only a few commodities at first. The research has not only identified key internal and external stakeholders to be included in the cross-functional sourcing teams but has also demonstrated a method of identifying these stakeholders (*Figure 6*). It is recommended that cross-functional sourcing teams be implemented at the outset of the strategic sourcing process. This process includes suppliers into the cross-functional sourcing team. It is therefore further recommended that suppliers are included on the cross functional sourcing teams.

5.5 Strategic Sourcing

Strategic sourcing is a concept that is not spoken about or known of by procurement officers in Eskom. Procurement officers do not know how much they are spending on transformers, and the data is not readily available. They do not know how much

of the supplier's sales is from Eskom. Procurement officers only have the contractual information available and do not appreciate the value of having detailed supplier information or commodity information available. Detailed cost breakdowns are not obtained as Eskom utilises a schedule (PS 5 Schedule) for supplier pricing. This schedule limits the supplier's pricing information. Suppliers price their transformers accordingly. Procurement officers have very limited knowledge of the supplier and market. Information on suppliers is not available within Eskom. Suppliers currently do not share information with Eskom.

In order to determine how much effort to apply to a specific commodity, the strategic sourcing (*Figure 3*) model was utilised. Based on the findings of the research large transformer purchases in Eskom are critical to Eskom's business; it is also an important commodity. It has a fairly large financial impact and a fair amount of available suppliers. It is therefore considered a leverage commodity.

The research shows information of the transformer cost breakdown obtained from the suppliers. Suppliers did participate in the interviews, and information was obtained that could increase the effectiveness of Eskom's transformer purchases. The research reflects the results of supplier market research, supplier economics and supplier analysis, which are key elements to the strategic sourcing process.

Recommendations:

Transformer purchases are positioned in the leverage quadrant of the strategic sourcing model (*Figure 3*). Eskom therefore needs to maximise on this opportunity by embarking on a robust competitive supplier selection process. Long term contracts must be established. This must be done with the intention of forming collaborative supplier relationships due to the critical nature of the commodity.

Eskom needs to have a good understanding of its buying power prior to entering into contracts or negotiations. It is recommended the information obtained from this research be utilised for transformer purchases at Eskom. Supplier information regarding the supplier market and supplier economics should be used for negotiation purposes. It is further recommended that this method be employed for all strategic commodities in Eskom.

5.6 Supplier Research

The key findings from the supplier and market research were as follows:

The supplier market has indicated that there are many suppliers available. Local suppliers are highly dependent on Eskom and have a large market share from Eskom's purchases. Most suppliers have shown interest and are very excited about Eskom's future spend. Suppliers have indicated many definite opportunities for Eskom in terms of cost reductions.

The African transformer market has limited local capacity. Steel and copper prices have been increasing rapidly and make up a large portion of the purchase price. Overseas suppliers cannot compete locally due to importation charges.

Recommendations:

Eskom must attempt to improve current local supplier relationships by working together to resolve issues and problems. Eskom must work together and assist the suppliers, in order to effectively meet Eskom's delivery schedules. This can be done by synchronising Eskom's needs in line with supplier factory lead times and capacity. Suppliers have shown that international suppliers will be more expensive due to transportation and importation charges. However Eskom must also consider purchasing from international suppliers. This will be necessary because local suppliers do not have adequate capacity to meet Eskom's requirement. It is therefore recommended that Eskom increases competition by going out globally to meet Eskom's requirements. Competition will also improve the current service from local suppliers.

5.7 Purchasing Strategy

All divisions not only purchase transformers independently but they all have different strategies for their transformer purchases. The Generation and Distribution Division purchase their transformers on an ad-hoc basis. However they have recently consolidated their requirements and purchased on a once-off basis. Transmission has a three year contract in place. While some divisions limit their purchases locally others go out onto the global market. A completely open tender has not been executed for transformer purchases at Eskom.

Distribution Division uses an approved suppliers list, in support of BEE. The delivery schedules are not met, despite the fact that tenders are sometimes being awarded based on delivery requirements. When penalties are implemented they are very small and do not cover the costs incurred. Procurement officers believe that going out on a global tender will enhance supplier performance.

Recommendations:

Eskom's large transformers are positioned in the leverage quadrant. It is therefore recommended that Eskom leverage on this commodity. The implication of this is that Eskom should go out on a competitive tender. Eskom's drive to support Black Economic Empowerment should be considered, but Eskom should not pay a premium for it. Suppliers have indicated that there is a cost saving opportunity for long term contracts i.e. three year contracts. There are also opportunities should Eskom consolidate its requirements. Eskom can leverage on this commodity by consolidating requirements and entering into long term agreements between 3 – 5 years. This contract period must be determined, by testing prices over the various periods, based on a sliding scale in the tender enquiry documentation.

5.8 Supplier Relationships

The buyer–seller relationship between Eskom and its transformer suppliers is largely transactional, with some co-operation between the parties. The service received from most suppliers is poor, as most suppliers are not meeting the delivery dates stipulated. During the interview process it was found that most suppliers were uncooperative and unwilling to share information with Eskom. This included simple information like the product range, production capacity, future production capacity, factory failure rates, etc. The lack of co-operation is due to the lack of competition. They have power over Eskom since they are aware of Eskom's BEE and local support drive.

The research has also found that some suppliers have identified many cost saving ideas for Eskom thus indicating the benefits of collaborating with suppliers. Suppliers have indicated that Eskom could be over-specifying their transformer requirements and have indicated substantial savings opportunities in Eskom's specifications. Working with suppliers to optimise Eskom's specifications would enhance purchases. If suppliers understand Eskom's business better, there would be more benefits and ideas for Eskom. Some suppliers have also indicated opportunities with regard to commercial saving opportunities in terms of insurances, funding, etc.

Recommendations:

Transformers are positioned in the leverage quadrant and it is a critical commodity to Eskom. Eskom therefore needs to establish collaborative relationship with its transformer suppliers. *Roberta Duffy (1998: p33)* has pointed out that teaming effectively with suppliers is one of the key ways to improving financial performance and customer satisfaction.

Suppliers need to be involved early in the process. Eskom needs to initiate collaborative supplier relationships. Eskom has not yet initiated a competitive tender process and therefore does not know who to collaborate with. Eskom should use the next opportunity of a competitive tender process to identify possible

relationships. *Burt et al (2003: p83)* pointed out that recognising the need for interdependence and cooperation, the customer's organisation enjoys the benefits of early supplier involvement and improvements in cost, quality, time to market, and the leveraging of supplier technology result.

Eskom needs to give focus to enhancing relations. Forming collaborative supplier relations will reduce Eskom's transformer supply base. *Farmer and Weele (1995: p272)* state that organisations that purchase from large numbers of suppliers are incurring unnecessary costs, both administrative and in terms of missed opportunities to standardise products purchased. *Ogden and McCarter (2004: p1)* have demonstrated how a supplier has reduced its total number of suppliers by 88 percent, enabling the supplier to partner with select suppliers to ensure low prices, high quality, timely delivery, strong customer support, and constant technological and innovative improvements.

5.9 Contract Management

There is inconsistency with regard to who manages the contract. In most cases the procurement officer manages the contract together with the end-user. There is no single person responsible for the management of the contract as directed by the suite of New Engineering Contracts. There is inconsistency regarding the choice/selection of the contract conditions. Divisions differ in their choice of contract. There are many changes to the contract requirements due to poor planning. Procurement officers are not always informed of the changes that occur during the contract.

