

Developing a framework for purchasing and supply management in a mine

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ABSTRACT

A literature study was done on the concepts of purchasing and supply management to develop a framework of purchasing and supply management in a mine. A questionnaire was designed, based on the findings in the literature, and to assist to develop a framework of sustainable purchasing and supply management process and procedure towards value creation in a mine. The state of the internal purchasing and supply management process and procedures was assessed through a survey questionnaire to extract the data.

The elements of procurement and supply management were broken down into clear activities towards the creation of value in a mine. The key area of concern is to ensure adherence to proper processes and procedures to create an environment that is conducive towards the objectives of the mine and install a mechanism that is measurable. The focus on procurement and supply management towards value creation has become the key determining factor in the mine. A practical development framework of sustainable purchasing and supply management manage towards value is proposed for a mine and to address the gaps found after analysing the questionnaires.

The findings of the empirical study and the literature review were used as the basis of the framework.

In this thesis the main focus was Purchasing and Supply Management process and procedures, and Contract Management. The relationship between procurement in the supply chain management process and its functional departments is critical towards sustainable development and value creation.

Purchasing and Supply Management are one of the key value drivers in a mine and in particular assisting with governance of purchasing activities which contribute significance towards value adding and cost.

Finally, conclusions and recommendations are drawn and rendered in order to develop a framework of purchasing and supply management in a mine.

KEY WORDS: Purchasing, Supply Management, Sourcing, Contracts, Supplier.

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CHAPTER 1

INTRODUCTION, PROBLEM STATEMENT AND DESCRIPTION OF KEY CONCEPTS

1.1 INTRODUCTION

The objectives of a business enterprise should always be focused on the profitable satisfaction of customers' needs. The basic objective of any institution is therefore to operate efficiently and effectively; that is to obtain the highest possible return (output) with the lowest possible use of production resources (input). The purchasing and supply function is performed (Hugo, W., Badenhorst-Weis. & Van Rooyen, D.C. 2011: 5) efficiently and effectively, it serves the fundamental objective of the firm, namely to ensure the highest possible return on the capital invested by the firm.

Purchasing and supply management (PSM) are crucial (Schoenherr, T., Modi, B. S., Benton, W. C., Carter, R. C. & Choi, Y. T., Larson., P. D., Leenders, R. M. & Mobert, V. A. 2012: 4556) for the effective and efficient operation of manufacturing firms, now more than ever. The PSM function has evolved from being routine and mechanical to a function that can deliver true competitive advantage. The trend toward increased globalization and outsourcing, along with a focus on innovation- and capability-driven supply management, has led to an increased reliance on suppliers. This has significantly enhanced the importance of PSM for manufacturing companies. The heightened significance in practice has been paralleled by an increasing attention of researchers in developing theories and chronicling best practices. Therefore sound purchasing and supply management policies and procedures are critical to any organisation.

Purchasing costs often constitute a large part of the company's total costs (Zachariassen, F. & Arbjon, J. S. 2011: 448). As a result, the purchasing division can be regarded as a vital element in the company's overall performance.

Purchasing costs (include product development costs, costs for the procurement of raw materials, wages for purchasing personnel and transport of goods. These costs should be monitored and controlled by purchasing and supply management. These costs are ensuring the quality of delivered products and service meets the specifications and needs of end users in the mine.

Purchasing refers to the systematic process of deciding what, when and how much to purchase, the act of purchasing it and the process ensuring that what is required is received on time in the quantity and quality specified (Hugo et al., 2011: 4).

The accompanying aspect, supply management is the identification, acquisition, access, positioning and management of resources and related capabilities an organisation needs, or potentially needs in the attainment of its strategic objectives.).

This view is further supported by Hugo et al (2011: 6) that suggest that supply management is not just a new name for “purchasing”. It is help full to think about supply management as a progressive and strategic version of basic purchasing.

In a typical manufacturing firm, this would also be related to mine purchasing and supply chain costs make up 50 per cent of cost of goods sold, and manufacturing contributes 30 percent. Improvement in these two factors which form part of a mining production can provide the single biggest opportunity for profit improvement. At a 20 percent (Wincel, P. J. 2004: xii) gross profit, it takes \$5 of improved sales to equal the profit effect of \$1 of supply chain savings. The effects of improved purchasing and supply management can therefore bring quick results to the organisation. The alertness of cost in the application process of purchasing and supply management should be part of every transaction.

This has created the awareness amongst organizations to recognize the importance of managing sustainability in the supply base. Sustainability does not only reflect the importance (Handfield et al., 2011: 381) of strategic environmental practices of suppliers, but also the management of social responsibility in the supply base as well. There is pressure on all organisations to ensure that their policies and procedures reflect this key component. Hugo et al. (2011: 381), continue with their

definition of sustainability as “the ability to meet current needs without hindering the ability to meet the needs of future generations in terms of economic, environmental, and social challenges.”

Contracts, an exchange of promises (Nieman, G. 2008: 10) between two or more people, it is the key aspect of any business, encompassing all critical business functions- sales, marketing, purchases, finance, legal, Human Resources (HR) and most importantly, suppliers/customers, partner, and supplier relationships.

In this thesis the main focus areas is the Procurement Processes, Procedures and Contract Management.

The relationship between procurement in the supply chain management process and its functional departments, are critical toward sustainable development and value creation.

The criticality of strategic purchasing is demonstrated by the fact that it is responsible for more than half of the production costs for a firm's products.

Organisational capabilities can (Chen, I.J., Paulraj, A. & Lado, A. A. 2004: 506) engender sustainable competitive advantage in so far as they: (1) are not tradable in strategic factor markets;

(2) take time to develop and are historically based and path dependent; and

(3) entail society complex relationships with other organizational resources

1.2 Problem statement

Purchasing and supply management is responsible for the continuous supply and purchasing of all kinds of goods and services needed by production in a mine – in the right quantity, at the right time and at a competitive price. In this way, purchasing and supply management is seen as the balancing mechanism, bringing the different requirements of internal clients such as the Mineral Resource Mining, Engineering Mining, Human Resource, Finance, Sustainable Development and Supply Chain Management, as well as the customers (the external clients) of the mine into alignment with overall goals.

Despite developments over the last decade that has caused a wealth of valuable approaches to supply chain, strategic, tactical, and operational planning (Ivanov, 2010: 3999), conventionally the planning decisions at each of these levels have been considered in isolation from the other levels. In purchasing and supply management decisions on the purchasing cycle, procurement strategy, sourcing strategy, commodity strategy, purchasing design, tactics, and operations are interlinked.

The main (Bailey, P., Farmer, D., Jessop, D. & Jones, D. 2005: 4) stages in the purchasing process may be summarised as follows: Recognition of need, specification, make or buy decision, source identification, source selection, contracting, contract management, receipt, possibly inspection, payment and fulfilment of need. This process needs supporting activities to ensure that it is fully utilized and understood and implemented within the context of a mine.

Given this process, this paper integrates a broader management approach with familiar purchasing and supply management concepts to elaborate a framework that will assist with value adding in the purchasing and supply management process and procedures in a mine. This framework employs the capabilities to bridge this gap, by considering how technical and relational capabilities developed within a purchasing and supply management configuration can lead to sustainable purchasing and supply management, and how these impact performances. The model specifies variables that create exposure to stakeholders along the purchasing and supply management process and procedures to improve value adding in a mine.

1.3 Research Objectives of the study

The following primary and secondary objectives were set for this study:

1.3.1 Primary objective

Propose an integrated framework towards purchasing and supply management, in a mine.

1.3.2 Secondary objectives

- Define purchasing and supply management towards value creation.
- Obtain insight into the determinants of the purchasing cycle by means of a literature study.
- Investigate additional functional elements that drive the purchasing cycle as an integrated approach towards value creation, and
- Determine internal business factors that have an influence on the purchasing cycle towards value creation and performance.

This study can lead to the identification of further research to create a model for procurement and supply management professionals in their daily activities to increase financial performance.

1.4 Scope of the study

The procurement processes and policies which include operational procurement and contract management in the mine.

1.4.1 Industry demarcation

This study is limited to a single mine and could therefore not be representative of the whole mining industry.

1.5 Research methodology

This study was conducted in two phases. Phase one consisted of a literature review and the second phase empirical research.

1.5.1 Literature/theoretical study

The literature review for this study focused on the purchasing cycle and some of the factors that affect the process and procedures towards value creation, which include:

Definitions of purchasing and supply management

Commodity strategies

Sourcing strategies

Purchasing strategies

Pricing factors

Purchasing and supply chain performance

Contract management

Risks in supply management

1.5.2 Empirical study

A survey was done with all relevant purchasing and supply management staff and management in a mine to assist with comparative information to develop a framework. The Likert scale was used. The summated or Likert scale, introduced by Likert (1903 -1981) is at present the most popular type of scale in the social sciences (Welman, C. Kruger, F. & Mitchel, B. 2005: 156). A summated scale consists of a collection of statements about the attitudinal object. In respect of each statement, subjects have to indicate the degree to which they agree or disagree with its content on, for instance, a five-point scale (for example strongly differ, undecided, agree, strongly agree).

A four point Likert scale questionnaire was used to gather information.

1.5.2.1 Research design

Both quantitative and qualitative research design was used.

The descriptive research consisted of cross-sectional analysis which was conducted by means of a sample survey that made use of a questionnaire as a research measuring instrument to gather the required quantitative data. In the cross-sectional design (Welman et al., 2005: 95) the criterion groups typically comprise different age groups (such as technikon, university or organisational year groups), known as cohorts.

In this an attempt was made to determine the extent to which different qualifications of the different respondents have an influence.

I have also made use of the frequency distribution control method to analyse the content.

1.5.2.2 Study Population

Although the study population were small it served the purpose of this study. The study population comprises all the different occupational levels in a purchasing and supply management in a mine. The findings should not be generalised.

Respondents were not randomly selected.

1.5.2.3 Constructing the Research Instrument

The research instrument selected for this study was a structured questionnaire. The questionnaire named developing a framework of sustainable purchasing and supply management process and procedures towards value creation in a mine, consisted of a front page and covering letter which included the instructions to the questionnaire. The questionnaire consisted of 45 statements covering the following topics:

Purchasing	15 statements
Contract Management	11 statements
Risk Management	5 statements
Performance Management	2 statements
Value adding	1 statement
Sustainability	1 statement
Evaluation	3 statements
Cost Reduction	4 statements
Sourcing Strategies	3 statements

Respondents were requested to select the number, on a four Likert scale (where it indicates they strongly disagree or they strongly agree with the statement – see chapter 3) which best describes their opinion about a specific question or statement.

1.5.2.4 Collection of Data

The actual gathering of the data was done by means of the following procedure:

- An e-mail, telephone call, or personal contact was made with each of the respondents explaining the purpose of the study and requesting permission to distribute questionnaire to them.
- There was then regular follow ups with the respondents on the progress of the questionnaire and the collection of the questionnaire.
- Not all the respondents returned the questionnaires but the 21/60 served the purpose of this study.

1.5.2.5 Data Analysis

The data collected were statistically analysed, using Statistical Package for Social Sciences (SPSS).

Frequencies and percentages were calculated for the variables of age, gender, qualifications from different educational institutions. The statements were grouped into different items.

1.6 Limitations of the study

The various types of software used in the purchasing process are not in the scope of this study.

1.7 Layout of the study

- Understanding the procurement processes and procedures, sourcing, commodity management, total cost of ownership, contracts management and performance management,
- Total cost of ownership in purchasing.
- Performance management of suppliers and purchasing staff.
- An assessment of inter-relationship between procurement and other functional departments. Their strength and weaknesses.
- Survey with relevant procurement staff and management,
- The contract management and associated risks in purchasing, and
- A generic model will be recommended.

The study was divided into four chapters:

Chapter 1: The nature and scope of the study are presented which include the problem statement, research objectives, method and procedures.

In chapter 2, the literature regarding purchasing and supply management processes and procedures are discussed. This includes theory on a variety of concepts as per the layout.

Chapter 3: The results of the empirical research are presented.

Chapter 4: Conclusions were made and recommendations were made.

1.8 Chapter Summary

This chapter provided background, understanding and introduction on purchasing and supply management in the organisation. It also gave broad overview of purchasing and supply management. The problem statement gives direction and sets the objective of the research into a single mine. In the next chapter the literature review will be presented.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The literature review reflects the views of a variety of authors and factors that contributes to purchasing and supply management. There are also explanations of definitions and concepts that form integral part of the functionality in business environment. Supply and purchasing management is a business functionality that is ever growing in every organisation

2.2 Definitions

Understanding definitions in supply and purchasing management will assist in the broader application and implementation of concepts. This also enhances the strategic thinking and value of Purchasing and Supply Management in the business environment.

2.2.1 Value as a Concept

According to Gattorna, J.L. & Walters, D.W, (1996:102) they extends the notion of the value chain by including customer expectations for both product and service, introduces segmentation and emphasis the role of 'value' in the value chain concept. The different role players in supply chain and in purchasing and supply management view value from their perspective.

Pricing and sourcing are important (Gattorna et al., 1996:101) elements in the package as they reflect specific aspects of the product. Pricing reflects a negotiated overall value (value for both supplier and customer) while sourcing reflects the tasks involved in producing both the tangible product and the intangible service package that differentiates and increases the value added to the tangible element of the

product package. These elements are some of the determinants for purchasing and supply management in their contribution to the organisation and the value chain. This is confirmed by (Hallikas, J., Immonen, M., Pynnonen, M., & Mikkonen K. 2012:1) that value delivered to the customer is dependent on more than one attribute, and possibly on more than one firm. In other words, companies operating in the world of systemic value creation find it hard to succeed on the basis of traditional management theories and methods.

2.2.2 Purchasing

Purchasing refers to the systematic process of deciding what, when and how much to purchase, the act of purchasing (Hugo et al., 2011: 4) it and the process ensuring that what is required is received on time in the quantity and quality specified. The end users in a mine would forward a request for the purchasing of the specified goods or service with specifications to the purchasing and supply management to act upon due to specific need. This need might be production related or service related.

Strategic purchasing is defined as the process of planning (Hugo et al., 2011: 4) implementing, evaluating and controlling strategic and operating decisions for directing all activities of the purchasing function towards opportunities consistent with the firm's capabilities to achieve its long term goals. The strategic purchasing will happen within the confines of budgetary constrain and funds available. Prioritising the needs towards sustainability of the organisation is reflected in the strategic purchasing planning process.

The following additional characteristics (Hugo et al., 2009: 8) of supply management serve to clarify the concept namely:

- Supply management has a more strategic focus than purchasing and, generally, senior management emphasis the strategic role of supply management.

- Supply management is clearly focused on the attainment of the overall organisational goals (e.g. customer satisfaction through ensuring lowest total cost of ownership).
- Supply management maintains a system approach to the acquisition of materials and services, thereby involving other functional areas as well as the supply base self in optimising the supply chain function.
- Supply management is a progressive approach to managing the supply base whereby suppliers are regarded as extensions of the buying firm and where they are involved at a strategic level in a long-term relationship closely resembling a partnership.