Recommendations:

Eskom needs to implement a single person responsibility for contract management. In terms of transformer purchases the cross-functional transformer team leader should be the contract manager. The cross-functional team leader should also be responsible and accountable for the strategic sourcing process. The cross-functional team leader needs to have a good understanding of transformers throughout Eskom and needs to be able to lead the team.

Divisions need to comply with Eskom's approved contract conditions. The Eskom Supply Contract has been developed to contract for plant and materials. Should this contract have deficiencies, the respective parties need to address these deficiencies with the Eskom New Engineering Contract Advisor, who will address the deficiencies.

5.10 Critical Success Factors

- Strong support from top management for all the recommendations.
- The appointment of a project sponsor at a senior level in the organisation.
- The formal appointment of a cross-functional team, with job outputs linked to the success of the team.
- Collaborative relationships within and outside the organisation.
- The implementation of the methodologies and concepts discussed in this dissertation.
- The implementation of training programmes in line with the methodologies discussed in this dissertation for all supply chain personnel, and key stakeholders.

5.11 Concluding Remarks and A Way Forward

The study revealed that there are indeed opportunities to enhance large transformer purchases at Eskom in line with world class practice. To leverage on these opportunities will require various changes in the current procurement methods at Eskom which includes the following:

- Transformer purchases are important to Eskom, and the spend on this item is fairly large. The purchase of transformers requires increased effort and focus in order to enhance the purchase.
- The research highlighted a strong need to centralise the purchases of transformers and other strategic purchases. This will facilitate the effort and focus required for a commodity of this importance.
- A collaborative approach to supply management must be embedded.

- Large transformers must be centralised with a single central responsibility.
- Dedicated resources need to be assigned for all strategic commodities such as large transformers.
- Strategies, tools and methodologies such as strategic sourcing, total cost of ownership, and cross-functional teams, as described in the research needs to be embedded into the organisation.
- Skills and training of procurement personnel must be enhanced in line with the methodologies and strategies described. This will positively influence the culture of the organisation.
- Procurement must move from an operational focus to a strategic focus.
- Supplier relationship management needs a strong focus with strategic commodities.
- Suppliers must be involved at an early stage in the sourcing process.
- The cross-functional approach to procurement/sourcing is an essential need for Eskom. The cross-functional sourcing team must be formed at the outset of the strategic sourcing process.

Various opportunities have been identified, and should be implemented in Eskom. Strategic sourcing is an iterative process, and should therefore constantly be tracked, monitored and revised where appropriate. Finally all of Eskom's strategic purchases should be sourced using the methods, tools and recommendations in this dissertation.

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APPENDIX A - BUYER QUESTIONNAIRE

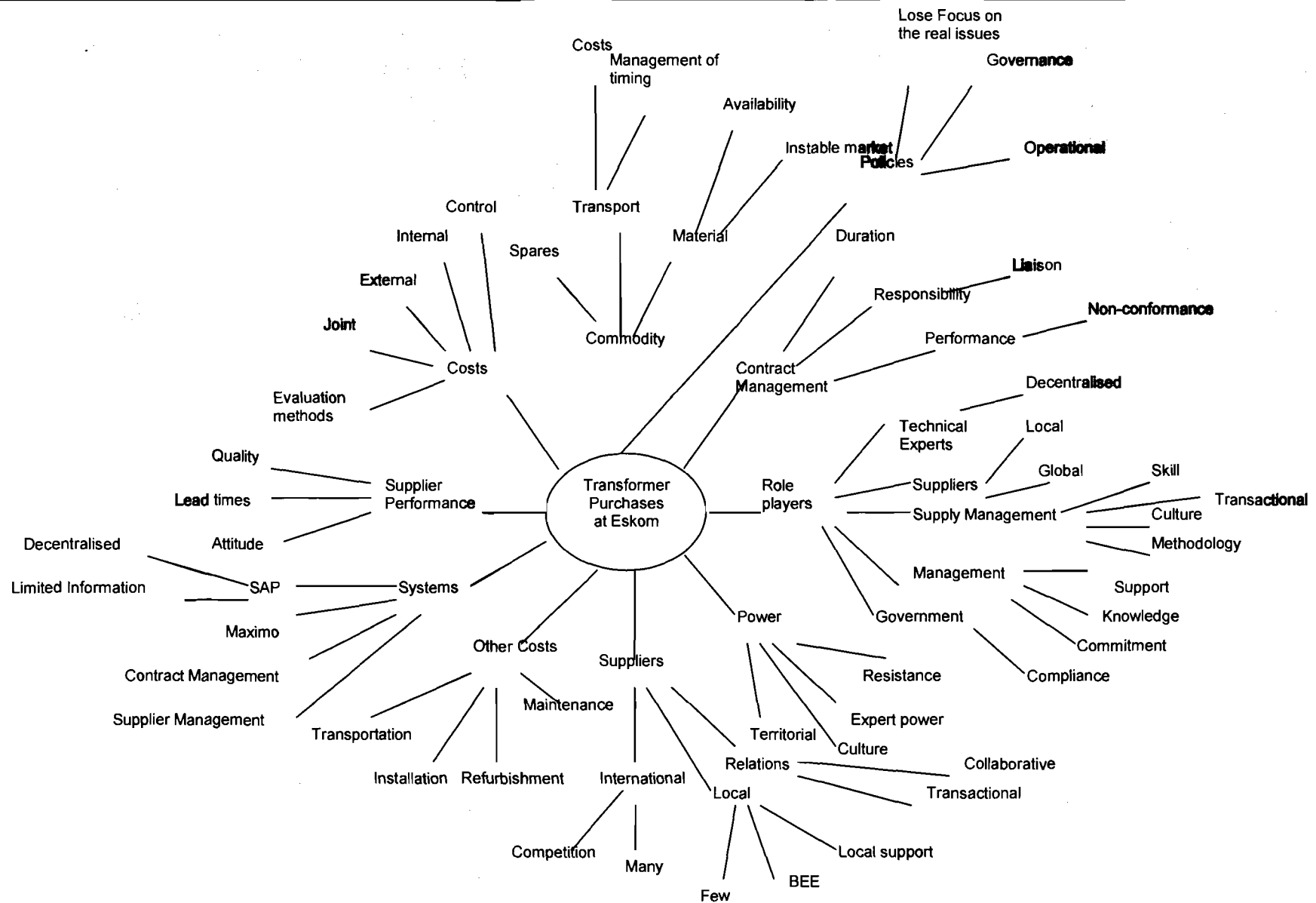
1	How important do you think is transformer purchases to your Division?	
a	No importance	
b	Low importance	
c	High importance	
d	Extremely important	
2	How critical is transformers to your Division's business?	
a	Not critical	
b	Somewhat critical	
c	Critical	
d	Extremely critical	
3	How do you select your tender list for transformer purchases?	
a	Technical expert does it?	
b	Technical expert and buyer?	
c	SAP Database	
d	Research	
e	Extensive Market research i.e. I know almost every suppliers locally and globally	
4	How would you describe your relationship with your transformer supplier?	
a	Relationship is based as per contract	
b	Both parties have adopted a high level of co-operation	
c	Both parties are aware of an interdependency	
d	We work together to ensure max. value is achieved by both e.g. we share cost saving ideas etc	
5	What type of relationship do you think your division should have with your supplier?	
a	Relationship that is based on the contract	
b	Both parties should adopt a high level of co-operation	
c	Both parties must be aware of an interdependency	
d	Both parties must work together to ensure max. value by both parties	
6	What data do you have available in terms of transformer purchases?	
a	Contract information	
b	Contract information + brochures etc	
c	The above + cost structure, company data, company annual report etc	
d	Extensive information available i.e. market research, supplier economics, cost components etc	
7	I know my transformer supplier's	
a	production Capacity	
b	available future production capacity	
c	product range	
d	issues regarding major components of transformers e.g. oil, core steel etc	
8	What is your Division's emphasis in terms of evaluations of transformer tenders?	
a	Quality	
b	Purchase Price	
c	Quality and Purchase Price	
d	Total cost of ownership	
e	Other - if other please elaborate	
9	Do you think we should extend our purchases globally?	
a	No	
b	Yes	
c	Maybe	
d	Please state reasons	
10	I work in cross - functional sourcing teams	
a	Never	
b	I have ad-hoc check meetings which involves various role players	
c	For less than 8 hours per contract	
d	For less than 24 hours per contract	
e	On a full time basis for a particular contract	
11	Who manages the transformer contract?	
a	End-user	
b	Buyer	
c	End-user and Buyer	
d	Other (please specify)	
12	Once the contract has been awarded, I am always aware of changes/issues etc	
a	Never	
b	Sometimes	
c	Most times	
d	Always	
13	What initiates the procurement process for transformers	
a	Purchase Requisition	
b	E-mail	
c	Discussion	
d	Other (please specify)	
14	I am involved in the following processes	
a	Specification changes	
b	Contract selection	
c	All technical discussions	
d	In ALL supplier meetings i.e. tech. experts do not contact with suppliers without my involvement	
15	To what extent are you aware of the other divisions transformer purchases	
a	To no extent	
b	To some extent	
c	To a large extent	
d	I am in constant contact and we work together	

APPENDIX B. Interview Questionnaire for Eskom Large Transformer Procurement Officers

1. What is your total spend on your purchases at Eskom per annum?
2. What is your divisions total spend on large transformers? On what period is this based ?
3. What is your planned future spend for the next five years?
4. Do you have a purchasing strategy for large transformers?
5. What do you think of utilizing cross-functional sourcing teams?
6. What do you think of strategic sourcing?
7. On what basis were your large transformers selected?
8. What percentage of your supplier's sales is from Eskom purchases?
9. What is their production capacity?
10. What do you think of evaluating tenders based on total cost of ownership?
11. Do you know the cost breakdown of large transformers?
12. Who are the top three players in the local market?
13. Who are the top three players on the Global market?
14. How much do you know about transformer purchases in the other Eskom Divisions?

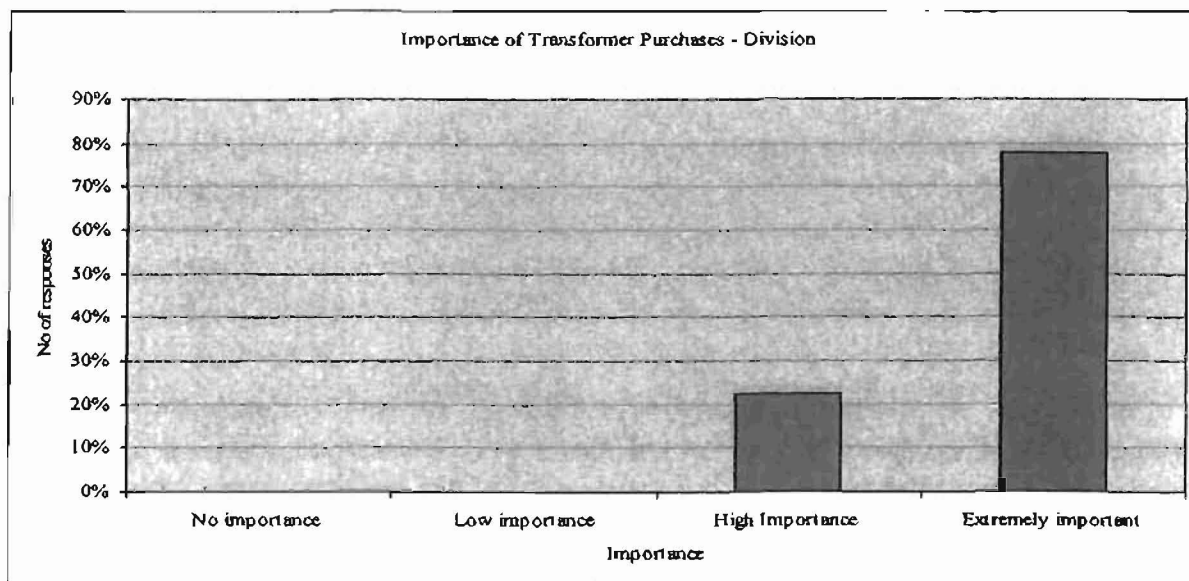
APPENDIX C Interview Questionnaire for Large Transformer Suppliers

1. Can you please give us some background into your company?
2. Where are your plants located?
3. What is the size of your company?
4. What is the number of employees?
5. What is your total revenue?
6. What percentage of that revenue is from Eskom purchases?
7. What is your strategy for Africa in terms of Transformers?
8. What is your product range?
9. Do you have any cost saving ideas for Eskom in terms of our commercial contract conditions?
10. What is the expected lifetime of your transformers?
11. What is the failure rate of transformers in service/factory failure rates?
12. Do you think there are opportunities for Eskom's specifications in terms of discretionary items?
13. What is the approximated percentage of the various cost components e.g. labour, material, transport, for your transformer (assume a 500MVA).
14. What is your production capacity?
15. What is your available production capacity for 2006 – 2010?
16. What percentage of your large transformer sales is from Eskom?
17. Which other companies do you supply large transformers to?