2.2.3 The role of purchasing in the value chain

Primary activities are those which are directed at the physical transformation and handling (Van Weele, J. A. 2010: 4) of the final products, which the company delivers to its customers.

Support activities enable and support the primary activities. They can be directed at supporting one of the primary activities as well as supporting the whole primary process.

Porter differentiates between five generic categories of primary activities namely:

i) Inbound logistics.

These activities are related to receiving, storing and disseminating in outs to the product, such as (Van Weele, 2010:10) materials handling, warehouse, inventory control, vehicle scheduling and returns to suppliers.

ii) Operation Activities

Operations activities associated with transforming inputs into the final product form

such as machining, packaging, assembly, equipment maintenance, testing, printing and facility operations.

iii) **Outbound logistics**

These are activities associated with collecting, storing, and physical distributing the product to buyers, such as finished goods warehousing, materials handling, delivery vehicle operations, order processing and scheduling.

iv) **Marketing and sales**

These activities relate to advertising, promotion, sales and distribution channels.

v) **Services**

Activities associated with providing services to enhance or maintain the value of the product, such as installation, repair, and training, parts, supply and product adjustment (Van Weele, 2010:11).

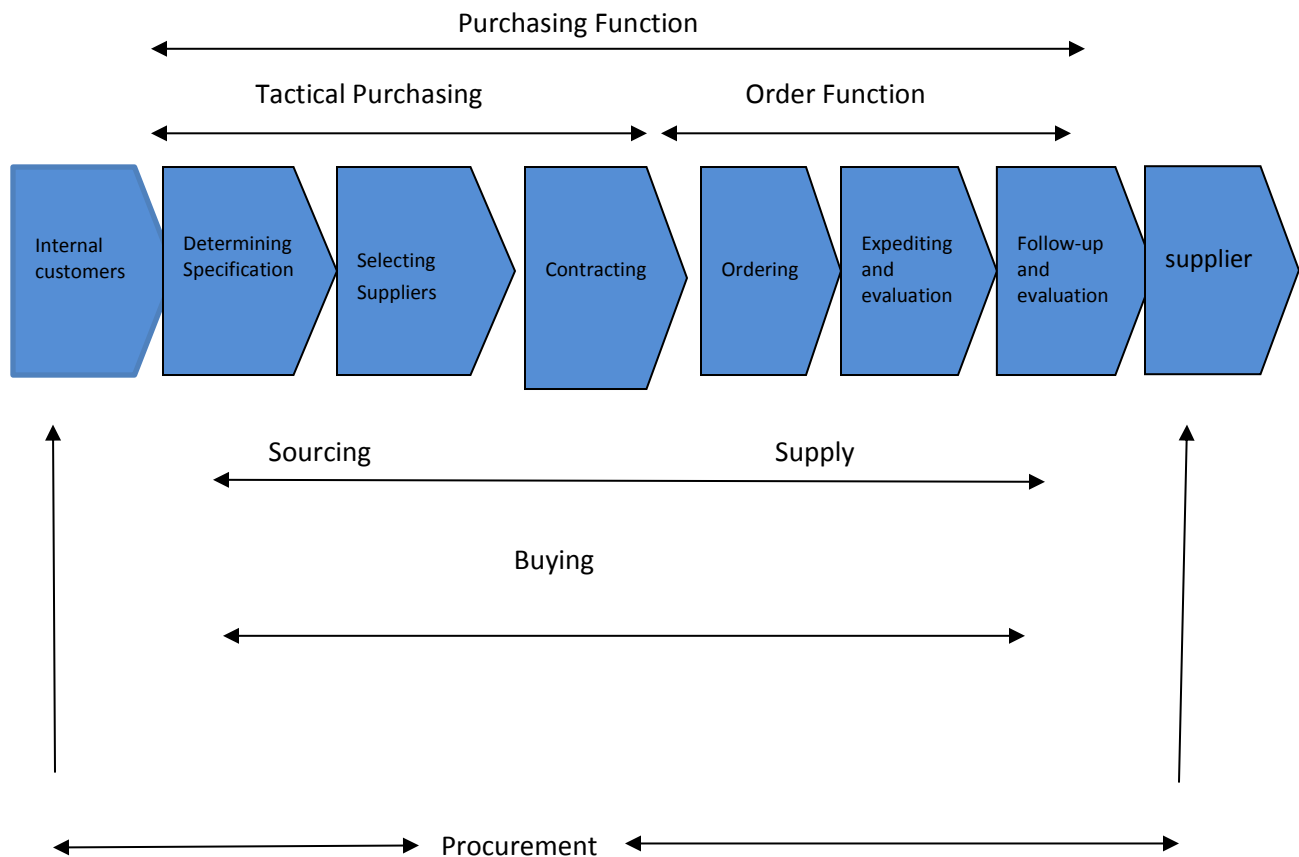
2.2.4 The Scope of Purchasing and Supply Management

Every mine has to acquire materials for its operation, this includes buying parts and equipment from suppliers, goods and services from retailers or distributors, and this includes raw materials, components, equipment parts, spare parts, information, commercial services, expertise, consumables, energy, transport, utilities – and a variety of services.

Purchasing which directs which directs the flow of materials into an organization is usually initiated (Monzcka, M., Robert. Handfield, B.R., Guinipero, C. L., Patterson, L. J. & Walters, D. 2010: 3) by a purchase order sent to a supplier.

This includes the following benefits and aspects of purchasing and supply management in the mine:

FIGURE 2.1: PURCHASING PROCESS MODEL AND SOME RELATED CONCEPTS



Source: (Van Weele, 2010:15)

i) **Benefits from good purchasing**

The following are been given by (Hugo et al., 2011: 34) as benefits from good purchasing:

- ❖ Provides an efficient service to internal customers (who are all the internal users for whom materials are acquired)

- ❖ Gives a reliable flow of materials into an organization, ensuring that they are available when needed
- ❖ Identifies and selects the best suppliers and develops good relations with them
- ❖ Encourages product innovation and improvement, through co-operation with suppliers
- ❖ Improves product quality, by using the best available suppliers and materials. These actions create visible value factors of purchasing and supply management in any organisation.

ii) **Co-ordination between purchasing and supply and other functional areas**

Lateral purchasing and supply (Hugo et al., 2011: 35) co-ordination has mutual advantages for both the purchasing function and other functions of the enterprise. This is because purchasing and supply activities are primarily aimed at supporting and supplementing the activities of the business functions of the enterprise. Furthermore lateral co-ordination is important because the purchasing and supply function acts in an advisory capacity on aspects relating to the supplier market, and in a verifying capacity with, for instance, quality control factors and the querying of specifications.

Purchasing and supply management staff always needs to improve their skills and knowledge base to fulfil this task. The introducing of new technology into a mine is partially in the hands of purchasing and supply management through research, supplier engagement and functional coordination.

The organizational integration (Ellegaard, C. & Koch, C. 2012: 148) between the purchasing function and other corporate functions is one of the most critical determinants of not only purchasing performance, but also over-all company performance. Integration implies that organizational functions responsible for

purchasing and supply management activities, such as purchasing, logistics, operations, and product development, act in a co-ordinated manner in their boundary spanning behaviours in exchange with suppliers.

A better understanding of purchasing integration's role in influencing the competitive priorities of a firm should enhance the ability of firms to suitably direct their strategic efforts within supply chain integration.

iii) **Objectives of purchasing and supply management**

The objectives of a business enterprise should always be focused on the profitable satisfaction of customers' needs. The basic objective of any institution is therefore to operate efficiently and effectively; that is to obtain the highest possible return (output) with the lowest possible use of production resources (input). If the purchasing and supply function is performed (Hugo et al., 2011: 5) efficiently and effectively, it serves the fundamental objective of the firm, namely to ensure the highest possible return on the capital invested by the firm.

Purchasing and supply management play a central role in acquiring of services and goods in a mine. It is also the only functional department that is authorised to bind the mine to any supplier or service provider in acquiring goods or services.

To operate successfully, a firm needs an uninterrupted flow of goods, materials to perform its activities.

The interaction between (Hugo et al., 2011:11) supply management and other business functions (the internal customers of purchasing and supply management) often determines the level of success achieved by these operating units. Operations/production function (department) depends heavily on the timeous and correct supply of materials to avoid production stoppages and products of poor quality.

2.3. PROCUREMENT STRATEGIES

The process of aligning supply management goals with corporate objectives is especially important for supply chain (Monzcka et al., 2009: 193) management and supply chain managers.

The strategy development process according to Monzcka et al.(2009: 193) takes place on four levels namely:

- **Corporate Strategies:**

These strategies are concerned with:

- (1) the definition of business in which the corporation wishes to participate
- (2) the acquisition and allocation of resources to these business units.

- **Business Unit Strategies:**

These strategies are concerned with:

- (1) the scope or boundaries of each business and the links with corporate strategy
- (2) the basis on which the business unit will achieve and maintain a competitive advantage within an industry.

- **Supply Management Strategies:**

These strategies, which are part of a level of strategy development called functional strategies, specify how supply management will:

- (1) support the desired competitive business –level strategy and
- (2) complement other functional strategies (such as marketing and operations).

- **Commodity/Category Strategies:**

These strategies specify how a group tasked with developing the strategy for the specific commodity being purchased will achieve goals that in turn will support the supply management-, business unit- and ultimately corporate-level strategies. The term “category” is often inter-changed with the term “commodity” when referring to these strategies.

2.3.1 Developing Sourcing Strategies

The sourcing strategies of the mine are influenced by regulatory requirements like the Mining Charter and Preferential Procurement Strategies.

The Mining Charter (<http://www.dmr.gov.za/publications/>) compels mining companies to procure as follows from their suppliers by 2014: Procurement spent from BEE entities by 2014.

The total purchasing from the mine should reflect the following from BEE entities Capital goods 40%, Services 70% and Consumable goods 50%. These regulatory requirements are compulsory for the mining companies to retain their mining licence. Strategic sourcing is probably the most significant aspect (Rendon, 2005:06) characterising an organization’s transformation to supply management. It is also the aspect of supply chain management which provides some of the most value-added benefits to the organization.

Sourcing one of the major steps in the procurement process involves the identification and selection of the supplier whose costs, qualities, technologies, timelines, dependability, and service best meet the organization’s needs.

The organisation needs to have a formal process to give effect to this process and adherence. This process are directing purchasing staff and give direction to apply their minds and ensuring specific outcomes of actions.

Strategic sourcing involves taking (Rendon, G. R. 2005: 6) a strategic approach to the selection of suppliers – an approach that is more aligned with the organization's competitive strategy. Strategic sourcing reflects the integration of procurement or sourcing strategy with corporate strategy. The integration of procurement and corporate strategy is reflective of the transformation of purchasing to supply management. The procurement transformation (Rendon, 2005:8) reflects a new approach to purchasing and procurement that embraces the other supply chain management functions of materials, logistics, and physical distribution – this new approach has been labelled “supply management” by many organizations and industries.

To ensure long-term availability of critical items at competitive costs, organizations require a well-developed purchasing strategy based on a systematic analysis.

During the last two decades, most of the attention (Wagner, S. M. & Kaufmann, L. 2013:35) has focused on developing appropriate purchasing strategies that consider buyer-supplier relationship characteristics, interdependencies, strategy-based planning and product based classifications. Procurement scholars and practitioners realized that a one-size-fits-all strategy does not exist.

Every mine therefore needs its own strategies that address all the challenges within in its specific industry to be profitable and cost effective in the execution of planned activities.

Successful supply management needs to address different purchased items and buyer-supplier relationships with different purchasing strategies because the corresponding issues and challenges may differ significantly.

Bases on the importance and value of items Rendon (2005:10) list the following categories.

- **Strategic Items**

These items require (Rendon, 2005:10) extensive market and vendor analysis, accurate product forecasting, and the establishment of long-term supplier

partnerships. The procurement strategy for these items may also include a supplier certification process for controlling supplier's performance and monitoring continuous improvements.

These would be unique items and items critical (Nieman, G. 2008:28) to the competitiveness of the final product.

Strategic items would also be part of inventory management where the mine keeps stock. This might be via vendor managed inventory process or the

- **Bottle-Neck Items**

Require a strategy focused on insurance of product delivery, contract management to monitor vendor production, and adequate product inventory.

These would be basic production, basic packaging (Nieman, 2008: 28) and logistics service.

- **Leverage items**

Procurement strategies for Leverage items should take advantage of the buying company's purchasing power to negotiate desirable contract terms and conditions with suppliers. Rendon continues that these strategies involves spreading the purchase quantities over a variety of qualified suppliers, staying in touch with new suppliers in the market, pressing for price reductions and greater discounts during negotiations, and insisting on low or zero inventories. These strategies also include spot purchases from a variety of qualified suppliers for ensuring an adequate supply of products.

These would typically engineered products (Nieman, G. 2008: 28) and parts that are available from a limited number of suppliers. These would normally be governed by Original Manufacturing agreements that ensure sustainability of equipment. This protects the warranties and guarantees that is included in the agreement.

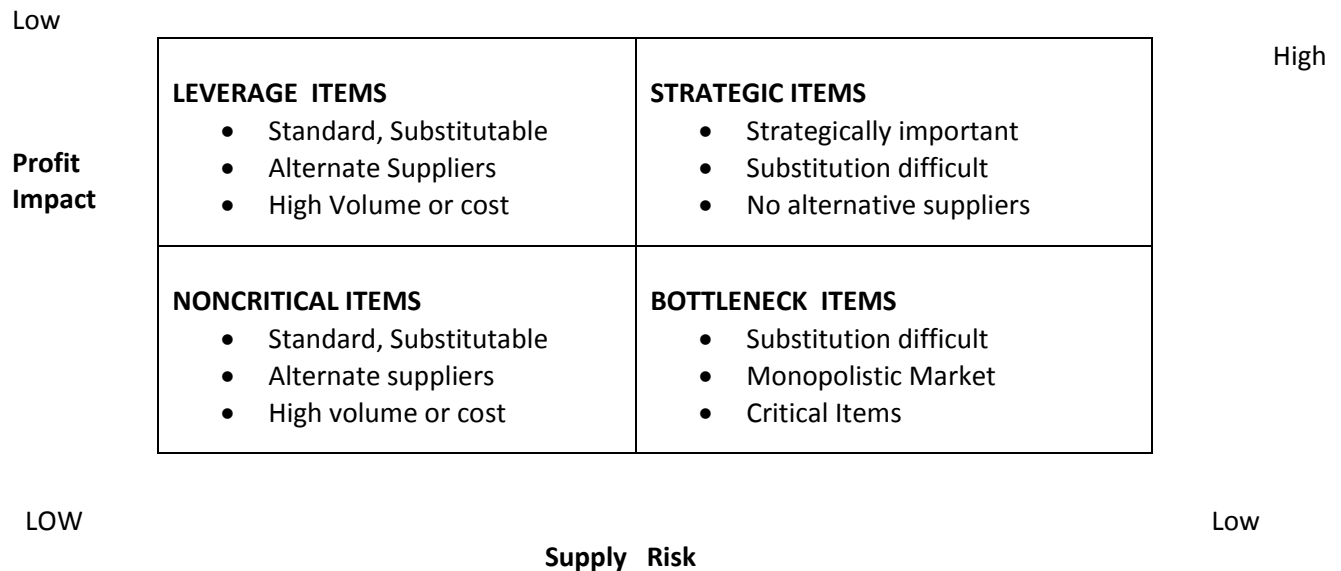
- **Non-Critical Items**

According to Rendon (2005:11) items will require procurement strategies based on inventory optimization models, product standardization programs, and efficient purchase order processing.