APPENDIX G. RESULTS OF THE QUESTIONNAIRE TO PROCUREMENT OFFICERS

1. How important are transformer purchases to your Division?

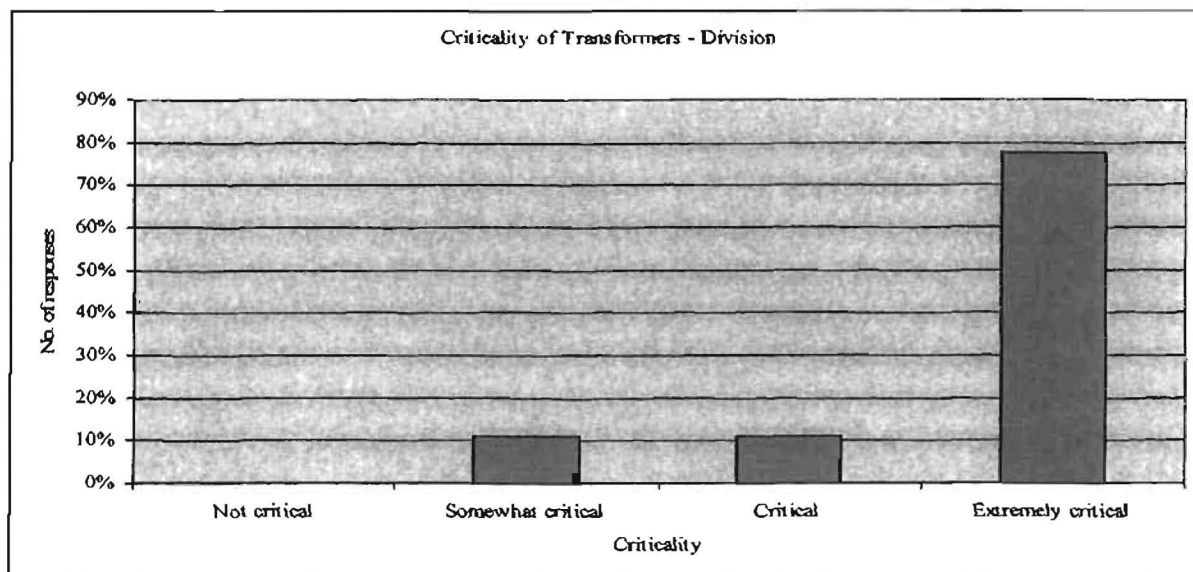


As part of the questionnaire, Buyers were asked their perspectives on the importance of transformer purchases to their Division. The responses for the question were as follows:

- 9 people responded to the question.
- 22% indicated that transformer purchases were of high importance to their Division, while 78% indicated that transformer purchases were extremely important to their Division.

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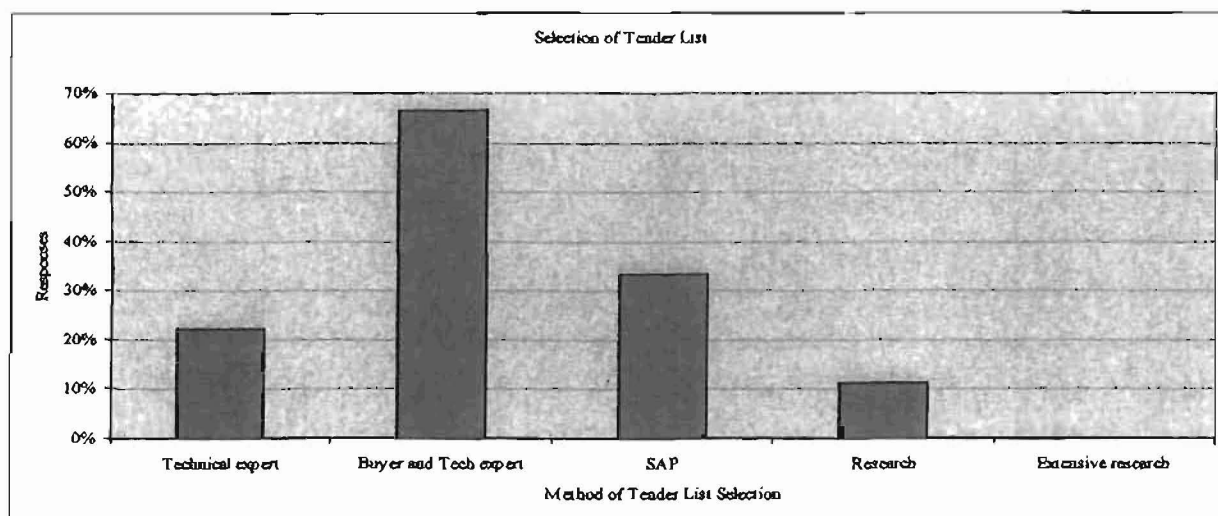
2. How critical is transformers to your Division's business?



As part of the questionnaire, Buyers were asked their perspectives on the criticality of transformer purchases to their Division. The responses for the question were as follows:

- 9 people responded to the question.
- 11% indicated that transformer purchases were somewhat critical and 11% indicated that transformer purchases were critical,
- 78% indicated that transformer purchases were extremely critical to their Division.

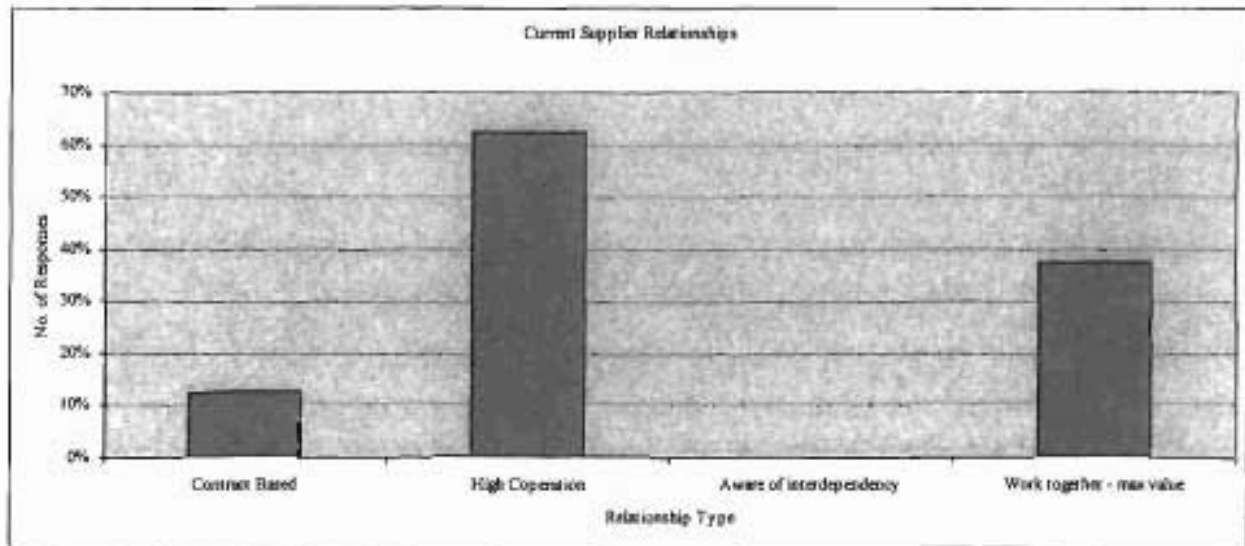
3. How do you select your tender list for transformer purchases?



As part of the questionnaire, Buyers were asked how the suppliers were selected for their tender list. The responses for the question were as follows:

- 9 people responded to the question
- 22% indicated that the technical expert does it
- 33% indicated that they use the SAP database
- 11% indicated that it is done via research
- No-one indicated that they conduct intensive market research.