These would be office supplies (Nieman, 2008:28) and maintenance, repairs and operating items (MRO).

There is also a variety of suppliers of these items.

FIGURE 2.2: KRALJIC PURCHASING MODEL



SOURCE: (WAGNER, 2010:36)

2.3.2 Phases of Sourcing Strategies

Organizations tend to evolve through four phases (Handfield, B. R., Monczka, M., Giunipero, C. L. & Patterson, L. J. 2011: 229) as they become mature and sophisticated in their supply management strategy development. This process articulates that there is a sequence as follows:

- **Phase 1: Basic Beginnings**

In Phase 1, supply management often focuses on supply base optimization, and more attention is paid to total quality management than to other progressive supply management strategies. In a sense, these two strategies represent the building blocks from which to pursue increasingly sophisticated strategies. A reduced supply base is necessary for successful execution of more complicated strategies. TQM also provides the fundamental focus on process that is required to implement supply management strategies.

- **Phase 2: Moderate Development**

Purchasers must now begin to pursue strategic supplier relationships that focus on customer needs and the organization's competitive strategy. In Phase 2, buyers may begin to establish better relationships with critical suppliers while continuing to optimize the supply base.

- **Phase 3: Limited Integration**

Supply management is evaluated on the basis of strategic contribution and resources are made available according to strategic requirements. Extensive functional integration occurs through design and sourcing teams that focus on product development, building a competitive advantage, and total cost analysis for new and existing products and services.

- **Phase 4: Fully Integrated Supply Chains**

Executives take aggressive actions that will directly improve supplier capability and accelerate supplier performance contributions.

Examples of aggressive actions include developing global suppliers' capabilities, developing full-service suppliers, and adopting a systems thinking perspective that encompasses the entire supply chain.

2.3.3 Determining sourcing strategies

Most purchasing experts will agree (Handfield et al., 2009: 236) that there is no one best way to evaluate and select suppliers, and organizations use a variety of different approaches. Regardless of the approach employed, the overall objective of the evaluation process should be to reduce risk and maximize overall value to the purchaser.

An organization must select suppliers it can do business with over an extended period of time.

Commodity sourcing strategies (Rendon, 2005:12) require a distinct strategy planning process developed for that specific group of suppliers or services. Lassester's Balanced Sourcing Model reflects a generic commodity strategy planning process involving the following seven activities: (1) Spend analysis, (2) industry analysis (3) cost/performance analysis, (4) supplier role analysis, (5) business process reintegration, (6) savings quantification, and (7) implementation.

FIG 2.3: CLASSIFYING PURCHASING MATERIALS REQUIREMENTS

Procurement focus	Main Tasks	Required Information	Decision Level
Strategic Items	Accurate demand forecasting Detailed market research Development of long-term supply relationships Make-or-buy decisions Contract staggering Risk analysis Contingency planning Logistics, inventory and vendor	Highly detailed market data Long-term supply and demand trend information Good competitive intelligence Industry cost curves	Top level(e.g. vice president)

	control		
Bottleneck items	Volume insurance (at cost premium if necessary) Control of suppliers Security of inventories Backup plans	Medium-term supply/demand forecasts Very good market data Inventory costs Maintenance plans	Higher level(e.g. department heads)
Leverage items	Exploitation of full purchasing power Supplier selection Product substitution Targeted pricing strategies/negotiations Contract/spot purchasing mix Order volume optimisation	Good market data Short-to medium-term demand planning Accurate vendor data Price/transport rate forecasts	Medium level(e.g. chief buyer)
Non-critical items	Product standardisation Order volume monitoring/optimisation Efficient processing Inventory optimisation	Good market overview Short-term demand forecast Economic order quantity Inventory levels	Lower level (e.g. buyers)

Source: Nieman, G. (2008: 29)

2.3.4 Portfolio Analysis

The quadrants represent different purchasing strategies. This is conquered by Gelderman, J. C. & Semeijn, J. (2006: 213) that defined a portfolio model as a tool that uses two or more dimensions to define heterogeneous categories for which different strategic recommendations are provided.

The portfolio analysis is used to (Gelderman et al., 209: 213) indicate the importance of a raw material and its suppliers, and to measure the purchasing value. The analysis results in an overview of own strengths and weaknesses in purchasing markets. The main purpose of the portfolio approach is to detect products or product groups that cause problems and risks of dependence: bottle-neck and strategic items. The outcome of the portfolio analysis signals the problems and products that need to be tackled, and with which priority. It focuses on the goals and directions of purchasing strategies and the efforts of R & D departments in their search for alternative solutions. In addition, the purchasing portfolio provides insights into the

balance of power: It is of critical importance to recognize and formulate questions with respect to negotiation possibilities.

Kraljic's purchasing portfolio (Gelderman et al., 2006: 209) approach appears useful, both for developing effective purchasing strategies as well as for managing a global supply base.

The premise of portfolio is that every purchase (Monczka et al., 2010: 62) can be classified into one of four categories – routine commodity, bottle-neck, leverage and strategic.

2.3.4.1 Supplier Selection

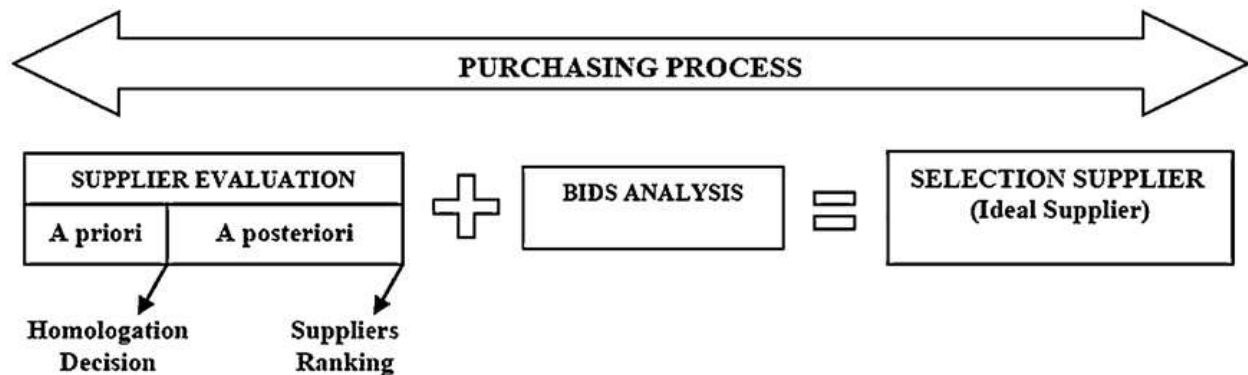
This function of the purchasing cycle needs careful consideration before a decision is been made. It is also important to consider all the value adding features the supplier can bring. Risk should be addressed with all the relevant stakeholders in the value chain of purchasing and supply management.

The regulatory requirements in the companies or mine's Preferential Procurement policies should be considered in the selection of suppliers. However quality of products should never be compromised in the execution of compliance decisions. In the mining industry safety is and remains a concern.

The mine should have programmes in place to develop all suppliers to adhere to the mines requirements of sustainability. The representation of BBBEE suppliers should be reflected in all the quadrants (strategic items, leverage, bottleneck and strategic items) of suppliers.

Supplier selection, in general, can be (Kim, Y. D. & Wagner, M. S. 2012: 2864) seen as a decision-making problem in which it is necessary to select the best supplier(s) from a pre-defined set with respect to decision criteria. The generic procedure of decision-making consists of (1) attention (demand); (2) setting decision criteria; (3) finding or designing suitable alternatives; and (4) evaluating and choosing alternatives.

FIGURE 2.5 Supplier Selections



Source: (García, N., Puente, J., Fernandez, I. & Priore, P. 2013:1940)

Garcia et al. (2013:1939) mentions the following three recent trends in purchasing and supply practices have further served to emphasize the importance of selecting the right supplier.

- Firstly, the increased use of outsourcing has led to more firms spending a greater proportion of their total revenue on externally sourced goods and services, thereby increasing the impact of suppliers' performance on purchasers.
- Secondly, the trend towards supply base reduction increases the impact that any given supplier is likely to have on a purchaser's performance.
- Thirdly, and perhaps most importantly, the trend towards closer relationships between vendors and purchasers based on collaboration and co-operation, increases the role and contribution of suppliers in the operations of the purchaser.

This is especially the case where purchasers adopt a 'partnership sourcing' approach, increasing the purchasers' dependence upon their suppliers to the extent that suppliers can become integral to their core competences. This can have a significant impact on competitiveness because it facilitates the mobilization of resources to track evolving changes in markets, technologies and material development as well as customer demand. Interdependent partners can focus and

rapidly replicate narrow aspects of the value creation process where competitive advantage is greatest

A primary outcome of the selection process (Dekker, C. H., Sakaguchi, J. & Kawaid, T. 2013:122) is the extent of trust the buyer can place in the selected supplier. The trust literature differentiates between two general types of trust placed in exchange partners: Goodwill trust and competence trust. Goodwill trust concerns one's belief that another has the intention to behave in the interest of the relationship, even when this is not in the other's interest, and thus provide a reflection of another's trust worthiness. Competence trust concerns expectations about another's ability to perform as expected. A key aspect contributing to competence trust, identified in Japanese manufacturing supply chains, is the extent to which suppliers bring valuable knowledge to the relationship that helps to enhance supply chain performance.

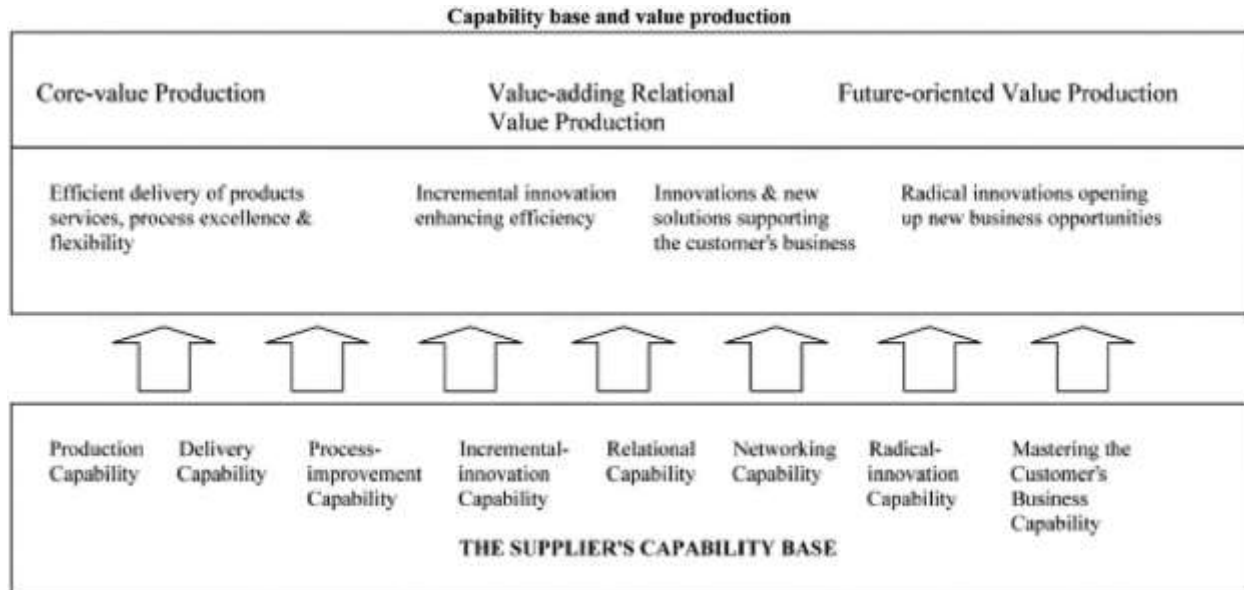
2.3.4.2 Supplier Evaluation

A number of studies have offered some (Pressey, A. D., Winklhofer, H. M. & Tzokas, N. X. 2009: 217) insights into identifying the supplier capabilities that constitute value propositions.

Value creation is viewed as a continuum based on the level of complexity involved between buyer and supplier and the time horizon of anticipated value realisation, resulting in the following three main categories.

- (i) core-value production (e.g. production and delivery capabilities),
- (ii) value-adding production (e.g. relational and networking capabilities) and
- (iii) future-oriented value production (e.g. radical innovation capabilities mastering the customer's business)

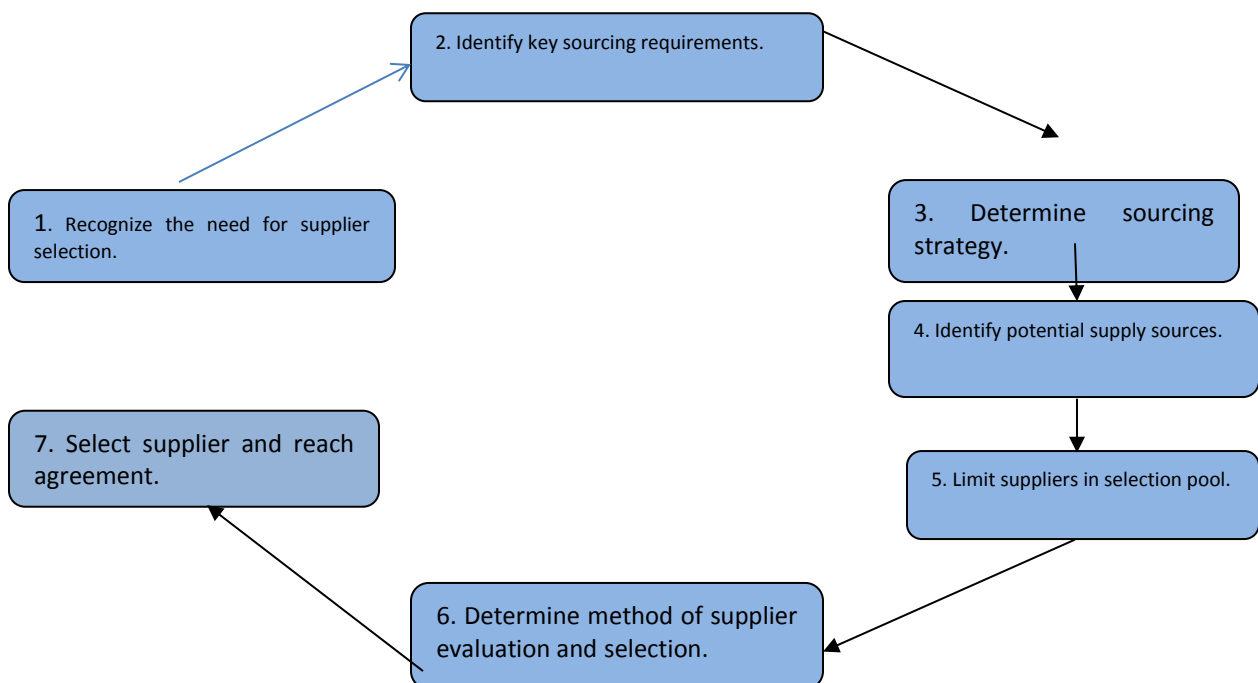
FIGURE 2.6 CAPABILITY BASE AND VALUE PRODUCTION



Source: Möller and Törrönen (2003)

Source : (A.D. Pressey et al., 2009: 214)

FIGURE 2. 7: SUPPLIER EVALUATION AND SELECTION PROCESS



Source: (Handfield et al., 2010:237)

His premise is that the procurement manager must identify strategic contingencies and incorporate these factors into the sourcing process before a competitive strategy can be responsive to the procurement function.