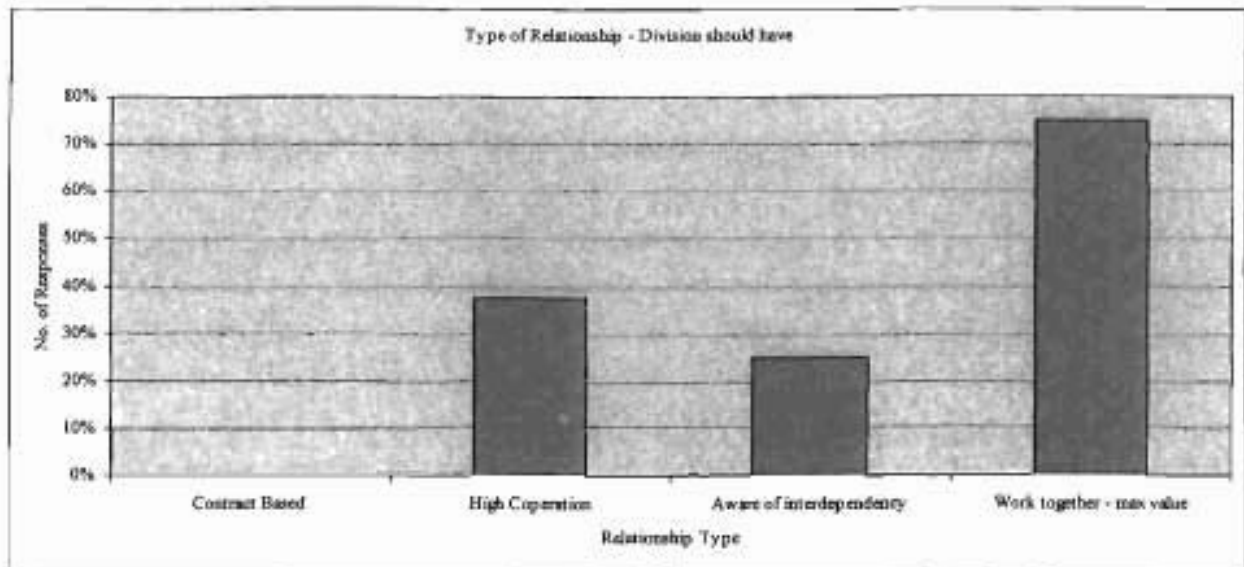
4. What they would you describe your relationship with your transformer supplier?



As part of the questionnaire, Buyers were asked to describe their relationship with their transformer suppliers.. The responses for the question were as follows:

- 9 people responded to the question
- 13% indicated that the relationship is contract based
- 63% indicated that there is a high degree of co-operation between the parties
- No one indicated that they were aware of the interdependency
- 38% indicated that they work together to achieve maximum value

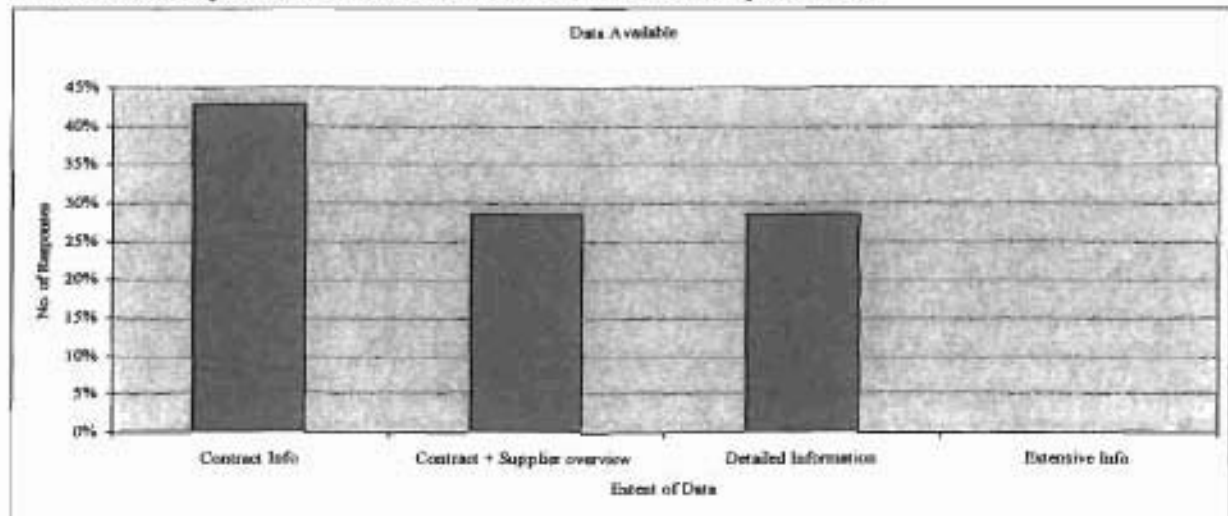
- 5. What type of relationship do you think your division should have with your supplier?



As part of the questionnaire, Buyers were asked to describe what type of relationship they Divisions should have with their transformer suppliers.. The responses for the question were as follows:

- 9 people responded to the question
- No one indicated that the relationship should be contract based
- 38% felt that there should be a high degree of co-operation
- 25% indicated that they should be aware of the interdependency
- 75% indicated that they should work together to achieve maximum value

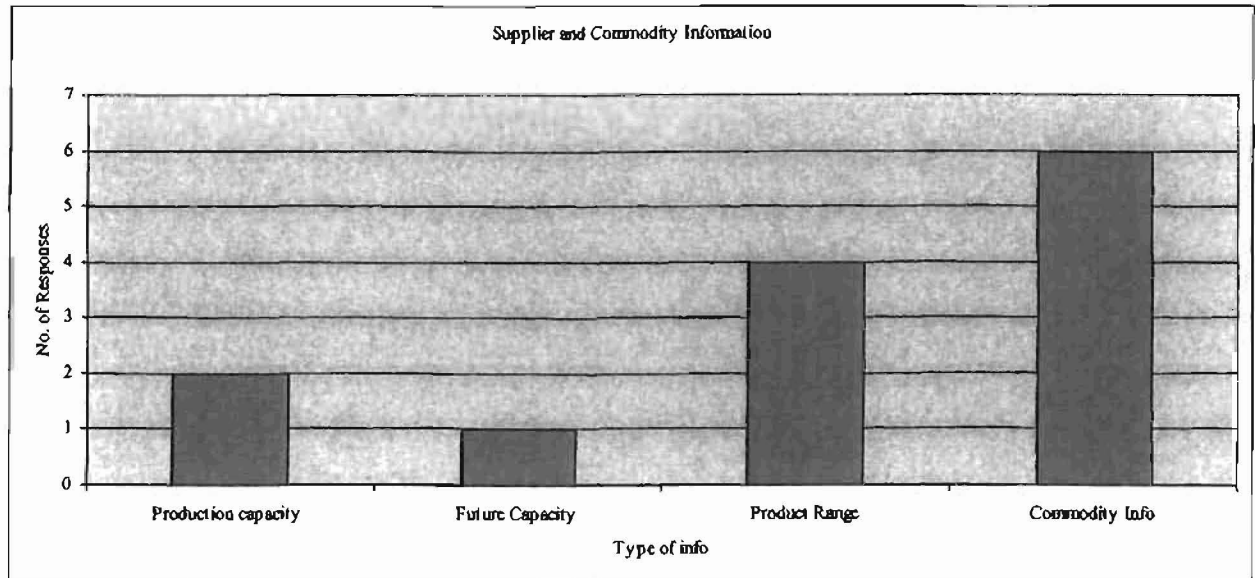
6. What data do you have available in terms of transformer purchases?