2.4 ENVIRONMENTAL SCANNING

This refers to the understanding of the environment in which purchasing and supply management needs to operate in.

2.4.1 Analysing the environment

This is a critical activity to (Hugo et al., 2011:91) understand suppliers, their capabilities, products, conditions and general capacity to satisfy customer requirements. To make an informed decision about sourcing, buyers need:

- ❖ Information on current expenditure by product and supplier, which defines the organization's requirements and comes from the spend analysis.
- ❖ Market research to assess current conditions in relevant markets, including the key suppliers, their performance, competition, capacity, pricing policies, patterns of customer demand, environmental and legal concerns, technology requirements and any other relevant information
- ❖ Changes in the market, including new prices, suppliers likely to enter or leave, new technology, economic changes, changing customer demands, changing strategies, etc.

2.4.2. Analysis of the business environment

Hugo et al. (2011: 92) mention the following five forces (originally by Porter 1985)

- **Current competition** – including current competitors, size of companies, industry growth, capacity utilization, exit barriers, product variety, cost of changing suppliers, etc.
- **New entrants** who may enter a market – including global operators expanding into new markets, entry barriers, economies of scale, government deregulation, availability of a skilled workforce, access to critical technologies, patents, customer loyalty, etc.
- **Substitute products** particularly using developing technology – including the performance of substitute products, relative price, cost to customers of transferring, buyers attitudes, etc.
- **Powers of buyers** – including the number of buyers, volumes bought, cost of changing suppliers, price sensitivity, product differences, availability of substitutes, brand identity, effects of quality, customer profits, etc.
- **Power of suppliers** - including prices, ability to pass on price increases, availability of key technologies or other resources, threat of forward or backward integration, industry capacity utilization, economies of scale, etc.

2.4.3 Social Responsibility

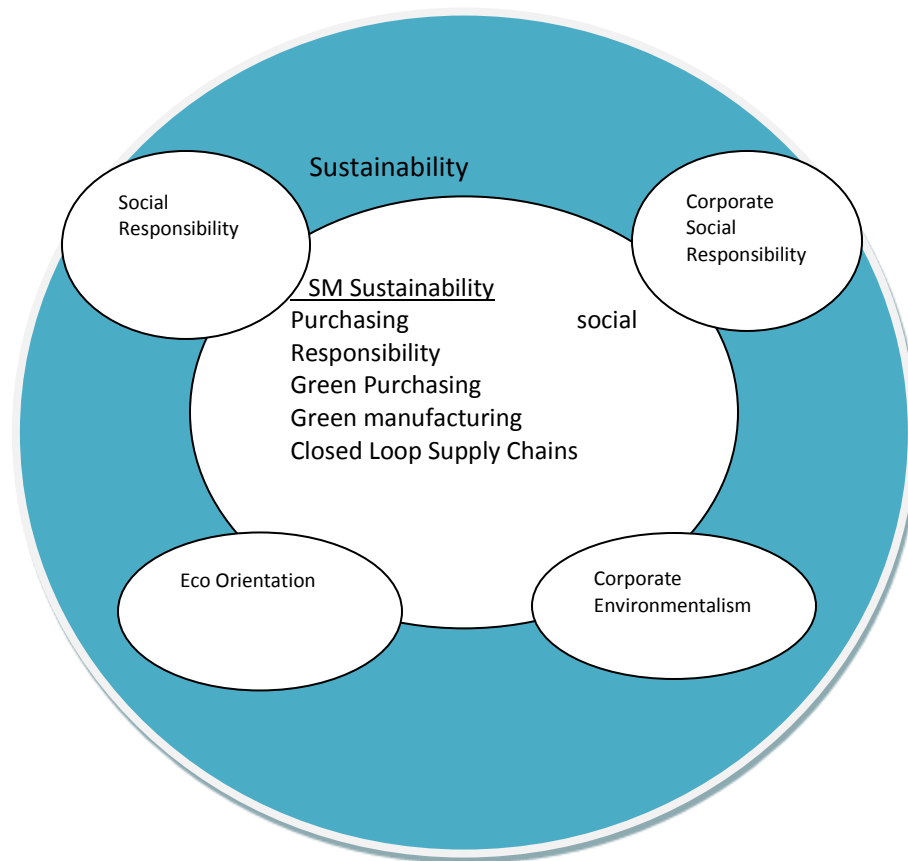
Purchasing and supply social responsibilities (PSSR) can be defined as meeting the discretionary responsibilities expected by the society. This definition encompasses the activities relating to (1) community; (2) diversity; (3) environment; (4) ethics; (5) financial responsibility; (6) human rights; and (7) safety (Hugo et al., 2011: 92).

2.4.4 Sustainability

While there are several definitions (Giunipero, C. L., Hooker, E. R. & Denslow, D. 2012: 260) of sustainability, none have specifically addressed supply management sustainability. Incorporating and extending these various definitions, we define “sustainable supply management” (SSM) as the extent to which supply

management incorporates environmental, social, and economic value into the selection, evaluation and management of its supply base. SSM practices provide a wider lens that recognize the need to consider environmental and social values in addition to economic ones that will help the organization achieve its overall goals in a profitable and sustainable manner. If SSM is to be incorporated into the fabric of the organization, then it must be prompted by certain organizational forces that we term as drivers.

FIG2. 8 SUPPLY CHAIN MANAGEMENT SUSTAINABILITY MAP



Source: (Giunipero, et al. (2012: 260)

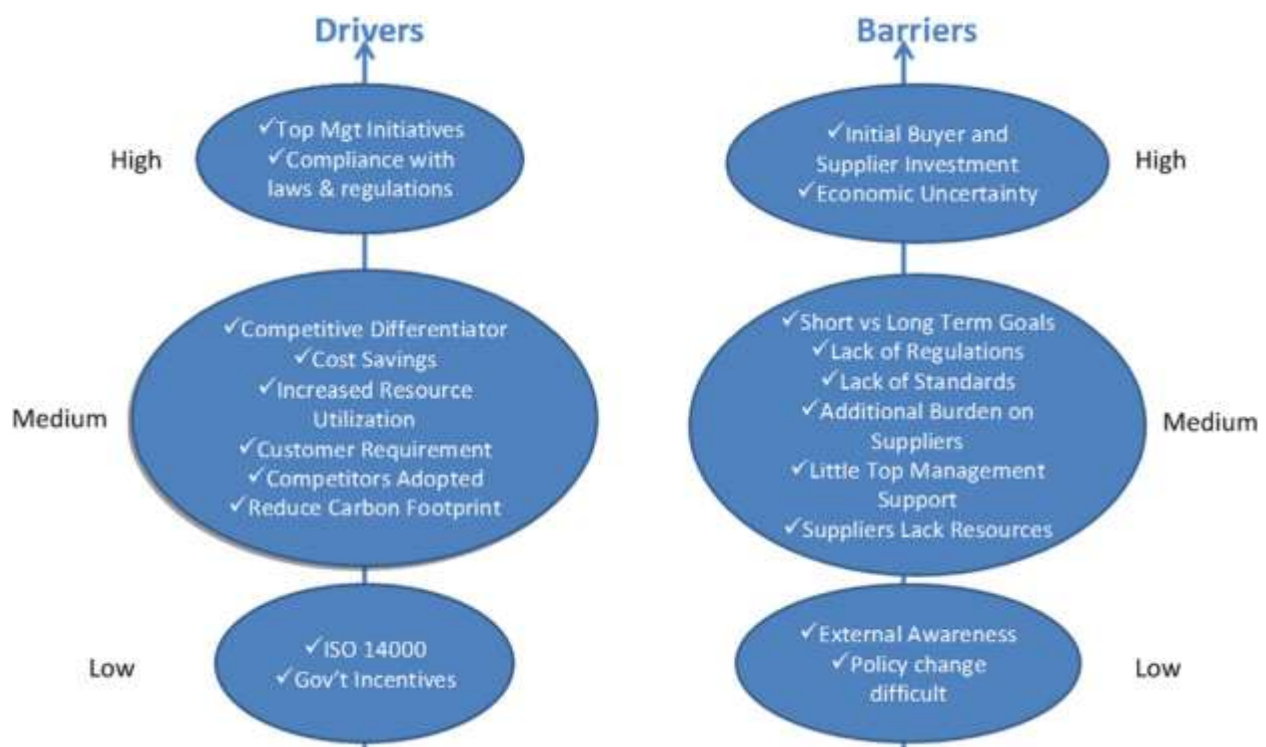
2.4.4.1 Barriers

While there are forces driving firms (Giunipero et al., 2012: 262) to sustainability, on the opposite side, there are factors that hinder a firm's effort to adopt sustainable practices which we discuss below.

These factors are:

- (1) lack of consensus at the CEO level;
- (2) costs of sustainability and economic conditions;
- (3) lack of sustainability standards and appropriate regulations; and
- (4) misalignment of short term and long term strategic goals.

FIGURE 2.9: RANKINGS OF SSM DRIVERS AND BARRIERS



Source : (Giunipero, et al. 2012: 260)

2.5. Factors influencing pricing

Cost price analysis is an activity that is vital (Zenz.1981: 325) to the buying process; it involves the analysis of all the factors that enter into price, and the attempt to ensure that the final price is reasonable in terms of the use to which the material is to be put and the competitive situation faced by the buying and selling firms.

In order to understand the factors affecting pricing levels in a given market, it is crucial to employ a market analysis – an analytical tool that identifies the primary external forces that are causing prices to increase or decrease. Prices are driven to large extent by the degree of competition in a market as well as by conditions of supply and demand.

2.6 COST REDUCTION

Reducing and containing is the responsibility of every functional department in the mine. The volatility of pricing of mining commodities compels everyone to be creative and always look for more efficient ways and productive was in executing their tasks. This includes purchasing to be hands on and understand the different factors that influence pricing. Suppliers pricing structures needs to be disclosed to avoid over pricing of products and service offered or rendered to the mine. Market intelligence is key to determine reasonable pricing.

The pricing concern was contained in special report (S A Mine, 2012:7) which state that while 2009-2011 was characterised by a recovery in overall commodity prices from the lows of the 2008 financial crisis, 2012 saw a slowdown in this recovery with gold the only commodity gaining value. The assistance to the mining industry was weakening rand over the period, that somewhat shielded the South African mining industry from the decline with rand prices remaining relatively flat. It is also true that flat prices will not support the industry's significantly increased cost base.

The majority of mine in South Africa are still labour intensive. This put a great deal of pressure on the mines. Mines are also subjected to regulatory, political and

environmental risk and compliance which compels purchasing and supply management to play an active contribution.

2.6.1 A structured approach to cost reduction

Managers are increasingly (Handfield et al., 2011: 385) considering the implications of price and cost management from a total supply chain perspective. In the past, many companies focused their cost efforts on internal cost management initiatives. These included approaches such as value analysis, process improvements, standardization, improvements in efficiency by utilizing technology, and others. Although these approaches are still relevant, the impact that they have on the majority of costs is not as great as in the past. With the increased amount of outsourcing occurring in every global company today, the majority of costs of goods sold are driven by suppliers which are outside of the four walls of an organization.

This new generation of cost management initiatives requires that purchasing and logistics executives adopt a series of new initiatives that can deliver results to the bottom line. Strategic cost management approaches involve at least two supply chain partners working together to identify process improvements that reduce costs across the supply chain. Examples include team-based value-engineering efforts, supplier development and kaizen events, cross-enterprise cost reduction projects, joint brainstorming efforts on new products, supplier suggestion programs, and supply chain redesign efforts.

The major benefits from cost-reduction (Handfield et al., 2011: 387) efforts occur when purchasing is involved early in the new-product/service development cycle. When sourcing decisions are made early in the product life cycle, the full effects of a sourcing decision over the product's life can be considered. When purchasing is involve later in the product development cycle, efforts to reduce costs have a

minimal impact because the major decisions regarding types of materials, labour rates, and choice of suppliers have already been made.

2.6.2 Strategic aims towards cost-reduction

According to Monczka et al. (2010: 65) the business aim of cost-reduction – leads to typical procurement aims of:

Reduce unit cost of items bought

Reduce overheads and administration costs

Reduce stock levels and associated holding costs

The business aim of introducing new technology to operations - lead to typical procurement aims of:

Automate more purchases

Increase use of websites and e-business

Improve EFT systems

Business aim of introducing new products – leads to typical procurement aims of

Enhance joint problem solving with suppliers

Faster qualification of suppliers for new materials

Improved market awareness

Business aim of reducing the supply base leads to typical procurement aim of Improved

2.7 TOTAL COST OF OWNERSHIP

Total cost of ownership requires a purchaser to identify (Handfield et al., 2011:408) 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.

With shortening product life (Harash, J. S. 2009: 1) cycles and increasing global competitive pressures, manufacturers need to better understand their cost behaviors and take corrective action.

2.7.1 Typically these costs can be broken into following broad categories:

i) Purchase Price

The amount paid to the supplier for the product, service, or capital equipment.

ii) Acquisition Costs

All costs associated with bringing the product, service, or capital equipment to the customer's location. Examples of acquisition costs are sourcing, administration, freight, and taxes.

iii) Usage Costs

In the case of a product, all costs associated with converting the purchased part/material into the finished product and supporting it through its usable life. In the case of capital equipment, all costs associated with operating the equipment through its life. Examples of usage costs are inventory, conversion, scrap, warranty, installation, training, downtime, and opportunity costs.

iv) End-of-life Cycle Costs

All costs incurred when a product, service, or capital equipment reaches the end-of-life costs are obsolescence, disposal, clean up, and project termination costs.

The Life cycle cost of a product/system encompasses all the economic implications during the life cycle, and therefore it also includes such financially (Samarakoom, M.

K. S., Markeset, T. & Gudmestad, T. O. 2012: 250) measurable items as energy recovery, fines for pollution, operation and maintenance cost, cost for human safety, and decommissions.

2.8 PERFORMANCE MANAGEMENT

The criteria on which the buyer's performance is evaluated can influence the effectiveness of purchasing actions and effectiveness in making the firm competitive. It is clear that the issue of cost variance will form crucial criteria in deciding or evaluating the performance on which the purchasing decision was made.

Therefore the emphasis on cost are driving purchasing decision makers to take actions that keep material costs low, but other criteria may be neglected, and the purchasing actions may end up being inconsistent with the competitive strategy. The reward criteria (Benton, 2010: 25) determine the firm's actual priorities. The closer the reward criteria reflect the performance on the competitive priorities, the narrower the gap will be between intended and realized objectives. If reward criteria emphasize cost, purchasing decision makers will emphasize cost in making decisions, irrespective of the competitive priority.

2.8.1 Purchasing and Supply chain performance measurement and evaluation

A purchasing and supply chain (Handfield et al. 2009: 707) performance evaluation system represents a formal, systematic approach to monitor and evaluate purchasing performance. The reality is that it is often difficult to develop measures that direct behaviour or activity exactly as intended. It is important for firms to rely on measures that are supporting long-term objectives.

The latest development in modern purchasing and supply chain (Handfield et al., 2009: 708) performance measurement and evaluation systems contains a variety of measures. There are two broad categories: effective measures and efficiency

measures. Effectiveness refers to the extent to which, by choosing a certain course of action, management can meet a previously established goal or standard.

Efficiency refers to the relationship between planned and actual sacrifices made to realize a previously agreed-upon goal. Efficiency measures usually relate some input to a performance.

Almost all measures include a standard or target against which to evaluate performance results or outcomes.

2.8.2 IMPORTANCE OF PERFORMANCE MEASUREMENT

The fact that the optimal portfolio of purchasing (M.Pohl, M., Forstl, K. 2011: 231) practices varies according to corporate and category strategy it does follow that the business strategy determines the structure of the desired purchasing competence for the function.

On a functional level in the mine it is important that specific performance measures are therefore used to create internal congruence of purchasing strategy and practices. Thus, a purchasing performance measurement system should focus on strategic results and measure performance in direct relation to strategic objectives of the purchasing function. The functional employees of the purchasing and supply management division should be made aware of these measurements with the necessary support to adhere and implement.

This implies that specific measures for purchasing should be developed which reflect purchasing strategy and enable measurement of performance contribution along strategic objectives:

1. Measure performance
2. Influence behavior
3. Learning and improvement
4. Communication

Handfield et al. (2009: 709) name the following four Benefits of Performance Measurement

i) **Support better decision making**

Measurement can lead to better (Handfield et al., 2009: 709) decisions by making performance and results visible. It is difficult to develop performance improvement plans without understanding the areas in which performance falls short.

ii) **Support better communication**

Performance measurement can result in better communication across the supply chain, including within purchasing, between departments, with suppliers, and with executive management.

iii) **Provide performance feedback**

Measurement provides the opportunity for performance feedback, which supports the prevention or correction of problems identified during the performance measurement process.

i) **Motivate and direct behaviour**

Measurement motivates and directs behaviour toward desired end results. A measurement system can accomplish this in several ways. First, the selection of performance categories and objectives indicates to purchasing personnel those activities that an organisation considers critical. . (Handfield et al., 2009: 709)

2.9.10 SUPPLIER RELATIONSHIP MANAGEMENT

Various aspects are important (Bemelmans, J., Voordijk, H., Vos, B. & Buter, J. 2012:163) in determining the effectiveness of buyer-supplier relationship management.

First, it is crucial for a buying company to optimize its supply base in terms of both the number and the quality of its suppliers.

Second, attention should be given to activities related to managing a buying company's portfolio of suppliers.

Third, buying companies need to decide to what extent suppliers have to be integrated into their own processes.

This integration aspect can be split into two distinct parts: operational processes and value creation.

Finally, effective buyer-supplier relationship management requires attention to be given to developing suppliers, on the basis of an on-going monitoring of their performance.

2.10 CONTRACT MANAGEMENT

2.10.1 Definition

A contract is (Nieman, G. 2008: 1) an agreement for the supply of goods or performance of work at a certain price, enforceable by law. Another definition is that a contract is an agreement reached with the intention of creating a legal obligation with resulting enforceable rights and duties.

Although the order form and acceptance of an order in the day-to-day procurement process constitutes a contract in legal terms, contracts refer to longer term agreements set up through either a procurement process or negotiation in respect of certain goods and services. In terms of such a contract, goods or services will be supplied over a period of time.

Management refers to the classic management tasks that need to be performed as identified by Fayol, namely planning, organising, directing (or executing) and control. In contract management, there are two things that must be managed: you have to manage the contract process.

Thus, the supply contract becomes a useful solution for SC partners. Each one tries to (Amrani, A., Deschamps, J. & Bourrieres, J. 2012: 253) avoid highly threatening risks by ensuring the stability and safety of its internal activities through negotiated commitments along a certain time horizon.

Contracts are necessary to govern (Seshadri, S. & Mishra, R. 2004: 513) foreseeable and specific aspects of the exchange and are widely observed. They directly impact business performance. Considerations on financial returns, net of contracted expenses, drive practical transactions at the highest levels. While contracts may be explicit, there are also implicit and incomplete forms of contracting that lend themselves to longer term considerations.

2.10.2 Supply contracts are often designed to avoid certain risks

Another risk, which is most commonly met, concerns demand fluctuation. In a supply contract, the supplier provides the buyer with the requested quantities of components, sub-assemblies or products at fixed intervals. However, the supply quantity may change as demand conditions change. The partnership should determine the adapted solution to face this kind of risk.

Supply chain contracts have been suggested as a coordination mechanism that provides incentives to all supply chain members so that the decentralized and uncoordinated supply chain behaves nearly or exactly the same as an integrated one.

By specifying contract (Arshinder et al., 2008: 1177) parameters such as quantity, price, quality, and deadlines, contracts are designed to fulfill mutual objectives and

to improve supplier buyer relationship. The objectives of these coordinating contracts are:

- Optimization of the total supply chain profit
- Minimization of inventory related costs of salvage (overstock) and goodwill (shortage)
- Fair risk sharing between the parties

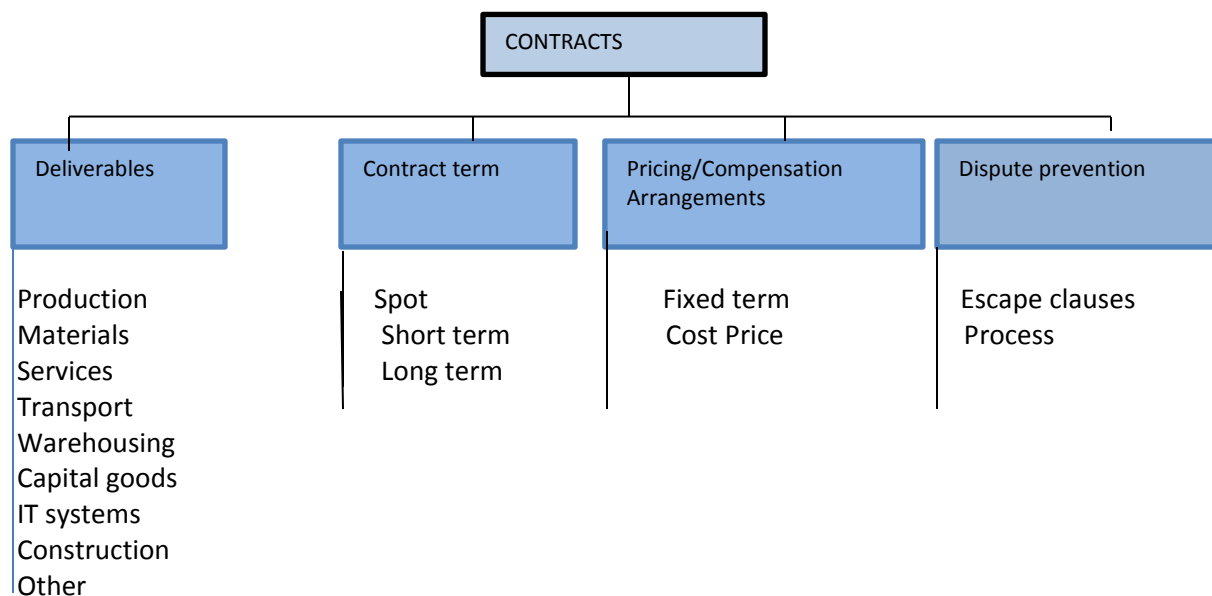
Contracts are a particular form of co-ordination mechanism designed to improve supply chain performance by increasing the total profit of the chain, and reducing risk by dividing the risks fairly among the members of the supply chain. The risks referred to are specific to the terms identified by the parties involved in the contract.

2.10.3 Managing the contract content

Managing the content is one of the (Nieman, 2008: 4) key determinants of successful contracts.

Managing the content requires that the following aspects be clearly described in the contract.

FIGURE 10: DELIVERABLES OF A CONTRACT



Source: (Nieman, G. 2008: 4)

A good specification (Nieman, 2008: 5) will describe the functionality as well as the technical properties. The functional specification describes the functionality which the product must have for the user. Functional specifications can give potential suppliers the opportunity to contribute to expertise and new technologies can be used. The technical specification describes the technical properties and characteristics of the product as well as the activities to be performed by the supplier (Van Weele, 2005:49)

Other aspects that must be covered in the describing of deliverables are the following:

- How the product should be delivered and where
- Technical norms and standards
- Quantities required
- Delivery times
- Where deliveries should be done
- How the product will be maintained and serviced by the supplier
- Compliance with health, safety and environmental legislation
- Inspection procedures
- Methods to be used by both supplier and buyer for testing the quality
- In the case of outsourcing, a major deliverable will be the service agreement (SLA). The SLA defines the minimum service that the supplier has to provide.

While normal procurement (Nieman, G. 2008:12) contracts will cover business terms and commercial issues, typically an SLA could cover the following namely:

- Purpose of the SLA
- Service description
- Service hours and maintenance slots
- Service availability
- Performance
- Peak period service variations

- Volumes, throughput and input deadlines
- Restrictions and standards
- Support service levels
- Security
- Contingency
- Change control
- Problem management and escalation
- Problem management and escalation
- Service level monitoring
- Service level reporting
- Service regimes and priorities
- SLA review meetings
- Duration, amendment and termination of the SLA.

2.10.4 The Term of a contract

The term of the contract needs (Gideon, 2008: 5) to be determined when the needs are discussed with user department. Contracts create certain commitments between buyer and seller, and therefore the term must be carefully considered as well as its effect on the relationship. The scope of the agreement would therefore justify the need for a specific agreement. The scope would be derived due to prior engagements within the purchasing and supply management processes.

Gideon (2008: 5) outlines the following different types of contract namely:

i) Spot contracts

These are purchases of non-recurring nature or on a limited basis. There is little or no intention of developing an on-going relationship with the supplier.

This would normally be your Leverage and non – critical items.

ii) **Short Term Contracts**

These are contract purchases that are routinely made over a relatively short (limited) time horizon, typically one year or less.

iii) **Long term contracts**

These are contract purchases that are made on a continuing basis for a specified or indefinite period of time, typically exceeding one year.

These long term contracts would cover bottleneck- items and strategic items, who are not easy to substitute that will ensure regular supply of items when needed.

2.10.5 Purchase order

The Purchasing department on the mine is the only authorised functional department that can issue a purchase order for goods and services rendered to the supplier.

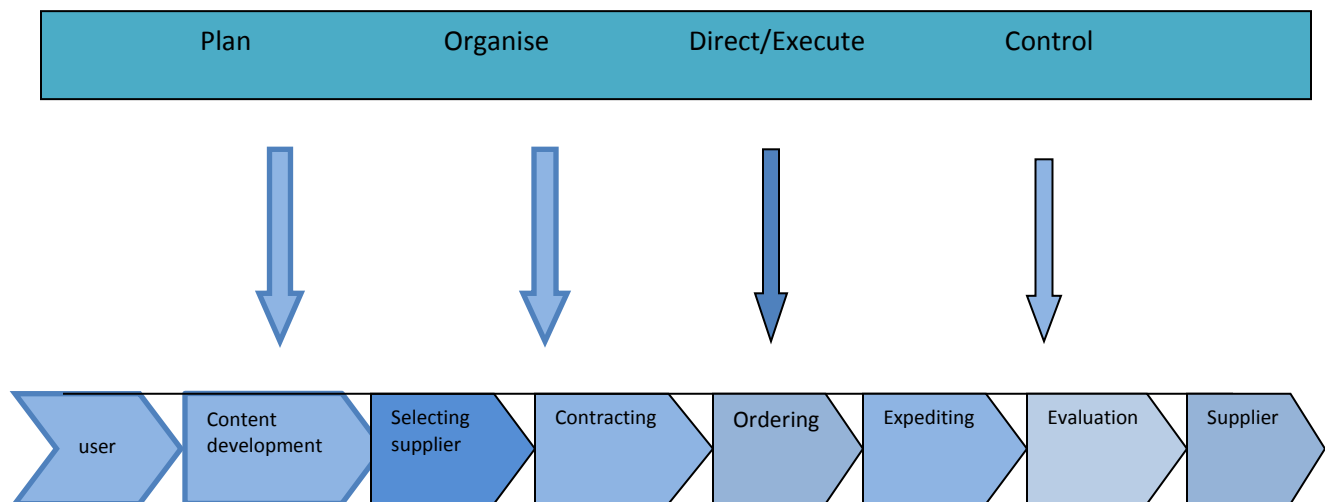
In most instances, the contracting parties participate in a series of negotiation deliberations through which the various terms and conditions of the contract are discussed, outlined, and agreed upon. This is initiated by the request for quotation (RFQ), sent by the buyer to the supplier. The RFQ contains the following information namely:

- Standard terms and conditions of the transaction
- Quantity/conditions of delivery
- Description, specifications, and end use of the item
- If customized, reviewed by legal counsel before the RFQ is submitted
- If a competitive bid, description of the manner and time period in which the bids will be evaluated
- Services

The RFQ is not an offer but a request for price and availability. The supplier will generally respond to the RFQ with a quote (an offer to sell), which may then initiate further discussion and negotiation between the purchasing commodity team and the supplier's team. Eventually this leads to a contract, which documents all of the different offers and counteroffers (Handfield et al., 2009: 547).

A purchase order can be an offer, acceptance, or counteroffer, depending on the circumstances. It is an offer if it is sent without a quote or other conversation with the seller concerning terms and of the order. It would be a counteroffer if it is sent in response to a quote but changes one or more of the terms of the quote (e.g., delivery, quantity or packaging). It would be an acceptance if it mirrors the seller's quote. Once accepted, a purchase order becomes a contract.