As part of the questionnaire, Buyers were asked to what data they have available in terms of transformer purchases. The responses for the question were as follows:

- 9 people responded to the question
- 43% have contract information
- 29% indicated that they had contract information and supplier overview information
- 29% indicated that they had detailed information
- No one indicated that they had extensive information

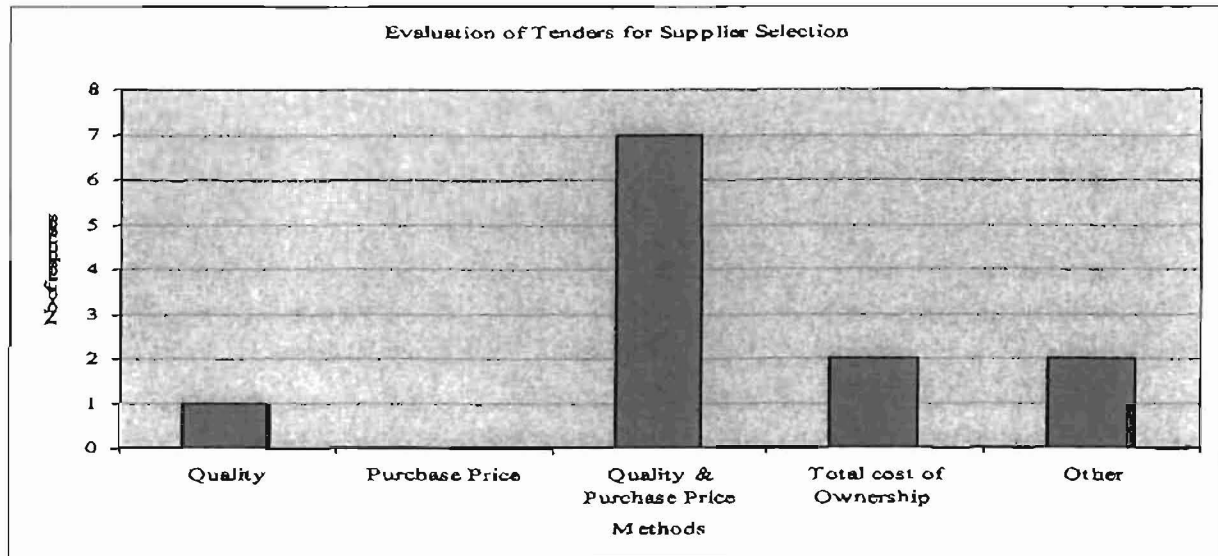
7. I know my transformer supplier's:



As part of the questionnaire, Buyers were asked what information they had regarding their transformer suppliers. The responses for the question were as follows:

- 9 people responded to the question
- 2 people indicated they knew their transformer suppliers production capacity
- 1 person indicated that they knew their transformer suppliers future production capacity
- 4 people indicated that they knew their suppliers product range
- 6 people indicated that they had commodity information

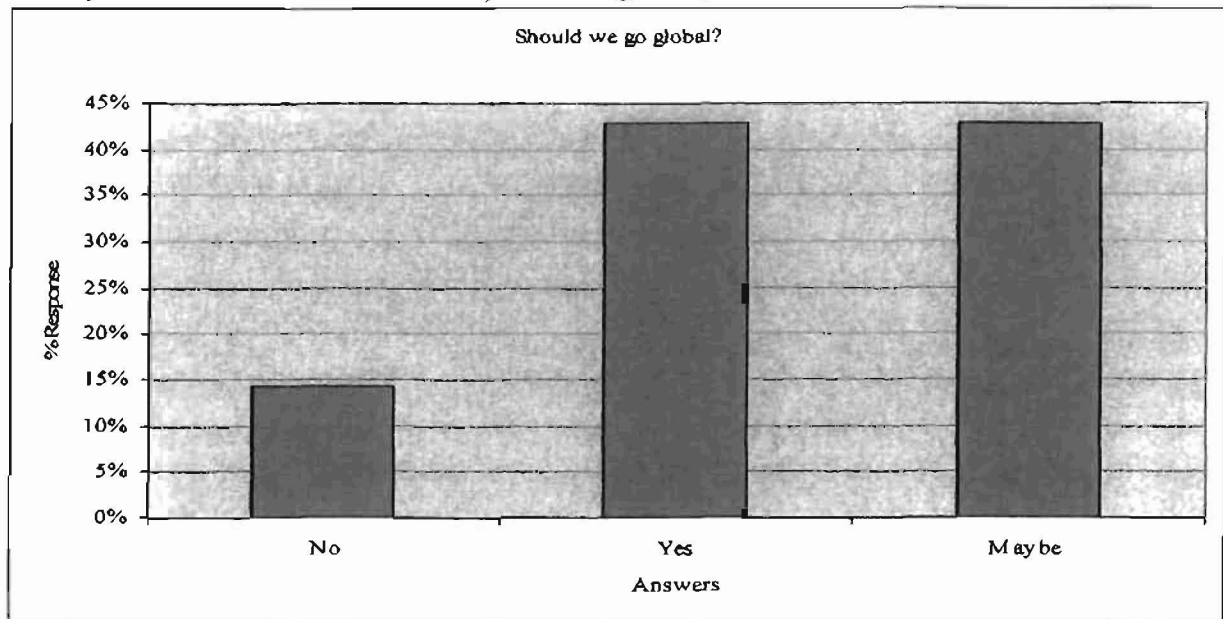
8. What is your Division's emphasis in terms of evaluations of transformer tenders?



As part of the questionnaire, Buyers were asked what the emphasis was when evaluating tenders. The responses for the question were as follows:

- 9 people responded to the question
- 1 person focused on quality
- No one indicated that they focus on purchase price only
- 7 indicated that they focus on quality and purchase price
- 2 indicated that they focused on total cost of ownership
- 2 indicated that they used other criteria

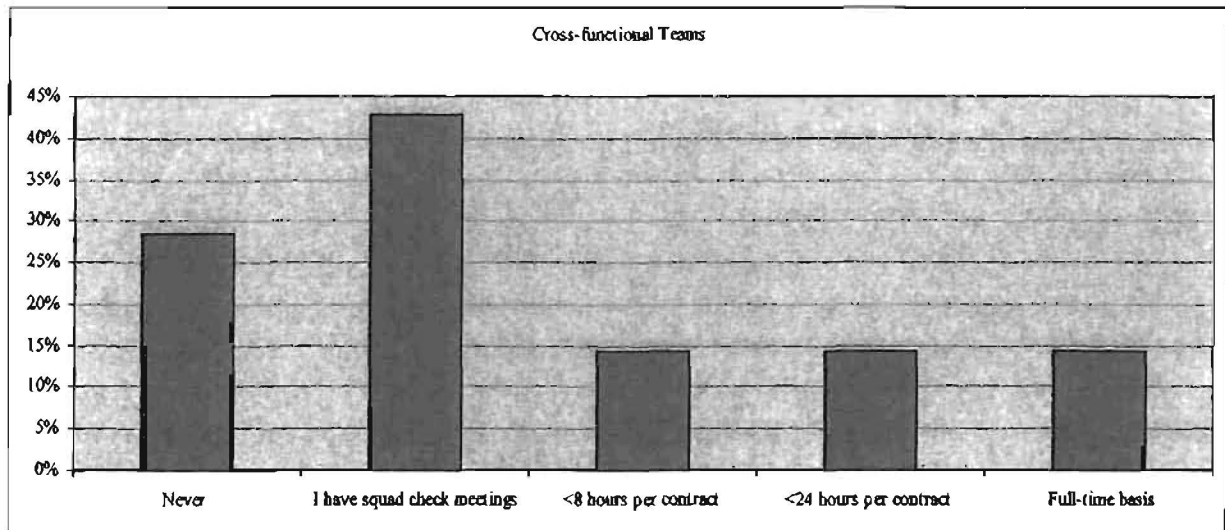
9. Do you think we should extend our purchases globally?