FIGURE 11: THE PROCUREMENT AND CONTRACTING PROCESS



Source: (Nieman, G. 2008:10)

2.10.6 COST OF RISK

Supply risk is defined as the (Zsidisin, A. G. 2003: 222) probability of an incident associated with inbound supply from individual supplier failures or the supply market

occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety.

Zsidisin, (2003:221) notes that risk entails (1) the elements of loss, (2) the significance of loss, and (3) the uncertainty associated with loss. Within the elements of loss are three additional factors. First, risk is not limited to one specific loss that can occur.

The incident can result in various degrees of loss (outcomes) for the supplier as well as the supplier's customers. Losses are also experienced in reference to an outcome.

The second aspect of risk is the significance of loss. It is often assumed by researchers and laypersons that the more significant the potential losses in a situation, the greater the implied risk

The third risk element is uncertainty, where uncertainty is associated with the degree of confidence a decision maker can develop probability and outcome assessments of decisions. Additional facets of uncertainty involve a lack of understanding by decision maker about the loss categories that exist, and which losses can occur.

2.10.7 CONSEQUENCES OF SUPPLY RISKS

Supply risks have a significant impact on the firms who fail to protect against them. However, effective and efficient management (Fang,J., Zhao, L., Fransoo, C. J. & Van Woensel, T. 2013:1372) of supply risks can reduce the negative impact. There are three kinds of strategies to manage supply risks: mitigation, contingency, and passive acceptance. Mitigation strategies are those in which the firm takes some action before a risk and so incurs the cost of the action regardless of whether a risk occurs, such as increasing inventory or setting up alternative sources. Contingency strategies are those in which a firm takes an action when a risk occurs, such as contingent sourcing from backup suppliers. Acceptance is used when the cost of dealing with uncertainty through mitigation and contingency strategies out-weighs the losses of accepting the consequence of the risks.

In general, in order to (Fang et al., 2013:1372) mitigate the consequences of supply risk, the nature of the risk needs to be specified, the quantitative impact of the risk needs to be evaluated, and finally the risk mitigation strategy needs to be defined [13]. In order to prepare for disruptions, companies may need to employ an additional supplier and/or increase their inventories [29]. Obviously, this includes a trade-off where the availability of additional suppliers reduces the need to store additional inventory.

2.10.7.2 MANAGING RISKS

In most cases people see (Brits, Y. 2007: 2) risk management as a conformance function. Risk management is not a standalone function/silo; it forms an integral part of the organisation on every level.

Dekker et al, (2013:127) mentions that contracts not only fulfill the function of managing relational risks that relate to opportunistic behaviours of self-interested partners, but also of performance risks that arise even with full co-operation by providing a framework for coordination and adaptation across firm boundaries. Indeed, most prior studies have viewed formal contractual choices aimed at mitigating and managing these transaction risks as a key driver of collaborative performance. At the same time it is recognized that contracts are inherently incomplete and since problems of co-operation and co-ordination cannot be completely foreseen ex ante, they need to be complemented by practices that enable risk management during the relationship.

2.10.7.3 REDUCING SUPPLIER RISKS

World class (Salonen, A. 2010: 42) are able to identify and manage risks in the supply chain. Here are some of their best practices.

- 1.Create a collaborative internal audit team to address risk
- 2. Break down the barriers between finance and procurement

- 3. Establish visibility across the financial value chain.
- 4. Actively look for behavioural trends.
- 5. Prioritize your suppliers
- 6. Use automation to gather key information about supplier risk.
- 7. Take Action.

2.10.8 CONTRACTUAL RELATIONSHIPS

The arguments of the relationship between (Qi, et al., 2012: 860) contract and relationship tend to fall into two categories: (1) formal contract is the base for relationship development; and (2) a good relationship is needed since a contract is not flexible in the implementation stage. *Qi et al.*, continues as an example of the first category, Fitzgerald and Willcocks found that a contract to be a critical foundation for all subsequent relationships. Saunders et al. Emphasize that a contract is the key to any outsourcing relationship, since a contract lays the ground rules for governance and structure that guide the interaction between the parties. Goo et al., based on relational governance theory, found that the specific characteristics of service-level agreement are antecedents of trust and commitment (typical attributes of relationship), and trust and commitment lead to the success of IT outsourcing.

2.11 Chapter Summary

Chapter 2 presented the literature of the study, with specific elements that influences the purchasing and supply management in an organisation. The literature highlights the integration of these elements towards value adding in the organisation. The purchasing cycle with value adding activities sets a strategic environment in which the purchasing and supply management function sets as strong link in the business environment.

This process started with understanding and defining purchasing and supply management with its role in the organisation. Followed by procurement strategies and developing sourcing strategies. It further elaborated on environmental scanning, total cost of ownership, performance management and performance management. Procurement contracts and the management of these contracts were dealt with and associated risks.

These are some of the dependent attributes in developing a framework for purchasing and supply management in a mine.

CHAPTER 3

EMPIRICAL RESEARCH

3.1 INTRODUCTION

This chapter reflect the results of the empirical research. It focuses on data and the interpretation of the data.

A small sample has been collected within a specific mining group. A structured questionnaire was used and distributed amongst procurement professionals.

The respondents was not randomly selected neither was the questionnaire randomly selected.

The questionnaires were completed by procurement professionals to assist in Developing a framework for Purchasing and Supply Management in a Mine.

These questionnaires were distributed amongst sixty procurement professionals.

3.2 INTERPRETATION OF THE RESULTS

The questionnaire was designed on the basis of a four point Linkert scale. In the questionnaire used in this study the following format was used:

All the questions needed to be answered by making a mark on the relevant block, by using the following scale:

1 = Strongly Disagree

2 = Disagree

3 = Agree

4 = Strongly Agree

TABLE 3.1

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

To answer the question, the respondent selected the number which describes the

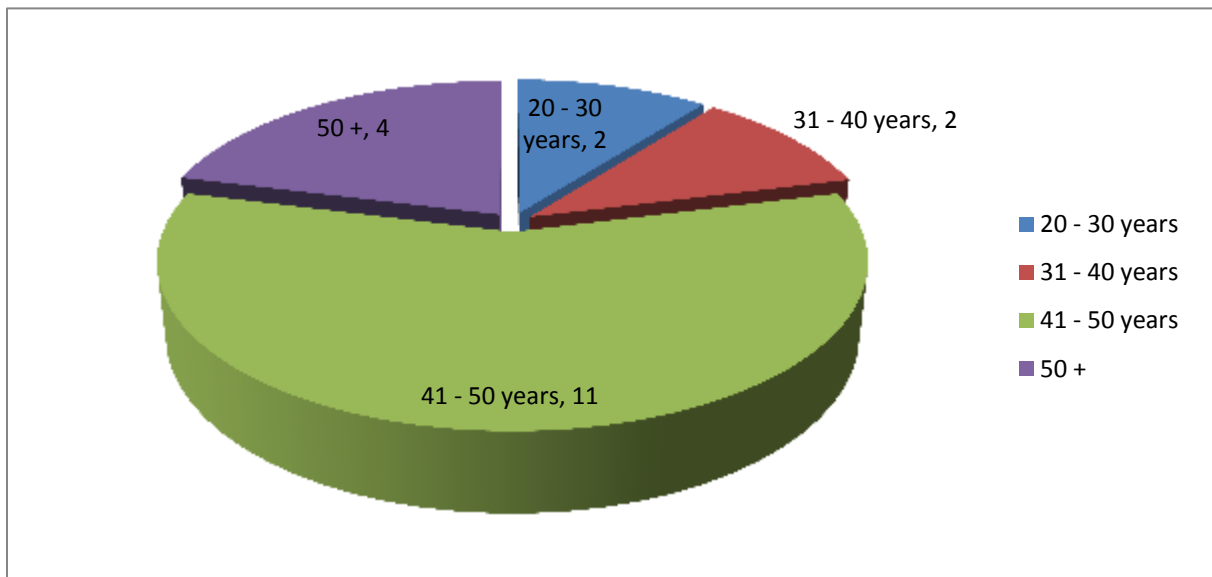
situation at its best. The questionnaire was available in English as the Procurement Professionals all are part of a Global International Company.

3.3 BIOGRAPHICAL DATA

The following biographical data were gathered from the respondents:

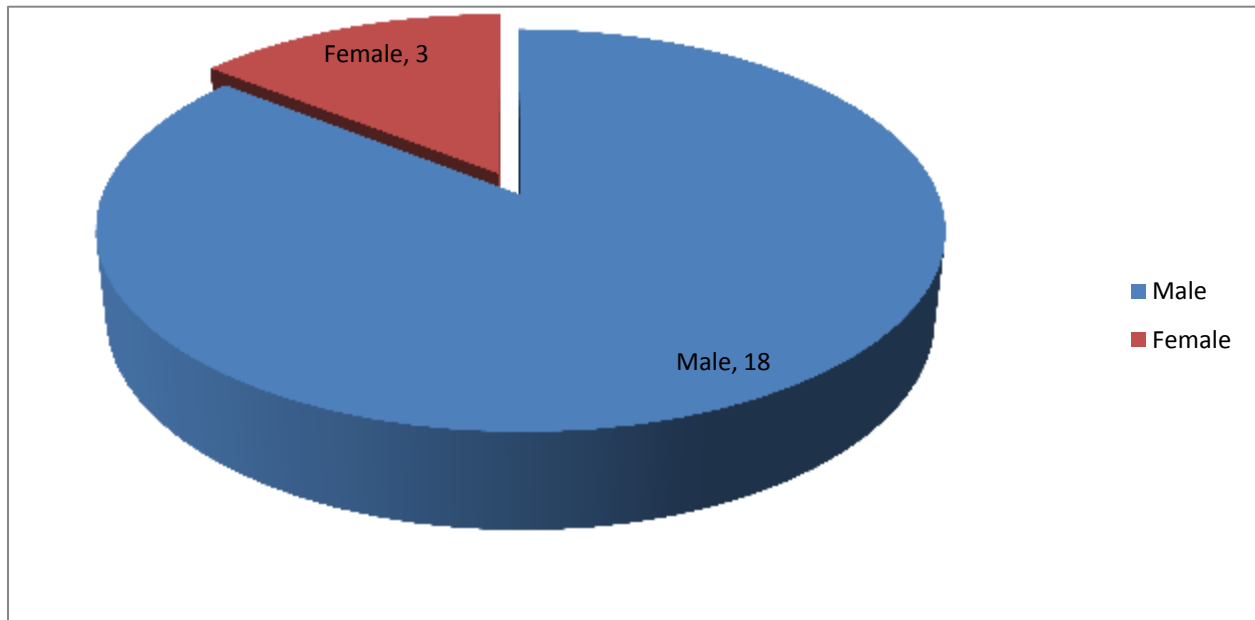
3.3.1 RESPONDENTS AGE INFORMATION

FIGURE: 3.1 AGE OF RESPONDENTS



3.3.2 GENDER

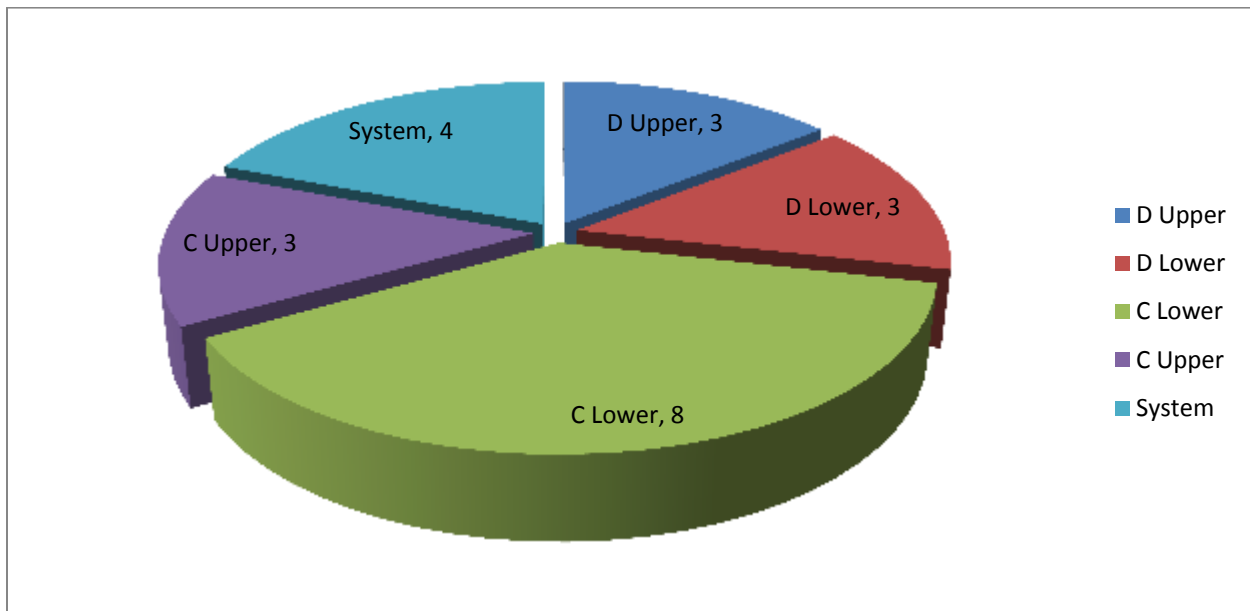
Figure: 3.2 GENDER INFORMATION



There were three female respondents and eighteen male respondents

3.3.3 GRADE

FIGURE: 3.3 OCCUPATION GRADES



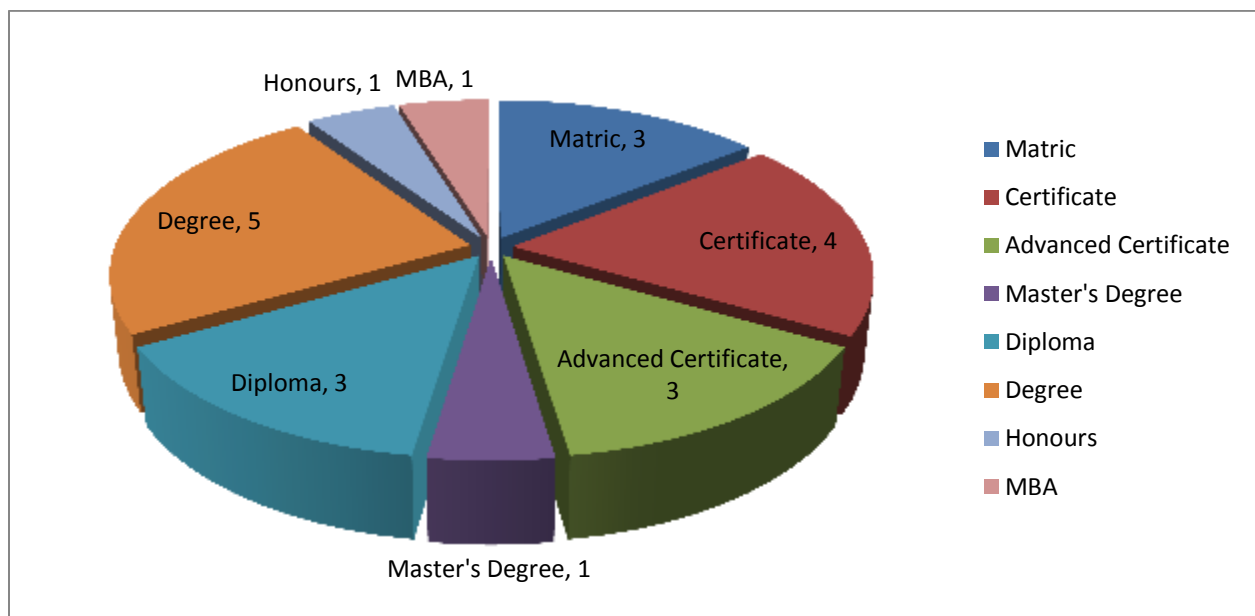
There were one Supply Chain Manager, six Contract Specialists, two Category Specialists, one Senior Buyer, one Operations Supply Chain Manager, two Procurement Managers and seven Buyers

3.3.4. EDUCATIONAL RECORD

TABLE: 3.2 EDUCATIONAL TABLES

Qualifications of Respondents	Total of Respondents
Matric	3
Certificate	4
Advanced Certificate	3
Master's Degree	1
Diploma	3
Degree	5
Honours	1
MBA	1

FIGURE: 3.4 EDUCATIONS

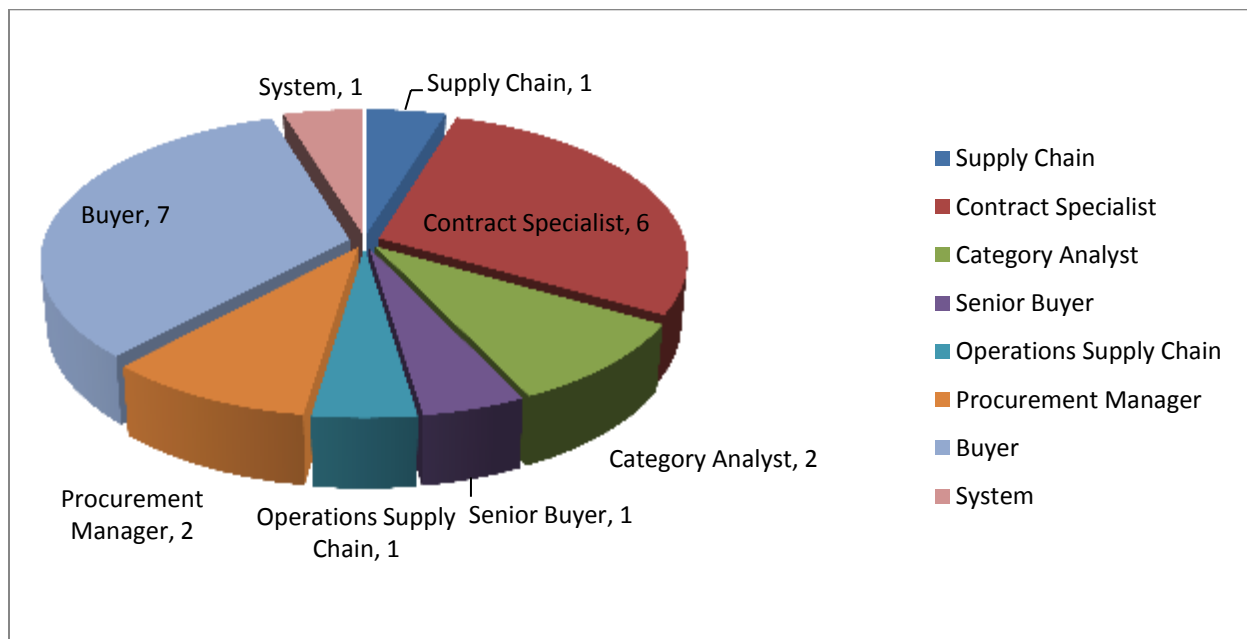


3.3.5 OCCUPATIONS

TABLE: 3.3

Occupations	Number of respondents
Supply Chain Manager	1
Contract Specialist	6
Category Analyst	2
Senior Buyer	1
Operations Supply Chain	1
Procurement Manager	2
Buyer	7

FIGURE: 3.5 OCCUPATIONS



3.4 RESEARCH DATA AND INTERPRETATION

The following 45 statements below (exact questionnaire format) as per the questionnaire were made to collect data and determine the process and procedures that are in place and to develop a framework:

TABLE: 3.4 THE QUESTIONNAIRE

Questions	Mean	Std. Deviation
ITEM1 The purchasing cycle is understood by the procurement employees in the supply chain department	3.2	.63
ITEM2 The role of procurement towards value adding in the organisation is understood by the procurement staff	3.3	.68
ITEM3 The different departments cooperates with the procurement for their mutual benefit	2.6	.883
ITEM4 The procurement procedures is outlined to functional departments within the organisations	2.8	.74
ITEM5 There is adherence of the procurement policy by the functional departments in the organisation	2.4	.99
ITEM6 The request for quotes, information and proposals are done through the procurement department	2.7	.97
ITEM7 The objectives of the purchasing organisations is clearly defined to the stakeholders in the organisation	3.1	.67
ITEM8 Key Performance Indicators of the procurement staff are directly related to the job criteria	3.1	.74
ITEM9 Orders are placed in time to provide service or goods to customers when required	3.2	.69
ITEM10 Procurement staff are equipped to fulfil the buying/contract function	3.1	.64
ITEM11 Pre-bid meetings with potential suppliers leads to the	2.9	.82

incorporation of cost savings ideas into scope of work		
ITEM12 There is a clear procurement sourcing strategy supporting the procurement policy	3.2	.76
ITEM13 Selecting the right suppliers is part of the procurement strategy of the organisation	3.3	.73
ITEM14 The sourcing strategy supports preferential procurement policy of the organisation	3.3	.80
ITEM15 There is a structured framework in evaluating suppliers	2.8	.93
ITEM16 There is a clear distinction of the purchasing cost in relation to the production cost	2.6	.83
ITEM17 There is a process to identify repeat purchases	2.8	.97
ITEM18 Purchases are authorised according to approval framework and there is a purchasing framework to approve orders	3.3	.7
ITEM19 Contract management is creating value to the organisation through effective management of service providers	2.9	.94
ITEM20 Formal contract documentation is in place	3.32	.75
ITEM21 Payments are made in accordance with quoted prices	3.4	.59
ITEM22 TCO is an effective way of tracking the hidden indirect cost associated with supplier transactions	2.9	.76
ITEM23 Contract management is utilized for creating value to the business through customer	3.0	.72
ITEM24 Contracts are used to minimize supply risk in the organisation	3.2	.62
ITEM25 Contracts are used to support the procurement strategy of the organisation to ensure continues supply when needed	3.3	.59
ITEM26 Supply risks are shared between the organisation and service provider	3.0	.62
ITEM27 Contract terms and conditions are communicated to customers in the organisation	2.9	.91
ITEM28 Contracting suppliers are measured against performance	2.9	.89

deliverables		
ITEM29 Contracts are only extended with suppliers that add value to the organisation	3.0	.78
ITEM30 Proactive Risks Management Systems are built into the purchasing processes	2.8	.77
ITEM31 Purchasing risk control is done effectively and monitored on a continuously basis with measures in place	2.7	.72
ITEM32 Deliverables are clearly indicated in contracts	3.1	.85
ITEM33 Tender procedure is in accordance to company strategy	3.2	.79
ITEM34 Supplier performance can be monitored through financial health	2.9	.83
ITEM35 The organisation's procurement policy included the social, environmental and economic considerations	3.0	.79
ITEM36 Orders do not take advantage of discounts	2.5	1.00
ITEM37 There is a process of performance evaluation for suppliers	2.9	.72
ITEM38 The sourcing and contract management process is effectively implemented by the purchasing department	3.0	.74
ITEM39 There is proper information available for analyst to do risk analysis	3.00	.88
ITEM40 The responsibility to manage risk lies with each of the purchasing staff	2.8	.93
ITEM41 Contract increases are validated according to approved price adjustment clause	3.1	.87
ITEM42 Orders are placed according to customers request and quotes from suppliers	3.1	.67
ITEM43	2.7	.82

There is a coordinated function in cost reduction opportunities amongst customers throughout		
ITEM44 Purchasing Managers focus on indirect cost and life-cycle cost besides the actual prices of service providers	2.7	.73
ITEM45 There is an internal employee perception of service quality of the purchasing department	3.0	.69
EDUCATION_RECORDED	1.5	.51

3.5 Chapter Summary

In chapter 3 the results of the empirical research were reflected in order to develop a framework for purchasing and supply management and determine the current processes and procedures. Responses to the questionnaires were interpreted and possible success factors that were regarded as important were identified.

Descriptive statistics were used to analyse the survey results. The sample of respondents was too small to do a factor analysis. This could have assisted to bring further conclusion of the data. However this sample assisted with the objectives of this study.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

In this chapter, research is completed, therefore this chapter will:

Provide conclusions of the research; make recommendations concerning the research.

The aim of this study was to develop a framework for purchasing and supply management in a mine.

To achieve this aim the following objectives were set and met:

Firstly, an overview of definitions of purchasing and supply management processes and procedures was provided and established.

This was done in chapter 1 with a problem statement outlining the purchasing and supply management process and procedures.

Research methods and basic concepts were explained and clarified.

There was also a literature study done in chapter 2, discussing the purchasing cycle with all the possible relevant concepts and processes and procedures that have an influence and impact on the purchasing cycle.

4.2 QUESTIONNAIRE FINDINGS

4.2.1 The purchasing cycle is understood by the procurement employees in the supply chain department.

The mean is 3.2 and the standard deviation is .63

The majority of respondents do agree that the purchasing cycle is understood by the procurement employees.

The purchasing cycle (see section 1.2) which mentions (Bailey et al., 2005:4) that the stages in the purchasing process may be summarised as follows: Recognition of need, specification, make or buy decision, source identification, source selection, contracting, contract management, receipt, possibly inspection, payment and fulfilment of need, this forms the key statement in understanding the purchasing process.

4.2.2. The role of procurement towards value adding in the organisation is understood by the procurement staff.

The mean is 3.4 and standard deviation is .68

The majority of respondents do agree that the role of procurement towards value adding in the organisation is understood by the procurement staff.

Primary activities are those which are directed at the physical transformation and handling (Van Weele, 2010:4) of the final products, which the company delivers to its customers (see section 2.2.3).

4.2.3 The different departments co-operates with the procurement for their mutual benefit.

The mean is 2.60 and the standard deviation is .88

The majority of respondents tend towards a level of agreement that the different departments co-operate with the procurement for their mutual benefit. However, there is greater disagreement than agreement amongst the respondents.

Lateral purchasing and supply (Hugo et al., 2011:35) co-ordination has mutual advantages for both the purchasing function and other functions of the enterprise (See section 2.2.4.2).

4.2.4 The procurement procedures is outlined to functional departments within the organisations.

The mean is 2.8 and the standard deviation is .7.

The majority of respondents tend to agree that the procurement procedure is outlined to functional departments within the organisation.

4.2.5 There is adherence of the procurement policy by the functional departments in the organisation.

The mean is 2.4 and the standard deviation is .99.

The majority strongly disagree that there is adherence of the procurement policy by the functional departments in the organisation.

The aspects of adherence relate to governance of the purchasing organisation and ensuring it adds value to the organisation.

4.2.6 The request for quotes, information and proposals are done through the procurement department.

The mean is 2.7 and the standard deviation is .97

There is a strong tendency towards agreement that the requests for quotes, information and proposals are not done through the procurement department

A few previous studies have positioned (Miocevic et al., 2012:116) purchasing as a secondary and supportive service activity in the traditional corporate value chain. Hence, purchasing processes act as a value nodes that connect key members of the supply chain.

This process will also drive value creation for purchasing and supply management.

4.2.7 The objectives of the purchasing organisations is clearly defined to the stakeholders in the organisation.

The mean is 3.1 and the standard deviation is .67

The majority of respondents agree that the objectives of the purchasing organisation is clearly defined to the stakeholders in the organisation.

This is important as the purchasing should always endeavour to create awareness of its role and market itself to the broader mining community.

The objectives of a business enterprise should always be focused on the profitable satisfaction of customers' needs (see section 2.2.4.3).

4.2.8 Key performance indicators of the procurement staff are directly related to the job criteria.

The mean is 3.1 and the standard deviation is .74.

The majority of respondents agree that the key performance indicators of the procurement staff are directly related to the job criteria.

This is confirmed in (see e 2.3.4) that the purchasing portfolio approach holds that different types of purchases need different sourcing strategies, under pinned by distinct sets of resources and practices.

4.2.9 Orders are placed in time to provide service or goods to customers when required.

The mean is 3.20 and the standard deviation is .69

The majority of respondents agree that orders are placed in time to provide service or goods to customers when needed.

The list of benefits from good purchasing is endless (see section 2.2.4.1).

4.2.10 Procurement staff are equipped to fulfil the buying/contract function.

The mean is 3.1 and the standard deviation is .64

The majority of respondents agree that staff are equipped to fulfil the buying/contract function.

The complexity of the different quadrants (see figure 2.2) requires different approaches to the market. This also changes the skill requirements of the approaches.

4.2.11 Pre-bid meetings with potential suppliers lead to the incorporation of cost savings ideas into scope of work.

The mean is 2.9 and the standard deviation is .83

The majority of respondents agree that pre-bid meetings with potential suppliers lead to the incorporation of cost savings ideas into scope of work. These interactions help with the exchange of information and knowledge between the buyers and suppliers.

4.2.12 There is a clear procurement sourcing strategy supporting the procurement policy.

The mean is 3.2 and the standard deviation is .77

The majority of respondents disagree that there is a clear sourcing strategy supporting procurement policy.

Strategic sourcing is probably the most significant aspect (Rendon, 2005:06) characterising an organization's transformation to supply management (see section 2.3.1).

4.2.13 Selecting the right suppliers is part of the procurement strategy of the organisation.

The mean is 3.3 and the standard deviation is .73

The majority of respondents agree that selecting the right suppliers is part of the procurement strategy of the organisation.

4.2.14 The sourcing strategy supports preferential procurement policy of the organisation.

The mean is 3.3 and the standard deviation is .80

The majority of respondents agree that sourcing strategy supports preferential procurement policy of the organisation (see section 2.3)

While there are several definitions (Giunipero et al., 2012: 260) of sustainability, none have specifically addressed supply management sustainability.

There is emphasize that the mining companies need to embrace sustainability and advance preferential procurement for the purpose of its survival (see section 2.3.1) and spread the wealth of mineral resources.

4.2.15 There is a structured framework in evaluating suppliers.

The mean is 2.8 and the standard deviation is .93.

The majority of the respondents agree that there is a structures framework in evaluating suppliers

This is in reference to (see section 2.3.4.2) and figure 2.5 in determining the supplier capability. There is a variety of factors to consider in the evaluation process of suppliers and not a one process fits all.