As part of the questionnaire, Buyers were asked if Eskom should extend their purchases globally. The responses for the question were as follows:

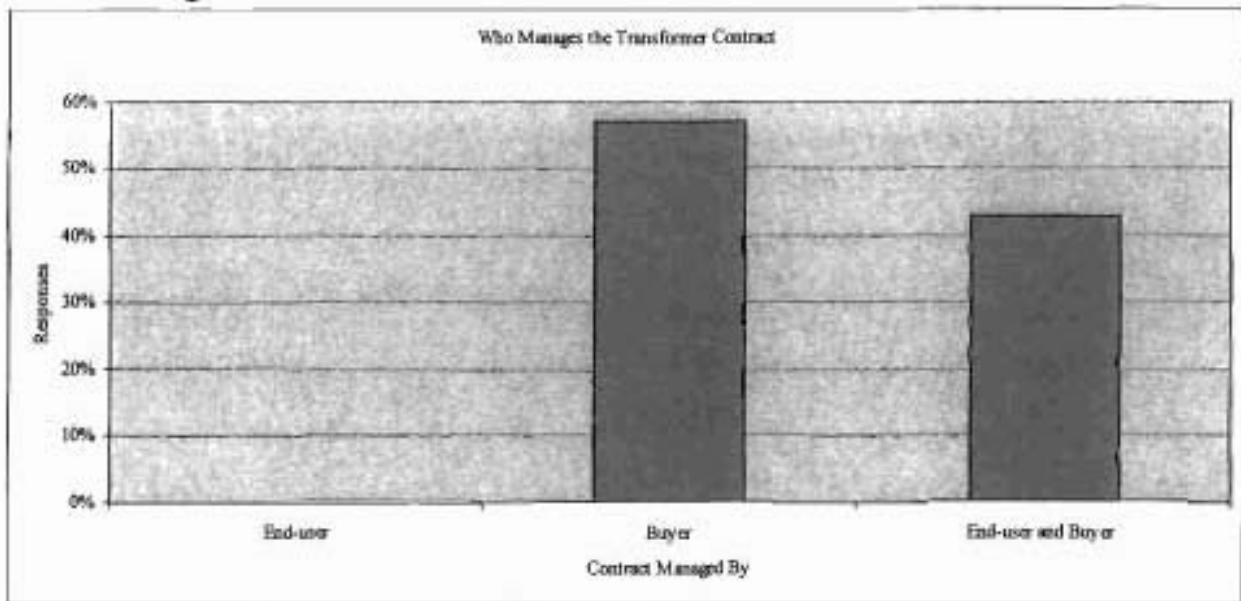
- 9 people responded to the question
- 14% indicated that Eskom should not go global
- 43% indicated that Eskom should go global
- 43% were unsure

10. I work in cross - functional sourcing teams:



- The questionnaire was sent out to 9 people.
- 25% indicated that they did not utilise cross-function teams; 50% indicated that they used squad check meetings, which consisted of people from technical, commercial, and quality experts; 25% indicated that these meetings were less than 8 hours per contract; 25% indicated that these meetings were less than 24 hours. 0% indicated they worked together as a team on a full time basis.

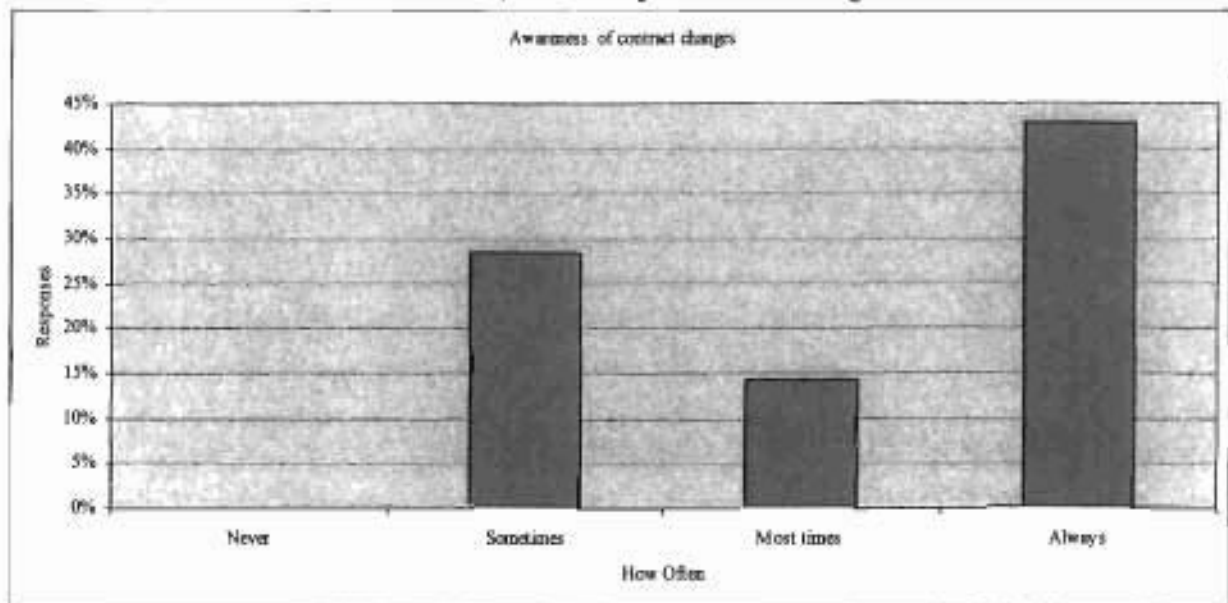
11. Who manages the transformer contract?



As part of the questionnaire, Buyers were asked who manages the transformer contract. The responses for the question were as follows:

- 9 people responded to the question
- 58% indicated that the Buyer manages the contract
- 42% indicated that it is managed by the Buyer and end-user