4.2.16 There is a clear distinction of the purchasing cost in relation to the production cost.

The mean is 2.6 and the standard deviation is .83.

The majority of respondents agree that there is a clear distinction of the purchasing cost in relation to the production cost.

4.2.17 There is a process to identify repeat purchases.

The mean is 2.8 and the standard deviation is .98.

The majority of respondents agree that there is a process to identify repeat purchases.

4.2.18 Purchases are authorised according to approval framework and there is a purchasing framework to approve orders.

The mean is 3.3 and the standard deviation is .74.

The majority of respondents agree that purchases are authorised according to approval framework and that there is a purchasing framework to approve orders.

4.2.19 Contract management is creating value to the organisation through effective management of service providers.

The mean is 2.9 and the standard deviation .94.

The majority of respondents agree that contract management is creating value to the organisation through effective management of service providers.

Contracts are necessary to govern (Seshadri et al., 2004: 513) foreseeable and specific aspects of the exchange and are widely observed. Contracts directly impact business performance.

Thus, the supply contract becomes a useful solution for SC partners.

Each one tries to (Amrani et al., 2012: 253) avoid highly threatening risks by ensuring the stability and safety of its internal activities through negotiated commitments along a certain time horizon.

4.2.20 Formal contract documentation is in place.

The mean is 3.3 and the standard deviation is .75.

4.2.21 Payments are made in accordance with quoted prices.

The mean is 3.4 and the standard deviation .60.

The majority of respondents agree that payments are made in accordance with quoted prices.

4.2.22 TCO is an effective way of tracking the hidden indirect cost associated with supplier transactions.

The mean is 2.9 and the standard deviation is .76.

The majority of respondents agree that TCO is an effective way of tracking the hidden indirect costs associated with supplier transactions.

4.2.23 Contract management is utilized for creating value to the business through customers.

The mean is 3.0 and the standard deviation is .72.

The majority of respondents agree that contract management is utilized for creating value to the business through customers.

4.2.24 Contracts are used to minimize supply risk in the organisation.

The mean is 3.2 and the standard deviation is .62.

The majority of respondents disagree that contracts are used to minimize supply risk in the organisation.

Supply risk is defined as the (Zsidisin, 2003:222) probability of an incident associated with inbound supply from individual supplier failures or the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety (see section 2.10.6).

4.2.25 Contracts are used to support the procurement strategy of the organisation to ensure continues supply when needed.

The mean is 3.3 and the standard deviation is .59.

The majority of respondents agree that contracts are used to support the procurement strategy of the organisation to ensure continues supply when needed.

4.2.26 Supply risks are shared between the organisation and service providers.

The mean is 3.0 and the standard deviation is .62.

The majority of respondents agree that risks are shared between the organisation and service providers.

4.2.27 Contract terms and conditions are communicated to customers in the organisation.

The mean is 2.9 and the standard deviation is .91.

The majority of respondents disagree that contract terms and conditions are communicated to customers in the organisation.

4.2.28 Contracting suppliers are measured against performance deliverables.

The mean is 2.95 and the standard deviation is .89.

The majority of respondents agree that contracting suppliers are measured against performance deliverables.

4.2.29 Contracts are only extended with suppliers that add value to the organisation.

The mean is 3.0 and the standard .78.

The majority of respondents agree that contracts are only extended with suppliers that add value to the organisation.

4.2.30 Proactive risks management systems are built into the purchasing processes.

The mean is 2.8 and the standard deviation is .77.

The majority of respondents agree that proactive risks management systems are built into the purchasing processes.

Supply risk is defined as the (Zsidisin, 2003:222) probability of an incident associated with inbound supply from individual supplier failures or the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety (see section 2.10.6).

4.2.31 Purchasing risk control is done effectively and monitored on a continuously basis with measures in place.

The mean is 2.7 and the standard deviation is .72.

The majority of respondents agree that purchasing risk control is done effectively and monitored on a continues basis with measures in place.

Supply risks have a significant impact on the firms who fail to protect against them (see section 2.10.7).

4.2.32 Deliverables are clearly indicated in contracts.

The mean is 3.1 and the standard deviation is .85.

The majority of respondents agree that deliverables are clearly indicated in contracts
A good specification (Gideon, 2008: 5) will describe the functionality as well as the technical properties (see section 2.10.3).

4.2.33 Tender procedure is in accordance to the company strategy.

The mean is 3.2 and the standard deviation is .79.

The majority of respondents agree that tender procedure is in accordance to company strategy.

This will ensure that proper guidelines will be followed. The processes will not be flawed.

4.2.34 Supplier performance can be monitored through financial health.

The mean is 2.9 and the standard deviation is .83.

The majority of respondents agree that supplier performance can be monitored through financial health.

4.2.35 Organisation's procurement policy included the social, environmental and economic considerations.

The mean is 3.0 and the standard deviation is .79.

The majority of respondents disagree that the organisation's procurement policy included the social, environmental and economic considerations.

4.2.36 Orders do not take advantage of discounts.

The mean is 2.5 and the standard deviation is 1.00.

The majority of respondents disagree that orders do not take advantage of discounts.

4.2.37 A process of performance evaluation for suppliers is available.

The mean is 2.9 and the mean is .72.

The majority of respondents agree that there is a process of performance evaluation for suppliers.

4.2.38 Sourcing and contract management process is effectively implemented by the purchasing department.

The mean is 3.0 and the standard deviation is .74.

The majority of respondents agree that the sourcing and contract management process is effectively implemented by the purchasing department.

Managing the content is one of the (Gideon 2008: 4) key determinants of successful contracts (2.10.3).

4.2.39 Proper information is available for analyst to do risk analysis.

The mean is 3.0 and the standard deviation is .88.

The majority of respondents agree that there is proper information available for analysts to do risk analysis.

4.2.40 Responsibility to manage risk lies with each of the purchasing staff.

The mean is 2.8 and the standard deviation is .93.

The majority of the respondents agree that the responsibility to manage risk lies with each of the purchasing staff.

4.2.41 Contract increases are validated according to approved price adjustment clause.

The mean is 3.1 and the standard deviation is .87.

The majority of respondents agree that increases are validated according to approved price adjustment clause

Cost- price analysis is an activity that is vital (Zenz, 1981: 325) to the buying process. It involves the analysis of all the factors that enter into price, and the attempt to ensure that the final price is reasonable in terms of the use to which the material is to be put and the competitive situation faced by the buying and selling firms (see section 2.5).

4.2.42 Orders are placed according to customers request and quotes from suppliers.

The mean is 3.1 and the standard deviation is .67.

The majority of respondents agree that orders are placed according to customers request and quotes from suppliers.

A price quoted by the vendor reflects (Zenz, 1981: 325) more than merely costs and profits (see section 2.5).

4.2.43 There is a co-ordinated function in cost reduction opportunities amongst customers throughout.

The means is 2.7 and the standard deviation is .82.

The majority of respondents agree that there is a co-ordinated function in cost reduction opportunities amongst customers throughout (see section 2.6.).

4.2.44 Purchasing managers focus on indirect cost and life-cycle cost besides the actual prices of service providers.

The mean is 2.7 and the standard deviation is .73.

The majority of respondents agree that purchasing managers focuses on indirect cost and life-cycle cost besides the actual prices of service providers.

4.2.45 There is an internal employee perception of service quality of the purchasing department.

The mean is 3.0 and the standard deviation is .69.

The majority of respondents agree that there is an internal employee perception of service quality of the purchasing department.

4.3 Research Study Conclusion

This study contributes to the literature on purchasing and supply management by documenting the existence of an underlying set of purchasing and supply management processes and procedures in a mine. Therefore it is important to have a variety of process and procedures in place towards value adding. This is confirmed by Hallikas et al, (2012) that delivering value requires more than one attribute.

Therefore the survey study determined a variety of processes and procedures in the purchasing and supply management processes in the purchasing cycle. The survey statements were made to determine the variety of factors as per the purchasing and supply management processes and procedures concentrated on purchasing aspects. The following statements were made to determine and establish purchasing process and procedures as per literature review.

Statement 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17

The following statements were made to establish contract management processes and procedures.

Statement 19, 20, 23, 24, 25, 27, 28, 29, 32, 33, 38

The following statements were made to establish risk management processes and procedures.

Statement 24, 29, 31, 39, 40

The following statements were made to establish performance management processes and procedures.

Statement 34, 37

The following statements were made to establish sustainability management processes and procedures.

Statement 35

The following statements were made to establish cost reductions management processes and procedures.

Statement 16, 43, 41, 44

The following statements were made to establish sourcing strategies

Statement 12,

The following statements were made to establish value adding strategies.

Statement 2

The purchasing function acts as (Cerullo et al., 1997:656) the primary agent for acquiring goods and services used in an organization, and the price tag for inefficiencies and flawed processes can be steep. In fact, purchasing department effectiveness and economy are critical, since there is a direct connection to the bottom line of any organization, representing half of all expenditures.

Services and products nowadays (Hallikas et al., 2012:1) are becoming increasingly intertwined and the competition increasingly global and thus delivering customer value is not as simple as it used to be. The common denominator here is that delivering value through products and services tends to involve more attributes than first meet the eye.

These PSM activities drive the performance of the PSM function in terms of cost saving, better quality (Saranga et al., 2010:197) of products, or co-innovations with suppliers. However, the ultimate goal of a PSM function from the senior management perspective is the role it plays in improving the financial performance at the corporate level. Therefore, the need for an alignment between purchasing strategies and corporate (strategies cannot be over emphasized in the current economic scenario where firms are plagued by price pressures and margins are driven primarily through cost savings.

Knight (2012:1) holds that Kraljic's (1983) purchasing portfolio approach holds that different types of purchases need different sourcing strategies, under pinned by distinct sets of resources and practices.

Purchasing managers need to reduce downside risk through single sourcing, early supplier involvement, out sourcing and partnership agreements.

Purchasing managers (Van Weele, 2010: 4) must challenge suppliers to provide superior value informed by a shared knowledge of future investment plans to drive supply chain integration. Relationships with suppliers become strategic.

Its essence is to look each process associated with purchasing as a value change process, which either is a positive value or negative value.

The creation value of supply chain is mainly reflected in the enterprises' financial value, customer value and social value. The core principles of creating value of supply chain is reducing the cost of enterprise internal existed on supply chain by the co-operation between the enterprises and functional departments, as increasing the financial value of the enterprise, while at the same time improving customer service level, realizing customer value, so that making the overall value to be promoted.

Value creation is about delivering the service or product with all the related process and procedures that are included on how the asset being purchased or service

rendered in the most efficient and cost effective way to the end user for the customer's business processes in time and within agreed specification.

4.4 PROPOSED INTEGRATED FRAMEWORK FOR PURCHASING AND SUPPLY MANAGEMENT

ATTACHMENT FIGURE 4.1 proposes an integrated framework based on the literature review and empirical study to assist the mine action of purchasing and supply management.

1. The model starts with planning, which will determine the need and budget available.
2. The next process will be the drafting of the scope and the needs analysis.
3. This would be followed by the category profile as per the Kraljic Model.
4. Relevant industry analysis or market intelligence would be gathered which will also determining the suppliers and benchmarking in the industry.
5. The proposed selected suppliers will be identified.
6. These suppliers would be approached to tender/quote for the proposed service or goods.
7. After submission of quotes/ tender a supplier capability assessment and risk assessments will be done on the suppliers.
8. Determine which of these suppliers would suit the need of the organisation and add value to the mine, followed by negotiations.
9. The contract deliverables would be discussed including performance measurements of the contract life cycle.
10. Contract would then be awarded to successful supplier.
11. Post contract evaluations would be done, including monitoring mechanisms to be implemented as per the contract deliverable and establishment of SLA's.
12. Regular feedback sessions.

4.5 RECOMMENDATIONS

This chapter provided the conclusions and recommendations of the empirical research for this study.

Conclusions were presented in regards to the respondents of the survey, correlation between those with matric/certificate/advance and those with degree/hons/mba.

The recommendations of the study were presented by means of an integrated framework that mines can use as a guide to establish and draft purchasing and supply management process and procedures towards value adding.

To implement the framework the following recommendations were made:

- A mine must constantly monitor the impact of social, economic and environmental concerns in the external environment and internal environment.
- Constantly monitor and be aware of new trends in the market, possible political and legal interventions or policies, new technologies, competitor moves, best practices of purchasing and supply management processes and procedures and any other relevant information. This information is to be made available to all stakeholders.
- Contracts must have clear outlined deliverables and performance measurable criteria and communicated to the relevant stakeholders.
- The necessary governance process should be in place that regulates order placing and the releasing of orders per their values.
- Clear communication of the sourcing strategy, procurement policy, preferential policy and contract management process and procedures.
- Develop a risk-taking policy and framework and identify areas where risk-taking would be acceptable as well as the level of risk that would be tolerated.
- Purchasing and Supply management staff needs to constantly develop and improve their skills by staying abreast of the best purchasing practices, latest technologies in purchasing and supply management.

- Risks Management Systems, tender procedures should be in place and clearly communicated to all relevant internal employees of the mine and included in the purchasing and supply management policy.
- Industry analysis, risk analysis and performance measurements must become the strategic way of thinking in purchasing and supply management process and procedures towards value adding in the mine.
- Purchasing and Supply management should always be aware of costs and procure at the best quality related prices. Regular contact meetings with end users to ensure scopes and requirements are understood by all stakeholders involved in the process and measure the value adding.
- Analyse and evaluate the control mechanisms within agribusinesses based on a number of questions that is to be asked.
- Apply a model of supplier evaluation capability techniques and supplier selection processes to enhance the value adding of supply and purchasing management and control or minimize risks.
- Information should be available and measurable of all purchasing and supply management processes and procedures to the relevant employees.
- Implement a formal innovation process to reduce costs between purchasing and supply management and the functional departments that goals and objective driven.

4.6 Chapter Summary

The results of this study showed that no practical significant relationships could be found between the respondents with matric/certificate /advanced certificate and those with diploma/degree/honours/MBA.

The findings concerning the educational qualifications variables are supported by the literature where no correlations have been found between skills profiling and portfolio management (Hallikas et al., 2013:1).

No evidence in purchasing literature could be found for the findings concerning the educational variables of highest qualifications and lowest qualifications in answering the questionnaire. The questionnaire and study focused on determining the process and procedures that is in place and being implemented. The recommendations were based on the outcome of the research and literature review.

This framework concludes the gaps that were discovered in the strategy of the purchasing and supply management process and procedures of the mine.

In the purchasing literature, at least, if not in practice, there is a missing link: Skills profiling is not connected to portfolio management, despite the prevalence of both in research and practice. This points (Knight, 2013:2) to a key gap, and an opportunity to develop knowledge and techniques to support the design and development of complex, dynamic purchasing organizations.

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ATTACHMENT 4.1 PROPOSED PURCHASING AND SUPPLY MANAGEMENT FRAMEWORK MODEL IN A MINE