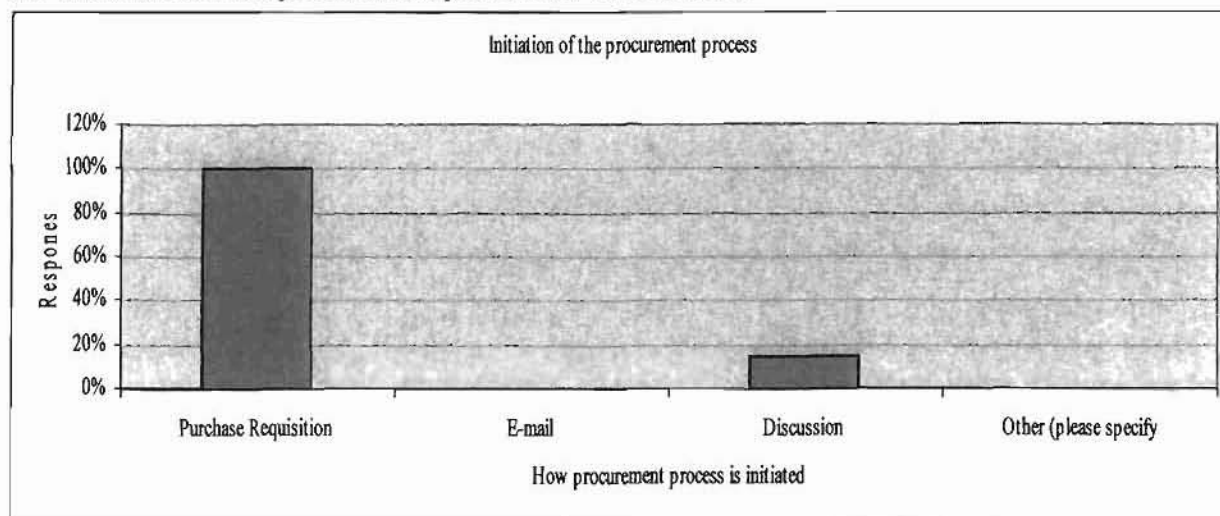
12. Once the contract has been awarded, I am always aware of changes/issues etc



As part of the questionnaire, Buyers were asked if they were aware of changes and issues on the contract after award. The responses for the question were as follows:

- 9 people responded to the question
- 43% indicated that they are always aware of changes/issues
- 29% indicated that they are aware of changes/issues some of the times
- 14% indicated that they are aware of changes/issues at most times
- No-one indicated that they are always aware of changes/issues

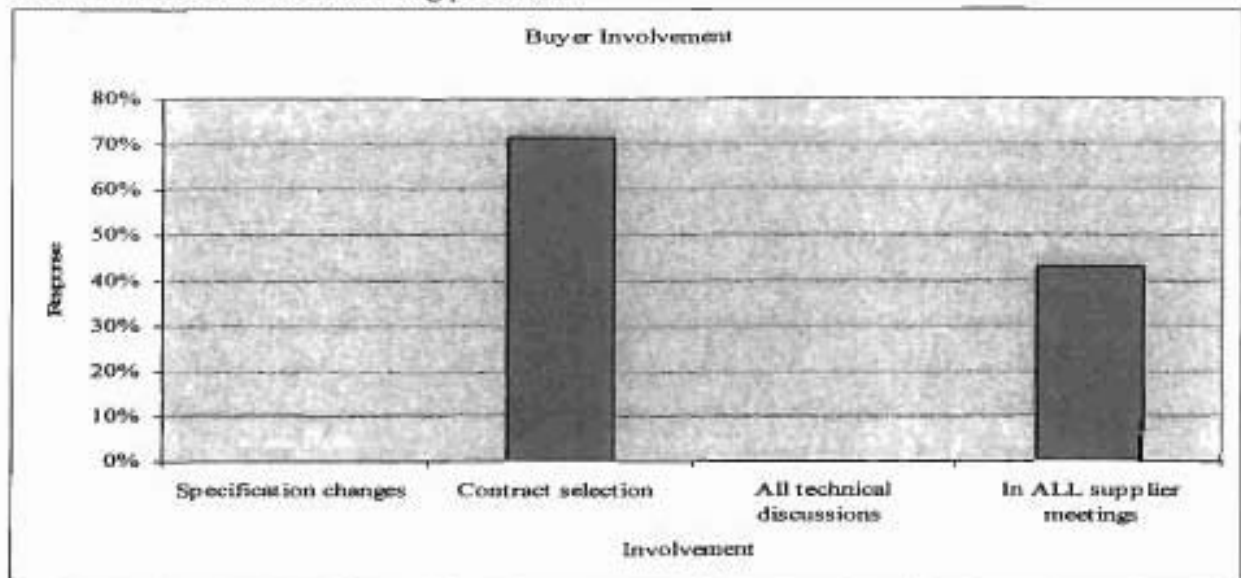
13. What initiates the procurement process for transformers?



As part of the questionnaire, Buyers were asked how the procurement process for transformers is initiated. The responses for the question were as follows:

- 9 people responded to the question
- All indicated that it is initiated by a purchase requisition, while 1 person indicated that the it is done together with a discussion

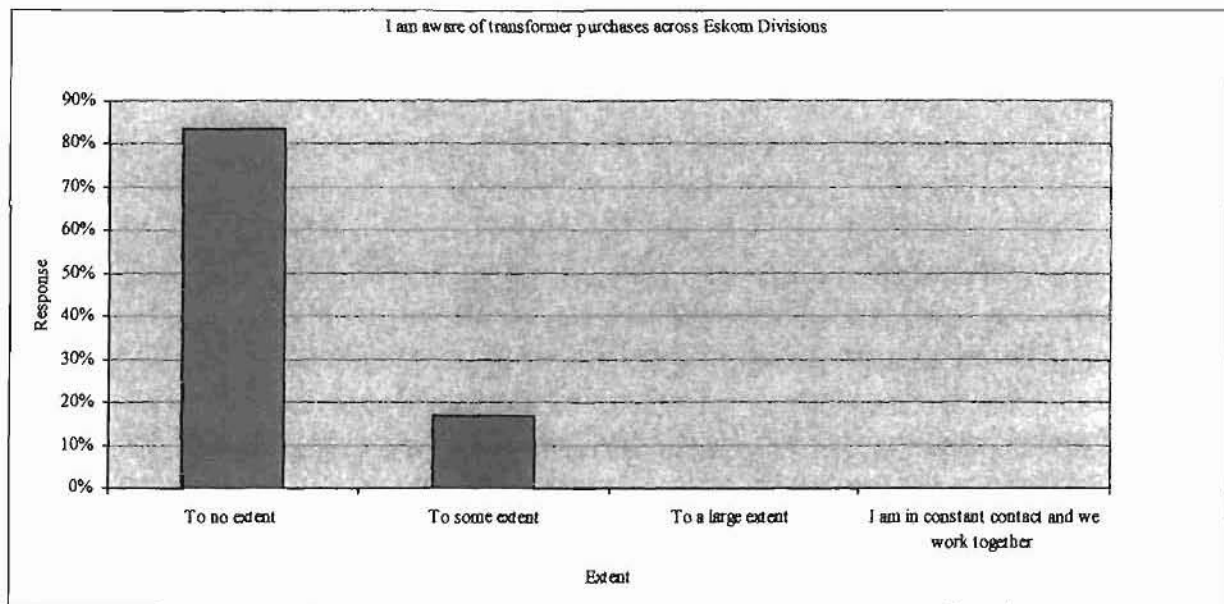
14. I am involved in the following processes:



As part of the questionnaire, Buyers were asked how much they were involved in the process. The responses for the question were as follows:

- 9 people responded to the question
- 42% indicated that they were involved in all supplier meetings
- 73% indicated that they were involved in supplier selections
- Some indicated that they were involved in both the above activities
- No-one indicated that they were involved in specification changes and technical discussions

15. To what extent are you aware of the other divisions transformer purchases?



The questionnaire sent out to the buyers tested to what extent the buyers were aware of transformer purchases within the other Eskom Divisions.

The responses were as follows:

- 9 buyers responded to this question.
- 83% indicated that they had no knowledge on purchases within the other Divisions.
- 17% indicated that they had some knowledge of purchases within other Divisions.